VOLUME I

Pure Water Monterey
A Groundwater Replenishment Project

CONSOLIDATED FINAL ENVIRONMENTAL IMPACT REPORT

FOR THE

PURE WATER MONTEREY GROUNDWATER REPLENISHMENT PROJECT

  

JANUARY 2016

Prepared for:

Monterey Regional Water Pollution Control Agency
in partnership with
Monterey Peninsula Water Management District

Partners for Pure Water Solutions
MRWPCA
Monterey Peninsula Water Management District

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Pure Water Monterey
Groundwater Replenishment Project

Final Environmental Impact Report

State Clearinghouse No. 2013051094

October 2015

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LETTERS AND EMAILS RECEIVED BY THE MRWPCA BOARD AT THE OCTOBER 8, 2015 HEARING

Land Watch of Monterey County
League of Women Voters
Marina Coast Water District
Nellor Environmental Associates and Denise Duffy and Associates, Inc.
The Otter Project
Michael Salerno (email)
Surfrider Foundation

PRESENTATION TO BOARD REGARDING EIR CERTIFICATION AND PROJECT APPROVAL

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LIST OF ACRONYMS

Acronym	Definition
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ACM	Asbestos Containing Building Materials
ADT	Average Daily Traffic
AE	Aesthetics
AF	Acre foot, or acre feet
AFY	acre feet per year
AG	Agriculture
AIA	Airport Influence Area
ALUC	Airport Land Use Commission
AMBAG	Association of Monterey Bay Area Governments
AOP	Advanced Oxidation Process
AP	Air Pollutant
APE	Area of Potential Effects
APS	Auxiliary Power System
AQ	Air Quality
AQMP	Air Quality Management Plan
ARDTP	Archaeological Research Design and Treatment Plan
ASBS	Area of Special Biological Significance
ASCE	American Society of Civil Engineers
ASR	Aquifer Storage and Recovery
ASTM	American Society for Testing and Materials
AWT	Advanced Water Treatment Plant
AWWA	American Water Works Association
BAF	Biologically Active Filtration
BI	Beneficial Impacts
BIOL	Preservation of Biological Habitats of Special Significance
BMP	Best Management Practices
BO	Biological Opinion
CA	California
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal OSHA	California Occupational Safety and Health Administration
CALFIRE	California Department of Forestry and Fire Prevention
CARB	California Air Resources Board
CAWD	Carmel Area Wastewater District

Acronym	Definition
CBC	California Building Code
CC	Community Commercial
CCA	California Coastal Act
CCAA	California Clean Air Act
CCAMP	Central Coast Ambient Monitoring Program
CCC	California Coastal Commission
CCLEAN	Central Coast Long-term Environmental Assessment Network
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEDEN	California Environmental Data Exchange Network
CEG	Certified Engineering Geologist
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CFC	California Fire Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH	Heavy Commercial
CHRIS	California Historical Resources Information System
CIWMB	California Integrated Waste Management Board
CLUP	Comprehensive Land Use Plan
CMC	Criterion Maximum Concentration
CNEL	Community Noise Equivalent Level
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	Office and Professional District
COLD	Cold Fresh Water Habitat
COMM	Commercial and Sport Fishing
CPUC	California Public Utilities Commission
CR	Cultural Resources

Acronym	Definition
CRG	Community Regional Commercial
CRHR	California Register of Historical Resources
CRLF	California Red Legged Frog
CRMP	Coordinated Resource Management and Planning
CRPR	California Rare Plant Ranks
CSC	California Species of Special Concern
CSIP	Castroville Seawater Intrusion Project
CSU	California State University
CSUMB	California State University Monterey Bay
CTP	Carbon Tetrachloride Plume
CTS	California Tiger Salamander
CUPA	California Unified Program Agency
CWA	Clean Water Act
CZ	Coastal Zone
CZARA	Coastal Zone Act Reauthorization Amendments
CZ-MU	Coastal Planned Mixed Use
DD&A	Denise Duffy & Associates
DDW	Division of Drinking Water
DEET	N-diethyl-metatoluamide
DEIR	Draft Environmental Impact Report
DIW	Deep Injection Well
Dm	minimum probable initial dilution
DNL	Day/Night Noise Level
DNT	dinitrotoluene
DOGGR	Division of Oil, Gas, and Geothermal Resources
DPM	Diesel Particulate Matter
DPS	Distinct Population Segment
DSOD	Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DWEL	Drinking Water Equivalent Level
DWQ	Division of Water Quality
DWR	Department of Water Resources
EC	Electrical Conductivity (a measure of salinity of water)
EDB	1,2-Dibromoethane
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EN	Energy
EPA	Environmental Protection Agency

Acronym	Definition
ESA	Endangered Species Act
ESCA	Environmental Services Cooperative Agreement
ESHA	Environmental Sensitive Habitat Area
ESNERR	Elkhorn Slough National Estuarine Research Reserve
EST	Estuarine Habitat
ESU	evolutionarily significant unit
FAA	Federal Aviation Administration
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FMMP	Farmland Mapping and Monitoring Program
FMP	Forest Management Plan
FO	Fort Ord
FODSP	Fort Ord Dunes State Park
FORA	Fort Ord Reuse Authority
FOSET	Findings of Suitability for Early Transfer
FOST	Finding of Suitability to Transfer
FPPA	Farmland Protection Policy Act
FRAP	Fire and Resource Protection Program
FRSH	Freshwater Replenishment
GAMA	Groundwater Ambient Monitoring And Assessment
GE	Geotechnical Engineer
GHG	Greenhouse Gas
GIS	Geographic Information System
GPS	Global Positioning System
GWMP	Groundwater Management Plan
GWR	Groundwater Replenishment
HCH	Hexachlorocyclohexane
HCP	Habitat Conservation Plan
HMMP	Habitat Mitigation and Monitoring Plan
HMP	Habitat Management Plan
HMX	cyclotetramethylene tetranitramine
HSP	Health and Safety Plan
HVAC	Heating, Ventilating, and Air Conditioning
IA	Implementing Agreement
IBC	International Building Code
IND	Industrial Use
IPCC	Intergovernmental Panel on Climate Change
IRWM	Integrated regional water management

Acronym	Definition
ISAC	Invasive Species Advisory Committee
ITCD	Information Technology and Communications Design
LAFCO	Local Agency Formation Commission
LCP	Local Coastal Program
LED	Light-emitting Diode
LID	Low Impact Design
LLC	Limited Liability Company
LOS	Level of Service
LOX	Liquid Oxygen
LRA	Local Responsibility Area
LS	Less than Significant
LSM	Less than Significant with Mitigation
LU	Land use
LUD	Land use and Development
LUST	Leaking Underground Storage Tank
MBNMS	Monterey Bay National Marine Sanctuary
MBTA	Migratory Bird Treaty Act
MBUAPCD	Monterey Bay Unified Air Pollution Control District
MCC	Monterey County Code
MCHD	Monterey County Health Department
MCL	Maximum Contaminant Level
MCRMA	Monterey County Resource Management Agency
MCWD	Marina Coast Water District
MCWRA	Monterey County Water Resources Agency
MF	membrane filtration
MGD	Million Gallons per Day
MIGR	Migration of Aquatic Organisms
MMMP	Multi-Modal Mobility Plan
MMPA	Marine Mammal Protection Act
MMT	Million Metric Tons
MOU	Memorandum of Understanding
MPUSD	Monterey Peninsula Unified School District
MPWMD	Monterey Peninsula Water Management District
MPWSP	Monterey Peninsula Water Supply Project
MRS	Munitions Response Site
MRWMD	Monterey Regional Wastewater Management District
MRWPCA	Monterey Regional Water Pollution Control Agency
MRZ	Mineral Resource Zone
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSL	Mean Sea Level
MST	Monterey-Salinas Transit
MT	Metric Tons
MUN	municipal and domestic supply
MURP	Model Urban Runoff Program
MW	Megawatts
MW-*X*	monitoring well - X (where X is a # identifier)
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plans
NCFPD	North County Fire Protection District
ND	No Data Available
NDMA	N-nitrosodimethylamine
NEPA	National Environmental Policy Act
NG	nitroglycerine
NHPA	National Historic Preservation Act
NI	No Impact
NL	Notification Level
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NR	National Register
NRC	National Research Council
NRCS	Natural Resources Conservation Services
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Units
NV	Noise and Vibration
OE	Ordnance and Explosives
OEHHA	Office of Environmental Health Hazards Assessment
OES	Monterey County Office of Emergency Services
OHP	California Office of Historic Preservation
OS	Open Space
OSLU	Open Space Land Use
OSR	Open Space Recreational
OU	Operable Unit

Acronym	Definition
OUCTP	Operable Unit- carbon tetrachloride plume
PAR	Public Access and Recreation
PC	Planned Commercial
PFC	Perfluorocarbons
PG&E	Pacific Gas & Electric
PG/40-UR-D-S	Permanent Grazing, 40 Acres Per Unit, Urban Reserve with Design Control and Site Plan Review Overlays
PH	Population & Housing
PHG	Public Health Goal
PI	Public/Institutional
POTW	Publically Owned Treatment Works
PPV	Peak Particle Velocity
PQP	Public/Quasi Public
PRC	Public Resources Code
PRTIW	Paso Robles Test Injection Well
PS	Public Services
PSD	Proposed Prevention of Significant Deterioration
PSP	Public/Semi Public
PWA	Public Works Administration
QA/QC	Quality Assurance/Quality Control
RARE	Rare, Threatened, or Endangered Species
RC	Resource Conservation
RCNM	Roadway Construction Noise Model
RDX	cyclotrimethylene trinitramine
REC -1	Water Contact Recreation
REC -2	Non-Contact Water Recreation
RH	High Density Residential
RHA	Federal Rivers and Harbors Appropriations Act
RHNA	Regional Housing Needs Allocation
RL	Reporting Level
RM	River Mile
R-MH	Marina Heights Residential
RMS	Root Mean Square
RO	Reverse Osmosis
ROG	Reactive Organic Gases
ROW	Right-of-Way
RP	Reuse Plan
RRT	Response Retention Time
RS-8	Single Family Residential
RTP	Regional Treatment Plant

Acronym	Definition
RUWAP	Regional Urban Water Augmentation Project
RWD	Reports of Waste Discharge
RWQCB	Regional Water Quality Control Board
SAR	Sodium Absorption Rate
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCCC	South-Central California Coastal
SCSD	Seaside County Sanitation District
SDC	Seismic Design Category
SGWB	Seaside Ground Water Basin
SHELL	Shellfish Harvesting
SHPO	California State Historic Preservation Officer
SMARA	Surface Mining and Reclamation Act of 1975
SMCA	State Marine Conservation Area
SMGB	State Mining and Geology Board
SMR	State Marine Reserve
SNMP	Salt and Nutrient Management Plans
SP-UV	Specific Plan- University Village
SPWN	Spawning, Reproduction, and/or early development
SRA	Designated State Responsibility Area
SRDF	Salinas River Diversion Facility
SSURGO	Soil Survey Geographic
STF	Salinas Treatment Facility
SU	Significant Unavoidable
SUM	Significant and Unavoidable with Mitigation
SVP	Society of Vertebrate Paleontology
SVRP	Salinas River Diversion Facility
SWMP	Stormwater Management Plan
SWPPP	Storm Water Pollution Prevention Plans
SWRCB	State Water Regional Control Board
TAC	toxic air contaminant
TDS	Total Dissolved Solids
TEM	Tembladero Slough at Preston Road
TMDL	Total Maximum Daily Load
TNB	trinitrobenzene
TNT	2,4,6-trinitrotoluene
TOC	Total Organic Carbon
TSS	Total Suspended Solids
UCSC	University of California Santa Cruz

Acronym	Definition
UD	Urban Design
UIC	Underground Injection Control
UPRR	Union Pacific Railroad
USA	United States of America
USACE	US Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UV	ultra-violet
VAF	Visitor Accommodating Facilities
VFD	Variable Frequency Drives
V-FO	Visitor Serving Commercial
VOC	Volatile Organic Compound
VZW	Vadose Zone Well

Acronym	Definition
WARM	Warm Fresh Water Habitat
WDR	Waste Discharge Requirements
WILD	Wildlife Habitat
WR	Water Rights
WRCC	Western Regional Climate Center
WRI	Water Resources Inc.
WSE	Water Surface Elevations
WY	Water Year
ZID	Zone of initial dilution

SUMMARY OF THE ENVIRONMENTAL IMPACT REPORT

S.1 INTRODUCTION

This Environmental Impact Report (EIR) assesses the potential environmental impacts of the Pure Water Monterey Groundwater Replenishment Project proposed by the Monterey Regional Water Pollution Control Agency (MRWPCA) in partnership with the Monterey Peninsula Water Management District[1]. This document has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines. MRWPCA is the lead agency for this CEQA process. Inquiries about the project and the CEQA process should be directed to:

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S.2 PROJECT OBJECTIVES

The primary objective of the Proposed Project is to replenish the Seaside Groundwater Basin with 3,500 AFY of purified recycled water to replace a portion of CalAm's water supply as required by state orders. To accomplish this primary objective, the Proposed Project would need to meet the following objectives:

- Be capable of commencing operation, or of being substantially complete, by the end of 2016 or, if after 2016, no later than necessary to meet CalAm's replacement water needs;
- Be cost-effective such that the project would be capable of supplying reasonably-priced water; and
- Be capable of complying with applicable water quality regulations intended to protect public health.

Secondary objectives of the Proposed Project include the following:

---

[1] The term "replenishment" in the title of the project and elsewhere in the EIR was intended to maintain consistency with the relevant water quality regulatory programs under the jurisdiction of the State Water Resources Control Board (SWRCB) – Division of Drinking Water (DDW) (i.e., this agency references the requirements as the Groundwater Replenishment Regulations (or DPH-14-003E Groundwater Replenishment Using Recycled Water)). Use of the word replenishment is not intended to be defined to match the definition of *artificial* replenishment in the Seaside Groundwater Basin adjudication (Case *M66343, Decision, III., A., 3., March 27, 2006 at page 11)* because as proposed, the project would not offset the cumulative over production from the Seaside Basin by producers in the basin.

- Provide additional water to the Regional Treatment Plant that could be used for crop irrigation through the Salinas Valley Reclamation Plant and Castroville Seawater Intrusion Project system;
- Develop a drought reserve to allow the increased use of Proposed Project source waters as crop irrigation within the area served by the Castroville Seawater Intrusion Project during dry years
- Assist in preventing seawater intrusion in the Seaside Groundwater Basin;
- Assist in diversifying Monterey County's water supply portfolio.

S.3 SUMMARY OF THE PROPOSED PROJECT

The Pure Water Monterey Groundwater Replenishment Project is a water supply project that will serve northern Monterey County. The project will provide purified recycled water for recharge of a groundwater basin that serves as drinking water supply, and recycled water to augment the existing Castroville Seawater Intrusion Project's crop irrigation supply. The project is jointly sponsored by the Monterey Regional Water Pollution Control Agency (MRWPCA) and the Monterey Peninsula Water Management District (Water Management District), and also includes participation by the City of Salinas, the Marina Coast Water District, and the Monterey County Water Resources Agency. The Proposed Project location and facilities are shown in **Figure S-1**.

The project includes the collection of a variety of new source waters and conveyance of that water to the Regional Wastewater Treatment Plant (Regional Plant) for treatment and recycling. The water would then be used for two purposes: replenishment of the Seaside Groundwater Basin[2] with purified recycled water to replace some of CalAm's existing drinking water supplies; and provision of additional recycled water supply for agricultural irrigation in northern Salinas Valley (both described below).

The Regional Plant is located two miles north of the City of Marina and operated by MRWPCA. The Regional Plant currently collects wastewater and some stormwater from its eleven member service area, and treats a large portion of this incoming flow to a tertiary treatment standard that enables it to be used for unrestricted agricultural irrigation purposes in the northern Salinas Valley. Flow that is not sent to the tertiary treatment system is discharged through an outfall to Monterey Bay after receiving secondary treatment.

The new source waters would supplement the existing incoming wastewater flows, and would include the following: 1) water from the City of Salinas agricultural wash water system, 2) stormwater flows from the southern part of Salinas and the Lake El Estero facility in Monterey, 3) surface water and agricultural tile drain water that is captured in the Reclamation Ditch and Tembladero Slough, and 4) surface water and agricultural tile drain water that flows in the Blanco Drain. Most of these new source waters would be combined within the existing wastewater collection system before arriving at the Regional Plant; water from Blanco Drain would be conveyed on its own directly to the Regional Plant. A conceptual flow schematic of the existing and proposed systems to bring source water to the Regional Treatment Plant is shown in **Figure S-2**. The combined flow would be treated

[2] A portion of the Seaside Area Subbasin of the Salinas Valley Groundwater Basin as defined by the Department of Water Resources (DWR) that is referred to herein as Seaside Groundwater Basin or Seaside Basin.

using the existing Regional Plant processes and then further treated to recycle it for the following two purposes:

- **Replenishment of the Seaside Groundwater Basin.** The project would enable California American Water Company (CalAm) to reduce its diversions from the Carmel River system by up to 3,500 acre-feet per year by injecting the same amount of highly-treated water into the Seaside Basin. This purified recycled water would be produced from a new advanced water treatment facility that would be constructed at the Regional Plant. This new facility would treat some of the new blend of source waters described above. The "product water" from the advanced treatment plant would be conveyed to and injected into the Seaside Basin via a new pipeline and new well facilities. The purified recycled water would then mix with the existing groundwater and be stored for future urban use by CalAm, thus enabling a reduction in Carmel River system diversions by the same amount.
- **Additional recycled water for agricultural irrigation in northern Salinas Valley.** Currently, the only sources of supply for the existing water recycling facility at the Regional Plant (called the Salinas Valley Reclamation Plant) are municipal wastewater and small amounts of urban dry weather runoff. Municipal wastewater flows have declined in recent years due to aggressive water conservation efforts by the MRWPCA member entities. By increasing the amount and type of source waters entering the existing wastewater collection system, additional recycled water can be provided for use in the Castroville Seawater Intrusion Project's agricultural irrigation system. It is anticipated that during normal and wet years approximately 4,500 to 4,750 acre-feet per year of additional recycled water supply could be created for irrigation purposes. During drought years, as much as 5,900 AFY could be created for crop irrigation. Some modifications would be made to the water recycling facility to optimize and enhance the delivery of recycled water to growers.

A conceptual process flow schematic for the Proposed Project flows at the Regional Treatment Plant is provided in **Figure S-3**.

The project would also include a drought reserve component to support use of the new supply for crop irrigation during dry years. The project provides for an additional 200 acre-feet per year of purified recycled water that would be injected in the Seaside Basin in wet and normal years for up to five consecutive years. This will result in a "banked" drought reserve totaling up to 1,000 acre feet. During dry years, the Proposed Project could provide less than 3,500 acre feet of water to the Seaside Basin; however, CalAm would be able to extract the banked water to make up the difference to its supplies, such that its extractions and deliveries would not fall below 3,500 acre-feet per year. The source waters that are not sent to the advanced treatment facility during dry years would be sent to the Salinas Valley Reclamation Plant to increase crop irrigation supplies for the Castroville Seawater Intrusion Project.

The Pure Water Monterey Groundwater Replenishment Project would require modifications to existing facilities and construction of new physical facilities, briefly listed below.

- **Source water diversion and storage.** New facilities would be required to divert and convey the new source waters through the existing municipal wastewater collection system and to the Regional Plant.

- **Treatment facilities at Regional Plant.** A new advanced water treatment plant would be constructed at the Regional Plant site. This facility would include a state-of-the-art treatment system that uses multiple membrane “barriers” to purify the water, product water stabilization to prevent pipe corrosion due to water purity, a pump station, and a brine and wastewater mixing facility. There would also be modifications to the Salinas Valley Reclamation Plant to optimize and enhance the delivery of recycled water to growers.
- **Product water conveyance.** New pipelines, a pump station and appurtenant facilities would be constructed to move the product water from the Regional Plant to the Seaside Groundwater Basin for injection.
- **Injection well facilities.** The injection facilities would include new wells (in the shallow and deep aquifers), back-flush facilities, pipelines, electricity/ power distribution facilities, and electrical/motor control buildings.
- **Distribution of groundwater from Seaside Basin.** Two new CalAm water distribution system pipelines would be needed to deliver the extracted groundwater to CalAm customers.

Construction of the Proposed Project is anticipated to require approximately 18 months, plus three months of testing and start-up, and the project is currently planned for initial operation by late 2017. MRWPCA is evaluating the use of alternative construction approaches, such as design-build, to expedite the construction schedule.

S.4 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table S-1 summarizes the impacts of the Proposed Project. A summary of the cumulative impacts and the Proposed Project contribution to those impacts, as applicable, is presented in **Table S-2**. For each impact considered to be significant or potentially significant, the table summarizes the recommended mitigations. **Tables S-1** and **S-2** are intended to provide a summary of the Proposed Project impacts and mitigation measures that are described in detail in **Chapter 4, Environmental Impacts and Mitigation Measures**; please refer to that section for complete discussion.

S.5 ALTERNATIVES TO THE PROPOSED PROJECT

This chapter presents the alternatives analysis for the Proposed Pure Water Monterey Groundwater Replenishment Project. This section sets forth the objectives of the Proposed Project, summarizes its significant impacts, discusses the alternatives considered but eliminated from further analysis, describes the range of alternatives considered, and compares the impacts of the alternatives evaluated to the impacts of the Proposed Project.

The State CEQA Guidelines, Section 15126.6(a), state that an EIR must describe and evaluate a reasonable range of alternatives to the Proposed Project, or to the location of the project, that would feasibly attain most of the project’s basic objectives, but that would avoid or substantially lessen any significant adverse effects of the project. An EIR is not required to consider every conceivable alternative to a Proposed Project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The CEQA Guidelines further state that the specific alternative of “no project” shall also be evaluated. The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the impacts of the Proposed Project. This chapter is organized into the following sections:

Section 6.1, Introduction and Approach, provides an overview of CEQA requirements pertaining to the identification and analysis of alternatives, and the Chapter organization. This section also includes the objectives of the Proposed Project and a summary of significant impacts of the Proposed Project by topical area (**Table 6-1**). The section concludes with the identification of CEQA alternatives evaluated in this Chapter.

Section 6.2, Alternatives Considered but Eliminated*,* discusses the alternatives that were considered, but eliminated from further analysis in this EIR. This section is organized into two parts.

6.2.1 Alternative Water Supplies Considered but Eliminated

6.2.2 Alternative Components of the Proposed Project Considered but Eliminated

Section 6.3, Alternatives Analysis*,* describes the alternatives to the Proposed Project, compares the impacts of the alternatives to the impacts of the Proposed Project, and also evaluates the alternatives' ability to accomplish the project objectives. This section is organized into three parts:

6.3.1 No Project

6.3.2 Alternatives to Proposed Project

6.3.1.1 Reduced Seaside Basin Replenishment Alternative

6.3.1.2 Alternatives to Source Water Diversion and Use

6.3.1.3 Alternatives for Product Water Conveyance

6.3.1.4 Alternatives to CalAm Distribution System Pipelines

6.3.3 Conclusion of Alternatives Analysis

Section 6.4, Environmentally Superior Alternative*,* identifies an environmentally superior alternative, as required by CEQA. The following sections provide an overview of the conclusions of the Alternatives to the Proposed Project analyses.

Conclusion of Alternatives Analysis

This section summarizes the comparative environmental analysis of the No Project Alternative to the Proposed Project and also discusses several combinations of alternatives that were found to reduce environmental impacts while still meeting most of the project objectives. These are called Alternative A, Alternative B, and Alternative C in Table 6-6 of the Draft EIR for brevity purposes.

Alternative A: Reduced Seaside Basin Replenishment and Alternative Monterey Pipeline

The Reduced Seaside Basin Replenishment Alternative would reduce the amount of water for Seaside Basin replenishment by 500 AFY compared to the Proposed Project (i.e., 3,000 AFY rather than 3,500 AFY of purified recycled water would be produced, conveyed to, and injected into the Seaside Basin, for later extraction by CalAm). The need to divert source waters would be reduced by approximately 600 AFY which could be achieved by eliminating one or more source water diversion sites, or by constructing and operating all of the source water diversions, but operating them with a lower total diversion amount.

If the Reduced Seaside Basin Replenishment Alternative were combined with the Alternative Monterey Pipeline (i.e., rather than the Proposed Transfer and Monterey Pipelines), numerous other significant construction impacts would be reduced due to reduced construction areas and activities, and the Proposed Project may be implemented more quickly, better meeting the project timeframe objective. Table 6-6 of the Draft EIR provides an overview of environmental impacts of this combined alternative (called Alternative A) compared to the Proposed Project.

Alternative B: Reduced Source Water Alternative #2 (No Tembladero Slough) and Alternative Monterey Pipeline

Reduced Source Water Alternative # 2 was found to avoid the significant and unavoidable noise impact at the Tembladero Slough diversion due to exceedances of the County's noise level ordinance; however, the alternative would not meet the project objectives as fully as the Proposed Project. Specifically, the Reduced Source Water Alternative #2 would only provide up to 5,200 AFY for the proposed Crop Irrigation component in some drought years (compared to up to 5,900 AFY under the Proposed Project).

If the Reduced Source Water Alternative #2 was combined with the Alternative Monterey Pipeline (i.e., rather than the Proposed Transfer and Monterey Pipeline), numerous other significant construction impacts would be reduced due to reduced construction areas and activities. Because the Alternative Monterey Pipeline avoids the Coastal Zone, it may be implemented more quickly than the Proposed Monterey Pipeline, better meeting the project timeframe objective. Table 6-6 of the Draft EIR provides an overview of environmental impacts of this combined alternative (called Alternative B) compared to the Proposed Project.

Alternative C: Reduced Source Water Alternative #7 (Salinas Source Waters Only) and Alternative Monterey Pipeline

Reduced Source Water Alternative #7 (Salinas Source Waters Only) was found to avoid the significant and unavoidable noise impact at the Tembladero Slough Diversion, in addition to reducing environmental impacts related to source water diversions from surface waters, such as changes in flow, induced water level changes, and direct and indirect impacts on biological resources (albeit the latter would be less-than-significant under the Proposed Project). The Reduced Source Water Alternative #7 would not meet the Crop Irrigation objective to the extent that the Proposed Project would; in fact it would provide very little or no augmentation of the existing supplies to the CSIP area.

If the Reduced Source Water Alternative #7 was combined with the Alternative Monterey Pipeline (i.e., rather than both the Proposed Transfer and Monterey Pipelines), numerous other significant construction impacts would be reduced due to reduced construction areas and activities. Because the Monterey Pipeline avoids the Coastal Zone, it may be implemented more quickly than the Proposed Project, better meeting the project timeframe objective. Table 6-6 of the Draft EIR provides an overview of environmental impacts of this combined alternative (called Alternative C) compared to the Proposed Project.

Environmentally Superior Alternative

The CEQA Guidelines (Section 15126.6(e)(2)) require that an environmentally superior alternative be identified among the alternatives considered. According to CEQA Guidelines section 15126.6(e), if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The environmentally superior alternative is generally defined as the alternative that would result in the fewest adverse environmental impacts on the project site and surrounding area.

Table 6-3 of the Draft EIR presents a comparison of impacts from eliminating each of the proposed new source waters. Table 6-4 of the Draft EIR presents a comparison of impacts of the Product Water Conveyance Options. Table 6-5 of the Draft EIR presents a comparison of impacts of the Proposed CalAm Distribution System: Transfer and Monterey Pipelines to the Alternative Transfer and Monterey Pipelines. Table 6-6 of the Draft EIR presents a comparison of impacts between the Proposed Project, the No Project Alternative, the Reduced Seaside Basin Replenishment Alternative, Reduced Source Water Alternative #2 (No Tembladero Slough) plus the Alternative Monterey Pipeline, and the Reduced Source Water Alternative #7 (No Surface Water Diversions) plus the Alternative Monterey Pipeline.

Of the alternatives considered, the No Project Alternative would eliminate all the identified significant impacts, but would not attain any of the project objectives. All of the impacts of the Proposed Project can be reduced to less-than-significant levels with mitigation except for significant and unavoidable noise impacts associated with construction of the Tembladero Slough Diversion and nighttime construction of the CalAm Distribution System: Monterey Pipeline. The Reduced Source Water #2 (No Tembladero Slough) would eliminate the significant and unavoidable noise impact associated with construction at that site. The Alternative Monterey Pipeline would not necessarily eliminate the significant and unavoidable noise impact from nighttime construction of the Monterey Pipeline; however, that alternative would eliminate the need for the Transfer Pipeline, which would eliminate all impacts associated with construction of the Transfer Pipeline. Accordingly, other than the No Project Alternative, the Environmentally Superior Alternative would be the Reduced Source Water (No Tembladero Slough) Alternative combined with the Alternative Monterey Pipeline.

S.6 AREAS OF CONTROVERSY

Based on the comments received during the Notice of Preparation scoping periods, the following key topics and areas of controversy have been identified:

- alternatives to the proposed project
- relationship of the proposed project to the Monterey Peninsula Water Supply Project
- source water diversion methods and impacts
- effectiveness of proposed advanced water treatment facility
- disposal of reverse osmosis concentrate to the existing MRWPCA ocean outfall
- product water conveyance facility siting and impacts
- quality and quantities of purified recycled water to be replenished

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Table S-1
Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
KEY TO ACRONYMS: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation; SU – Significant and Unavoidable; BI- Beneficial Impact														
Aesthetics (AE)														
AE-1: Construction Impacts on Scenic Views, Scenic Resources and Visual Quality of the Surrounding Areas. Proposed Project construction would not result in substantial effects on scenic views, scenic resources or the visual character of the areas surrounding Proposed Project facilities.	LS	NI	LS	LS	NI	LS	NI	LS	LS	LS	LS	LS	**LS**	None required.
AE-2: Construction Impacts due to Temporary Light and Glare. Proposed Project construction could result in substantial, temporary sources of light or glare.	LS	NI	NI	NI	LS	LS	LS	NI	NI	LSM	NI	LSM	**LSM**	**Mitigation Measure AE-2**: Minimize Construction Nighttime Lighting. (Applies to the Injection Well Facilities Site and CalAm Distribution System: Monterey Pipeline). As part of its contract specifications, MRWPCA shall require its construction contractors to implement site-specific nighttime construction lighting measures for nighttime construction at the proposed Injection Well Facilities site. The measures shall, at a minimum, require that lighting be shielded, directed downward onto work areas to minimize light spillover, and specify that construction lighting use the minimum wattage necessary to provide safety at the construction sites. MRWPCA shall ensure these measures are implemented at all times during nighttime construction at the Injection Well Facilities site and for the duration of all required nighttime construction activity at this location.
AE-3: Degradation of Visual Quality of Sites and Surrounding Areas. Proposed Project components would not result in a substantial degradation of the visual character of the project area and its surroundings.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI	NI	**LS***	~~None required~~. The following mitigation measure i~~s recommended to~~ will be adopted by the MRWPCA due to City of Seaside comments on the Draft EIR and Notice of Preparation: **Mitigation Measure AE-3:** Provide Aesthetic Screening for New Above-Ground Structures. (Applies to the following project components: Product Water Conveyance Coastal and RUWAP Booster Pump Station and Injection Well Facilities). Proposed above-ground features ~~at the Coastal option of the~~ Booster Pump Station and Injection Well Facilities (at a minimum, at the well clusters and back-flush basin), shall be designed to minimize visual impacts by incorporating screening with vegetation, or other aesthetic design treatments, subject to review and approval of the City of Seaside which has also requested that the buildings be designed with Monterey/Mission style architecture to match the design of the structures that have been built on the Santa Margarita ASR site and the Seaside Middle School ASR Site. All pipelines placed within the City of Seaside on General Jim Moore Boulevard shall be placed underground. MRWPCA shall coordinate with the City of Seaside on the location of injection wells and booster pumps in order to reduce conflicts with future commercial/residential development opportunities. Screening and aesthetic design treatments at the RUWAP Booster Pump Station component shall be subject to review and approval by the City of Marina. Use of standard, commercial-grade, chain link fencing and barbed wire should be discouraged..
AE-4: Impacts due to Permanent Light and Glare during Operations. Operation of Proposed Project facilities may result in a substantial new source of light or glare that would adversely affect day or nighttime views in the area.	NI	NI	NI	NI	NI	NI	LS	LSM	LSM	LSM	NI	NI	**LSM**	**Mitigation Measure AE-4**: Exterior Lighting Minimization. (Applies to the following project components: Product Water Conveyance Booster Pump Station - (both Options) and Injection Well Facilities) To prevent exterior lighting from affecting nighttime views, the design and operation of lighting at the Product Water Conveyance Booster Pump Station - RUWAP and Coastal Options and Injection Well Facilities, shall adhere to the following requirements: • Use of low-intensity street lighting and low-intensity exterior lighting shall be required. No floodlights shall be allowed at night within the City of Marina. • Lighting fixtures shall be cast downward and shielded to prevent light from spilling onto adjacent offsite uses. • Lighting fixtures shall be designed and placed to minimize glare that could affect users of adjacent properties, buildings, and roadways. • Fixtures and standards shall conform to state and local safety and illumination requirements.

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System			
Impact Statement	**Salinas Pump Station**	**Salinas Treatment Facility Storage and Recovery**	**Reclamation Ditch**	**Tembladero Slough**	**Blanco Drain (Pump Station and Pipeline)**	**Lake El Estero**	**Treatment Facilities at Regional Treatment Plant**	**RUWAP Alignment Option**	**Coastal Alignment Option**	**Injection Well Facilities**	**Transfer Pipeline**	**Monterey Pipeline**	**Project Overall**	**Mitigation Measures**
KEY TO ACRONYMS: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation; SU – Significant and Unavoidable; BI- Beneficial Impact														
Air Quality and Greenhouse Gas (AQ)														
AQ-1: Construction Criteria Pollutant Emissions. Construction of the Proposed Project would result in emissions of criteria pollutants, specifically PM10, that may conflict with or obstruct implementation of the applicable air quality plan and may violate an air quality standard or contribute substantially to an existing or projected air quality violation in a region that is non-attainment under State ambient air quality standards.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LSM***[3]	**Mitigation Measure AQ-1**: Construction Fugitive Dust Control Plan. (Applies to all Project Component Sites where ground disturbance would occur.) The following standard Dust Control Measures shall be implemented during construction to help prevent potential nuisances to nearby receptors due to fugitive dust and to reduce contributions to exceedances of the state ambient air quality standards for PM10, in accordance with MBUAPCD's CEQA Guidelines. • Water all active construction areas ~~at least twice daily~~ as required with ~~water (preferably from~~ non-potable sources to the extent feasible~~)~~; frequency should be based on the type of operation, soil, and wind exposure and minimized to prevent wasteful use of water. • Prohibit grading activities during periods of high wind (over 15 mph). • Cover all trucks hauling soil, sand, and other loose materials and require trucks to maintain at least 2 feet of freeboard. • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets; • Enclose, cover, or water daily exposed stockpiles (dirt, sand, etc.); • Replant vegetation in disturbed areas as quickly as possible. • Wheel washers shall be installed and used by truck operators at the exits of the construction sites to the AWT Facility site, the Injection Well Facilities, and the Booster Pump Station. • Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the MBUAPCD shall also be visible to ensure compliance with MBUAPCD rules.
AQ-2: Construction Exposure of Sensitive Receptors to Pollutant Emissions. Construction of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
AQ-3: Construction Odors. Construction of the Proposed Project would not create objectionable odors affecting a substantial number of people.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
AQ-4C: Construction Greenhouse Gas Emissions. Construction of the Proposed Project would generate greenhouse gas emissions, either directly or indirectly, but would not make a considerable contribution to significant cumulative impacts due to greenhouse gas emissions and the related global climate change impacts.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
AQ-5: Operational Air Quality Violation. Operation of the Proposed Project would result in criteria pollutant emissions, but would not violate air quality standards or contribute substantially to an existing or projected air quality violation.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.

[3] Under Impact AQ-1, the implementation of each component when looked at individually would not a have a significant impact; it is only when all components are implemented together (with overlapping construction schedules) that a significant impact would occur triggering Mitigation Measures to reduce the impact to a less than significant (LS).

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall	Mitigation Measures
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline		
KEY TO ACRONYMS: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation; SU – Significant and Unavoidable; BI- Beneficial Impact														
AQ-6: Operational Criteria Pollutant Emissions. Operation of the Proposed Project would result in a net increase of criteria pollutants in a region that is non-attainment under State ambient air quality standards, but the increase would not be cumulatively considerable.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
AQ-7: Operational Exposure of Sensitive Receptors to Pollutants. Operation of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
AQ-8: Operational Odors. Operation of the Proposed Project would not create objectionable odors affecting a substantial number of people.	LS	LS	LS	LS	LS	NI	LS	NI	NI	NI	NI	NI	**LS**	None required.
AQ-9C: Operational Greenhouse Gas Emissions. Operation of the Proposed Project would generate greenhouse gas emissions, either directly or indirectly. These emissions would not exceed significance thresholds such that they would result in a considerable contribution to significant cumulative impacts of greenhouse gas emissions and the related global climate change impacts. In addition, the Proposed Project would not conflict with applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
Biological Resources: Fisheries (BF)														
BF-1: Habitat Modification Due to Construction of Diversion Facilities. Construction of the proposed Reclamation Ditch and Tembladero Slough diversions could indirectly result in habitat modifications for endangered or threatened fish species as a result of construction activities and dewatering the construction sites.	NI	NI	LSM	LSM	LS	NI	NI	NI	NI	NI	NI	NI	**LSM**	**Mitigation Measure BT-1a (see below under Biological Resources: Terrestrial, Impact BT-1)** **Mitigation Measure BF-1a**: Construction during Low Flow Season. (Applies to Blanco Drain Reclamation Ditch and Tembladero Slough Diversions) Implement Mitigation Measure BT-1a. Conduct construction of diversion facilities, including the directional drilling under the Salinas River, during periods of low flow outside of the SCCC steelhead migration periods, i.e. between June and November, which would be outside of the adult migration period from December through April and outside of the smolt migration period from March through May. **Mitigation Measure BF-1b:** Relocation of Aquatic Species during Construction. (Applies to Reclamation Ditch and Tembladero Slough Diversions). Conduct pre-construction surveys to determine whether tidewater gobies or other fish species are present, and if so, implement appropriate measures in consultation with applicable regulatory agencies, which may include a program for capture and relocation of tidewater gobies to suitable habitat outside of work area during construction. Pre-construction surveys shall be consistent with requirements and approved protocols of applicable resource agencies and performed by a qualified fisheries biologist. **Mitigation Measure BF-1c:** Tidewater Goby and Steelhead Impact Avoidance and Minimization. (Applies to Reclamation Ditch and Tembladero Slough Diversions) To ensure compliance with the federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), consultation with NFMS/NOAA, USFWS, and CDFW shall be conducted as required, and any necessary take permits or authorizations would be obtained. If suitable habitat for tidewater goby (Tembladero Slough) and steelhead cannot be avoided, any in-stream portions of each project component (where the Proposed Project improvements require in-stream work) shall be dewatered/ diverted. A dewatering/diversion plan shall be prepared and submitted to NMFS, USFWS, and CDFW for review and approval. Specific plan elements are noted below and will be refined through consultation with USFWS, NMFS and CDFW: • Required Pre-Construction surveys identified in Mitigation Measure BF-1b shall be consistent with requirements and approved protocol of applicable resource agencies and performed by a qualified fisheries biologist. • All dewatering/diversion activities shall be monitored by a qualified fisheries biologist. The fisheries biologist shall be responsible for capture and relocation of fish species out of the work area during dewatering/diversion installation. • The project proponents shall designate a qualified representative to monitor on-site compliance of all avoidance and minimization

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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														measures. The fisheries biologist shall have the authority to halt any action which may result in the take of listed species. • Only USFWS/NMFS/CDFW-approved biologists shall participate in the capture and handling of listed species subject to the conditions in the Incidental Take Permits as noted above. • No equipment shall be permitted to enter wetted portions of any affected drainage channel. All equipment operating within streams shall be in good conditions and free of leaks. • Spill containment shall be installed under all equipment staged within stream areas and extra spill containment and clean up materials shall be located in close proximity for easy access. • Work within and adjacent to streams shall not occur between November 1 and June 1 unless otherwise approved by NMFS and the CDFW. • If project activities could degrade water quality, water quality sampling shall be implemented to identify the pre-project baseline, and to monitor during construction for comparison to the baseline. If water is to be pumped around work sites, intakes shall be completely screen with wire mesh not larger than five millimeters to prevent animals from entering the pump system. • If any tidewater goby or steelhead are harmed during implementation of the project, the project biologist shall document the circumstances that led to harm and shall determine if project activities should cease or be altered in an effort to avoid further harm to the species. • Water turbidity shall be monitored by a qualified biologist or water quality specialist during all instream work. Water turbidity shall be tested daily at both an upstream location for baseline measurement and downstream to determine if project activities are altering water turbidity. Turbidity measures shall be taken within 50 feet of construction activities to rule out other outside influences. Additional turbidity testing shall occur if visual monitoring indicates an increased in turbidity downstream of the work area. If turbidity levels immediately downstream of the project rise to more than 20 NTUs (Nephelometric Turbidity Units) above the upstream (baseline) turbidity levels, all construction shall be halted and all erosion and sediment control devices shall be thoroughly inspected for proper function, or shall be replaced with new devices to prevent additional sediment discharge into streams. The above mitigation is subject to review and approval for CESA and FESA requirements by approving agencies as identified above and may be modified to further reduce, avoid or minimize impacts to species.
BF-2: Interference with Fish Migration. Operation of the Proposed Project would result in changes in stream flows that may interfere with fish migration in the Salinas River and Reclamation Ditch.	LS	LS	LSM	LS	LS	NI	NI	NI	NI	NI	NI	NI	**LSM**	**Mitigation Measure BF-2a:** Maintain Migration Flows. (Applies to the Reclamation Ditch Diversion) Implement BF-1a, BF-1b, and BF-1c. Operate diversions to maintain steelhead migration flows in the Reclamation Ditch based on two criteria – one for upstream adult passage in Jan-Feb-Mar and one for downstream juvenile passage in Apr-May. For juvenile passage, the downstream passage shall have a flow trigger in both Gabilan Creek and at the Reclamation Ditch, so that if there is flow in Gabilan Creek that would allow outmigration, then the bypass flow requirements, as measured at the San Jon Gage of the Reclamation Ditch, shall be applied (see Hagar Environmental Science, *Estimation of Minimum Flows for Migration of Steelhead in the Reclamation Ditch*, February 27, 2015, in Appendix G-2, of the~~is~~ Draft EIR and Schaaf & Wheeler, *Fish Passage Analysis: Reclamation Ditch at San Jon Rd. and Galiban Creek at Laurel Rd.* July 15, 2015 in Appendix CC of this Final EIR). If there is no flow in Gabilan Creek, then only the low flow (minimum bypass flow requirement as proposed in the project description) shall be applied, and these flows for the dry season at Reclamation Ditch as measured at the San Jon USGS gage shall be met. *Note: If there is no flow gage in Gabilan Creek, then downstream passage flow trigger shall be managed based on San Jon Road gage and flows.* Alternately, as the San Jon weir located at the USGS gage is considered a barrier to steelhead migration and the bypass flow requirements have been developed to allow adult and smolt steelhead migration to have adequate flow to travel past this obstacle, if the weir were to be modified to allow steelhead passage, the mitigation above would not have to be met. Therefore, alternate Mitigation Measure BF-2a has been developed, as follows: **Mitigation Measure Alternate BF-2a**: Modify San Jon Weir. (Applies to the Reclamation Ditch Diversion) Construct modifications to the existing San Jon weir to provide for steelhead passage. Modifications could include downstream pool, modifications to the structural configuration of the weir to allow passage or other construction, and improvements to remove the impediment to steelhead passage defined above. The above mitigation is subject to compliance with CESA and FESA and appropriate approving agencies may modify the above mitigation to further reduce, avoid, or minimize impacts to species.
BF-3: Reduction in Fish Habitat or Fish Populations Due to Project Operations. Operation of the Proposed Project diversions would not reduce the habitat of a fish species or substantially affect fish populations.	LS	LS	LS	LS	LS	NI	NI	NI	NI	NI	NI	NI	**LS**	None required.
Biological Resources: Terrestrial (BT)														

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System			
Impact Statement	**Salinas Pump Station**	**Salinas Treatment Facility Storage and Recovery**	**Reclamation Ditch**	**Tembladero Slough**	**Blanco Drain (Pump Station and Pipeline)**	**Lake El Estero**	**Treatment Facilities at Regional Treatment Plant**	**RUWAP Alignment Option**	**Coastal Alignment Option**	**Injection Well Facilities**	**Transfer Pipeline**	**Monterey Pipeline**	**Project Overall**	**Mitigation Measures**
KEY TO ACRONYMS: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation; SU – Significant and Unavoidable; BI- Beneficial Impact														
BT-1: Construction Impacts to Special-Status Species and Habitat. Proposed Project construction may adversely affect, either directly or through habitat modification, special-status plant and wildlife species and their habitat within the Project Study Area.	LSM	LSM	LSM	LSM	LSM	LSM	NI	LSM	LSM	LSM	LSM	LSM	**LSM**	See complete text following this table.
BT-2: Construction Impacts to Sensitive Habitats. Proposed Project construction may adversely affect sensitive habitats (including riparian, wetlands, and/or other sensitive natural communities) within the Project Study Area.	NI	NI	LSM	LSM	LSM	NI	NI	LS	LSM	LS	NI	LSM	**LSM**	**Mitigation Measure BT-1a** (see above under Biological Resources: Terrestrial, Impact BT-1) **Mitigation Measure BT-2a**: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Reclamation Ditch, Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option) Implement Mitigation Measure BT-1a. When designing the facilities at these component sites, the MRWPCA shall site and design project features to avoid impacts to the riparian and wetland habitats shown in Attachment 8 of Appendix H rev and Appendix I, including direct habitat removal and indirect hydrology and water quality impacts, to the greatest extent feasible while taking into account site and engineering constraints. To protect this sensitive habitat during construction, the following measures shall be implemented: • Place construction fencing around riparian and wetland habitat (i.e., areas adjacent to or nearby the Proposed Project construction) to be preserved to ensure construction activities and personnel do not impact this area. • All proposed lighting shall be designed to avoid light and glare into the riparian and wetland habitat. Light sources shall not illuminate these areas or cause glare. In the event that full avoidance is not possible and a portion or all of the riparian and wetland habitat would be impacted, the following minimization measures shall be implemented: • Permanently ~~I~~impacted riparian and wetland habitat shall be mitigated at no less than a ~~1~~2:1 replacement-to-loss ratio through restoration and/or preservation. The final mitigation amounts for both temporary and permanent impacts to riparian wetland habitat shall be determined during the design phase but cannot be less than 2:1 for permanent impacts and 1:1 for temporary impacts, and must be approved by the relevant permitting agencies (USACOE, RWQCB, CDFW, and the entity issuing any Coastal Development Permit). The preserved mitigation land shall be managed to improve wetland and riparian conditions compared to existing conditions. It is expected that the mitigation can occur within the Locke Paddon Lake watershed, along the Tembladero Slough, and within the Salinas River corridor near the Blanco Drain near where impacts may occur. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared by a qualified biologist to mitigate for impacts to riparian and wetland habitat. The HMMP shall outline the details of a riparian and wetland habitat restoration plan, including but not limited to, planting plan, success criteria, monitoring protocols to determine if the success criteria have been met, adaptive management protocols in the case that the success criteria are not met, and funding assurances. Plantings and revegetation conducted in compliance with this mitigation measure shall be monitored for a minimum of three years after project completion **Mitigation Measure BT-2b:** Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to CalAm Distribution System: Monterey Pipeline) When designing the Monterey Pipeline, the project proponents shall site and design project features to avoid impacts to the central dune scrub habitat shown in Attachment 8 of Appendix H rev, including direct habitat removal, to the greatest extent feasible while taking into account site and engineering constraints. To protect this sensitive habitat during construction, the following measures shall be implemented: • Place construction fencing around central dune scrub habitat to be preserved to ensure construction activities and personnel do not impact this area. • All proposed lighting shall be designed to avoid light and glare into the central dune scrub habitat. Light sources shall not illuminate central dune scrub habitat areas or cause glare. If full avoidance is not possible and a portion or all of the central dune scrub habitat would be impacted, the following minimization measures shall be implemented: • Approximately 2.7 acres of central dune scrub habitat could be impacted by the project. Impacted central dune scrub habitat shall be mitigated at a 1:1 replacement-to-loss ratio through restoration and/or preservation. The final mitigation amounts shall be determined during the design phase. It is expected that the mitigation can occur onsite or within the immediate vicinity. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared by a qualified biologist to mitigate for impacts to central dune scrub habitat. The HMMP shall outline the details of a central dune scrub habitat restoration plan, including but not limited to, planting plan, success criteria, monitoring protocols to determine if the success criteria have been met, adaptive management protocols if success criteria are not met, and funding assurances. **Mitigation Measure BT-2c**: Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River (Applies to Blanco Drain Diversion) The project proponents in coordination with the contractor shall prepare and implement a Frac-Out Plan to avoid or reduce accidental impacts resulting from horizontal directional drilling (HDD) beneath the Salinas River. The Frac-Out Plan shall address spill prevention, containment, and clean-up methodology in the event of a frac out. The proposed HDD component of the Blanco Drain diversion shall be designed and conducted to minimize the risk of spills and frac-out events. The Frac-Out Plan shall be prepared and submitted

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall	
Impact Statement	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline		**Mitigation Measures**
KEY TO ACRONYMS: NI – No Impact; LS – Less than Significant; LSM – Less than Significant with Mitigation; SU – Significant and Unavoidable; BI- Beneficial Impact														
														to United States Fish and Wildlife Services, California Department of Fish and Wildlife, National Marine Fisheries Services, and the Regional Water Quality Control Board prior to commencement of HDD activities for the Blanco Drain Diversion construction. The following are typical contents of a Frac-Out Plan: • Project description, including details of the HDD design and operations • Site description and existing conditions • Potential modes of HDD failure and HDD failure prevention and mitigation • Frac-out prevention measures (including for example, geotechnical investigations, planning for appropriate depths based on those investigations, presence of a qualified engineer during drilling to monitor the drilling process, live adjustments to the pace of drill advancement to ensure sufficient time for cutting and fluid circulation and to prevent or minimize plugging, maintaining the minimum drilling pressure necessary to maintain fluid circulation, etc.) • Monitoring requirements (for example, monitoring pump pressure circulation rate, ground surface and surface water inspection, advancing the drill only during daytime hours, on-site biological resource monitoring by a qualified biologist) • Response to accidental frac-out (including stopping drilling, permitting agency notification, surveying the area, containing the frac-out material, contacting the project biological monitor to identify and relocate species potentially in the area, turbidity monitoring, procedures for clean-up and mitigation of hazardous waste spill materials, preparation of documentation of the event, etc.) • Coordination plan and contact list of key project proponents, biological monitor, and agency staff in the event of an accidental frac-out event.
BT-3: Construction Impacts to Movement of Native Wildlife and Native Wildlife Nursery Sites. Proposed Project construction would not adversely affect native wildlife corridors and wildlife nursery sites.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
BT-4: Construction Conflicts with Local Policies, Ordinances, or Approved Habitat Conservation Plan. Proposed Project construction would potentially conflict with local policies or ordinances protecting biological resources. A conflict may occur if the HMP plant species within the Proposed Project component sites on the former Fort Ord that do not require a take authorization from the Service or CDFW are impacted, and seed salvage is not conducted. There are no approved HCPs applicable to the Proposed Project.	LS	LS	LS	LS	LS	LS	LS	LSM	LSM	LSM	LS	LS	**LSM**	**Mitigation Measure BT-4**. HMP Plant Species Salvage. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities site within the former Fort Ord only) For impacts to the HMP plant species within the Project Study Area that do not require take authorization from USFWS or CDFW, salvage efforts for these species shall be evaluated by a qualified biologist per the requirements of the HMP and BO. A salvage plan shall be prepared and implemented by a qualified biologist, which shall would include, but is not limited to: a description and evaluation of salvage opportunities and constraints; a description of the appropriate methods and protocols of salvage and relocation efforts; identification of relocation and restoration areas; and identification of qualified biologists approved to perform the salvage efforts, including the identification of any required collection permits from USFWS and/or CDFW. Where proposed, seed collection shall occur from plants within the Project Study Area and topsoil shall be salvaged within occupied areas to be disturbed. Seeds shall be collected during the appropriate time of year for each species by qualified biologists. At the time of seed collection, a map shall also be prepared that identifies the specific locations of the plants for any future topsoil preservation efforts. The collected seeds shall be used to revegetate temporarily disturbed construction areas and reseeding and restoration efforts on- or off-site, as determined appropriate in the salvage plan.
BT-5: Operational Impacts to Special-Status Species. Proposed Project operations would not adversely affect, either directly or through habitat modification, special-status plant and wildlife species and their habitat.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
BT-6: Operational Impacts to Sensitive Habitats. Proposed Project operations may adversely affect sensitive habitats (including riparian, wetlands, and/or other sensitive natural communities) within and adjacent to the Project Study Area.	LS	LS	LS	LS	LS	LS	NI	LS	LS	LS	NI	LSM	**LSM**	**Mitigation Measure BT-6**. Implementation of Mitigation Measures BT-1a for Avoidance and Minimization of Operational Impacts to Sensitive Habitat (Applies to Applies to Reclamation Ditch Diversion, Tembladero Slough Diversion, Blanco Drain Diversion, and CalAm Distribution System: Monterey Pipeline) During operation and maintenance activities, implementation of Mitigation Measures BT-1a, which avoid and minimize impacts through implementing construction best management practices and monitoring, would reduce potential impacts to sensitive habitat to a less-than-significant level.
BT-7: Operational Impacts to Movement of Native Wildlife and to Native Wildlife Nursery Sites. Proposed Project operations would not adversely affect native wildlife corridors and wildlife nursery sites.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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BT-8: Operational Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan. Proposed Project operations would not conflict with local policies or ordinances protecting biological resources.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
Cultural and Paleontological Resources (CR)														
CR-1: Construction Impacts on Historic Resources. Proposed Project construction may result in a substantial adverse change in the significance of a known historic resource as defined in 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LSM	**LSM**	**Mitigation Measure CR-1**: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, and Downtown Monterey. (Applies to portion of the CalAm Distribution System: Monterey Pipeline) CalAm shall construct the section of the Monterey Pipeline located on Stillwell Avenue within the Presidio of Monterey Historic District and within W. Franklin Street in downtown Monterey as close as possible to the centerlines of these streets to: (1) avoid direct impacts to the historic Presidio Entrance Monument, and (2) reduce impacts from construction vibration to below the 0.12 inches per second (in/sec) peak particle velocity vibration PPV) threshold. If CalAm determines that the pipeline cannot be located near the centerline of these street segments due to traffic concerns or existing utilities, the historic properties identified on Table 4.6-2 of this EIR shall be monitored for vibration during pipeline construction, especially during the use of jackhammers and vibratory rollers. If construction vibration levels exceed 0.12 in/sec PPV, construction shall be halted and other construction methods shall be employed to reduce the vibration levels below the standard threshold. Alternative construction methods may include using concrete saws instead of jackhammers or hoe-rams to open excavation trenches, the use of non-vibratory rollers, and hand excavation. If impact sheet pile installation is needed (i.e., for horizontal directional drilling or jack-and-bore) within 80 feet of any historical resource or within 80 feet of a historic district, CalAm shall monitor vibration levels to ensure that the 0.12-in/sec PPV damage threshold is not exceeded. If vibration levels exceed the applicable threshold, the contractor shall use alternative construction methods such as vibratory pile drivers.

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Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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CR-2: Construction Impacts on Archaeological Resources or Human Remains. Proposed Project construction may result in a substantial adverse change in the significance of one known archaeological resource and to unknown archaeological resources during construction and/or encounter unknown human remains.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	**LSM**	**Mitigation Measure CR-2a**: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) Each of the project proponents shall contract a qualified archaeologist meeting the Secretary of the Interior's Qualification Standard (Lead Archaeologist) to prepare and implement an Archaeological Monitoring Plan, and oversee and direct all archaeological monitoring activities during construction. Archaeological monitoring shall be conducted for all subsurface excavation work within 100 feet of Presidio #2 in the Presidio of Monterey, in downtown Monterey on W. Franklin Street between High and Figueroa Streets; and at potentially sensitive archaeological sites at Lake El Estero. At a minimum, the Archaeological Monitoring Plan shall: • Detail the cultural resources training program that shall be completed by all construction and field workers involved in ground disturbance; • Designate the person(s) responsible for conducting monitoring activities, including Native American monitor(s), if deemed necessary; • Establish monitoring protocols to ensure monitoring is conducted in accordance with current professional standards provided by the California Office of Historic Preservation; • Establish the template and content requirements for monitoring reports; • Establish a schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports; • Establish protocols for notifications in case of encountering cultural resources, as well as methods for evaluating significance, developing and implementing a plan to avoid or mitigate significant resource impacts, facilitating Native American participation and consultation, implementing a collection and curation plan, and ensuring consistency with applicable laws including Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code; • Establish methods to ensure security of cultural resources sites; • Describe the appropriate protocols for notifying the County, Native Americans, and local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction with reference to Public Resources Code 5097.99. During the course of the monitoring, the Lead Archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the conditions and professional judgment regarding the potential to encounter resources. If archaeological materials are encountered, all soil disturbing activities within 100 feet of the find shall cease until the resource is evaluated. The Lead Archaeologist shall immediately notify the relevant Proposed Project proponent of the encountered archaeological resource. The Lead Archaeologist shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological resource, present the findings of this assessment to the lead agency, or CPUC, for the CalAm Distribution Pipeline. In the event archaeological resources qualifying as either historical resources pursuant to CEQA Section 15064.5 or as unique archaeological resources as defined by Public Resources Code 21083.2 are encountered, preservation in place shall be the preferred manner of mitigation. If preservation in place is not feasible, the applicable project proponent(s) shall implement an Archaeological Research Design and Treatment Plan (ARDTP). The Lead Archaeologist, Native American representatives, and the State Historic Preservation Office designee shall meet to determine the scope of the ARDTP. The ARDTP will identify a program for the treatment and recovery of important scientific data contained within the portions of the archaeological resources located within the project Area of Potential Effects; would preserve any significant historical information obtained; and will identify the scientific/historic research questions applicable to the resources, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The results of the investigation shall be documented in a technical report that provides a full artifact catalog, analysis of items collected, results of any special studies conducted, and interpretations of the resource within a regional and local context. All technical documents shall be placed on file at the Northwest Information Center of the California Historical Resources Information System. **Mitigation Measure CR-2b**: Discovery of Archaeological Resources or Human Remains. (Applies to all Proposed Project components) If archaeological resources or human remains are unexpectedly discovered during any construction, work shall be halted within 50 meters (±160 feet) of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented. The County Coroner shall be notified in accordance with provisions of Public Resources Code 5097.98-99 in the event human remains are found and the Native American Heritage Commission shall be notified in accordance with the provisions of Public Resources Code section 5097 if the remains are determined to be of Native American origin. **Mitigation Measure CR-2c**: Native American Notification. (Applies to all Proposed Project components) Because of their continuing interest in potential discoveries during construction, all listed Native American Contacts shall be notified of any and all discoveries of archaeological resources in the project area.
CR-3: Construction Impacts on Unknown Paleontological Resources. Proposed Project construction would not result in damage to or destruction of unknown paleontological resources.	LS	LS	NI	NI	NI	NI	LS	NI	NI	NI	LS	LS	**LS**	None required.

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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Energy and Mineral Resources (EN)														
EN-1: Construction Impacts due to Temporary Energy Use. Proposed Project construction could result in wasteful or inefficient use of energy if construction equipment is not maintained or if haul trips are not planned efficiently. The Proposed Project would not conflict with existing energy standards.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	**LSM**	**Mitigation Measure EN-1**: Construction Equipment Efficiency Plan. (Applies to all Proposed Project components) MRWPCA (for all components except the CalAm Distribution System) or CalAm (for the Cal Am Distribution System) shall contract a qualified professional (i.e., construction planner/energy efficiency expert) to prepare a Construction Equipment Efficiency Plan that identifies the specific measures that MRWPCA or CalAm (and its construction contractors) will implement as part of project construction to increase the efficient use of construction equipment. Such measures shall include, but not necessarily be limited to: procedures to ensure that all construction equipment is properly tuned and maintained at all times; a commitment to utilize existing electricity sources where feasible rather than portable diesel-powered generators; consistent compliance with idling restrictions of the state; and identification of procedures (including the use of routing plans for haul trips) that will be followed to ensure that all materials and debris hauling is conducted in a fuel-efficient manner.
EN-2: Operational Impacts due to Energy Use. Proposed Project operations would not result in the consumption of energy such that existing supplies would be substantially constrained nor would the Project result in the unnecessary, wasteful, or inefficient use of energy resources.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
EN-3: Operational Impacts on Mineral Resources. The Proposed Project would not result in a significant impact due to the loss of availability of known mineral resources of value to the region or to the state or to any locally-important mineral recovery site.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
Geology, Soils, and Seismicity (GS)														
GS-1: Construction-Related Erosion or Loss of Topsoil. Construction of the Proposed Project would not result in substantial soil erosion or the loss of topsoil.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
GS-2: Construction-Related Soil Collapse and Soil Constraints during Pipeline Trenching. Construction of some Proposed Project pipeline components would be located on geologic units or soils that are unstable, or that may become unstable during project construction, and potentially result in soil instability or collapse; however, this exposure would not result in a substantial risk to people or structures.	LS	LS	NI	NI	LS	LS	NI	LS	LS	LS	LS	LS	**LS**	None required.
GS-3: Exposure to Fault Rupture. The Proposed Project would be located in a seismically active area, and portions of the Proposed Project may be affected by fault rupture from an earthquake on local faults; however, this exposure would not result in a substantial risk to people or structures.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	LS	**LS**	None required.
GS-4: Exposure to Seismic Ground Shaking and Liquefaction. The Proposed Project would be located in a seismically active area; however, Proposed Project operations would not expose people or structures to a substantial risk of loss, injury, or death involving exposure to seismic groundshaking and liquefaction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.

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GS-5: Exposure to Coastal Erosion and Sea Level Rise. The Proposed CalAm Distribution System Monterey Pipeline would be exposed to substantial soil erosion as a result of sea level rise.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LSM	**LSM**	**Mitigation Measure GS-5**: Monterey Pipeline Deepening. (Applies to CalAm Distribution System: Monterey Pipeline only). CalAm shall bury the Monterey Pipeline segment that is within the pre-determined coastal erosion hazard zone to a depth of five feet below the depth of the 2060, 100-year lower profile envelope. The extent of the coastal erosion hazard zone, length of affected pipeline section, and lower profile envelope for this pipeline segment shall be determined as per the Analysis of Historic and Future Coastal Erosion with Sea Level Rise (ESA-PWA, 2014).
GS-6: Hydro-Collapse of Soils from Well Injection. Proposed Project operation would not create a substantial risk to life or property due to its facilities being located on a geologic unit or soils that are unstable, or that would become unstable as a result of hydro-collapse.	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	**LS**	None required.
GS-7: Exposure to Expansive and Corrosive Soils. The Proposed Project would not result in substantial risks to the public or other facilities due to location on expansive or corrosive soil types.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
Hazards and Hazardous Materials (HH)														
HH-1: Use and Disposal of Hazardous Materials During Construction. Proposed Project construction would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.

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Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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HH-2: Accidental Release of Hazardous Materials During Construction. Proposed Project construction would potentially cause upset and accident conditions involving the release of hazardous materials into the environment.	LS	LS	LS	LS	LS	LSM	LS	LSM	LSM	LSM	LSM	LSM	**LSM**	**Mitigation Measure HH-2a**: Environmental Site Assessment. (Applies to the Lake El Estero Diversion, Product Water Conveyance RUWAP and Coastal Alignment Options, Injection Well Facilities and the CalAm Distribution System) If required by local jurisdictions and property owners with approval responsibility for construction of each component, MRWPCA and CalAm shall conduct a Phase I Environmental Site Assessment in conformance with ASTM Standard 1527-05 to identify potential locations where hazardous material contamination may be encountered. If an Environmental Site Assessment indicates that a release of hazardous materials could have affected soil or groundwater quality at a project site, a Phase II environmental site assessment shall be conducted to determine the extent of contamination and to prescribe an appropriate course of remediation, including but not limited to removal of contaminated soils, in conformance with state and local guidelines and regulations. If the results of the subsurface investigation(s) indicate the presence of hazardous materials, additional site remediation may be required by the applicable state or local regulatory agencies, and the contractors shall be required to comply with all regulatory requirements for facility design or site remediation. **Mitigation Measure HH-2b**: Health and Safety Plan. (Applies to the Lake El Estero Diversion, Product Water Conveyance RUWAP and Coastal Alignment Options, the Injection Well Facilities, and the CalAm Distribution System) The construction contractor(s) shall prepare and implement a project-specific Health and Safety Plan (HSP) for each site on which construction may occur, in accordance with 29 CFR 1910 to protect construction workers and the public during all excavation, grading, and construction. The HSP shall include the following, at a minimum: • A summary of all potential risks to construction workers and the maximum exposure limits for all known and reasonably foreseeable site chemicals (the HSP shall incorporate and consider the information in all available existing Environmental Site Assessments and remediation reports for properties within ¼-mile using the EnviroStor Database); • Specified personal protective equipment and decontamination procedures, if needed; • Emergency procedures, including route to the nearest hospital; • Procedures to be followed in the event that evidence of potential soil or groundwater contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and specifically include, but are not limited to, the following: immediately stopping work in the vicinity of the unknown hazardous materials release, notifying Monterey County Department of Environmental Health, and retaining a qualified environmental firm to perform sampling and remediation; and • The identification and responsibilities of a site health and safety supervisor. **Mitigation Measure HH-2c**: Materials and Dewatering Disposal Plan. (Applies to the Lake El Estero Diversion, Product Water Conveyance System Options, the Injection Well Facilities, and the CalAm Distribution System) MRWPCA and CalAm and/or their contractors shall develop a materials disposal plan specifying how the contractor will remove, handle, transport, and dispose of all excavated material in a safe, appropriate, and lawful manner. The plan must identify the disposal method for soil and the approved disposal site, and include written documentation that the disposal site will accept the waste. For areas within the Seaside munitions response areas called Site 39 (coincident with the Injection Well Facilities component), the materials disposal plans shall be reviewed and approved by FORA and the City of Seaside. The contractor shall develop a groundwater dewatering control and disposal plan specifying how the contractor will remove, handle, and dispose of groundwater impacted by hazardous substances in a safe, appropriate, and lawful manner. The plan must identify the locations at which potential contaminated groundwater dewatering are likely to be encountered (if any), the method to analyze groundwater for hazardous materials, and the appropriate treatment and/or disposal methods. If the dewatering effluent contains contaminants that exceed the requirements of the General WDRs for Discharges with a Low Threat to Water Quality (Order No. R3-2011-0223, NPDES Permit No. CAG993001), the construction contractor shall contain the dewatering effluent in a portable holding tank for appropriate offsite disposal or discharge (see Section 4.11, Hydrology and Water Quality: Surface Water, for more information regarding this NPDES permit). The contractor can either dispose of the contaminated effluent at a permitted waste management facility or discharge the effluent, under permit, to the Regional Treatment Plant.
HH-3: Construction of Facilities on Known Hazardous Materials Site. Proposed Project construction would occur on a known hazardous materials site pursuant to Government Code Section 65962.5; however, the Proposed Project would not result in a significant hazard to people or the environment.	NI	NI	NI	NI	NI	NI	NI	LS	LS	LS	LS	LS	**LS**	None required.

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HH-4: Use of Hazardous Materials During Construction Within 0.25-Miles of Schools. Proposed Project construction would not result in nor create a significant hazard to the public or the environment due to handling of hazardous materials or hazardous emissions within 0.25 mile of a school during construction.	NI	NI	NI	NI	NI	NI	LS	LS	LS	LS	NI	NI	**LS**	None required.
HH-5: Wildland Fire Hazard during Construction. Proposed Project construction would not increase the risk of wildland fires in high fire hazard areas.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
HH-6: Use and Disposal of Hazardous Materials During Operation. Proposed Project operations would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
HH-7: Operation of Facilities on Known Hazardous Materials Site. Proposed Project facilities would be located on a known hazardous materials site; however, the Proposed Project would not result in a significant hazard to people or the environment.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
Hydrology and Water Quality: Groundwater (GW)														
GW-1: Construction Groundwater Depletion, Levels, and Recharge. Construction of the Proposed Project components would not deplete groundwater supplies nor interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of local groundwater levels.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
GW-2: Construction Groundwater Quality. Proposed Project construction would not violate any water quality standards or otherwise degrade water quality.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
GW-3: Operational Groundwater Depletion and Levels: Salinas Valley Groundwater Basin. Operation of the Proposed Project would not deplete groundwater supplies in the Salinas Valley nor interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater levels in the Salinas Valley Groundwater Basin.	LS	LS	LS	LS	NI	NI	BI	NI	NI	NI	NI	NI	**BI**	None required.
GW-4: Operational Groundwater Depletion and Levels: Seaside Basin. Operation of the Proposed Project would not deplete groundwater supplies in the Seaside Basin nor interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater levels in the Seaside Basin.	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	**LS**	None required.

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GW-5: Operational Groundwater Quality: Salinas Valley. Operation of the Proposed Project would not degrade groundwater quality in the Salinas Valley.	BI	BI	LS	LS	LS	NI	BI	NI	NI	NI	NI	NI	**BI**	None required.
GW-6: Operational Groundwater Quality: Seaside Basin. Proposed Project operations would not degrade groundwater quality in the Seaside Basin, including due to injection of purified recycled water into the basin.	NI	NI	NI	NI	NI	NI	BI/LS[4]*	NI	NI	BI/ LS[4]*	NI	NI	**BI/ LS*[4]**	None required.
Hydrology and Water Quality: Surface Water (HS)														
HS-1: Construction Impacts to Surface Water Quality due to Discharges. Proposed Project construction involving well drilling and development, and dewatering of shallow groundwater during excavation would generate water requiring disposal. Compliance with existing regulatory requirements would ensure that water disposal during construction would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
HS-2: Construction Impacts to Surface Water Quality due to Earthmoving, Drainage Alterations, and Use of Hazardous Chemicals. Proposed Project construction would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality including marine water quality, due to earthmoving, drainage system alterations, and use of hazardous chemicals.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
HS-3: Operational Impacts to Surface Water Quality due to Well Maintenance Discharges. Proposed Project operations would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality due to well maintenance discharges.	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	**LS**	None required.
HS-4: Operational Surface Water Quality Impacts due to Source Water Diversions. Proposed Project diversions would result in water quality benefits due to diversion and treatment of polluted waters; however, rapid water fluctuation from diversions at the Reclamation Ditch could induce erosion and sedimentation in downstream waters.	LS	LS	LSM	LS	LS	LS	NI	NI	NI	NI	NI	NI	**LSM**	**Mitigation Measure HS-4**: Management of Surface Water Diversion Operations (Applies to Reclamation Ditch Diversion, only) Rapid, imposed water-level fluctuations shall be avoided when operating the Reclamation Ditch Diversion pumps to minimize erosion and failure of exposed (or unvegetated), susceptible banks. This can be accomplished by operating the pumps at an appropriate flow rate, in conjunction with commencing operation of the pumps only when suitable water levels or flow rates are measured in the water body. Proper control shall be implemented to ensure that mobilized sediment would not impair downstream habitat values and to prevent adverse impacts due to water/soil interface adjacent to the Reclamation Ditch and Tembladero Slough. During planned routine maintenance at the Reclamation Ditch Diversion, maintenance personnel shall inspect the diversion structures within the channel for evidence of any adverse fluvial geomorphological processes (for example, undercutting, erosion, scour, or changes in channel cross-section). If evidence of any substantial adverse changes are noted, the diversion

[4] For concentrations of total dissolved solids and chloride, the impact would be beneficial; for all other water quality parameters, the impact would be less than significant.

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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														structure shall be redesigned and the project proponents shall modify it in accordance with the new design.
HS-5: Operational Marine Water Quality due to Ocean Discharges. Proposed Project operational discharges of reverse osmosis concentrate to the ocean through the MRWPCA outfall would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	BI	BI	BI	BI	BI	BI	LS	NI	NI	NI	NI	NI	**LS**	None required.
HS-6: Operational Drainage Pattern Alterations. The Proposed Project would alter existing drainage patterns of the component sites by increasing impervious surfaces, but would not substantially increase the rate or amount of runoff such that it would: (1) cause erosion or siltation on- or off-site, (2) cause flooding on- or offsite, or (3) exceed the existing storm drainage system capacity.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
HS-7: Operational Carmel River Flows. Proposed Project operations would result in reduced pumping of the Carmel River alluvial aquifer resulting in increased flows in Carmel River that would benefit habitat for aquatic and terrestrial species.	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	**BI**	None required.
HS-8: Operational Risks due to Location within 100-Year Flood Area. Portions of the Proposed Project would be located within a 100-year flood hazard area but would not impede or redirect flood flows.	LS	LS	LS	LS	LS	LS	NI	LS	LS	LS	NI	NI	**LS**	None required.
HS-9: Operational Risks due to Flooding due to Levee/Dam Failure, or Coastal Inundation. During operations, some Proposed Project facilities may be exposed to flooding due to failure of a levee or dam, sea level rise, and storm surges/tides related to climate change, but this exposure would not pose a substantial nor significant risk of loss, injury, or death.	LS	LS	NI	LS	LS	LS	NI	NI	NI	NI	LS	LS	**LS**	None required.
HS-10: Operational Seiche, Tsunami, or Mudflow Risk. The Proposed Project operations would not expose people or structures to substantial risk from flooding due to a seiche, tsunami, or mudflow.	NI	NI	NI	LS	LS	LS	NI	NI	NI	NI	LS	LS	**LS**	None required.
Land Use, Agriculture, and Forest Resources (LU)														
LU-1: Temporary Farmland Conversion during Construction. The Proposed Project would result in a temporary disruption to agricultural production on designated prime, unique and statewide important farmlands during construction, but would not directly or indirectly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use.	NI	LSM	NI	NI	LSM	NI	NI	LS	LS	NI	NI	NI	**LSM**	**Mitigation Measure LU-1**: Minimize Disturbance to Farmland. (Applies to the Salinas Treatment Facility and a portion of the Blanco Drain Diversion) To support the continued productivity of designated Prime Farmland and Farmland of Statewide Importance, the following provisions shall be included in construction contract specifications: · Construction contractor(s) shall minimize the extent of the construction disturbance, including construction access and staging areas, in designated important farmland areas. · Prior to the start of construction, the construction contractor(s) shall mark the limits of the construction area and ensure that no construction activities, parking, or staging occur beyond the construction limits. · Upon completion of the active construction, the site shall be restored to pre-construction conditions.

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Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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LU-2: Operational Consistency with Plans, Policies, and Regulations. The Proposed Project would have one or more components that would potentially conflict, or be inconsistent with, applicable land use plans, policies, and regulations without implementation of mitigation measures identified in this EIR.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	**LSM**	All other mitigation measures (see Table 4.12-5 in Section 4.12, Land Use, Agriculture, and Forest Resources).
LU-3: Operational Indirect Farmland Conversion. The Proposed Project would not change the existing environment such that Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is converted to non-agricultural use.	LS	LS	LS	LS	LS	LS	LS	NI	NI	NI	NI	NI	**LS**	None required.
Marine Biological Resources (MR)														
MR-1: Operational Impacts on Marine Biological Resources. Operation of the Proposed Project would not result in substantial adverse effects on candidate, sensitive, or special-status species and would not interfere substantially with the movement of any native resident or migratory fish or wildlife species.	BI	BI	BI	BI	BI	BI	LS	NI	NI	NI	NI	NI	**LS**	None required.
Noise and Vibration (NV)														
NV-1: Construction Noise. Construction activity would result in a temporary increase in ambient noise levels in the vicinity of all Proposed Project sites during construction that would not be substantial at most construction sites, except at the Injection Well Facilities and CalAm Distribution Monterey Pipeline sites.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LSM	LS	SU	**SU**	**Mitigation Measure NV-1a**: Drilling Contractor Noise Measures. (Applies to Injection Well Facilities) Contractor specifications shall include a requirement that drill rigs located within 700 feet of noise-sensitive receptors shall be equipped with noise reducing engine housings or other noise reducing technology and the line of sight between the drill rig and nearby sensitive receptors shall be blocked by portable acoustic barriers and/or shields to reduce noise levels such that drill rig noise levels are no more 75 dBA at 50 feet. This would reduce the nighttime noise level to less than 60 dBA Leq at the nearest residence. The contractor shall submit to the MRWPCA and the Seaside Building Official, a "Well Construction Noise Control Plan" for review and approval. The plan shall identify all feasible noise control procedures that would be implemented during night-time construction activities. At a minimum, the plan shall specify the noise control treatments to achieve the specified above noise performance standard. **Mitigation Measure NV-1b**: Monterey Pipeline Noise Control Plan for Nighttime Pipeline Construction. (Applies to CalAm Distribution System: Monterey Pipeline) CalAm shall submit a Noise Control Plan for all nighttime pipeline work to the California Public Utilities Commission for review and approval prior to the commencement of project construction activities. The Noise Control Plan shall identify all feasible noise control procedures to be implemented during nighttime pipeline installation in order to reduce noise levels to the extent practicable at the nearest residential or noise sensitive receptor. At a minimum, the Noise Control Plan shall require use of moveable noise screens, noise blankets, or other suitable sound attenuation devices be used to reduce noise levels during nighttime pipeline installation activities. **Mitigation Measure NV-1c**: Neighborhood Notice. (Applies to Injection Well Facilities and CalAm Distribution System: Monterey Pipeline) Residences and other sensitive receptors within 900 feet of a nighttime construction area shall be notified of the construction location and schedule in writing, at least two weeks prior to the commencement of construction activities. The notice shall also be posted along the proposed pipeline alignments, near the proposed facility sites, and at nearby recreational facilities. The contractor shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on construction site fences and included in the construction schedule notification sent to nearby residences. The notice to be distributed to residences and sensitive receptors shall first be submitted, for review and approval, to the MRWPCA and city and county staff as may be required by local regulations. **Mitigation Measure NV-1d:** RUWAP Pipeline Construction Noise. (Applies to the RUWAP Alignment Option of the Product Water Conveyance) The following measures will be implemented by the project proponents in response to comments from the Marina Coast Water District if the RUWAP alignment option of the Product Water Conveyance Pipeline is selected for implementation. • The construction contractor shall limit exterior construction related activities to the hours of restriction consistent with the noise ordinance of, and encroachment permits issued by, the relevant land use jurisdictions. • The contractor shall locate all stationary noise-generating equipment as far as possible from nearby noise-sensitive receptors. Where

Table S-1
Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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														possible, noise generating equipment shall be shielded from nearby noise-sensitive receptors by noise-attenuating buffers. Stationary noise sources located 500 feet from noise-sensitive receptors shall be equipped with noise reducing engine housings. Where possible and required by the local jurisdiction, portable acoustic barriers shall be placed around stationary noise generating equipment that is located less than 200 feet from noise-sensitive receptors. • The contractor shall assure that construction equipment powered by gasoline or diesel engines have sound control devices at least as effective as those provided by the original equipment manufacturer (OEM). No equipment shall be permitted to have an unmuffled exhaust. • The contractor shall assure that noise-generating mobile equipment and machinery are shut-off when not in use. • Residences within 500 feet of a construction area shall be notified of the construction schedule in writing, prior to construction. The project proponent(s) and contractor shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on construction site fences and written into the construction notification schedule sent to nearby residences.
NV-2: Construction Noise That Exceeds or Violate Local Standards. Construction activity would result in a temporary increase that at some locations could generate noise levels in excess of standards established in the local general plans and/or could violate local regulations.	NI	NI	LSM	SU	LSM	NI	NI	LSM	LSM	NI	NI	NI	**SU**	**Mitigation Measure NV-2a**: Construction Equipment. (Applies to Source Water Diversion and Storage Sites – Reclamation Ditch, Tembladero Slough and Blanco Drain, Product Water Conveyance Pipeline segments within the City of Marina and RUWAP Booster Station) Contractor specifications shall include a requirement that the contractor shall: - Assure that construction equipment with internal combustion engines has sound control devices at least as effective as those provided by the original equipment manufacturer. No equipment shall be permitted to have an un-muffled exhaust. - Impact tools (i.e., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler shall be placed on the compressed air exhaust to lower noise levels by approximately 10 dBA. External jackets shall be used on impact tools, where feasible, in order to achieve a further reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible. - The construction contractor(s) shall locate stationary noise sources (e.g., generators, air compressors) as far from nearby noise-sensitive receptors as possible, - For Product Water Conveyance pipeline segments within the City of Marina, noise controls shall be sufficient to not exceed 60 decibels for more than twenty-five percent of an hour, **Mitigation Measure NV-2b:** Construction Hours. (Applies to Product Water Conveyance Pipelines and Booster Pump Station in the City of Marina). The construction contractor shall limit all noise-producing construction activities within the City of Marina to between the hours of 7:00 AM and 7:00 PM on weekdays and between 9:00 AM and 7:00 PM Saturdays~~, except that construction may be allowed until 8:00 PM during daylight savings time~~.
NV-3: Construction Vibration. Construction of the Proposed Project would not expose sensitive receptors to excessive groundborne vibration.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
NV-4: Operational Noise. Operation of the Proposed Project facilities would potentially increase existing noise levels, but would not exceed noise level standards and/or result in nuisance impacts at sensitive receptors.	NI	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI	NI	**LS**	None required.
Population and Housing (PH)														
PH-1: Construction-Related Growth Inducement. Proposed Project construction would result in temporary increases in construction employment, but would not induce substantial population growth.	-	-	-	-	-	-	-	-	-	-	-	-	**LS**	None required.
PH-2: Operations and Infrastructure-Related Growth Inducement. Operation of the Proposed Project would not directly result in population growth, and would not indirectly result in inducement of substantial population growth.	-	-	-	-	-	-	-	-	-	-	-	-	**LS**	None required.

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Summary of Project-Level Impacts and Mitigation Measures

Impact Statement	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall	Mitigation Measures
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Public Services, Utilities, and Recreation (PS)														
PS-1: Construction Public Services Demand. Construction of the Proposed Project would not result in public service demands for fire and police protection services, schools, or parks that would result in the need for new or physically altered facilities to maintain service capacity or performance objectives.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
PS-2: Construction Landfill Capacity. Construction of the Proposed Project would result in generation of solid waste; however, the solid waste would be disposed at a landfill with sufficient permitted daily and overall capacity to accommodate the project's solid waste disposal needs.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
PS-3: Construction Solid Waste Policies and Regulations. Construction of the Proposed Project would potentially conflict with state and local statutes, policies and regulations related to solid waste.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	**LSM**	**Mitigation Measure PS-3**: Construction Waste Reduction and Recycling Plan (relevant to all Proposed Project components). The construction contractor(s) shall prepare and implement a construction waste reduction and recycling plan identifying the types of construction debris the Proposed Project will generate and the manner in which those waste streams will be handled. In accordance with the California Integrated Waste Management Act of 1989, the plan shall emphasize source reduction measures, followed by recycling and composting methods, to ensure that construction and demolition waste generated by the project is managed consistent with applicable statutes and regulations. In accordance with the California Green Building Standards Code and local regulations, the plan shall specify that all trees, stumps, rocks, and associated vegetation and soils, and 50% of all other nonhazardous construction and demolition waste, be diverted from landfill disposal. The plan shall be prepared in coordination with the Monterey Regional Waste Management District and be consistent with Monterey County's Integrated Waste Management Plan. Upon project completion, MRWPCA and CalAm shall collect the receipts from the contractor(s) to document that the waste reduction, recycling, and diversion goals have been met.
PS-4: Public Services Demand During Operation. Operation of the Proposed Project would not result in public service demands for fire and police protection services, schools, or parks that would result in the need for new or physically altered facilities to maintain service capacity or performance objectives.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
PS-5: Landfill Capacity for Operations. Operation of the Proposed Project would not result in adverse effects on landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
Traffic and Transportation (TR)														
TR-1: Construction Traffic. Proposed Project construction would result in a temporary increase in traffic volumes on regional and local roadways due to construction-related vehicle trips, which would not result in conflicts with any applicable plan, ordinance, or policy establishing measures of effectiveness for performance of the circulation system.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
TR-2: Construction-Related Traffic Delays, Safety and Access Limitations. Construction activities could result in temporary traffic delays, safety hazards, and/or disruption of access.	LS	LS	LS	LS	LS	NI	LS	LSM	LSM	NI	LSM	LSM	**LSM**	**Mitigation Measure TR-2**: Traffic Control and Safety Assurance Plan. Prior to construction, MRWPCA and/or its contractor shall prepare and implement a traffic control plan or plans for the roadways and intersections affected by MRWPCA construction (Product Water Conveyance Pipeline) and CalAm shall prepare and implement a traffic control plan for the roadways and intersections affected by the CalAm Distribution System Improvements (Transfer and Monterey pipelines). The traffic control plan(s) shall comply with the affected jurisdiction's encroachment permit requirements and will be based on detailed design plans. For all project construction activities that could affect the public right-of-way (e.g., roadways, sidewalks, and walkways), the plan shall include measures that would provide for continuity of vehicular, pedestrian, and

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														bicyclist access; reduce the potential for traffic accidents; and ensure worker safety in construction zones. Where project construction activities could disrupt mobility and access for bicyclists and pedestrians, the plan shall include measures to ensure safe and convenient access would be maintained. The traffic control and safety assurance plan shall be developed on the basis of detailed design plans for the approved project. The plan shall include, but not necessarily be limited to, the elements listed below: General a. Develop circulation and detour plans to minimize impacts on local streets. As necessary, signage and/or flaggers shall be used to guide vehicles to detour routes and/or through the construction work areas. b. Implement a public information program to notify motorists, bicyclists, nearby residents, and adjacent businesses of the impending construction activities (e.g., media coverage, email notices, websites, etc.). Notices of the location(s) and timing of lane closures shall be published in local newspapers and on available websites to allow motorists to select alternative routes. Roadways c. Haul routes that minimize truck traffic on local roadways and residential streets shall be used to the extent feasible. d. Schedule truck trips outside of peak morning and evening commute hours to minimize adverse impacts on traffic flow. e. Limit lane closures during peak hours. Travel lane closures, when necessary, shall be managed such that one travel lane is kept open at all times to allow alternating traffic flow in both directions along affected two-lane roadways~~; the contractor shall use steel plates or trench backfilling to restore vehicle access at the end of each workday.~~ In the City of Marina, one-way traffic shall be limited to a maximum of 5 minutes of traffic delay. f. Restore roads and streets to normal operation by covering trenches with steel plates outside of normal work hours or when work is not in progress. g. Comply with roadside safety protocols to reduce the risk of accidents. Provide "Road Work Ahead" warning signs and speed control (including signs informing drivers of state legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. Train construction personnel to apply appropriate safety measures as described in the plan. h. Provide flaggers in school areas at street crossings to manage traffic flow and maintain traffic safety during the school drop-off and pickup hours on days when pipeline installation would occur in designated school zones. i. Maintain access to private driveways. j. Coordinate with MST so the transit provider can temporarily relocate bus routes or bus stops in work zones as deemed necessary. Pedestrian and Bicyclists k. Perform construction that crosses on street and off street bikeways, sidewalks, and other walkways in a manner that allows for safe access for bicyclists and pedestrians. Alternatively, provide safe detours to reroute affected bicycle/pedestrian traffic. Recreational Trails l. At least two weeks prior to construction, post signage along all potentially affected recreational trails; Class I, II, and II bicycle routes; and pedestrian pathways, including the Monterey Peninsula Recreational Trail, to warn bicyclists and pedestrians of construction activities. The signs shall include information regarding the nature of construction activities, duration, and detour routes. Signage shall be composed of or encased in weatherproof material and posted in conspicuous locations, including on park message boards, and existing wayfinding signage and kiosks, for the duration of the closure period. At the end of the closure period, CalAm, MRWPCA or either of its contractors shall retrieve all notice materials. Emergency Access m. Maintain access for emergency vehicles at all times. Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. n. Provide advance notification to local police, fire, and emergency service providers of the timing, location, and duration of construction activities that could affect the movement of emergency vehicles on area roadways. o. Avoid truck trips through designated school zones during the school drop-off and pickup hours.
TR-3: Construction-Related Roadway Deterioration. Construction truck trips could result in increased wear-and-tear on the designated haul routes, which could result in temporary impacts to performance of the regional circulation system.	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	**LSM**	**Mitigation Measure TR-3**: Roadway Rehabilitation Program (applies to all Proposed Project components) Prior to commencing project construction, MRWPCA (for all components other than the CalAm Distribution System Improvements) and CalAm (for CalAm Distribution System Improvements) shall detail the preconstruction condition of all local construction access and haul routes proposed for substantial use by project-related construction vehicles. The construction routes surveyed must be consistent with those identified in the construction traffic control and safety assurance plan developed under Mitigation Measure TR-2. After construction is completed, the same roads shall be surveyed again to determine whether excessive wear and tear or construction damage has occurred. Roads damaged by project-related construction vehicles shall be repaired to a structural condition equal to, or greater than, that which existed prior to construction activities. In the City of Marina, the

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														construction in the city rights-way must comply with the City's design standards, including restoration of the streets from curb to curb, as applicable. In the City of Monterey, asphalt pavement of full travel lanes will be resurfaced without seams along wheel or bike paths.
TR-4: Construction Parking Interference. Construction activities may temporarily affect parking availability.	NI	NI	NI	NI	NI	LSM	NI	LSM	LSM	NI	LSM	LSM	**LSM**	**Mitigation Measure TR-4**: Construction Parking Requirements.(Applies to Product Water Conveyance pipelines (RUWAP and Coastal Alignments) in Marina and Seaside, and CalAm Distribution System: Transfer Pipeline and Monterey Pipeline). Prior to commencing project construction, the construction contractor(s) shall coordinate with the potentially affected jurisdictions to identify designated worker parking areas that would avoid or minimize parking displacement in congested areas of Marina, Seaside, and downtown Monterey. The contractors shall provide transport between the designated parking location and the construction work areas. The construction contractor(s) shall also provide incentives for workers that carpool or take public transportation to the construction work areas. The engineering and construction design plans shall specify that contractors limit time of construction within travel lanes and public parking spaces and provide information to the public about locations of alternative spaces to reduce parking disruptions.
TR-5: Operational Traffic. Operation and maintenance of the Proposed Project would result in small traffic increases on regional and local roadways, but would not substantially affect the performance of the regional circulation system.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
Water Supply and Wastewater Systems (WW)														
WW-1: Construction-Related Water Demand. The Proposed Project would result in a temporary increase in water use due to construction-related demands, but existing water supplies would be sufficient to serve construction-related demands and construction activities would not require new or expanded water supply resources or entitlements.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
WW-2: Construction-Related Wastewater Generation. The Proposed Project would result in a temporary increase in wastewater generation due to demand from construction workers, but existing wastewater treatment facilities have sufficient capacity to serve construction-related demands.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
WW-3: Operational Water Supply and Entitlements. Sufficient water supplies are available for operation of the Proposed Project; prior to construction of each source water diversion component and prior to diversion of secondary treated effluent, the project proponent would obtain applicable water rights, permits, or agreements.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**	None required.
WW-4: Operational Wastewater Treatment Capacity. Operation of the Proposed Project would not result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI	NI	**LS**	None required.

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Mitigation Measures for Impact BT-1: Construction Impacts to Special-Status Species and Habitat

Mitigation Measure BT-1a: Implement Construction Best Management Practices. (Applies to All Proposed Project Components) The following best management practices shall be implemented during all identified phases of construction (i.e., pre-, during, and post-) to reduce impacts to special-status plant and wildlife species:

1. A qualified biologist must conduct an Employee Education Program for the construction crew prior to any construction activities. A qualified biologist must meet with the construction crew at the onset of construction at the site to educate the construction crew on the following: 1) the appropriate access route(s) in and out of the construction area and review project boundaries; 2) how a biological monitor will examine the area and agree upon a method which would ensure the safety of the monitor during such activities, 3) the special-status species that may be present; 4) the specific mitigation measures that will be incorporated into the construction effort; 5) the general provisions and protections afforded by the USFWS and CDFW; and 6) the proper procedures if a special-status species is encountered within the site.
2. Trees and vegetation not planned for removal or trimming shall be protected prior to and during construction to the maximum extent possible through the use of exclusionary fencing, such as hay bales for herbaceous and shrubby vegetation, and protective wood barriers for trees. Only certified weed-free straw shall be used, to avoid the introduction of non-native, invasive species. A biological monitor shall supervise the installation of protective fencing and monitor at least once per week until construction is complete to ensure that the protective fencing remains intact.
3. Protective fencing shall be placed prior to and during construction to keep construction equipment and personnel from impacting vegetation outside of work limits. A biological monitor shall supervise the installation of protective fencing and monitor at least once per week until construction is complete to ensure that the protective fencing remains intact.
4. Following construction, disturbed areas shall be restored to pre-construction contours to the maximum extent possible and revegetated using locally-occurring native species and native erosion control seed mix, per the recommendations of a qualified biologist.
5. Grading, excavating, and other activities that involve substantial soil disturbance shall be planned and carried out in consultation with a qualified hydrologist, engineer, or erosion control specialist, and shall utilize standard erosion control techniques to minimize erosion and sedimentation to native vegetation (pre-, during, and post-construction).
6. No firearms shall be allowed on the construction sites at any time.
7. All food-related and other trash shall be disposed of in closed containers and removed from the project area at least once a week during the construction period, or more often if trash is attracting avian or mammalian predators. Construction personnel shall not feed or otherwise attract wildlife to the area.
8. <u>To protect against spills and fluids leaking from equipment, the project proponent shall require that the construction contractor maintains an on-site spill plan and on-site spill containment measures that can be easily accessed.</u>
9. <u>Refueling or maintaining vehicles and equipment should only occur within a specified staging area that is at least 100 feet from a waterbody (including riparian and wetland habitat) and that has sufficient management measures that will prevent fluids or other construction materials including water from being transported into waters of the state. Measures shall include confined concrete washout areas, straw wattles placed around stockpiled materials and plastic sheets to cover materials from becoming airborne or otherwise transported due to wind or rain into surface waters.</u>

10. <u>The project proponent and/or its contractors shall coordinate with the City of Seaside on the location of Injection Well Facilities and the removal of sensitive biotic material.</u>

Mitigation Measure BT-1b: Implement Construction-Phase Monitoring. (Applies to Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Project Water Conveyance: RUWAP and Coastal Pipeline Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) The project proponents shall retain a qualified biologist to monitor all ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to protect any special-status species encountered. Any handling and relocation protocols of special-status wildlife species shall be determined in coordination with CDFW prior to any ground disturbing activities, and conducted by a qualified biologist with appropriate scientific collection permit. After ground disturbing project activities are complete, the qualified biologist shall train an individual from the construction crew to act as the on-site construction biological monitor. The construction biological monitor shall be the contact for any special-status wildlife species encounters, shall conduct daily inspections of equipment and materials stored on site and any holes or trenches prior to the commencement of work, and shall ensure that all installed fencing stays in place throughout the construction period. The qualified biologist shall then conduct regular scheduled and unscheduled visits to ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols. Both the qualified biologist and the construction biological monitor shall have the authority to stop and/or redirect project activities to ensure protection of resources and compliance with all environmental permits and conditions of the project. The qualified biologist and the construction monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the project. The log shall also include any special-status wildlife species observed and relocated.

Mitigation Measure BT-1c: Implement Non-Native, Invasive Species Controls. (Applies to All Proposed Project Components) The following measures shall be implemented to reduce the introduction and spread of non-native, invasive species:

1. Any landscaping or replanting required for the project shall not use species listed as noxious by the California Department of Food and Agriculture (CDFA).
2. Bare and disturbed soil shall be landscaped with CDFA recommended seed mix or plantings from locally adopted species to preclude the invasion on noxious weeds in the Project Study Area.
3. Construction equipment shall be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds, before mobilizing to arrive at the construction site and before leaving the construction site.
4. All non-native, invasive plant species shall be removed from disturbed areas prior to replanting.

Mitigation Measure BT-1d: Conduct Pre-Construction Surveys for California Legless Lizard. (Applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) The project proponents shall retain a qualified biologist to prepare and implement a legless lizard management plan in coordination with CDFW, which shall include, but is not limited to, the protocols for pre-construction surveys, construction monitoring, and salvage and relocation. The management plan shall include, but is not limited to, the following:

Pre-Construction Surveys. Pre-construction surveys for legless lizards shall be conducted in all suitable habitat proposed for construction, ground disturbance, or staging. The qualified biologist shall hold or obtain a CDFW scientific collection permit for this species. The pre-construction surveys shall use a method called “high-grading.” The high grading method shall include surveying the habitat where legless lizards are most likely to be found, and the survey must occur under the conditions when legless lizards are most likely to be seen and captured (early morning, high soil moisture, overcast, etc.). The intensity of a continued search may then be adjusted, based on the results of the first survey in the best habitat.

A “three pass method” shall be used to locate and remove as many legless lizards as possible. A first pass shall locate as many legless lizards as possible, a second pass should locate fewer lizards than the first pass, and a third pass should locate fewer lizards than the second pass. All search passes shall be conducted in the early morning when legless lizards are easiest to capture. Vegetation may be removed by hand to facilitate hand raking and search efforts for legless lizards in the soil under brush. If lizards are found during the first pass, an overnight period of no soil disturbance must occur before the second pass, and the same requirement shall be implemented after the second pass. If no lizards are found during the second pass, a third pass is not required. Installation of a barrier, in accordance with the three pass method, shall be required if legless lizards are found at the limits of construction (project boundaries) and sufficient soft sand and vegetative cover are present to suspect additional lizards are in the immediate vicinity on the adjacent property. A barrier shall prevent movement of legless lizards into the property. All lizards discovered shall be handled according to the salvage procedures outlined below.

Construction Monitoring. Monitoring by a qualified biologist shall be ongoing during construction. The onsite monitor shall be present during all ground-disturbing construction activities. To facilitate the careful search for lizards during construction, vegetation may need to be removed. If removal by hand is impractical, equipment such as a chainsaw, string trimmer, or skid-steer may be used, if a monitor and crew are present. The task of the vegetation removal is to remove plants under the direction of the monitor, allowing the monitor to watch for legless lizards. After plants are removed, the monitor and crew shall search the exposed area for legless lizards. If legless lizards are found during pre-construction surveys or construction monitoring, the protocols for salvage and relocation identified below shall be followed. Upon completion of pre-construction surveys, construction monitoring, and any resulting salvage and relocation actions, a report shall be submitted to the CDFW. The CDFW must be notified at least 48 hours before any field activity begins.

Salvage and Relocation. Only experienced persons may capture or handle legless lizards. The monitor must demonstrate a basic understanding, knowledge, skill, and experience with this species and its habitat. Once captured, a lizard shall be placed in a lidded, vented box containing clean sand. Areas of moist and dry sand need to be present in the box. The boxes must be kept out of direct sunlight and protected from temperatures over 72°F. The sand must be kept at temperatures under 66°F. Ideal temperatures are closer to 60°F. On the same day as capture, the lizards shall be examined for injury and data recorded on location where found as well as length, color, age, and tail condition. Once data is recorded, lizards shall be relocated to appropriate habitat, as determined through coordination with the CDFW, qualified biologist, and potential landowners.

Suitability of habitat for lizard release must be evaluated and presented in a management plan. The habitat must contain habitat factors most important to the health and survival of the species such as appropriate habitat based on soils, vegetated cover, native plant species providing cover, plant litter layer and depth, soil and ambient temperature, quality and composition of invertebrate population and prey availability. Potential relocation sites that contain the necessary conditions may exist within the habitat reserves on the former Fort Ord, including the Fort Ord National Monument. Lizards shall be marked with a unique tag (pit or tattoo) prior to release. Release for every lizard shall be recorded with GPS. GPS locations shall be submitted as part of the survey result report to document the number and locations of lizards relocated.

Mitigation Measure BT-1e: Prepare and Implement Rare Plant Restoration Plan to Mitigate Impacts to Sandmat Manzanita, Monterey Ceanothus, Monterey Spineflower, Eastwood's Goldenbush, Coast Wallflower, and Kellogg's Horkelia. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline; does not apply to HMP species within the former Fort Ord) Impacts to rare plant species individuals shall be avoided through project design and modification, to the extent feasible while taking into consideration other site and engineering constraints. If avoidance is not possible, the species shall be replaced at a 1:1 ratio for area of impact through preservation, restoration, or combination of both. A Rare Plant Restoration Plan, approved by the lead agency prior to commencing construction on the component site upon which the rare plant species would be impacted, shall be prepared and implemented by a qualified biologist. The plan shall include, but is not limited to, the following:

a. A detailed description of on-site and/or off-site mitigation areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, including, if appropriate, increased planting ratio to ensure the applicable success ratio. Specifically, seed shall be collected from the on-site individuals that would be impacted and grown in a local greenhouse, and then transplanted within the mitigation area. Plants shall be transplanted while they are young seedlings in order to develop a good root system. Alternatively, the mitigation area may be broadcast seeded in fall; however, if this method is used, some seed shall be retained in the event that the seeding fails to produce viable plants and contingency measures need to be employed.

b. A description of a 3-year monitoring program, including specific methods of vegetation monitoring, data collection and analysis, restoration goals and objectives, success criteria, adaptive management if the criteria are not met, reporting protocols, and a funding mechanism.

The mitigation area shall be preserved in perpetuity through a conservation easement or other legally enforceable land preservation agreement. Exclusionary fencing shall be installed around the mitigation area to prevent disturbance until success criteria have been met.

Mitigation Measure BT-1f: Conduct Pre-Construction Protocol-Level Botanical Surveys within the Product Water Conveyance: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch; and the remaining portion of the Project Study Area within the Injection Well Facilities site. (Applies to Product Water Conveyance: Coastal Alignment Option and non-HMP species at the Injection Well Facilities site.) The project proponents shall retain a qualified biologist to conduct protocol-level surveys for special-status plant species within the Project Survey Area of the Product Water Conveyance Pipeline: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch and the portion of the Injection Well Facilities site not yet surveyed. Protocol-level surveys shall be conducted by a qualified biologist at the appropriate time of year for species with the potential to occur within the site. A report describing the results of the surveys shall be provided to the project proponents prior to any ground disturbing activities. The report shall include, but is not limited to: 1) a description of the species observed, if any; 2) map of the location, if observed; and 3) recommended avoidance and minimization measures, if applicable. The avoidance and minimization measures shall include, but are not limited to, the following:

- Impacts to species individuals shall be avoided through project design and modification, to the extent feasible while taking into consideration other site and engineering constraints.
- If impacts to State listed plant species cannot be avoided, the project proponents shall comply with the CESA and consult with the CDFW to determine whether authorization for the incidental take of the species is required prior to commencing construction. If it is determined that authorization for incidental take is required from the CDFW, the project proponents shall comply with the CESA to obtain an incidental take permit prior to commencing construction on the site upon which state listed plant species could be taken. Permit requirements typically involve preparation and implementation of a mitigation plan and mitigating impacted habitat at a 3:1 ratio through preservation and/or restoration. At a minimum, the impacted plant species shall be replaced at a 1:1 ratio through preservation and/or restoration, as described below. The project proponents shall retain a qualified biologist to prepare a mitigation plan, which shall include, but is not limited to identifying: avoidance and minimization measures; mitigation strategy, including a take assessment, avoidance and minimization measures, compensatory mitigation lands, and success criteria; and funding assurances. The project proponents shall be required to implement the approved plan and any additional permit requirements.
- If impacts to non-State listed, special-status plant species cannot be avoided, the species shall be replaced at a 1:1 ratio for acreage and/or individuals impacted through preservation, restoration, or combination of both. A Rare Plant Restoration Plan, approved by the project proponents prior to commencing of construction on the site upon which the rare plant would be impacted, shall be prepared and implemented by a qualified biologist. The plan shall include, but is not limited to, the following:
    - A detailed description of on-site and/or off-site mitigation areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, including, if appropriate, increased planting ratio to ensure the applicable success ratio. Specifically, seed shall be collected from the on-site individuals that will be impacted and grown in a local

greenhouse, and then transplanted within the mitigation area. Plants shall be transplanted while they are young seedlings in order to develop a good root system. Alternatively, the mitigation area may be broadcast seeded in fall; however, if this method is used, some seed shall be retained in the event that the seeding fails to produce viable plants and contingency measures need to be employed.

- A description of a 3-year monitoring program, including specific methods of vegetation monitoring, data collection and analysis, restoration goals and objectives, success criteria, adaptive management if the criteria are not met, reporting protocols, and a funding mechanism.

The mitigation area shall be preserved in perpetuity through a conservation easement or other legally enforceable land preservation agreement. Exclusionary fencing shall be installed around the mitigation area to prevent disturbance until success criteria have been met.

Mitigation Measure BT-1g: Conduct Pre-Construction Surveys for Special-Status Bats. (Applies to Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options and Booster Stations, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) To avoid and reduce impacts to special-status bat species, the project proponents shall retain a qualified bat specialist or wildlife biologist to conduct site surveys during the reproductive season (May 1 through September 15) to characterize bat utilization of the component site and potential species present (techniques utilized to be determined by the biologist) prior to tree or building removal. Based on the results of these initial surveys, one or more of the following shall occur:

- If it is determined that bats are not present at the component site, no additional mitigation is required.
- If it is determined that bats are utilizing the component site and may be impacted by the Proposed Project, pre-construction surveys shall be conducted no more than 30 days prior to any tree or building removal (or any other suitable roosting habitat) within 100 feet of construction limits. If, according to the bat specialist, no bats or bat signs are observed in the course of the pre-construction surveys, tree and building removal may proceed. If bats and/or bat signs are observed during the pre-construction surveys, the biologist shall determine if disturbance would jeopardize a maternity roost or another type of roost (i.e., foraging, day, or night).
- If a single bat and/or only adult bats are roosting, removal of trees, buildings, or other suitable habitat may proceed after the bats have been safely excluded from the roost. Exclusion techniques shall be determined by the biologist and would depend on the roost type.
- If an active maternity roost is detected, avoidance is preferred. Work in the vicinity of the roost (buffer to be determined by biologist) shall be postponed until the biologist monitoring the roost determines that the young have fledged and are no longer dependent on the roost. The monitor shall ensure that all bats have left the area of disturbance prior to initiation of pruning and/or removal of trees that would disturb the roost. If avoidance is not possible and a maternity roost must be disrupted, authorization from CDFW shall be required prior to removal of the roost.

Mitigation Measure BT-1h: Implementation of Mitigation Measures BT-1a and BT-1b to Mitigate Impacts to the Monterey Ornate Shrew, Coast Horned Lizard, Coast Range Newt, Two-Striped Garter Snake, and Salinas Harvest Mouse. (Applies to Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) If these species are encountered, implementation of **Mitigation Measures BT-1a** and **BT-1b**, which avoid and minimize impacts through implementing construction best management practices and monitoring, would reduce potential impacts to these species to a less-than-significant level.

Mitigation Measure BT-1i: Conduct Pre-Construction Surveys for Monterey Dusky-Footed Woodrat. (Applies to Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities) To avoid and reduce impacts to the Monterey dusky-footed woodrat, the project proponents shall retain a qualified biologist to conduct pre-construction surveys in suitable habitat proposed for construction, ground disturbance, or staging within three days prior to construction for woodrat nests within the project area and in a buffer zone 100 feet out from the limit of disturbance. All woodrat nests shall be flagged for avoidance of direct construction impacts and protection during construction, where feasible. Nests that cannot be avoided shall be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material shall be replaced, and the nest left alone for 2-3 weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling.

Mitigation Measure BT-1j: Conduct Pre-Construction Surveys for American Badger. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options) To avoid and reduce impacts to the American badger, the project proponents shall retain a qualified biologist to conduct focused pre-construction surveys for badger dens in all suitable habitat proposed for construction, ground disturbance, or staging no more than two weeks prior to construction. If no potential badger dens are present, no further mitigation is required. If potential dens are observed, the following measures are required to avoid potential significant impacts to the American badger:

- If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers from re-using them during construction.
- If the qualified biologist determines that potential dens may be active, the den shall be monitored for a period sufficient (as determined by a qualified biologist) to determine if the den is a maternity den occupied by a female and her young, or if the den is occupied by a solitary badger.
- Maternity dens occupied by a female and her young shall be avoided during construction and a minimum buffer of 200 feet in which no construction activities shall occur shall be maintained around the den. After the qualified biologist determines that badgers have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.
- Solitary male or female badgers shall be passively relocated by blocking the entrances of the dens with soil, sticks, and debris for three to five days to discourage the use of these dens prior to project construction disturbance. The den entrances shall be blocked to an incrementally greater degree over the three to five day period. After the qualified biologist determines that badgers have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.

Mitigation Measure BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark. (Applies to All Components) Prior to the start of construction activities at each project component site, a qualified biologist shall conduct pre-construction surveys for suitable nesting habitat within the component Project Study Area and within a suitable buffer area from the component Project Study Area. The qualified biologist shall determine the suitable buffer area based on the avian species with the potential to nest at the site.

In areas where nesting habitat is present within the component project area or within the determined suitable buffer area, construction activities that may directly (e.g., vegetation removal) or indirectly (e.g., noise/ground disturbance) affect protected nesting avian species shall be timed to avoid the breeding and nesting season. Specifically, vegetation and/or tree removal can be scheduled after September 16 and before January 31. Alternatively, a qualified biologist shall be retained by the project proponents to conduct pre-construction surveys for nesting raptors and other protected avian species where nesting habitat was identified and within the suitable buffer area if construction commences between February 1 and September 15. Pre-construction surveys shall be conducted no more than 14 days prior to the start of construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). Because some bird species nest early in spring and others nest later in summer, surveys for nesting birds may be required to continue during construction to address new arrivals, and because some species breed multiple times in a season. The necessity and timing of these continued surveys shall be determined by the qualified biologist based on review of the final construction plans.

If active raptor or other protected avian species nests are identified during the pre-construction surveys, the qualified biologist shall notify the project proponents and an appropriate no-disturbance buffer shall be imposed within which no construction activities or disturbance shall take place until the young have fledged and are no longer reliant upon the nest or parental care for survival, as determined by a qualified biologist.

Mitigation Measure BT-1l: Conduct Pre-Construction Surveys for Burrowing Owl. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options and CalAm Distribution System: Monterey Pipeline) In order to avoid impacts to active burrowing owl nests, a qualified biologist shall conduct pre-construction surveys in suitable habitat within the construction footprint and within a suitable buffer, as determined by a qualified biologist, of the footprint no more than 30 days prior to the start of construction at a component site. If ground disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site shall be resurveyed. The survey shall conform to the DFG 1995 Staff Report protocol. If no burrowing owls are found, no further mitigation is required. If it is determined that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation effort (e.g., blocking burrows with one-way doors and leaving them in place for a minimum of three days) shall be undertaken to ensure that the owls are not harmed or injured during construction. Once it has been determined that the owls have vacated the site, the burrows shall be collapsed, and ground disturbance can proceed. If burrowing owls are detected within the construction footprint or immediately adjacent lands (i.e. within 250 feet of the footprint) during the breeding season (February 1 to August 31), a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer area shall be enclosed with temporary fencing, and construction equipment and workers shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls shall take place as described above.

Mitigation Measure BT-1m: Minimize effects of nighttime construction lighting. (Applies to Injection Well Facilities and CalAm Distribution System: Monterey Pipeline) Nighttime construction lighting shall be focused and downward directed to preclude night illumination of the adjacent open space area.

Mitigation Measure BT-1n: Mitigate Impacts to Smith's blue butterfly. (Applies to Product Water Conveyance: Coastal Alignment Option and CalAm Distribution System: Monterey Pipeline) Removal or damage to obligate host plant species (coast and dune buckwheat) shall be avoided through project design and modification to the extent feasible while taking into consideration other site and engineering constraints, unless protocol-level surveys by an approved biologist determine the species is not present.

If avoidance is not possible and protocol-level surveys are not conducted, or if protocol-level surveys have a positive presence finding, Section 7 formal consultation under the federal ESA with the USFWS would be required due to the project's federal nexus (e.g., federal funding) and the potential impacts to federally listed species that may result from the Proposed Project. If the project construction activities would be likely to adversely affect the species, a Section 7 consultation would be initiated, and the USFWS would issue a Biological Opinion for the project. The Biological Opinion would require measures to reduce impacts to this species such that jeopardy to the species is avoided. Measures shall include, but would not be limited to, restoration and/or preservation at a 3:1 ratio of impacted habitat and buckwheat plant and/or seed salvage prior to ground disturbing activities. Any measures required by the Biological Opinion shall be incorporated into the Proposed Project's Mitigation Monitoring and Reporting Program and implemented in accordance with the Biological Opinion.

Mitigation Measure BT-1o: Avoid and Minimize Impacts to Monarch butterfly. (Applies to CalAm Distribution System: Monterey Pipeline) If any eucalyptus trees must be removed during the monarch butterfly winter roosting season (generally October – February), the site containing the trees shall be surveyed by a qualified biologist to ensure that a roosting colony is not present prior to eucalyptus tree removal. Since timing of monarch migration on the coast varies year to year, the survey shall be conducted at a time to coincide with monarch roosting activity on the coast for that particular year as determined by a qualified biologist. Information on monarch roosting activity must be verified with a qualified biologist prior to conducting the survey. If a roosting colony is not detected, tree removal may commence and no further surveys are warranted. However, if a roosting colony is detected, trees shall not be removed until the winter roosting season has concluded (i.e., no more monarchs have been observed in the general area or using the trees).

Mitigation Measure BT-1p: Avoid and Minimize Impacts to Western Pond Turtle. (Applies to Blanco Drain Diversion and Product Water Conveyance: Coastal Alignment Option) A qualified biologist shall survey suitable habitat no more than 48 hours before the onset of work activities at the component site for the presence of western pond turtle. If pond turtles are found and these individuals are likely to be killed or injured by work activities, the biologist shall be allowed sufficient time to move them from the site before work activities begin. The biologist shall relocate the pond turtles the shortest distance possible to a location that contains suitable habitat and would not be affected by activities associated with the project.

Mitigation Measure BT-1q: Avoid and Minimize Impacts to California Red-Legged Frog. (Applies to Salinas Treatment Facility and Blanco Drain Diversion) The following measures for avoidance and minimization of adverse impacts to California Red-Legged Frog (CRLF) during construction of the Proposed Project components are those typically employed for construction activities that may result in short-term impacts to individuals and their habitat. The focus of these measures is on scheduling activities at certain times of year, keeping the disturbance footprint to a minimum, and monitoring.
The MRWPCA shall annually submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project construction activities at the component site would begin until the MRWPCA receives confirmation from the USFWS that the biologist(s) is qualified to conduct the work.
A USFWS-approved biologist shall survey the work site 48 hours prior to the onset of construction activities. If CRLF, tadpoles, or eggs are found, the approved biologist shall determine the closest appropriate relocation site. The approved biologist shall be allowed sufficient time to move CRLF, tadpoles or eggs from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and moving of CRLF.
Before any construction activities begin on the project component site, a USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the CRLF and its habitat, the importance of the CRLF and its habitat, general measures that are being implemented to conserve the CRLF as they relate to the project, and the boundaries within which the project construction activities may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

A USFWS-approved biologist shall be present at the work site until such time as all removal of CRLF, instruction of workers, and disturbance of habitat have been completed. After this time, the biologist shall designate a person to monitor on-site compliance with all minimization measures and any future staff training. The USFWS-approved biologist shall ensure that this individual receives training outlined in Mitigation Measure BT-1a and in the identification of CRLF. The monitor and the USFWS-approved biologist shall have the authority to stop work if CRLF are in harm's way.

The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of riparian and wetland areas to the extent practicable.

Work activities shall be completed between April 1 and November 1, to the extent practicable. Should the project proponent demonstrate a need to conduct activities outside this period, the project proponent may conduct such activities after obtaining USFWS approval (applies to Blanco Drain site only).

If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters (mm) to prevent CRLF from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

The Declining Amphibian Populations Task Force's Fieldwork Code of Practice shall be followed to minimize the possible spread of chytrid fungus or other amphibian pathogens and parasites.

Table S-2
Summary of Cumulative Impacts and Mitigation Measures

#	Topical Section/ Cumulative Impact Issue		Determination of Significance and Discussion of Contribution of the Proposed Project to Cumulative Impacts (if applicable)	Mitigation Measures
4.2	Aesthetics		LS: There would be no significant cumulative construction or operational aesthetic impacts.	
4.3	Air Quality and Greenhouse Gas	Construction Greenhouse Gas Emissions	LS: The Proposed Project construction would not make a considerable contribution to significant cumulative impacts due to greenhouse gas emissions and the related global climate change impacts.	
		Overall Greenhouse Gas Emissions	LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts of greenhouse gas emissions and the related global climate change impacts	
		Air Quality: Overall PM10	**LSM:** The Proposed Project would potentially make a considerable contribution to significant cumulative of regional emissions of PM_{10}; however, with implementation of Mitigation Measure AQ-1, the impact would be reduced to less than significant and the proposed Project would not make a considerable contribution to a significant cumulative impact.	AQ-1 (see Table S-1)
4.4	Biological Resources: Fisheries		LS: There would be no significant construction or operational cumulative impacts to biological resources: fisheries.	
4.5	Biological Resources: Terrestrial		LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts to biological resources: terrestrial.	
4.6	Cultural and Paleontological Resources		LS: There would be no significant construction or operational cumulative impacts to cultural and paleontological resources.	
4.7	Energy and Mineral Resources	Energy	LS: The Proposed Project would not make a cumulatively considerable contribution to a significant cumulative energy impact.	
		Minerals	LS: There would be no significant construction or operational cumulative impacts to mineral resources.	
4.8	Geology, Soils, and Seismicity		LS: There would be no significant construction or operational cumulative geology, seismicity or soils impacts.	
4.9	Hazards and Hazardous Materials		LS: There would be no significant construction or operational cumulative impacts related to hazards or hazardous materials.	
4.10	Hydrology/Water Quality: Groundwater		LS: The Proposed Project would not contribute to significant cumulative impacts to groundwater levels, recharge, storage or quality in the Salinas Valley Groundwater Basin. There would be no significant construction or operational impact to groundwater levels, recharge or storage in the Seaside Groundwater Basin. The Proposed Project would not make a considerable contribution to cumulative impacts to groundwater quality in the Seaside Basin.	
4.11	Hydrology/Water Quality: Surface Water	Inland Surface Waters	LS: There would be no significant construction or operational cumulative impacts to hydrology and water quality of inland surface waters.	
		Marine Surface Waters	**LSM:** The Proposed Project would potentially make a considerable contribution to significant cumulative impacts to marine water quality due to the potential exceedance of the California Ocean Plan water quality objectives for several constituents; however, with implementation of Mitigation Measure HS-C, the impact would be reduced to less than significant and the proposed Project would not make a considerable contribution to a significant cumulative impact.	HS-C (see full text following this table)

Table S-2
Summary of Cumulative Impacts and Mitigation Measures

#	Topical Section/ Cumulative Impact Issue		Determination of Significance and Discussion of Contribution of the Proposed Project to Cumulative Impacts (if applicable)	Mitigation Measures
4.12	Land Use, Agriculture, and Forest Resources		LS: There would be no significant construction or operational cumulative land use impacts, and the Proposed Project would not make a considerable contribution to significant cumulative impacts related to conversion of agricultural lands within unincorporated Monterey County.	
4.13	Marine Biological Resources		LSM: The Proposed Project would potentially result in a considerable contribution to significant cumulative impacts on marine biological resources due to the potential exceedance of the Ocean Plan water quality objectives for several constituents; however, with implementation of Mitigation Measure MR-C, the impact would be reduced to less than significant and the Proposed Project would not make a considerable contribution to a significant cumulative impact.	MR-C (Implement HS-C, see full text following this table)
4.14	Noise and Vibration		LS: There would be no significant construction or operational cumulative noise and vibration impacts.	
4.15	Population and Housing		LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts related to population and housing.	
4.16	Public Services, Recreation, and Utilities		LS: The Proposed Project would not contribute to cumulative impacts related to schools, parks, and recreational facilities. The Proposed Project would not make a considerable contribution to significant cumulative impacts to other public services and utilities (fire and police protection, solid waste).	
4.17	Traffic and Transportation		LS: There would be no significant cumulative construction-related traffic and transportation impacts. The Proposed Project would not make a considerable contribution to significant cumulative traffic and transportation impacts due to cumulative development.	
4.18	Water Supply and Wastewater Systems	Water Supply	LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts to water supply.	
		Wastewater	LS: There would be no significant cumulative impacts on wastewater treatment capacity or ocean outfall disposal capacity.	

Mitigation Measure HS-C/MR-C: Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the Zone of Initial Dilution

As part of the amendment process to modify the existing MRWPCA NPDES Permit (Order No. R3-2014-0013, NPDES Permit No. CA0048551) per 40 Code of Regulations Part 122.62, it would be necessary to conduct an extensive assessment in accordance with requirements to be specified by the RWQCB. It is expected that the assessment would include, at a minimum, an evaluation of the minimum probable initial dilution at the point of discharge based on likely discharge scenarios and any concomitant impacts on water quality and beneficial uses per the Ocean Plan. Prior to operation of the ~~MPSWP~~ MPWSP desalination plant, the discharger(s) will be required to test the ~~MPSWP~~ MPWSP source water in accordance with protocols approved by the RWQCB. If the water quality assessment indicates that the water at the edge of the ZID will exceed the Ocean Plan water quality objectives, the MRWPCA will not accept the desalination brine discharge at its outfall, and the following design features and/or operational measures shall be employed, individually or in combination, to reduce the concentration of constituents to below the Ocean Plan water quality objectives at the edge of the ZID:

- **Additional pre-treatment of MPWSP source water at the Desalination Plant:** Feasible methods to remove ~~PCBs~~ Polychlorinated Biphenyls (PCB) and other organic compounds from the MPWSP source water at the desalination plant include additional filtration or use of granular activated carbon (GAC. GAC acts as a very strong sorbent and can effectively remove PCBs and other organic compounds from the desalination plant source water.
- **Treatment of discharge at the Desalination Plant:** Feasible methods to remove residual compounds from the discharge to comply with water quality objectives at the edge of the ZID are use of GAC (similar to that under the additional pre-treatment of MPWSP source water) and advanced oxidation with ultraviolet light with concurrent addition of hydrogen peroxide. The method of using advanced oxidation with ultraviolet light with concurrent addition of hydrogen peroxide is used for the destruction of a variety of environmental contaminants such as synthetic organic compounds, volatile organic compounds, pesticides, pharmaceuticals and personal care products, and disinfection byproducts. This process is energy intensive, but requires a relatively small construction footprint.
- **Short-term storage and release of brine at the Desalination Plant:** When sufficient quantities of treated wastewater from the Regional Treatment Plant to prevent an exceedance of Ocean Plan objectives at the edge of the ZID are not available, brine from the desalination plant would be temporarily stored at the MPWSP site in the brine storage basin (see MPWSP DEIR Chapter 3, Project Description) and discharged (pumped) in pulse flows (up to the capacity of the existing outfall), such that the flow rate allows the discharge to achieve a dilution level that meets Ocean Plan water quality objectives at the edge of the ZID.
- **Biologically Active Filtration at the Regional Treatment Plant**: As part of the AWT Facilities at the Regional Treatment Plant, the GWR Project includes the potential for use of upflow biologically active filtration following ozone treatment to reduce the concentration of ammonia and residual organic matter present in the ozone effluent and to reduce the solids loading on the membrane filtration process. The biologically active filtration system would consist of gravity-feed filter basins with approximately 12 feet of granular media, and a media support system. Ancillary systems would include an alkalinity addition system for pH control, backwash waste

water basin (also used for membrane filtration backwash waste water), backwash pumps, an air compressor and supply system for air scour, an air compressor and supply system for process air, and a wash water basin to facilitate filter backwashing (the wash water basin may be combined with the membrane filtration flow equalization basin). This biologically active filtration system may be needed to meet Ocean Plan water quality objectives at the edge of the ZID (if and/or when discharges from the Proposed Project are combined with discharges from the MPWSP with 6.4 mgd desalination plant). This biologically active filtration system may be needed to meet Ocean Plan water quality objectives at the edge of the ZID (if and/or when discharges from the Proposed Project are combined with discharges from the MPWSP with 6.4 mgd desalination plant). This optional component of the Proposed Project is described in **Chapter 2, Project Description** (see **Section 2.8.1.3**), would become a required process if the MPWSP with 6.4 mgd desalination project is in operation and the other components of the mitigation do not achieve Ocean Plan compliance. The impacts of implementation of this portion of the mitigation measure are discussed in Sections 4.2 through 4.18 as a component of the proposed AWT Facility (within the “Treatment Facilities at the Regional Treatment Plant” component of the Proposed Project).

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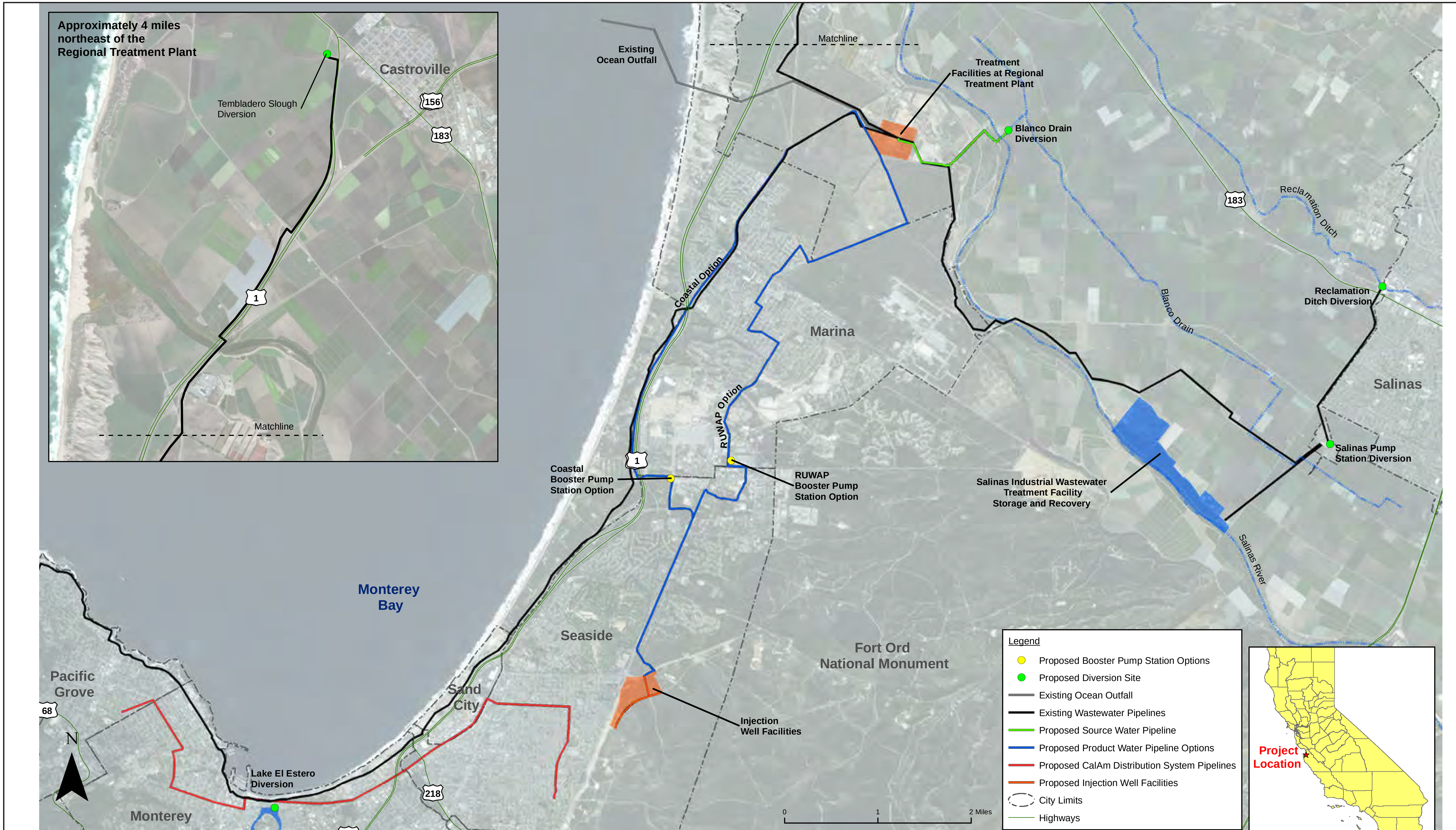

DD&A

Proposed GWR Project Facilities Overview

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
S-1

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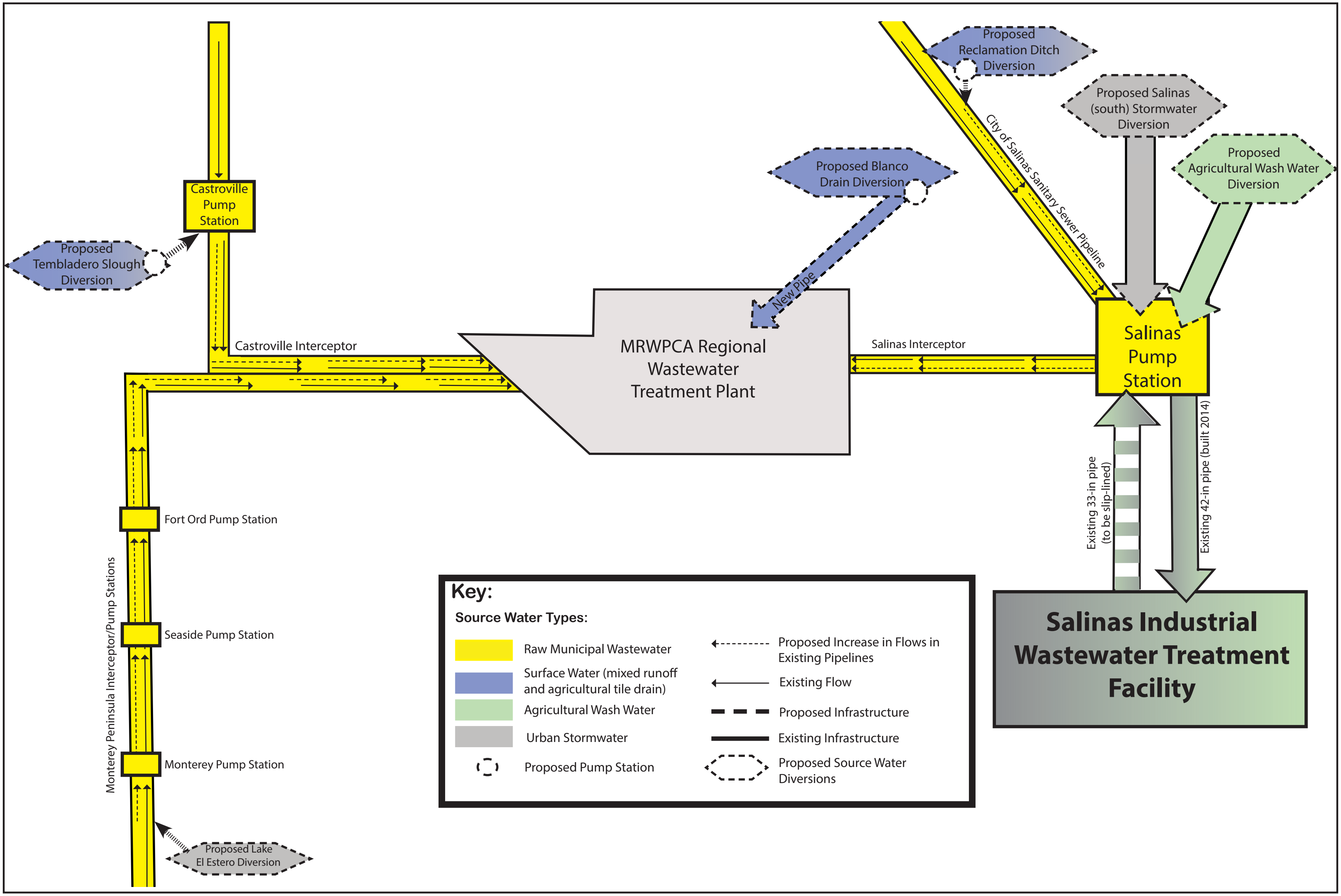


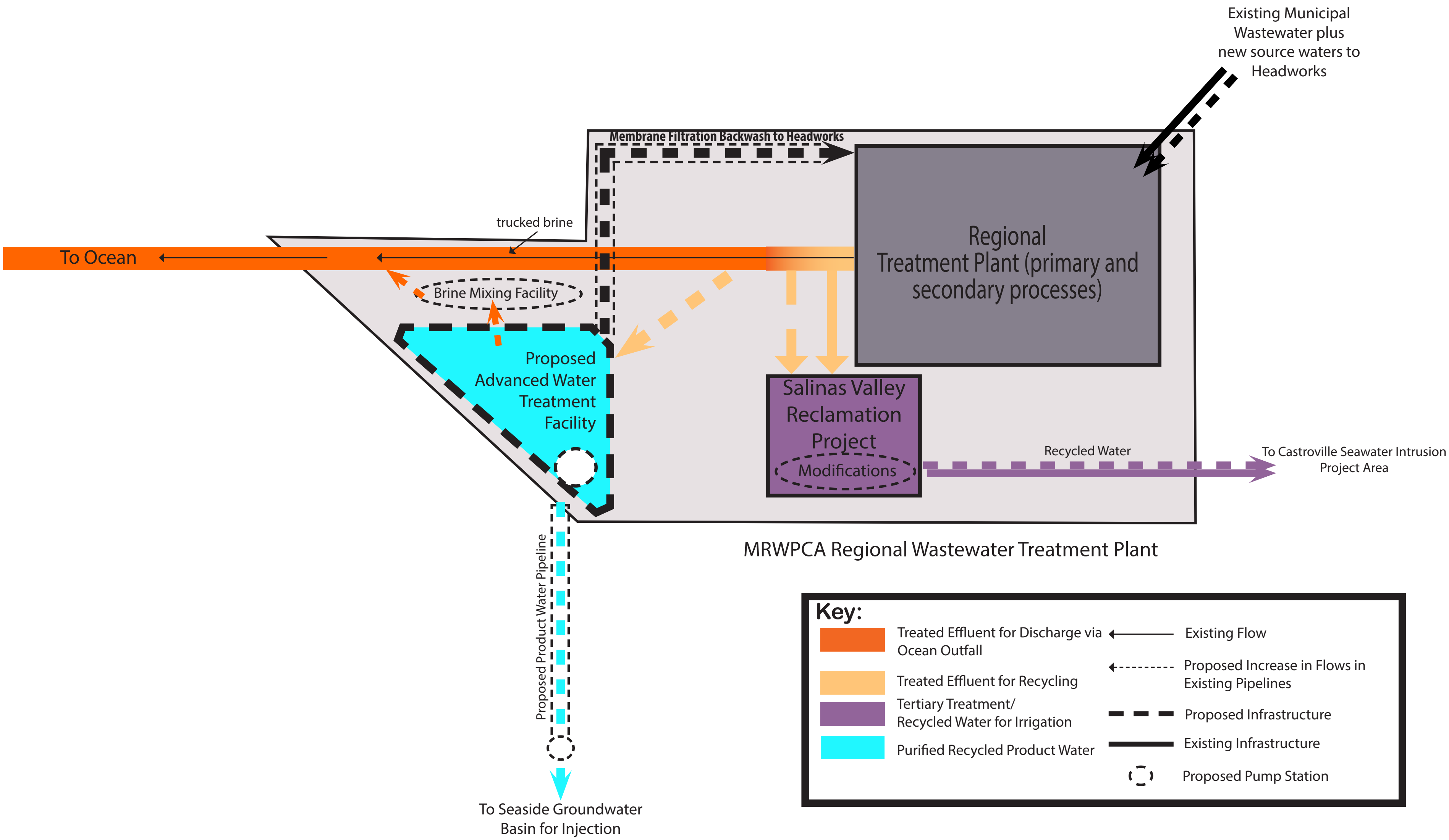
DD&A

Proposed Project Flow Schematic - Source Water to Treatment

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure S-2



Proposed Project Flow Schematic - Regional Treatment Plant

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
S-3

CHAPTER 1 INTRODUCTION TO THE EIR

Sections

1.1 Purpose of the EIR
1.2 Proposed Project Overview
1.3 CEQA Process
1.4 Project Approval and Permitting Process
1.5 Organization of the EIR

1.1 PURPOSE OF THE EIR

The Monterey Regional Water Pollution Control Agency (MRWPCA) has prepared this ~~Draft~~ Consolidated Final Environmental Impact Report (~~D~~EIR) to provide a single, more complete representation of the California Environmental Quality Act (CEQA) process conducted in 2013 through 2015 that provided the public and responsible and trustee agencies with information on the potential environmental effects of implementation of the Pure Water Monterey Groundwater Replenishment Project[1] (GWR Project or Proposed Project) on the ~~local and regional~~ environment. The GWR Project would provide purified recycled water for recharge of a groundwater basin that serves as drinking water supply, and recycled water to augment the existing Castroville Seawater Intrusion Project's crop irrigation supply. The project is jointly sponsored by the MRWPCA and the Monterey Peninsula Water Management District (Water Management District), and is being developed in coordination with the City of Salinas, the City of Monterey, the Marina Coast Water District, and the Monterey County Water Resources Agency. An overview of the project is provided below in **Section 1.2**, **Proposed Project Overview** and a full description of the project is presented in **Chapter 2**, **Project Description** of this document.

This EIR has been prepared in accordance with the ~~California Environmental Quality Act (~~CEQA~~)~~ and the State CEQA Guidelines, which are found in Title 14 of the California Code of Regulations, commencing with section 15000. As stated in the CEQA Guidelines section 15002, the basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.

[1] The term "replenishment" in the title of the project was intended to maintain consistency with the relevant water quality regulatory programs under the jurisdiction of the State Water Resources Control Board (SWRCB) – Division of Drinking Water (DDW) (i.e., this agency references the requirements as the Groundwater Replenishment Regulations (or DPH-14-003E Groundwater Replenishment Using Recycled Water)). Use of the word replenishment is not intended to be defined to match the definition of *artificial* replenishment in the Seaside Groundwater Basin adjudication (Case *M66343, Decision, III., A., 3., March 27, 2006)* because as proposed, the project would not "offset the cumulative over production from the Seaside Basin" by producers in the basin.

- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Pursuant to State CEQA Guidelines section 15121, an EIR is an informational document which will inform public agency decision-makers and the public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. ~~The p~~Any public agency considering approval of the Proposed Project, or components thereof, shall consider the information in the EIR along with other information which may be presented to the public agency. While the information in the EIR does not control the ultimate decision on the project, the lead agency must consider the information in the EIR and respond to each significant effect identified in the EIR by making findings at the time of project approval as further explained below in **Section 1.4, Project Approval and Permitting Process**.

The focus of the environmental review process is upon significant environmental effects. As defined in the CEQA Guidelines, a “significant effect on the environment” is:

> ...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether a physical change is significant.

CEQA Guidelines section 15064(e) further indicates that economic and social changes resulting from a project shall not be treated as significant effects on the environment, although they may be used to determine that a physical change shall be regarded as a significant effect on the environment. Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project.

1.2 PROPOSED PROJECT OVERVIEW

The Pure Water Monterey Groundwater Replenishment Project is a water supply project that would serve northern Monterey County. The project would provide: 1) purified recycled water for recharge of a groundwater basin that serves as drinking water supply; and 2) recycled water to augment the existing Castroville Seawater Intrusion Project’s crop irrigation supply.

- ***Replenishment of the Seaside Groundwater Basin.*** The project would enable California American Water Company (CalAm) to reduce its diversions from the Carmel River system by up to 3,500 acre-feet per year by injecting the same amount of purified recycled water into the Seaside Basin. The purified recycled water would be produced at a new facility at the MRWPCA Regional Wastewater Treatment Plant (Regional Treatment Plant) and would be conveyed to and injected into the Seaside Groundwater Basin via a new pipeline and new well facilities. The injected water would then mix with the existing groundwater and be stored for future urban use by

CalAm, thus enabling a reduction in Carmel River system diversions by the same amount.

- ***Additional recycled water for agricultural irrigation in northern Salinas Valley*.** An existing water recycling facility at the Regional Treatment Plant (the Salinas Valley Reclamation Plant) would be provided additional source waters in order to provide additional recycled water for use in the Castroville Seawater Intrusion Project's agricultural irrigation system. It is anticipated that in normal and wet years approximately 4,500 to 4,750 acre-feet per year of additional recycled water supply could be created for agricultural irrigation purposes. In drought conditions, the project could provide up to 5,900 acre feet per year for crop irrigation.

The project would also include a drought reserve component to support use of the new supply for crop irrigation during dry years. The project would provide an additional 200 acre-feet per year of purified recycled water that would be injected in the Seaside Basin in wet and normal years for up to five consecutive years. This would result in a "banked" drought reserve totaling up to 1,000 acre feet. During dry years, the project would provide less than 3,500 acre feet of water to the Seaside Basin; however, CalAm would be able to extract the banked water to make up the difference to its supplies, such that its extractions and deliveries would not fall below 3,500 acre-feet per year. The source waters that are not sent to the advanced treatment facility during dry years would be sent to the Salinas Valley Reclamation Plant to increase supplies for the Castroville Seawater Intrusion Project.

The Proposed Project components include: conveyance of five potential types of source water to the Regional Treatment Plant north of Marina for treatment; a new Advanced Treatment (AWT) Facility and other improvements to the Regional Treatment Plant; treated water conveyance system, including pipelines and booster pump stations; groundwater injection wells; and potable water distribution system improvements. Construction of the project is anticipated to require approximately 18 months, plus three months of testing and start-up. MRWPCA is evaluating the use of alternative construction approaches, such as design-build, to expedite the construction schedule.

The new source waters would supplement the existing incoming wastewater flows, and would include the following: 1) water from the City of Salinas agricultural wash water system, 2) stormwater flows from the southern part of Salinas and the Lake El Estero facility in Monterey, 3) surface water and agricultural tile drain water that is captured in the Reclamation Ditch and Tembladero Slough, and 4) surface water and agricultural tile drain water that flows in the Blanco Drain. Most of these new source waters would be combined within the existing wastewater collection system before arriving at the Regional Treatment Plant; water from Blanco Drain would be conveyed on its own directly to the Regional Treatment Plant.

The Pure Water Monterey Groundwater Replenishment Project would require modifications to existing facilities and construction of new physical facilities, briefly listed below.

- ***Source water diversion and storage.*** New facilities would be required to divert and convey the new source waters through the existing municipal wastewater collection system and to the Regional Treatment Plant.
- ***Treatment facilities at the Regional Treatment Plant.*** A new advanced water treatment facility would be constructed at the Regional Treatment Plant site. This facility would include a state-of-the-art treatment system that uses multiple membrane barriers to purify the water, product water stabilization to prevent pipe corrosion due to water purity, a pump station, and a brine and wastewater mixing

facility. There would also be modifications to the existing Salinas Valley Reclamation Plant to optimize and enhance the delivery of recycled water to growers

- ***Product water conveyance.*** A new pipeline, a pump station and appurtenant facilities would be constructed to transport the purified recycled (product) water from the Regional Treatment Plant to the Seaside Groundwater Basin for injection.
- ***Injection well facilities.*** The injection facilities would include new wells (in the shallow and deep aquifers), back-flush facilities, pipelines, electricity/power distribution facilities, and electrical/motor control buildings.
- ***Distribution of groundwater from Seaside Basin.*** ~~Two n~~New CalAm water distribution system pipelines would be needed to deliver the extracted groundwater to CalAm customers.

1.3 CEQA PROCESS

1.3.1 Notice of Preparation and Scoping Meeting

In accordance with Sections 15063 and 15082 of the CEQA Guidelines, the MRWPCA, as Lead Agency, prepared a Notice of Preparation (NOP) for this EIR (see **Appendix A**). The NOP was circulated to local, state, and federal agencies and other interested parties from May 30 to July 2, 2013 for a 30-day review period. A supplement to the NOP was prepared and circulated December 9, 2014 through January 8, 2015 for a 30-day review period to reflect updates to the Proposed Project that had occurred since the original NOP was issued.

A public scoping meeting was held on Thursday, June 18, 2013 from 6:00 to 8:00 PM at the Oldemeyer Center located at 986 Hilby Avenue, Seaside, CA 93955 to present the proposed project to the public and agencies and to solicit input as to the scope and content of the EIR. Public notices were placed in local newspapers informing the general public of the scoping meetings. Appendix A provides a summary of all written comments received in response to the initial and supplemental NOPs and oral comments received at the public Scoping Meeting.

1.3.2 Draft EIR

The Draft EIR ~~focuses~~ focused on the potentially significant environmental effects of the project. Significance criteria (indicating what constitutes a significant impact) have been developed for each environmental issue analyzed in this EIR consistent with previous environmental impact reports and updated agency guidance and professional standards, and are defined at the beginning of each impact analysis section. Impacts are categorized as follows:

1. Significant, unavoidable
2. Significant, but can be mitigated to a less-than-significant level
3. Less than significant (mitigation is not required under CEQA but may be recommended)
4. No impact

~~The Draft EIR will be published and circulated for review and comment by public agencies, members of the public and other interested parties and organizations for a 45-day review period. The public review period will begin on Wednesday, April 22nd and end on Friday, June 5th, 2015 at 5:00 PM. Written comments on the Draft EIR may be submitted to the MRWPCA at: MRWPCA, ATTN: Bob Holden, 5 Harris Court, Building D, Monterey, CA 93940, or emailed to gwr@mrwpca.com. During the 45-day Draft EIR review period, MRWPCA will hold two noticed public meetings to provide information and answer questions about the Proposed Project and the EIR.~~

1.3.3 Public Review of Draft EIR

CEQA Guidelines Section 15087(a) requires that a Notice of Availability (NOA) of a Draft EIR be mailed to the last known name and address of all organizations and individuals who have previously requested such notice in writing. Section 15087(a) also requires that in addition to the above notifications, at least one of the following procedures be implemented:

- Publication at least one time by the public agency in a newspaper of general circulation in the area affected by the proposed Project;
- Posting of notice by the public agency on and off the site in the area where the Project is to be located; or
- Direct mailing to the owners and occupants of property contiguous to the parcel or parcels on which the Project is located.

Section 15087(d) requires the NOA be posted for at least 30 days in the office of the county clerk of each county in which the project will be located. Section 15087(f) requires that an NOA be sent to state agencies through the State Clearinghouse. Section 15087(g) states that lead agencies should place copies of the Draft EIR in public libraries. The method by which these requirements were satisfied is provided below:

- On April 21, 2015, the NOA and Notice of Completion were sent to the State Clearinghouse/Governor's Office of Planning and Research, along with electronic copies of the Draft EIR. In addition, MRWPCA distributed the NOA for the Draft EIR to approximately 800 interested responsible and trustee agencies, interested groups, organizations, and individuals. The distribution list included all parties that commented on the Notice of Preparation (NOP) and all parties that contacted MRWPCA requesting to be notified about the project.
- The NOA was published in two newspapers, the Monterey County Herald and the Salinas Californian, on April 23, 2015.
- A hard copy of the Draft EIR was made available for review during normal business hours at the MRWPCA Administrative Office, 5 Harris Court, Bldg. D, Monterey, CA 93940 and at the MPWMD Offices, 5 Harris Court, Bldg. G, Monterey, CA 93940. The Draft EIR was available online at the GWR Project website at: www.purewatermonterey.org. The Draft EIR was also available at the following libraries: Seaside Public Library, Marina Public Library, Salinas Public Libraries, Castroville Public Library, Monterey Public Library, Carmel Valley Public Library, and Harrison Memorial Library (Carmel).
- On April 22, 2015, MRWPCA posted the NOA at the following locations: the Regional Treatment Plant, the MRWPCA and MPWMD offices, and near the

Injection Well Facilities site at the corner of General Jim Moore Boulevard and Eucalyptus Avenue.

MRWPCA held two public meetings during the Draft EIR review period to inform the public of the content of the Draft EIR and CEQA process and to provide an opportunity for the public to ask questions and to submit comments. The first meeting was held on May 20, 2015 from 6:00 p.m. to 8:00 p.m. at the Oldemeyer Center (986 Hilby Avenue, Seaside, CA 93955). The second meeting was held on May 21, 2015 from 4:00 p.m. to 6:00 p.m. at Hartnell College, Room B-208 of the Student Services Building (411 Central Avenue, Salinas, CA 93901). Spanish translation was available, and both venues were accessible under the Americans with Disabilities (ADA). The NOA (described above) contained information about the meetings.

1.3.4 Final EIR and Errata to Final EIR

Written comments received in response to the Draft EIR ~~will be~~were addressed in a Response to Comments document (called the Final EIR) dated September 2015, included as Volume III (without the revised and new appendices) in this document. The Final EIR document ~~that,~~ together with the Draft EIR, ~~will~~ constituted the Final EIR for the project. The Final EIR ~~will~~ included written responses to any significant environmental issues raised in comments received during the public review period in accordance with the State CEQA Guidelines section 15088. The Final EIR was completed and made available to public agencies and members of the public on September 25, 2015, as follows:

- MRWPCA distributed the NOA for the Final EIR to approximately 900 interested responsible and trustee agencies, interested groups, organizations, and individuals. The distribution list included all parties that commented on the Notice of Preparation (NOP) and the Draft EIR and all parties that contacted MRWPCA requesting to be notified about the project.
- The NOA was published in the Monterey County Herald on September 25, 2015.
- A hard copy of the Final EIR was made available for review during normal business hours at the MRWPCA Administrative Office, 5 Harris Court, Bldg. D, Monterey, CA 93940 and at the MPWMD Offices, 5 Harris Court, Bldg. G, Monterey, CA 93940. The Draft EIR was available online at the GWR Project website at: www.purewatermonterey.org. The Final EIR was also available at the following libraries: Seaside Public Library, Marina Public Library, Salinas Public Libraries, Castroville Public Library, Monterey Public Library, Carmel Valley Public Library, and Harrison Memorial Library (Carmel).
- On September 26, 2015, MRWPCA also posted the NOA at the following locations: the Regional Treatment Plant, the MRWPCA and MPWMD offices, and near the Injection Well Facilities site at the corner of General Jim Moore Boulevard and Eucalyptus Avenue.

~~The Final EIR will be distributed in accordance with requirements of the State CEQA Guidelines.~~

This Consolidated Final EIR includes a completely reprinted Draft EIR with changes made since public review (Volume I). Changes to the Draft EIR are indicated as stricken text (i.e., ~~strikeout~~) where text is removed, and by underlined text (i.e., underline) where text is added for clarification.

Based on review of the mitigation applicable to the staff recommended alternative and additional input from the City of Seaside staff, an Errata to the Final EIR was prepared and included within the MRWPCA Board Staff Report for the October 8, 2015 public hearing. The Errata to the Final EIR is contained in Volume IV of this Final EIR.

~~MRWPCA will hold a public hearing to consider EIR certification. Prior to taking action on the project, the MRWPCA Board must certify that it has reviewed and considered the information in the EIR, that the EIR has been completed in conformity with the requirements of CEQA, and that the document reflects the Agency's independent judgment pursuant to the State CEQA Guidelines Section 15090. Following EIR certification, the MRWPCA may proceed with consideration of project approval actions~~

1.3.5 Mitigation Monitoring and Reporting

CEQA requires lead agencies to adopt a Mitigation Monitoring and Reporting Program (MMRP) for mitigation measures the agency has adopted or made a condition of project approval in order to reduce or avoid significant effects on the environment. A Mitigation Monitoring and Reporting Program ~~will be~~was ~~developed at the time~~approved by MRWPCA ~~makes findings on the project~~on October 8, 2015. The MMRP is contained within Volume IV as an attachment to MRPWCA Resolution 2015-24.

1.3.6 CEQA-Plus

The Proposed Project may be financed in part by a Clean Water State Revolving Fund (CWSRF or SRF) Loan, administered by the State Water Resources Control Board (SWRCB), Division of Financial Assistance. The CWSRF Program is partially funded by the U.S. Environmental Protection Agency, and is subject to federal environmental regulations. All applicants seeking CWSRF financing must comply with CEQA and provide sufficient information so that the SWRCB can document compliance with federal environmental laws. The SWRCB calls this federal compliance "CEQA-Plus." Therefore, this Draft EIR has been prepared to meet the CEQA-Plus requirements in order to be eligible for CWSRF loan funds.

1.4 PROJECT APPROVAL AND PERMITTING PROCESS

Subsequent to certification of the EIR, MRWPCA ~~will~~ acted on the proposed project. ~~It is anticipated that EIR certification and action on the project will be scheduled for the same public hearing.~~ CEQA requires that a lead agency shall neither approve nor carry out a project as proposed unless the significant environmental effects have been reduced to an acceptable level (CEQA Guidelines Sections 15091 and 15092) or the project objectives outweigh the unavoidable significant impacts (requiring the Lead Agency to make a Statement of Overriding Considerations) (CEQA Guidelines Section 15093). An acceptable level is defined as eliminating, avoiding, or substantially lessening the significant effects. A project's impacts must be reduced to a less than significant level where feasible or the lead agency must adopt a Statement of Overriding Considerations for any impacts that remain significant after all feasible mitigation is adopted. As the cited Section 15092 of the CEQA Guidelines provides:

(b) A public agency shall not decide to approve or carry out a project for which an EIR was prepared unless either: (1) The project as approved will not have a significant effect on the environment, or (2) The agency has: (A) Eliminated or substantially lessened all significant effects on the environment where feasible as shown in findings under Section 15091, and (B) Determined that any remaining significant effects on the environment found to be unavoidable under Section 15091 are acceptable due to overriding concerns as described in Section 15093. (CEQA Guidelines, 15092, subd. (b), emphasis added.)

Pursuant to sections 21002, 21002.1 and 21081 of CEQA and sections 15091 and 15093 of the state CEQA Guidelines, no public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant effects unless one or more findings are made:

1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects on the environment.
2. Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been or can and should be, adopted by such other agency.
3. Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.

MRWPCA held a public hearing to consider EIR certification and project approval. on October 8, 2015. The Board Staff Report is included in Volume IV. At this hearing, the MRWPCA Board certified that it reviewed and considered the information in the EIR, that the EIR was completed in conformity with the requirements of CEQA, and that the document reflected the Agency's independent judgment pursuant to the State CEQA Guidelines Section 15090. Along with EIR certification, the MRWPCA approved the project as modified by the Alternative Monterey Pipeline (eliminating the need for the Transfer Pipeline) and by selecting the Regional Urban Water Augmentation Project (RUWAP) alignment for the Product Water Conveyance pipeline and booster pump station. The resolution certifying the EIR and approving the project as modified is included in Volume IV and includes the required findings, statement of overriding consideration, summary of the selected project, and the adopted Mitigation Monitoring and Reporting Program. Volume IV also includes notices published regarding the availability of the Final EIR and the proposed public hearing, and the Notice of Determination file with the County Clerk and the Office of Planning and Research on October 8, 2016.

~~Following~~ Having completed the above actions, MRWPCA, as the lead agency ~~would~~ is proceeding with steps necessary for implementation of the project. Implementation ~~would~~ requires MRWPCA to secure permits and approvals from several local, regional, state, and federal agencies. These potential permits and approvals are presented within **Chapter 2, Project Description**.

1.5 Organization of the Consolidated Final ~~Draft~~ EIR

This ~~Draft~~ Consolidated Final EIR includes the following:

Preface ~~Summary~~ – This section summarizes the contents of the entire ~~Draft~~ Consolidated Final EIR.

Volume I. Consolidated EIR Text

Summary – This section summarizes the Project, the Impacts and Mitigations Measures, and outlines Alternatives to the Project in accordance with CEQA Guidelines.

Chapter 1 – Introduction. This section describes the EIR process and organization of this document.

Chapter 2 – Project Description. This section provides an overview of the project, describes the need for and objectives of the project, and provides detail on the characteristics of the GWR Project.

Chapter 3 – Water Quality Statutory and Regulatory Compliance Overview. This section provides an overview of pertinent information related to the following:

(1) the status of recycled water regulations pertaining to groundwater replenishment;

(2) studies of other similar projects that have assessed the effects of using recycled water for groundwater replenishment on groundwater quality and public health;

(3) studies that have been specifically conducted for the project related to the treatment system design and performance;

(4) studies that have been specifically conducted for the project regarding protection of groundwater quality and quantity;

(5) Proposed Project compliance with applicable statutes, policies, and regulations;

(6) Proposed Project effects on groundwater; and

(7) the relevant information and conclusions for the EIR groundwater and other relevant water quality analyses.

Chapter 4 – Environmental Setting, Impacts and Mitigation Measures. This chapter presents a description of the physical and regulatory setting of the project by environmental issue area (see issue topics below), the significance criteria, including thresholds of significance, an analysis of the significance of impacts, and recommended mitigation measures to reduce any significant impacts. The following resources topics are provided in the Sections identified below:

- Aesthetics (**Section 4.2**)
- Air Quality and Greenhouse Gas (**Section 4.3**)
- Biological Resources: Fisheries (**Section 4.4**)
- Biological Resources: Terrestrial (**Section 4.5**)
- Cultural and Paleontological Resources (**Section 4.6**)
- Energy and Mineral Resources (**Section 4.7**)
- Geology, Soils, and Seismicity (**Section 4.8**)
- Hazards and Hazardous Materials (**Section 4.9**)
- Hydrology/Water Quality: Groundwater (**Section 4.10**)
- Hydrology/Water Quality: Surface Water (**Section 4.11**)
- Land Use, Agriculture, and Forest Resources (**Section 4.12**)
- Marine Biological Resources (**Section 4.13**)
- Noise and Vibration (**Section 4.14**)

- Population and Housing (**Section 4.15**)
- Public Services, Recreation, and Utilities (**Section 4.16**)
- Traffic and Transportation (**Section 4.17**)
- Water Supply and Wastewater Systems (**Section 4.18**)

Each environmental resource section includes a discussion of the environmental setting, applicable regulations pertaining to the resource area, impact assessment, and mitigation measures where applicable. Each section of Chapter 4 contains the following elements:

- Introduction
- Environmental Setting
- Regulatory Framework.
- Impacts and Mitigation Measures (including subsections for construction, operational, and cumulative analyses)
- References

Chapter 5 – Growth and Irreversible Commitment of Resources

Chapter 6 – Alternatives to the Proposed Project. This chapter presents an overview of the alternatives to the proposed project, including alternatives screening and selection, and alternatives considered, but eliminated from further review. The section also provides a qualitative environmental impact analysis of the alternatives considered.

Chapter 7 – Report Preparers

Volume II. Appendices to the Consolidated Final EIR

Those appendices mark "rev" were revised in the September 2015 Final EIR. Those labeled as AA through FF were added in the September 2015 Final EIR.

Appendix A: Scoping Report for the Pure Water Monterey Groundwater Replenishment Project Environmental Impact Report

Appendix B rev: Source Water Assumptions Memorandum

Appendix C rev: Source Water Rights White Paper

Appendix D: Pure Water Monterey Groundwater Replenishment Project Water Quality Statutory and Regulatory Compliance Technical Report

Appendix E: Air Quality and Greenhouse Gas Technical Analyses

Appendix F rev: Memorandum Regarding Steelhead Habitat and Passage Effects Assessment: Salinas River

Appendix G: Fisheries Impact Assessments: Reclamation Ditch/Tembladero Slough Diversions

Appendix H rev: Supporting Information for the Biological Resources: Terrestrial Section

Appendix I: Delineation of Potential Jurisdictional Wetlands and Other Waters Under Section 404 of the Clean Water Act and the California Coastal Act

Appendix J: Cultural Resources Survey for the Proposed Monterey Groundwater Replenishment Project, Northern Monterey County, California

Appendix K: Preliminary Geotechnical Evaluation Groundwater Replenishment Project EIR Monterey County, California

Appendix L: Recharge Impacts Assessment Report for the Pure Water Monterey Groundwater Replenishment Project

Appendix M rev: Memorandum Regarding GWR Project EIR - Cumulative Projects Modeling Results for Seaside Groundwater Basin

Appendix N: Memorandum Regarding Pure Water Monterey Groundwater Replenishment Project - Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River

Appendix O rev: Salinas River Inflow Impacts Report

Appendix P: Reclamation Ditch Yield Study

Appendix Q rev: Blanco Drain Yield Study

Appendix R: Groundwater Replenishment Project Urban Runoff Capture at Lake El Estero

Appendix S: Memorandum Regarding Predicted Impact on Farming from Use of Recycled Water with Higher Salinity

Appendix T: MRWPCA GWR Discharge Dilution Analysis

Appendix U: Ocean Plan Compliance Assessment for the Pure Water Monterey Groundwater Replenishment Project

Appendix V: Ocean Plan Compliance Assessment for the Monterey Peninsula Water Supply Project and Project Variant

Appendix W: Pure Water Monterey Groundwater Replenishment Project Noise Study Report

Appendix X: Regional Treatment Plant Wastewater Flow Projection Report

Appendix Y: Overview of Combined MPWSP with 6.4-mgd Desalination Plant and GWR Project

Appendix Z: Alternatives to CalAm Distribution System: Monterey and Transfer Pipelines

Appendix AA: Technical Memorandum: Salinity Impacts to Elkhorn Slough resulting from Surface Water Diversions for the Pure Water Monterey Groundwater Replenishment Project

Appendix BB: Technical Memorandum: Future RUWAP Urban Recycled Water Irrigation Water Use and Implications for CSIP Yields

Appendix CC: Technical Memorandum: Fish Passage Analysis, Reclamation Ditch at San Jon Road and Gabilan Creek at Laurel Rd

Appendix DD: Technical Memorandum Consideration of Water Right Application 32263 in the Pure Water Monterey Project EIR,

Appendix EE: Resumes and Qualifications from Key EIR Contributors

Volume III: Final EIR and Errata to the Final EIR (Sept. 2015)

Volume III of the Consolidated Final EIR contains the Final EIR dated September 2015, without appendices, including the comments received on the Draft EIR comments and responses to those comments. Changes to the Draft EIR reflected in Chapter 5 of the September 2015 Final EIR have been incorporated into the text of this Consolidated Final EIR in Volume I using ~~strikeout~~ text for deleted text and underlined text for added text, and Chapter 5 remains in Volume III showing the itemized list of changes to the Draft EIR made in response to comments on the Draft EIR. The appendices to the September 2015 Final EIR are not included within Volume III of this Consolidated Final EIR because they are provided as appendices in alphabetical order within Volume II herein (with double letters AA through EE).

Volume IV: Supplemental Documents for CEQA Process Completion

This Volume of the Consolidated Final EIR contains the following:

- Notice of Availability/Notice of Public Hearing of FEIR
- Staff report for the October 8, 2015 MRWPCA Board Hearing, including Errata to the Final EIR (October 5, 2015)
- MRWPCA Adopted Board Resolution No. 2015-24, including Approved MMRP (October 8, 2015) and Hearing Notice and Final Notice of Determination
- Letters and emails received by the MRWPCA Board at the October 8, 2015 hearing
- Notice of Determination filed with the County Clerk and the California Office of Planning and Research, including California Department of Fish and Wildlife Filing Fee
- Approved Meeting Minutes for the October 8, 2015.

Cal-Am Service Area
Seaside Basin (Approximate Area)
Castroville Seawater Intrusion Project
Pure Water Monterey Groundwater Replenishment Project Area
MRWPCA Regional Wastewater Treatment Plant (Existing)
Monterey Bay
Castroville
MONTEREY
Salinas
Spreckels
Seaside
Monterey
Pebble Beach
Carmel-by-the-Sea
Carmel Valley
Chualar
Gonzales
Soledad
SIERRA DE SALINAS
GABILAN RANGE
Santa Cruz County
Monterey County
Santa Clara County
San Benito County
SANTA CRUZ
Soquel
Capitola
Freedom
Pajaro
Aromas
San Juan Bautista
Hollister
Tres Pinos
SAN BENITO
Gilroy
San Martin
Morgan Hill
Saratoga
Los Gatos
Coyote
New Almaden
Brookdale
Ben Lomond
Mount Hermon
Andrew Molera State Park
Carson City
Sacramento
NEVADA
San Francisco
Fresno
Las Vegas
CALIFORNIA
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CHAPTER 2 PROJECT DESCRIPTION

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2.1 INTRODUCTION

2.1.1 Overview of Proposed Project

The Proposed Groundwater Replenishment Project (GWR Project or Proposed Project) consists of two components: the Pure Water Monterey Groundwater Replenishment improvements and operations (GWR Features) that would develop purified recycled water to replace existing urban supplies; and an enhanced agricultural irrigation (Crop Irrigation) component that would increase the amount of recycled water available to the existing Castroville Seawater Intrusion Project (CSIP) agricultural irrigation system in northern Monterey County. Water supplies proposed to be recycled and reused by the Proposed Project include municipal wastewater, industrial wastewater, urban stormwater runoff and surface water diversions. The Proposed Project is being proposed by the Monterey Regional Water Pollution Control Agency (MRWPCA) in partnership with the Monterey Peninsula Water Management District (Water Management District). **Figure 2-1, Project Location Map,** shows the regional location of the Proposed Project.

2.1.1.1 Source Waters for Recycling

The Proposed Project would recycle and reuse water from the following sources:

- *Municipal Wastewater Collection and Treatment System*. MRWPCA collects municipal wastewater from communities in northern Monterey County and treats it at its Regional Wastewater Treatment Plant (Regional Treatment Plant). Currently, most of that wastewater is recycled for crop irrigation in the dry season at an onsite tertiary treatment plant called the Salinas Valley Reclamation Plant. The tertiary-treated wastewater is delivered to growers through a conveyance and irrigation system called the CSIP. During wet periods, recycled wastewater is used only intermittently for crop irrigation. The wastewater that is not recycled for crop irrigation is discharged to the ocean through MRWPCA's existing ocean outfall. The Proposed Project would include improvements that would enable more of the municipal wastewater to be recycled than is possible today; thus, less municipal wastewater would be discharged through the ocean outfall.
- *Salinas Agricultural Wash Water System*. Water from the City of Salinas agricultural industries, 80 to 90% of which is water used for washing produce, is currently conveyed to ponds at the Salinas Industrial Wastewater Treatment Facility for treatment (aeration) and disposal by evaporation and percolation. The Proposed Project would include improvements that would enable the agricultural wash water to be conveyed to the Regional Treatment Plant to be recycled. The Proposed Project also would include improvements at the Salinas Industrial Wastewater Treatment Facility to allow storage of agricultural wash water and south Salinas stormwater in the winter and recovery of that water for recycling and reuse in the spring, summer and fall.
- *Salinas Stormwater Collection System.* Currently, storm water from urban areas in southern portions of the City of Salinas is collected and released to the Salinas River through an outfall near Davis Road. The Proposed Project would include improvements that would enable Salinas Stormwater to be conveyed to the Regional Treatment Plant to be recycled.
- *Reclamation Ditch / Tembladero Slough.* The Reclamation Ditch is a network of excavated earthen channels used to drain natural, urban, and agricultural runoff

and agricultural tile drainage. The Proposed Project would include improvements that would enable water from the Reclamation Ditch watershed to be diverted in two locations-—from the Reclamation Ditch at Davis Road and from Tembladero Slough (to which the Reclamation Ditch is a tributary) near Castroville -- to be conveyed to the Regional Treatment Plant to be recycled.

- *Blanco Drain.* The Blanco Drain collects water from approximately 6,400 acres of agricultural lands near Salinas. The Proposed Project would include improvements that would enable water in the Blanco Drain to be diverted and conveyed to the Regional Treatment Plant to be recycled.
- *Lake El Estero.* The City of Monterey actively manages the water level in Lake El Estero so that there is storage capacity for large storm events. Prior to a storm event, the lake level is lowered by pumping or gravity flow for discharge to Del Monte Beach. The Proposed Project would include improvements that would enable water that would otherwise be discharged to the beach to instead be conveyed to the Regional Treatment Plant to be recycled.

The source waters above would be combined within the wastewater collection system prior to the flow entering the headworks of the Regional Treatment Plant. The flow would be treated using the existing Regional Treatment Plant processes and then further treated and recycled for two purposes, as described in the following paragraphs.

2.1.1.2 GWR Facilities

The primary purpose of the Proposed Project is to provide high quality replacement water to allow California American Water Company (or CalAm)[1] to extract 3,500 acre-feet per year (AFY) more water from the Seaside Basin for delivery to its customers in the Monterey District service area and reduce Carmel River system water use by an equivalent amount. To meet this objective, the GWR Features would create a reliable source of water supply by using source waters described above to produce highly-treated water using existing secondary treatment processes and a new Advanced Water Treatment (AWT) Facility at the Regional Treatment Plant. After treatment by the AWT Facility, the purified recycled water would be conveyed using two pump stations and a new pipeline (the Product Water Conveyance System), and would be injected into the Seaside Groundwater Basin (or Seaside Basin) using a series of shallow and deep injection wells (Injection Well Facilities). Once injected into the Seaside Basin, the treated water would mix with the groundwater present in the aquifers and be stored for future urban use. CalAm would use existing wells and improved potable water supply distribution facilities (CalAm Distribution System) to extract and distribute the GWR water, enabling CalAm to reduce its diversions from the Carmel River system by this same amount. CalAm is under a State order to secure replacement water supplies and cease over-pumping of the Carmel River by January 2017.[2]

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[1] CalAm is an investor-owned public utility with approximately 38,500 connections in the Monterey Peninsula area.

[2] In addition, CalAm's ability to produce water from the Seaside Groundwater Basin has been limited by Monterey County Superior Court by an adjudication that imposes a series of pumping reductions designed to limit production of natural basin water to its safe yield.

2.1.1.3 Crop Irrigation

Another purpose of the Proposed Project is to provide additional water to the Regional Treatment Plant that could be recycled at the existing tertiary treatment facility (the Salinas Valley Reclamation Plant), and used for crop irrigation using the CSIP system. For MRWPCA to secure the necessary rights and agreements to use the source waters needed for the Proposed Project, preliminary negotiations with stakeholders lead to MRWPCA proposing to increase the amount of recycled water provided to the area served by the CSIP by approximately 4,750 AFY and up to 5,290 AFY during certain dry years. This amount, in combination with the existing recycling and use of municipal wastewater for crop irrigation of approximately 13,000 AFY[3], would remain less than the treatment design capacity of the Salinas Valley Reclamation Plant of 29.6 million gallons per day (mgd) or an annual use of recycled water for irrigation of approximately 21,600 acre feet (Greater Monterey County Regional Water Management Group, 2013).

The Salinas Valley Reclamation Plant produces tertiary-treated, disinfected recycled water for agricultural irrigation within the CSIP service area. Municipal wastewater and certain urban dry weather runoff diversions treated at the Regional Treatment Plant are currently the only sources of supply for the Salinas Valley Reclamation Plant. Municipal wastewater flows have declined in recent years due to aggressive water conservation efforts by the MRWPCA member entities.

The new sources of water supply developed for the Proposed Project would increase supply available at the Regional Treatment Plant for use by the Salinas Valley Reclamation Plant during the peak irrigation season (April to September). In addition, the Proposed Project would include Salinas Valley Reclamation Plant modifications to allow tertiary treatment at lower daily production rates, facilitating increased use of recycled water during the late fall, winter and early spring months when demand drops below 5 mgd. The Salinas Valley Reclamation Plant can currently only operate within the range of 5 to 29.6 mgd.

The Proposed Project would also include a drought reserve system that would allow increased use of Proposed Project source waters to be used for crop irrigation within the CSIP area during dry years. To accomplish this objective, the GWR Features would be designed to produce, convey, and inject up to 3,700 AFY (up to 200 AFY more than the annual amount needed by CalAm for extraction and delivery to its customers) of water for injection in wet and normal years for up to five (5) consecutive years. This would result in a "banked" drought reserve totaling up to 1,000 AF. During drought periods, MRWPCA would reduce its deliveries of advanced treated water to the Seaside Basin by up to the amount that has been banked in the drought reserve. CalAm would be able to extract the banked water to make up the difference to its supplies, such that its extractions and deliveries would not fall below 3,500 AFY. The water that is not sent to the AWT Facility during drought years would be sent to the Salinas Valley Reclamation Plant to increase supplies for the CSIP irrigation area.

[3] This amount represents the five-year average actual production of tertiary-treated water by the Salinas Valley Reclamation Plant (2009 – 2013).

2.1.2 Project Benefits

Based on the analysis in this EIR, as well as the accompanying feasibility studies and technical reports, the Proposed Project has the potential to provide the following benefits:

- Replace 3,500 AFY of unauthorized Carmel River diversions for municipal use with additional groundwater pumping enabled by recharge of purified recycled water;
- Improve water quality in the Seaside Groundwater Basin;
- Provide up to 5,290 AFY of additional recycled water to Salinas Valley growers for crop irrigation;
- Reduce the volume of water pumped from Salinas Valley aquifers;
- Increase water supply reliability and drought resistance;
- Maximize the use of recycled water in compliance with the state Recycled Water Policy;
- Reduce urban stormwater "first flush" pollutant loads to the Salinas River and Monterey Bay;
- Reduce pollutant loads from agricultural areas to sensitive environmental areas including the Salinas River and the Monterey Bay;
- Help meet requirements for improving water quality in several local impaired water bodies;
- Reduce discharges of treated wastewater to Monterey Bay;

2.2 PROJECT LOCATION

The Proposed Project would be located within northern Monterey County and would include new facilities located within unincorporated areas of Monterey County and the cities of Salinas, Marina, Seaside, Monterey, and Pacific Grove as shown in **Figure 2-1, Project Location Map**. **Figure 2-1** also shows the Seaside Basin and the CalAm Monterey District Service Area. Specific locations for physical components of the Proposed Project are described later in this Chapter.

2.3 PROJECT BACKGROUND

This section provides information on the impetus for the Proposed Project, including a description of the agencies that have primary responsibility for its development and implementation (MRWPCA and Water Management District), an overview of the Seaside Groundwater Basin, an overview of the water resources of the Salinas Valley, a discussion of the relationship of the GWR Features to the proposed CalAm desalination plant, and a discussion of the relationship of the Crop Irrigation component to the Salinas Valley Reclamation Plant and CSIP.

2.3.1 Monterey Regional Water Pollution Control Agency

The Lead Agency for the Proposed Project is the Monterey Regional Water Pollution Control Agency. MRWPCA was established in 1972 under a Joint Powers Authority agreement between the City of Monterey, the City of Pacific Grove and the Seaside County Sanitation District. MRWPCA operates the regional wastewater treatment plant, including a water recycling facility (collectively known as the Regional Treatment Plant), a non-potable crop irrigation water distribution system known as the CSIP, sewage collection pipelines, and 25 wastewater pump stations. Since 1972, other northern Monterey County communities became Joint Powers Authority participants including the cities of Del Rey Oaks, Seaside, Sand City, Marina, and Salinas and the unincorporated communities of Castroville, Moss Landing, and Boronda, in addition to other unincorporated areas in northern Monterey County. The current MRWPCA service area is shown in dark blue in **Figure 2-2, MRWPCA Service Area Map**.

MRWPCA's Regional Treatment Plant is located two miles north of the City of Marina, on the south side of the Salinas River, and has a permitted capacity to treat 29.6 mgd of wastewater effluent.[4] At the Regional Treatment Plant, water is treated to two different standards: (1) Title 22 California Code of Regulations standards (tertiary filtration and disinfection) for unrestricted agricultural irrigation use within a facility known as the Salinas Valley Reclamation Plant, and (2) secondary treatment for permitted discharge through the ocean outfall. Influent flow that has been treated to a tertiary level is distributed to nearly 12,000 acres of farmland in the northern Salinas Valley for irrigation use (recycled water is delivered using a distribution system called the CSIP). The Regional Treatment Plant primarily treats municipal wastewater, but also accepts some dry weather urban runoff and other discrete wastewater flows. Additional information about the existing wastewater collection and conveyance system and the Regional Treatment Plant is provided in **Section 2.5, Overview of Existing Systems**, below.

2.3.2 Monterey Peninsula Water Resource~~s~~ System

The primary objective of the Proposed Project is to replenish the Seaside Groundwater Basin with 3,500 AFY of high quality water to replace a portion of CalAm's water supply as required by state orders. Cal Am currently supplies water for the Monterey Peninsula from

[4] The Regional Treatment Plant currently treats approximately 16 to 17 million gallons per day of municipal wastewater from a total population of about 250,000 in the northern Monterey County area shown generally in **Figure 2-1, Project Location Map**.

the Carmel River and the Seaside Groundwater Basin, and the Monterey Peninsula Water Management District (Water Management District), a partner agency on the Proposed Project, manages these water resources. Both of these sources have historically been over-drafted and are currently being actively managed, as discussed below.

2.3.2.1 Monterey Peninsula Water Management District

The Water Management District is partnering with MRWPCA to fund and manage the studies for the Proposed Project. The Water Management District is a special district, with a seven-member Board of Directors, created by the California Legislature in 1977 and endorsed by a public vote in 1978, for the purposes of conserving and augmenting the water supplies by integrated management of ground and surface water supplies; control and conservation of storm and wastewater; and promotion of the reuse and reclamation of water. Approximately 104,000 people live within the jurisdictional boundary of the Water Management District, which includes the six Monterey Peninsula cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Seaside, and Sand City, the Monterey Peninsula Airport District, and unincorporated communities within Monterey County including Pebble Beach, the Carmel Highlands, a portion of Carmel Valley, and areas adjacent to Highway 68 between Del Rey Oaks and the Laguna Seca area.

The Water Management District manages production and use of water from the Carmel River stored in Los Padres Reservoir, water production in the Carmel Valley Alluvial ~~a~~Aquifer, and groundwater pumped from municipal and private wells in Carmel Valley, the Seaside Groundwater Basin, and other areas within the Water Management District boundary. The Water Management District's jurisdictional area includes portions of watersheds and groundwater basins that lie partially outside the Water Management District political boundary. Activities affecting those areas of the watersheds and basins influence the quantity and quality of water resources within the Water Management District boundary.

The Water Management District regulates public fresh water supply systems within its boundaries, including systems owned by CalAm, the largest purveyor of water in the region, although CalAm has ultimate responsibility for the management and operation of its water system. The Water Management District also monitors the production of water from approximately 1,100 public and private wells, of which approximately 800 are currently active. In addition, the Water Management District regulates the creation of new water distribution systems and expansions, water connection permits, and allocation of water to jurisdictions (cities and unincorporated areas). The Water Management District adopts and implements water conservation ordinances, determines drought emergencies and can impose rationing programs. The District also regulates activities within the streamside corridor of the lower 15.5 miles of the Carmel River. The Water Management District has played key roles in several water augmentation projects, including completing planning and technical studies, engineering and cost analyses, environmental review in compliance with federal and state regulations, obtaining water rights and construction permits, facility construction and/or project financing. The District has also analyzed numerous water supply alternatives at varying degrees of specificity. The District was an integral partner in development of the Peralta Well in Seaside, Pebble Beach Reclamation Project, and Aquifer Storage and Recovery (Phases 1 and 2). The District constructed and owns the two ASR Phase 1 wells at the Santa Margarita site.

2.3.2.2 Seaside Groundwater Basin

Purified recycled water produced by the Proposed Project's Advanced Water Treatment Facilities would be injected into the Seaside Groundwater Basin, which would enable CalAm to extract the water from the Seaside Basin for delivery to its customers~~ and also would replenish the Basin~~. The Seaside Groundwater Basin underlies an approximately 19-square-mile area at the northwest corner of the Salinas Valley, adjacent to Monterey Bay (see **Figure 2-3 rev, Seaside Groundwater Basin Boundaries**). The southern boundary of the Seaside Groundwater Basin follows the Chupines fault zone, where a relatively impermeable shale unit of the Monterey Formation is uplifted to near sea level. The western boundary extends to the shoreline, although it is recognized that the aquifers extend offshore under the seafloor. The eastern boundary of the basin is defined by the flow divide in the Paso Robles aquifer, which approximately coincides with the surface drainage between the Canyon del Rey and El Toro Creek watersheds. The northern boundary also follows a groundwater flow divide with the aquifers of the northern Salinas Valley groundwater basin.

The hydrogeology of the Seaside Groundwater Basin has been the subject of numerous studies beginning with a California Department of Water Resources study in 1974. Monitoring data gathered since 1987 shows that water levels have been trending downward in many areas of the basin. A steep decline since 1995 in the northern coastal portion of the basin, where most of the groundwater production occurs, has coincided with increased extraction in that area after the State Water Resources Control Board required CalAm to reduce its Carmel River diversions, and concomitantly maximize its pumping in the Seaside Groundwater Basin.

Figure 2-3rev, Seaside Groundwater Basin Boundaries shows the following areas/boundaries that are relevant to understanding the physical extent of the Seaside Groundwater Basin: (1) the Seaside Area subbasin of the Salinas Valley Groundwater Basin as delineated by the California Department of Water Resources (DWR) in Bulletin 118 (DWR, 2004), (2) the basin boundary used for adjudication based on reconnaissance-level analyses published by the United States Geological Survey in 1982, and (3) the basin boundary as delineated in a report titled *Seaside Groundwater Basin: Update on Water Resource Conditions* (Yates et al., 2005). This more recent and detailed analysis of boundary conditions by Yates et al. is considered to be the most current and accurate documented depiction of the basin boundaries and has been used in the Monterey Peninsula Integrated Regional Water Management Plan (Monterey Peninsula Regional Water Management Group, 2014) and the Final Seaside Groundwater Basin Salt and Nutrient Management Plan (2014). The Seaside Groundwater Basin is divided into four subareas: the Northern Coastal, the Southern Coastal, the Northern Inland, and the Laguna Seca.

Groundwater is currently extracted from approximately 37 wells by 20 well owners in the Seaside Groundwater Basin. CalAm owns 12 wells and pumps approximately 80% of the water produced in the basin. In addition, CalAm and the Water Management District operate a Seaside Groundwater Basin Aquifer Storage and Recovery system that stores excess Carmel River water supplies during the wet season in the groundwater basin and recovers the banked water during the following dry season for consumptive use. The Water Management District estimates that the long-term average yield of the existing Aquifer

Storage and Recovery facilities is 1,920 AFY[5], but this varies yearly based on runoff due to the requirement to maintain adequate Carmel River instream flows. Additional informational about the Aquifer Storage and Recovery facilities is found in **Section 2.5, Overview of Existing Systems**, below.

Historical and persistent low groundwater elevations caused by pumping have led to concerns that seawater intrusion may threaten the Basin's groundwater resources. The Seaside Groundwater Basin has experienced chronic overdraft conditions with declining water levels in both of the Basin's primary aquifers that are used for water supply (the deeper, confined Santa Margarita aquifer and the shallower, unconfined Paso Robles aquifer). **Figure 2-4rev, Seaside Groundwater Basin Groundwater Levels,** shows groundwater elevation contour maps of the two aquifers and includes ~~highlights~~ the areas where water levels have fallen below sea level (areas below 0-contour). Additional information about the groundwater elevations and potential for seawater intrusion is found in **Section 4.10, Hydrology and Water Quality: Groundwater**.

In 2006, an adjudication process (CalAm v. City of Seaside et al., Case No. M66343) led to the issuance of a court decision that created the Seaside Groundwater Basin Watermaster (Watermaster). The Watermaster consists of nine representatives: one representative from each of CalAm, City of Seaside, Sand City, City of Monterey, City of Del Rey Oaks, Water Management District and Monterey County Water Resources Agency; and two representatives from landowner groups. The Watermaster evaluated water levels in the basin and determined that while seawater intrusion has not been observed, current water levels were lower than those required to protect against seawater intrusion. In 2012, water levels were found to be below sea level in the two primary aquifers within the Seaside Groundwater Basin; therefore, the Watermaster recognized that recharge into both aquifers would be beneficial for protection against seawater intrusion.

The adjudication requires all basin pumpers, except overlying users, to decrease their operating yield from the Basin triennially until each ~~requires CalAm to decrease its operating yield from the basin by 10% triennially until it~~ reaches ~~its~~ their allotted portion of the court-defined "natural safe yield" of ~~1,494~~ 3,000 AFY ~~beginning~~ (expected to occur in Water Year 2021), as detailed in **Table 2-1, CalAm's Adjudicated Allocation of Native Seaside Groundwater Basin: Water Years 2006 ‑ 2026**. This natural safe yield was defined by the adjudication as the quantity of groundwater existing in the Basin that occurs solely as a result of natural replenishment. In addition to these reductions in pumping, CalAm is required to "pay back" historic over-pumping and plans to accomplish this by reducing its pumping from the Seaside Groundwater Basin by an additional 700 AFY for 25 years.

Table 2-1
CalAm's Adjudicated Allocation of Native Seaside Groundwater Basin: Water Years 2006 ‑ 2026

Year	AFY
2006-2008	3,504
2009	3,191
2010-2011	3,087
2012-2014	2,669

[5] CalAm's application to the CPUC for the Monterey Peninsula Water Supply Project presumes a 1,300 AFY average yield for Aquifer Storage and Recovery. This was based on the start-up period for Aquifer Storage and Recovery and the possibility that an amount less than the long-term yield would be available for extraction starting in 2017.

Table 2-1
CalAm's Adjudicated Allocation of Native Seaside Groundwater Basin: Water Years 2006 - 2026

Year	AFY
2015-2017	2,251
2018-2020	1,820
2021-2023	1,494
2024-2026	1,494

2.3.2.3 Carmel River System

By providing 3,500 AFY of purified recycled water for extraction from the Seaside Groundwater Basin, the Proposed Project would enable CalAm to reduce its diversions from the Carmel River System by an equivalent amount. The 255-square-mile Carmel River Basin is bounded by the Santa Lucia Mountains to the south and the Sierra del Salinas to the north. It flows northwest through the Carmel Valley and drains into Carmel Bay at the northern end of the Big Sur Coast. The Carmel Valley ~~Groundwater Basin~~ Alluvial Aquifer lies along the downstream portion of the Carmel River.

There are two reservoirs on the Carmel River -- Los Padres and San Clemente -- the latter of which is scheduled to be removed in 2015. Los Padres Dam and Reservoir are located on the Carmel River, approximately 25 miles upstream of the Pacific Ocean. Los Padres Dam, an earth and rock-fill embankment dam constructed in 1948, has been owned and operated by CalAm since 1966. Constructed with an original storage capacity of 3,030 acre-feet (AF), sedimentation and siltation have reduced the storage capacity of Los Padres Reservoir to approximately 1,785 AF as of 2008 (Monterey Peninsula Water Management District/The Shibatani Group, 2014).

The San Clemente Dam, which impounds San Clemente Reservoir, is also located on the Carmel River, approximately 18 miles from the Pacific Ocean near the confluence of San Clemente Creek. Due to the reservoir's reduced storage capacity and the dam's seismic safety issues, as well as to remove barriers to fish passage, restore ecological functions, and enhance recreational opportunities along the Carmel River, a formal agreement was reached between CalAm and federal, state, and local agencies to cooperatively remove San Clemente Dam (MPWMD, 2014). The removal of San Clemente Dam was initiated in June 2013.

The Carmel Valley ~~Groundwater Basin~~ Alluvial Aquifer is primarily located on the valley floor, which is about 16 miles long and varies in width from 300 to 4,500 feet. The groundwater basin consists of younger alluvium and river deposits, and older alluvium and terrace deposits. These deposits are primarily underlain by Monterey Shale and Tertiary sandstone units. The primary water bearing formation is the younger alluvium with a typical thickness of 50 to 100 feet. The younger alluvium consists of boulders, gravel, sand, silt, and clay. The thickness varies from approximately 30 feet in the upper basin to about 180 feet near the mouth of the basin (California Department of Water Resources, 2004). ~~As a result of the significant reduction in usable storage in both reservoirs,~~ CalAm currently relies entirely on multiple wells in the alluvial aquifer along the lower Carmel River for its Carmel River supplies.

2.3.2.4 State Orders to Reduce Carmel River Diversions

The Carmel Valley Alluvial A~~a~~quifer, which underlies the alluvial portion of the Carmel River downstream of San Clemente Dam, is about six square-miles and is approximately ~~18~~ 16 miles long. ~~In the summer and fall, other private pumpers extract approximately 2,200 to~~

~~2,400 AFY of water from the alluvial aquifer, and CalAm extracts approximately 7,880 AFY.~~ Historically, ~~this~~ combined pumping, including authorized pumping in the summer and fall, has resulted in dewatering of the lower six miles of the river for several months in most years and up to nine miles of the river in dry and critically dry years. Recharge of the aquifer is derived primarily from river infiltration. The aquifer is replenished relatively quickly each year during the rainy season, except during prolonged periods of extreme drought.

In 1995, the State Water Resources Control Board (SWRCB) issued Order No. WR 95-10, which found that CalAm was diverting more water from the Carmel River Basin than it was legally entitled to divert. The State Board ordered CalAm to implement actions to terminate its unlawful diversions from the Carmel River and to maximize use of the Seaside Groundwater Basin (to the extent feasible) to reduce diversions of Carmel River water. In addition, a subsequent Cease and Desist Order (SWRCB Order Number WR 2009-0060) issued in 2009 requires CalAm to secure replacement water supplies for its Monterey District service area by January 2017 and reduce its Carmel River diversions to 3,376 AFY no later than December 31, 2016. In their recent submittals to the California Public Utilities Commission, CalAm estimates that it needs a total supply source of 15,296 AFY to satisfy the Cease and Desist Order and forecasted demand. In order to do this, CalAm ~~will~~ asserted in its application submittals that it needs to augment its water supplies by 9,752 AFY, which they contend includes water to satisfy a requirement to return water to the Salinas Valley to offset the amount of fresh water in the feed water from the desalination plant's slanted coastal intake wells.

2.3.2.5 Monterey Peninsula Water Supply Project

CalAm, working with local agencies, has proposed construction and operation of a CalAm-owned and operated desalination project (known as the Monterey Peninsula Water Supply Project). CalAm is an investor-owned utility that is regulated by the California Public Utilities Commission (CPUC); the proposed Water Supply Project is identified as CPUC Application A.12-04-019. The Monterey Peninsula Water Supply Project is designed to provide the replacement water CalAm needs to comply with the Cease and Desist Order and the Seaside Groundwater Basin Adjudication and satisfy forecasted demand.

In its application to the CPUC for approval of the Monterey Peninsula Water Supply Project, CalAm proposed a three-pronged approach. The three prongs, or components, consist of: (1) desalination, (2) groundwater replenishment, and (3) aquifer storage and recovery. The CPUC is the CEQA lead agency for the Monterey Peninsula Water Supply Project, and published a Notice of Preparation of an EIR in October 2012. The Notice of Preparation identifies Monterey Peninsula Water Supply Project facilities and improvements, including: a seawater intake system; a 9-mgd desalination plant; desalinated water storage and conveyance facilities; and expanded Aquifer Storage and Recovery facilities.

The Monterey Peninsula Water Supply Project Notice of Preparation also explains that if the GWR Project is timely approved and implemented, CalAm's proposed desalination plant would be a smaller, 5.4 mgd plant and CalAm would enter into an agreement to purchase 3,500 AFY of product water from the Proposed GWR Project. After publication of the Notice of Preparation, CalAm determined that, to fully satisfy the Monterey Peninsula Water Supply Project objectives, the full-sized desalination plant would need to be a 9.6 mgd plant, and the smaller desalination plant, proposed to be constructed if the GWR Project is implemented, would need to be a 6.4 mgd plant (CPUC, 2103).

The Monterey Peninsula Water Supply Project EIR will study both the proposed 9.6 mgd desalination plant and a proposed "MPWSP Variant," which assumes a 6.4 mgd desalination plant and purchase of 3,500 AFY of product water from the GWR Project. The following section further describes the relationship of the Monterey Peninsula Water Supply Project to the GWR Project.

2.3.2.6 Relationship of GWR Project to the Monterey Peninsula Water Supply Project

The Proposed Project is designed to provide part of the replacement water needed for CalAm to comply with the Cease and Desist Order and the Seaside Groundwater Basin Adjudication. The Proposed Project would not produce all of the needed replacement water; the primary goal of the Proposed Project is to produce 3,500 AFY and deliver the water to the Seaside Basin where CalAm can extract the same amount and also reduce its Carmel River diversions by that same amount. The Proposed Project could provide this quantity of replacement water even if the CPUC denies CalAm's application to construct and operate a desalination plant. In other words, the Proposed Project could accomplish its objective, and be useful in reducing Carmel River diversions, independent from approval of CalAm's proposed desalination plant.

While the Proposed Project could proceed as an independent project, the Proposed Project is related to CalAm's project in that the GWR Project would reduce the size of CalAm's proposed desalination plant if such plant is approved by the CPUC. As explained in the preceding section, if the GWR Facilities are timely approved and implemented, CalAm's proposed desalination plant would be reduced in size from a 9.6 mgd plant to a 6.4 mgd plant.

In April 2012, the Water Management District, MRWPCA, and CalAm entered into a *Groundwater Replenishment Project Planning Term Sheet and Memorandum of Understanding to Negotiate in Good Faith* to, among other things, enable planning and environmental evaluation of a groundwater replenishment project with the following provisions:

- to commit themselves to evaluate the ways in which a groundwater replenishment project could be effectively accomplished;
- to commit themselves to negotiate in good faith to reach agreement on such a project, should it be deemed viable;
- for MRWPCA to commit to act as lead agency to achieve California Environmental Quality Act compliance for such a project, should it be deemed viable;
- for Water Management District to assist MRWPCA in providing the necessary financial support for planning and California Environmental Quality Act compliance; and
- to identify non-binding preliminary terms of a Proposed Project agreement.

Subsequent to the Memorandum of Understanding, the principles for evaluating the GWR Facilities have been memorialized in an agreement spearheaded by the Monterey Peninsula Regional Water Authority (Regional Water Authority), and presented to the CPUC. The Regional Water Authority is made up of the mayors of the six Peninsula cities that are served by CalAm and whose purpose is to enable development of a feasible solution to the Monterey Peninsula water supply deficits. The Regional Water Authority adopted a Policy Position Statement on July 11, 2013 that establishes four basic criteria that any water project is expected to satisfy, as well as eight conditions that CalAm would have to meet in order to obtain Regional Water Authority support for a water supply project. The position statement expressed the Authority's support for a "portfolio approach" to water projects, which included the desalination option with groundwater replenishment. Three agreements were reached on July 31, 2013 among the Regional Water Authority, CalAm, and a significant number of interest groups who had previously expressed concerns with elements of CalAm's Monterey Peninsula Water Supply Project. These agreements are called the "Settlement Agreements" and will be considered by the CPUC in its decision-making process for the Monterey Peninsula Water Supply Project. The three agreements address the following items: (1) an agreement that provides for settlement on most of the contested issues, (2) an agreement on the size of the desalination plant proposed in the Monterey Peninsula Water Supply Project for design and planning purposes, and (3) an agreement that relates to design, permitting, and land acquisition for infrastructure that must be constructed by CalAm regardless of which version of the water supply project eventually gets built. The full text of the agreements, as well as the Regional Water Authority Policy Position Statement, may be found on the Authority web site at www.mprwa.org.

2.3.3 Salinas River and Salinas Valley Groundwater Basin

A secondary objective of the Proposed Project is to provide additional water to the Regional Treatment Plant that could be used for crop irrigation through the Salinas Valley Reclamation Plant and CSIP system. The provision of recycled water through the Salinas Valley Reclamation Plant and CSIP reduces use of groundwater from the Salinas Valley Groundwater Basin for crop irrigation. By increasing source water available for recycling and by enabling the Salinas Valley Reclamation Plant to operate more consistently throughout the year, the Crop Irrigation component of the Proposed Project would further reduce use of groundwater from the Salinas Valley Groundwater Basin.

The Salinas River is the largest river of the Central Coast of California, running 170 miles and draining 4,160 square miles (**Figure 2-5, Salinas River Basin**). It originates near the town of Santa Margarita in San Luis Obispo County and flows north-northwest through Monterey County and into the Monterey Bay. The Salinas River watershed is bounded by the Gabilan Range to the east and the Sierra de Salinas and Santa Lucia Range on the west. The combination of steep terrain on the sides of the watershed and intense farming of the valley floor leads to high sediment loads within the river. The Salinas River has three main tributaries, the Nacimiento, San Antonio and Arroyo Seco Rivers. Many early sources indicate that while high-volume summer flows were largely absent on the lower Salinas River, many reaches had baseflow and substantial summertime pools. Much of the Salinas River was prone to flooding during extreme winter and spring storm events. Levees were constructed to prevent flooding and restrict channel migration on the historic floodplain and adjacent lands.[6] Modifications to the natural hydrologic condition occurred with the construction of reservoirs for flood control and water supply, as listed in **Table 2-2, Reservoirs in the Salinas Basin**.

Table 2-2
Reservoirs in the Salinas Basin

Reservoir Name	Storage Capacity Drainage Area Year Constructed	Owner
Lake Nacimiento	377,900 acre-feet (AF) 362 square miles	Monterey County Water Resources Agency

[6] Salinas River Stream Maintenance Program EIR, Executive Summary, Cardno ENTRIX, 2013

	1957	
Lake San Antonio	335,000 AF 344 square miles 1967	Monterey County Water Resources Agency
Santa Margarita Lake	23,843 AF 112 square miles 1941	City of San Luis Obispo

The Salinas Valley Groundwater Basin extends along the river valley floor from Bradley north to the Monterey Bay. It is the primary source of water supply for Monterey County, providing approximately 500,000 acre-feet per year for agricultural, industrial and municipal use. ~~The groundwater basin has four designated subareas, the Upper Valley, Forebay, East Side and Pressure whose geographic extent is shown in **Figure 2-6, Salinas Valley Groundwater Basin**. The groundwater basin is recharged in all but the Pressure Subarea, which has a clay layer above the major water bearing layers.~~ California Department of Water Resources Bulletin 118 identifies nine sub-basins within the aquifer. Monterey County Water Resources manages the seven interconnected sub-basins, but refers to them as four major areas: the Upper Valley Area, the Forebay Area (includes DWR Forebay and Arroyo Seco Areas), the East Side Area (includes DWR East Side and Langley Areas) and the Pressure Area (includes DWR 180/400 Foot Area and Corral de Tierra Areas). The geographic extents of these areas are shown in **Figure 2-6, Salinas Valley Groundwater Basin**. The Paso Robles Area and the Seaside Area are considered separate formations. The Upper Valley and Forebay Subareas receive substantial recharge from river percolation and infiltration of rainfall and irrigation water. The Salinas River does not cross the Eastside Subarea, where recharge is primarily from rainfall, irrigation, and inflow from other subareas. In the Pressure Subarea, a regionally extensive clay layer (the Salinas Valley Aquiclude) greatly restricts the downward movement of recharge from rainfall, irrigation and the river to the underlying water supply aquifers. Much of the recharge in that subarea is groundwater inflow from the Forebay Subarea. The Pressure Subarea encompasses approximately 140 square miles, and consists of three primary aquifers: the 180-Foot Aquifer, the 400-Foot Aquifer and the 900-Foot (Deep) Aquifer. The 180-Foot and 400-Foot Aquifers connect to the Pacific Ocean, and have experienced seawater intrusion since the 1930's due to groundwater pumping along the coast. The geographic extent of seawater intrusion in these aquifers is shown in **Figure 2-7rev, Salinas Valley Groundwater Basin Seawater Intrusion Maps**. Several projects have been developed to address this seawater intrusion, as discussed below.

2.3.3.1 Monterey County Water Resources Agency

The Monterey County Water Resources Agency is a water and flood control agency with jurisdiction coextensive with Monterey County and governed by the Monterey County Water Resources Agency Board of Directors and Board of Supervisors. The Monterey County Water Resources Agency was established in 1995 pursuant to the Monterey County Water Resources Agency Act, and was formerly the Monterey County Flood Control and Water Conservation District. The Monterey County Water Resources Agency has flood control responsibility for the natural and man-made stormwater channels within the County, including the Carmel, Pajaro and Salinas Rivers, the Blanco Drain and the Reclamation Ditch system in northern Monterey County.

The Salinas Valley Groundwater Basin is not adjudicated, but the Monterey County Water Resources Agency manages the Basin to address the problem of seawater intrusion. As described in **Section 2.3.3.4** below, the Monterey County Water Resources Agency operates Lakes Nacimiento and San Antonio to recharge the groundwater basin, and with MRWPCA operates the CSIP and Salinas Valley Water Project to supply recycled and river water to growers to reduce the use of groundwater for crop irrigation on land overlying the Pressure subarea of the Salinas Valley Groundwater Basin. Funding for operation and maintenance of these facilities originate from zones of assessment and benefit.

2.3.3.2 City of Salinas

The City of Salinas is located in northern Monterey County, approximately ten miles inland from the coast. Salinas is the largest city in Monterey County with a population of over 150,000 people and covering an area of about 23 square miles. Monterey County is called the nation's salad bowl, and a significant portion of the industry in Salinas is agricultural processing. The City's water supply comes from wells in the Pressure and East Side Subareas of the Salinas Valley Groundwater Basin. Municipal wastewater from the City is collected at the MRWPCA Salinas Pump Station at the southwest corner of the City and pumped to the MRWPCA Regional Treatment Plant. Wastewater from the agricultural processing industries in the southeastern part of the City is collected separately and treated at the Salinas Industrial Wastewater Treatment Facility, located along the Salinas River at Davis Road.

Most of stormwater from the City flows into the Reclamation Ditch system, which includes Alisal, Gabilan and Natividad Creeks, and stormwater from much of the southern part of the city flows to the Salinas River. The City has a stormwater management program that is implemented to comply with their permit from the Central Coast Regional Water Quality Control Board for Municipal Stormwater Discharges.

2.3.3.3 Marina Coast Water District

The Marina Coast Water District is a county water district established in 1960 pursuant to Water Code §30000, et seq. The District provides water supply and wastewater collection services to the City of Marina and the former Fort Ord. This service area is generally located between the MRWPCA Regional Treatment Plant and the Seaside Groundwater Basin, where the Proposed Project's injection wells would be located.

Marina Coast Water District's water supply comes from wells in the Pressure Subarea of the Salinas Valley Groundwater Basin. Wastewater from the District's service areas is collected and conveyed to the MRWPCA interceptor system, and treated at the Regional Treatment Plant. Marina Coast Water District is the only member jurisdiction within the MRWPCA with the right to purchase back its municipal wastewater as recycled water.

Water demands on the former Fort Ord are projected to increase with development envisioned in the Fort Ord Base Reuse Plan. To address the need for additional water supply, Marina Coast Water District is developing the Regional Urban Water Augmentation Project (RUWAP). The RUWAP would provide an additional 2,400 AFY of potable and/or recycled water. Marina Coast Water District certified the EIR for the RUWAP in 2005, and approved addenda to the EIR in 2007 and 2008 to address changes to the proposed pipeline alignment, construction assumptions, and water quantities. The trunk main of the RUWAP system is coincident with the Proposed Project's RUWAP Pipeline alignment option. The RUWAP recycled water distribution system has been designed and partially constructed, but is not yet in operation.

MCWD and others have implemented numerous projects to eliminate the long-term overdraft condition of the Salinas Valley Groundwater Basin and address seawater intrusion. For example, between 1985 and 2000, MCWD constructed both a seawater desalination plant (currently inactive) and a wastewater recycling facility (the recycling facility was retired when the MCWD connected to the MRWPCA system). More recently MCWD has implemented numerous water conservation programs, including, among others: (1) the Water Conservation Commission; (2) a conservation rate structure; (3) an automatic meter reading (AMR) system with leak detection; (4) the California State University Monterey Bay student learning partnership and student internship programs; (5) free conservation devices (showerheads, faucet aerators, leak detection tablets, etc.); (6) free water conservation education materials (e-flyers, newsletter, magnets and stickers, restaurant and commercial business placards, water conservation website, etc.); (7) a landscape demonstration garden; (8) high-efficiency clothes washer and toilet rebates; (9) leak and high water use and detection notification procedures; (10) free property surveys; (11) landscape walk-throughs and irrigation system checks; (12) water use investigations, water use data logs, and water use charts and tables; (13) property certification on resale; (14) in-school water education classes and assemblies; (15) landscape building standards and plan check procedures; (16) water-wise landscape incentives for turf removal, conversion from sprinkler to drip irrigation, "smart" controller replacement, rail and soil moisture shut-off switches, etc.; (17) regional participation in Water Awareness Committee of Monterey County. MCWD states that a significant portion of its budget is allocated to water conservation programs, and that MCWD will spend approximately $465,155 on its conservation programs over the next year alone. MCWD estimates that its conservation programs reduce pumping for the Salinas Valley Groundwater Basin by approximately 520 to 600 acre-feet of water per year. MCWD has also adopted a Water Shortage Contingency Plan for staged voluntary and mandatory conservation efforts.

In addition to the conservation programs listed above, MCWD states that various agreements have been signed by MCWD, MCWRA, and MRWPCA to limit groundwater use and to address seawater intrusion in the Salinas Valley, including for example, the Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands (MCWD/MCWRA.J.G. Armstrong Family Members, RMC Lonestar (now CEMEX), and the City of Marina, March 1996).

2.3.3.4 Salinas Valley Water Projects

In addition to the ongoing projects and programs by MCWD and other water users in the County to implement water conservation and groundwater use reduction programs, Monterey County, acting through the Monterey County Water Resources Agency, has implemented several projects to reduce seawater intrusion along the coast and increase the reliability and availability of water supply. These projects are described in the following sections.

Reservoirs

Nacimiento Reservoir was constructed in 1957 to provide water supply for municipal, domestic, industrial, irrigation and recreational uses. The Monterey County Water Resources Agency may capture up to 180,000 AFY from the Nacimiento River basin, which is approximately 372 square miles in size. The reservoir holds 377,900 acre-feet of water. The agency may use up to 350,000 AFY of diverted and/or stored water for the permitted uses.

San Antonio Reservoir was constructed in 1967 for flood control and to provide water supply for municipal, domestic, industrial, irrigation and recreational uses. The Monterey County Water Resources Agency may capture up to 220,000 AFY from the San Antonio River basin, which is approximately 344 square miles in size. The reservoir holds 335,000 acre-feet of water. The agency may use up to 210,000 AFY of diverted and/or stored water for the permitted uses.

Monterey County Water Resources Agency releases flows from Lakes Nacimiento and San Antonio to recharge the Salinas Valley Groundwater Basin. This practice has resulted in sustained high groundwater levels in the Upper Valley and Forebay Subareas. Before the development of the Salinas Valley Water Project (discussed below), releases were managed to achieve 100% percolation of released flows from the Salinas River into the Salinas Valley Groundwater Basin (that is, no non-stormwater flow in the Salinas River over the Pressure Subarea). Following construction of the Salinas Valley Water Project, increased reservoir releases are made and rediverted for beneficial use at the Salinas River Diversion Facility.

Salinas Valley Reclamation Project/Plant

The MRWPCA Regional Treatment Plant was constructed in 1988 and 1989 and began operation in 1990, treating municipal wastewater to a secondary level and discharging it to the Pacific Ocean. In 1992, MRWPCA and the Monterey County Water Resources Agency formed a partnership to build the Monterey County Reclamation Projects, including the Salinas Valley Reclamation Project recycled water plant (Salinas Valley Reclamation Plant) and the CSIP distribution system. The Reclamation Projects provide recycled water for crop irrigation, reducing the use of Salinas Valley Groundwater Basin groundwater along the coast.

The Salinas Valley Reclamation Plant was constructed in 1995 through 1997, and is located within the Regional Treatment Plant site. At the plant, secondary-treated municipal wastewater is tertiary treated and disinfected using a three-step process (flocculation, filtration and disinfection) and stored in an 80 acre-foot reservoir. The plant has been in operation since 1998, producing up to 15,000 acre-feet per year of recycled, treated wastewater for crop irrigation use. In addition to retarding seawater intrusion and protecting drinking water supplies by reducing use of well water, wastewater recycling also reduces wastewater discharge into the Monterey Bay National Marine Sanctuary.

Castroville Seawater Intrusion Project (CSIP)

The CSIP is the distribution system for the recycled wastewater produced by the Salinas Valley Reclamation Plant. It consists of 45 miles of pipelines and 22 wells, supplying irrigation water to growers on 12,000 acres in northern Monterey County. While the CSIP is designed to reduce groundwater use for irrigation, some groundwater pumping still occurs in the summer months to meet peak day demands which exceed the available amount of recycled water, and in the winter months when demands are smaller than the 5 mgd minimum production rate of the Salinas Valley Reclamation Plant. The CSIP system is owned by the Monterey County Water Resources Agency, but operated by the MRWPCA under contract.

Salinas Valley Water Project and Salinas River Diversion Facility

In 2009, the Monterey County Water Resources Agency constructed the Salinas River Diversion Facility near the Salinas Valley Reclamation Plant. Water released from San Antonio and Nacimiento Reservoirs that does not percolate into the Salinas Valley Groundwater Basin may be rediverted at the Salinas River Diversion Facility. This water is filtered, chlorinated and added to the 80 AF reservoir at the Salinas Valley Reclamation Plant for use in the CSIP system, further reducing the amount of groundwater pumped to meet peak day demands. The facility includes an inflatable rubber dam that creates a seasonal intake pool for the diversion pump station, a metered release weir for maintenance of downstream flows and a fish ladder to allow passage of migratory fish species.

Relationship of the GWR Project to the CSIP

As discussed in detail above, the Salinas Valley Groundwater Basin is experiencing seawater intrusion due to continued overdraft of the aquifer. The CSIP, operated by MRWPCA and by the Monterey County Water Resources Agency supplies recycled water produced at the Salinas Valley Reclamation Plant, Salinas River water, and Salinas Valley groundwater for irrigation of farmland in northern Monterey County. The river water is diverted at the Salinas River Diversion Facility, located southeast of the Regional Treatment Plant. The recycled and river water supplies have replaced between 16,600 AFY and 21,500 AFY of Salinas Valley groundwater pumping for irrigation, depending on the annual irrigation demands[7]. The CSIP system still uses from 2,700 AFY to 8,600 AFY of Salinas Valley groundwater to meet summer peak demands that exceed the available recycled and river supplies, and also to meet small winter demands that are below the minimum 5 mgd capacity of the Salinas Valley Reclamation Plant. The Proposed Project would provide up to 5,290 AFY of additional recycled water for distribution through the CSIP system. This would reduce the amount of groundwater used within the existing CSIP system.

The Proposed Project would collect various new source water supplies, which include agricultural wash water from the City of Salinas, stormwater runoff from the Cities of Salinas and Monterey, surface water diversions from the Reclamation Ditch, Blanco Drain and Tembladero Slough, and unused municipal wastewater (see **Section 2.6, Overview of Proposed Project Facilities and Operations** for detailed descriptions). All of the collected source waters would be conveyed to the MRWPCA Regional Treatment Plant, blended with the existing wastewater streams and would then be treated to a primary and secondary level before a portion is diverted to the newly constructed Advanced Water Treatment Facility (AWT Facility). New source water beyond the amount needed to supply 3,500 AFY per year to CalAm would be used as additional influent for the Salinas Valley Reclamation Plant to increase the volume and consistency of recycled water produced during the peak demand months.

The Salinas Valley Reclamation Plant has a design minimum production capacity of 8 mgd. Through operational efficiencies, the plant managers can currently meet demands as low as 5 mgd. Irrigation demands within the CSIP service area below that level have been met in the past using groundwater. As part of the Proposed Project, the Salinas Valley Reclamation Plant would also be modified to meet wet-season irrigation demands as low as 0.5 mgd. This would increase the late fall, winter, and early spring use of secondary-treated municipal wastewater, which would otherwise be discharged through the ocean outfall.

As an additional means of providing recycled water for crop irrigation, the GWR Features would be sized to produce a 1,000 acre-foot drought reserve in addition to producing 3,500 AFY per year for use by CalAm. This would be accomplished by seasonally treating additional source water (when available) during the months of October through March to produce up to 200 acre-feet per year for groundwater injection, until a surplus of 1,000 acre-feet has been injected into the Seaside Groundwater Basin. During dry years, MRWPCA would reduce the amount of treated water that it injects into the Seaside Groundwater Basin

[7] Monthly data from Monterey County Water Resources Agency, presented as calendar year totals.

during the peak irrigation demand months (April through September), making more of its source water available to recycle and distribute to meet agricultural irrigation demands in the CSIP area. CalAm extractions of GWR-injected water quantities of 3,500 AFY would continue in those years by drawing upon the previously “banked” groundwater up to the amount of drought reserve water previously injected.

2.4 PROJECT OBJECTIVES

The primary objective of the Proposed Project is to replenish the Seaside Groundwater Basin with 3,500 AFY of purified recycled water to replace a portion of CalAm’s water supply as required by state orders. To accomplish this primary objective, the Proposed Project would need to meet the following objectives:

- Be capable of commencing operation, or of being substantially complete, by the end of 2016 or, if after 2016, no later than necessary to meet CalAm’s replacement water needs;[8]
- Be cost-effective such that the project would be capable of supplying reasonably-priced water; and
- Be capable of complying with applicable water quality regulations intended to protect public health.

Secondary objectives of the Proposed Project include the following:

- Provide additional water to the Regional Treatment Plant that could be used for crop irrigation through the Salinas Valley Reclamation Plant and CSIP system;
- Develop a drought reserve to allow the increased use of Proposed Project source waters as crop irrigation within the area served by the CSIP during dry years;
- Assist in preventing seawater intrusion in the Seaside Groundwater Basin;
- Assist in diversifying Monterey County’s water supply portfolio.

2.5 OVERVIEW OF EXISTING SYSTEMS

This section describes the existing wastewater and water infrastructure systems that are relevant to the Proposed Project. As explained in **Section 2.1, Introduction**, the Proposed Project would recycle and reuse water from the following sources:

- Municipal Wastewater
- Salinas Agricultural Wash Water
- Salinas Stormwater
- Reclamation Ditch/ Tembladero Sough
- Blanco Drain

[8] The Monterey Peninsula Water Supply Project has been delayed to the point where it is not possible for CalAm to meet the State Water Resources Control Board Cease and Desist Order 2009-60 deadline of December 31, 2016. Accordingly, representatives of the local agencies have been in discussion with the State Board to develop proposals for a CDO extension that would be acceptable to the public and have the potential to obtain State Board approval.

- City of Monterey Stormwater at Lake El Estero

Existing infrastructure systems that are relevant to these sources of water include the following:

- MRWPCA Regional Treatment Plant (including water recycling facilities at the existing Salinas Valley Reclamation Plant)
- municipal wastewater collection and conveyance systems
- agricultural wash water[9] collection, conveyance and treatment system
- urban dry-weather runoff and stormwater collection and conveyance systems

After source water is treated at the proposed new Advanced Water Treatment Facility, it would be conveyed to new Well Injection Facilities at the Seaside Groundwater Basin. The purified recycled water would then be extracted by CalAm for delivery to its customers. Existing infrastructure systems that are relevant to extraction and delivery of the purified recycled water to urban users include the following:

- Monterey Peninsula Aquifer Storage and Recovery facilities
- CalAm water supply facilities (Monterey District)

In addition, recycled water produced for crop irrigation would be conveyed to growers through the existing CSIP distribution system.

2.5.1 MRWPCA Regional Treatment Plant, including Water Recycling Facilities and Ocean Outfall

The existing MRWPCA Regional Treatment Plant would be used to provide secondary treatment for all source waters. A new Advanced Water Treatment Facility would be constructed at the existing MRWPCA Regional Treatment Plant, and improvements would be made to the existing Salinas Valley Reclamation Plant, which also is located at the Regional Treatment Plant.

MRWPCA currently serves a population of approximately 250,000 and was created in 1972. MRWPCA operates a regional wastewater collection system, treatment, disposal and reclamation facilities. MRWPCA provides services to the cities of Monterey, Pacific Grove, Del Rey Oaks, Sand City, Marina, and Salinas, the Seaside Sanitation District, the Castroville, Moss Landing and Boronda Community Service Districts, and former Fort Ord lands. Each member entity retains ownership and operating/maintenance responsibility for wastewater collection and transport systems up to the point of connection with interceptors and pump stations owned and operated by MRWPCA.

Residential, commercial, and industrial wastewater is conveyed to the MRWPCA Regional Treatment Plant. The plant is located north of the City of Marina and south of the Salinas

[9] The Salinas Industrial Wastewater Treatment system collects wastewater from agricultural-related businesses; 80 to 90% of the wastewater in this system is estimated to originate from facilities that wash produce. These facilities also include corrugated box manufacturing and fish processing in the southeastern portions of the City of Salinas for conveyance to the City's Salinas Industrial Wastewater Treatment Facility (also referred to herein as the Salinas Treatment Facility) for treatment and disposal. The wastewater that is currently collected in this system is referred to herein as Agricultural Wash Water.

River in unincorporated Monterey County. The Regional Treatment Plant has an average dry weather design capacity of 29.6 mgd and a peak wet weather design capacity of 75.6 mgd. It currently receives and treats approximately 16 to 17 million gallons per day of wastewater and therefore has capacity to treat additional flows. The Regional Treatment Plant primarily treats municipal wastewater, but also accepts some dry weather urban runoff and other discrete wastewater flows. An aerial image annotated with the key treatment facilities at the Regional Treatment Plant is found in **Figure 2-8, Existing Regional Treatment Plant Facilities Map.**

At the MRWPCA Regional Treatment Plant, water is treated to two different standards: 1) primary and secondary treatment in the Regional Treatment Plant for discharge through the MRWPCA ocean outfall or use as influent for the tertiary treatment system, and 2) Title 22 California Code of Regulations standards (tertiary filtration and disinfection) for unrestricted crop irrigation use.

In most winter months, secondary treated wastewater from the Regional Treatment Plant is discharged to Monterey Bay through the MRWPCA ocean outfall, which includes a diffuser that extends 11,260 feet offshore at a depth of approximately 100 feet. The diffuser on the ocean outfall is designed to convey wet weather flows of up to 81.2 mgd. However, the current permitted capacity of the outfall is 75.6 mgd, which is less than its 81.2 mgd capacity. Wastewater discharges in recent years have decreased to below 5,000 AFY.

Secondary treated effluent from the Regional Treatment Plant is also recycled at the co-located Salinas Valley Reclamation Plant for irrigation of 12,000 acres of farmland in the northern Salinas Valley. The existing facilities at the Regional Treatment Plant, including the Reclamation Plant are designed to produce up to 29.6 mgd of recycled water. The Salinas Valley Reclamation Plant includes an 80 acre-foot storage pond that holds tertiary-treated and Salinas River water before it is distributed to farmland by a distribution system called the CSIP. The use of recycled wastewater for irrigation reduces regional dependence on and use of local groundwater, which, in turn reduces groundwater pumping-related seawater intrusion into the Salinas Valley aquifers.

The amount of tertiary water that has been delivered via the CSIP for crop irrigation has averaged 12,936 AFY (2001 through 2013), but is trending upward. The amount of water delivery each year is dependent on the crops grown and weather patterns. The amount of wastewater available for recycled water production is trending lower during this same period due to reduced flows of wastewater to the Regional Treatment Plant. **Figure 2-9, Historic Regional Treatment Plant Flows,** shows the wastewater influent to the Regional Treatment Plant, Salinas Valley Reclamation Plant production, and ocean outfall discharge flows for the period 1998-2013 in acre-feet per year.

In January 2014, Brezack & Associates, Inc. completed a report that projected municipal wastewater flows to the Regional Treatment Plant to help MRWPCA plan for use of available water for recycling. The MRWPCA has observed that influent to the Regional Treatment Plant has been decreasing for the last several years and thus, a key objective of the analysis was to determine if the trend would continue. The report forecasts wastewater flows based on population and per capita wastewater generation in the service area. A spreadsheet model was developed using historical population and flow data to produce a range of potential projections through the year 2055. **Figure 2-10, Projected Regional Treatment Plant Flows**, shows the results of the analysis. Specifically, the analysis found that municipal wastewater flow to the Regional Treatment Plant is projected to decrease to a range of 19.2 to 17.1 mgd. After 2030, flows may increase to a range of highs between 22.7 and 24.3 mgd. The future increase is dependent upon whether urban growth projections assumed in the 2014 projections are realized. Because it is not certain that such planned urban growth will occur, the Proposed Project source water estimates assume municipal wastewater availability will not increase in the future. If municipal wastewater flows were to increase, less of the other source waters would potentially be used for the Proposed Project. **Section 2.7.1.2, Source Water Operation: Diversion, Treatment and Use**, describes how the Proposed Project would divert source water diversions to augment wastewater flows only up to the demands for purified and/or tertiary recycled water.

2.5.2 Municipal Wastewater Collection and Conveyance Systems

Under the Proposed Project, the existing municipal wastewater collection and conveyance systems would continue to be used to convey wastewater to the Regional Treatment Plant. In addition, several new connections would be constructed to convey the new proposed sources of water to the Regional Treatment Plant. Use of the existing conveyance and collection system would minimize Proposed Project costs and environmental impacts, and would assist in enabling the Proposed Project to be constructed within the short time period needed to accomplish the Project Objectives.

Figure 2-2, MRWPCA Service Area Map provides an overview of the existing MRWPCA wastewater collection and conveyance systems, which includes ten pump stations located throughout the northern Monterey County area, including Castroville and Moss Landing to the north, and City of Salinas to the east. Following are descriptions of the wastewater collection and conveyance systems serving the Salinas and Monterey Peninsula areas.

2.5.2.1 Salinas Wastewater Collection and Conveyance

Several of the new sources (Salinas agricultural wash water, Salinas stormwater runoff, and the Reclamation Ditch waters diverted at Davis Road) would be diverted into the existing wastewater conveyance and collection system prior to flowing into the Salinas Pump Station. MRWPCA's sanitary sewer pump station that serves the City of Salinas (Salinas Pump Station) is located on Hitchcock Road in Salinas, a half mile southeast of the intersection of Blanco and Davis Roads. The Salinas Pump Station was constructed in 1983 and is located within the City of Salinas at the site of the City's former municipal wastewater treatment plant, known as Treatment Plant No. 1 or "TP1." The site is surrounded by unincorporated land within Monterey County that is currently used for agricultural production. Existing stormwater, municipal wastewater (or sanitary sewer), and agricultural wash water pipelines traverse the pump station property in very close proximity to one another, but currently flow to different ultimate endpoints. Only the municipal wastewater enters the Salinas Pump Station at this time.

Municipal wastewater is conveyed from the Salinas Pump Station to the Regional Treatment Plant in a 36-inch diameter interceptor, force main pipeline that is approximately 7.5 miles in length. The average daily and peak flows through the pump station have been relatively constant at approximately 12 mgd and 25 mgd, respectively, over the last several years. Flows at the pump station are highest during the summer months when the population of the City of Salinas expands due to the large migrant workforce associated with the agricultural industry. The City of Salinas's aggressive collection system improvement program has reduced winter infiltration and inflow of stormwater into the municipal wastewater system and thus has also reduced total flows reaching the Salinas Pump Station. MRWPCA conducted flow testing of the Salinas Pump Station in October 2008 as part of the Salinas Pump Station Flow Study. The testing indicated the pump station had a pumping capacity of 32.8 to 35.4 mgd (assuming one pump is out of service), and a capacity of up to 38.5 mgd with all pumps running. **Figure 2-11, Salinas Pump Station Monthly Average Discharge,** shows the Salinas Pump Station average monthly discharge to the MRWPCA Salinas sewer force main (or interceptor) for the period 2003-2012. Independent from the Proposed Project, the City of Salinas and MRWPCA are currently developing plans to address potential emergency sewer overflow situations at the Salinas Pump Station by designing and implementing improvements to the municipal and industrial wastewater collection and conveyance systems to allow wastewater to flow (in emergency situations, only) to the Salinas Industrial Wastewater Treatment Facility for temporary storage before returning to the Salinas Pump Station for conveyance to the Regional Treatment Plant.

2.5.2.2 Monterey Peninsula Wastewater Collection and Conveyance

One of the proposed water sources for recycling (stormwater in Lake El Estero) would be diverted into the existing wastewater conveyance and collection system in Monterey that flows into the Monterey Peninsula interceptor system. The Monterey Peninsula interceptor system collects municipal wastewater that originates as far southwest as Pacific Grove. In Pacific Grove, the wastewater flows through two main MRWPCA-owned pump stations (located at the end of Coral Street and Fountain Street). Then the wastewater flows past the Reeside Pump Station (in the City of Monterey at the end of Reeside Avenue) to the Monterey Pump Station (located in the City of Monterey on the ocean side of Del Monte Boulevard, across from the Naval Postgraduate School). From the Monterey Pump Station, wastewater is conveyed to the Seaside Pump Station in Sand City, from there to the Fort Ord Pump Station near the entrance to the City of Marina, and on to the Regional Treatment Plant. **Figure 2-12, MRWPCA Wastewater Collection System Network Diagram and Pump Station Flows,** summarizes design capacities of all the MRWPCA pump stations and also shows the average dry weather and peak wet weather flows over the last 10 years. Based on this MRWPCA data, the pump stations along the Monterey Peninsula interceptor system operate below their design flows year-round, and have operated at 15 to 20% of their design capacity during an average dry weather flow event and 42 to 50% of their capacity during peak wet weather flow days.

2.5.2.3 Moss Landing and Castroville Wastewater Collection and Conveyance

One of the proposed water sources for recycling (surface water in Tembladero Slough) would be diverted to the existing Moss Landing and Castroville portions of the wastewater conveyance and collection system just prior to where the wastewater flows into the Castroville Pump Station. The Moss Landing and Castroville interceptors and pump stations are north of the Regional Treatment Plant and collect and convey wastewater from those communities to the Regional Treatment Plant, as shown on **Figure 2-12, MRWPCA Wastewater Collection System Network Diagram and Pump Station Flows**. Flows from Moss Landing are pumped through a force main paralleling Highway 1 to the Castroville Pump Station, which is west of Highway 1 and north of Tembladero Slough. Wastewater from Castroville flows to the pump station through a gravity pipeline. The Castroville Pump Station pumps wastewater through the Castroville interceptor to the MRWPCA Regional Treatment Plant. The Castroville Pump Station is designed to pump 2.7 mgd and the current annual average flow is 0.7 mgd.

2.5.3 Agricultural Wash Water Generation, Collection/Conveyance, and Treatment

Existing operations and infrastructure relevant to the proposed Salinas agricultural wash water diversion are described in this section. The City of Salinas (hereafter, "Salinas") operates an industrial wastewater conveyance and treatment system that serves approximately 25 agricultural processing and related businesses located east of Sanborn Road and south of U.S. Highway 101. This wastewater collection system is completely separate from the Salinas municipal wastewater collection system and includes 14-inch to 33-inch diameter gravity pipelines that flow to the Salinas Pump Station Diversion site, and then flow into a 42-inch gravity pipeline to the Salinas Industrial Wastewater Treatment Facility (Salinas Treatment Facility). Over 80% of the wastewater flows in this system are from fresh vegetable packing facilities (typically, wash water used on harvested row crops). The remainder of flows originate from businesses associated with seafood processing, refrigerated warehousing, manufactured ice, preserves (frozen fruits, jams and jellies) and corrugated paper boxes. Wastewater is conveyed in a pipeline that traverses near the Salinas Pump Station to the Industrial Treatment Facility located adjacent to the Salinas River, downstream of the Davis Road crossing. The Salinas Treatment Facility consists of an influent pump station, an aeration lagoon, percolation ponds, and rapid infiltration beds to treat, percolate and evaporate the industrial wastewater.

All industrial wastewater entering the ponds passes through a bar screen at the influent pump station with a peak design flow of 6.8 mgd. Piping and valves permit the water to be pumped to the aeration lagoon, the percolation ponds, or the rapid infiltration beds; however, the National Pollutant Discharge Elimination System permit for the facility requires aeration as part of the treatment process. Biological treatment in the aeration lagoon includes aerobic decomposition to about 1/3 of the water depth using twelve 50-horsepower surface aerators and natural anaerobic decomposition in the lower layers.

The wastewater is treated using aeration then flows by gravity to three percolation ponds in series (from east to west, Ponds 1 through 3). Water levels must be maintained with no less than 1-foot of freeboard. These water levels are maintained by pumping to rapid infiltration beds, including permanent beds (also referred to as "drying beds" north of Pond 3) and temporary rapid infiltration basins located between the ponds and the Salinas River. A conceptual process flow schematic of the Salinas Treatment Facility is shown in **Figure 2-13, Salinas Industrial Wastewater Treatment Facility Process Flow Schematic** and locations of existing industrial wastewater infrastructure is shown in **Figure 2-14, Salinas Industrial Wastewater Treatment System Location Map**.

The Salinas Treatment Facility operates year-round, with a peak monthly inflow during summer months of approximately 3.5 to 4.0 mgd (annual average of approximately 3 mgd). This summer peak corresponds with the peak agricultural harvesting season in the Salinas Valley. In recent years, substantial flows to the Salinas Treatment Facility have continued during the winter months due to the importation of agricultural products from Arizona for processing in the facilities that discharge wastewater to this system.

2.5.4 Stormwater Runoff, Agricultural Drainage Collection and Conveyance

The existing systems for the collection and conveyance of various types of runoff and agricultural land drainage that are relevant to the Proposed Project include the following systems:

- Facilities that capture and discharge City of Salinas stormwater to the Salinas River (see **Section 2.5.4.1**),
- Watershed characteristics (natural, urban, and agricultural) of the Reclamation Ditch system (see **Section 2.5.4.2**),
- Agricultural runoff and tile drain systems contributing to the Blanco Drain system (see **Section 2.5.4.3**), and
- Stormwater and wastewater collection systems near Lake El Estero (see **Section 2.5.4.4**).

The following sections describe these systems and their characteristics.

2.5.4.1 City of Salinas: Urban Runoff to Salinas River

The Proposed Project would capture and divert runoff from the City of Salinas. Urban runoff from the southwestern part of the City of Salinas flows through pipes that cross nearby the Salinas Pump Station site southeast of the intersection of Blanco and Davis Roads. The runoff system currently drains an area of about 2.5 square miles and eventually flows to the Salinas River through a 66-inch gravity pipeline. The drainage area is virtually all within the developed portion of Salinas and does not appear to intercept water from non-urban areas. Therefore, flows are likely to be almost entirely from urban runoff. The climate of Salinas is semiarid, with the rainy season occurring from November through March. **Table 2-3, Estimated Urban Runoff from the City of Salinas to Salinas River (acre-feet)** shows an estimate of stormwater runoff from the City's Salinas River watershed. No flow gage or other measurements of runoff exist for this watershed, so a hydrologic analysis using rainfall gage data, hydrologic soil group information, and land use data was conducted to develop estimates of surface runoff into the Salinas River from the City of Salinas (Schaaf & Wheeler, 2015a).

Table 2-3

Estimated Urban Runoff from the City of Salinas to Salinas River (acre-feet)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Average	8	26	53	53	45	34	19	2	0	0	0	1	242
Maximum	65	229	390	414	530	147	238	31	10	8	22	18	857

Salinas has an existing municipal stormwater permit issued by the Central Coast Regional Water Quality Control Board that requires reductions in pollutant loads to nearby surface water bodies, including the Salinas River and the Reclamation Ditch and its downstream receiving waters, such as Tembladero Slough. The latter water bodies are described in the following section.

2.5.4.2 Reclamation Ditch and Tembladero Slough Watersheds: Mixed Runoff

Another Proposed Project source of water, the Reclamation Ditch, created between 1917 and 1920, is a network of excavated earthen channels used to drain surface runoff and facilitate agricultural use of the surrounding lands. The Reclamation Ditch watershed is approximately 157 square miles that includes headlands, agricultural areas, the City of Salinas and portions of Castroville and Prunedale. It collects water from Alisal Creek at Smith Lake southeast of the City of Salinas, Gabilan and Natividad Creeks within Salinas at Carr Lake, and Santa Rita Creek west of Salinas. The Reclamation Ditch is a major drainage channel that flows from east to west through Salinas and continues west where it drains into Tembladero Slough, thence to the Old Salinas River Channel, and ultimately into Moss Landing Harbor through the Potrero Road Tide Gates (see **Figure 2-15, Reclamation Ditch Watershed Boundary**).

Alisal, Gabilan and Natividad Creeks are seasonal in their upper reaches. The Reclamation Ditch is perennial downstream of agricultural and urban development. However, the presence of dry-season flow is a consequence of dry-season urban discharges and agricultural runoff and tile drain water (Casagrande and Watson, 2006). There is a United States Geological Survey gage station on the Reclamation Ditch at San Jon Road, approximately one mile west of Salinas. Flow data from that gage is provided in **Table 2-4, United States Geological Survey Gage, Reclamation Ditch at San Jon Road, period 2003 to 2013 (AF)**. The lower reaches of the system, including Tembladero Slough and the Old Salinas River Channel, are tidally influenced.

Table 2-4
United States Geological Survey Gage, Reclamation Ditch at San Jon Road, period 2003 to 2013 (AF)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Average	300	293	1,044	1,329	1,203	1,598	905	263	198	193	181	133	7,640

2.5.4.3 Blanco Drain Watershed: Agricultural Runoff and Tile Drainage

The Blanco Drain is a proposed source of water for the Proposed Project. The Blanco Drain is a man-made reclamation ditch draining approximately 6,400 acres of agricultural lands east of the City of Salinas. The watershed for the Blanco Drain is between the Salinas River and Alisal Slough, and discharges to the Salinas River at river mile 5 (see **Figure 2-16 rev, Blanco Drain Storm Drain Maintenance District**). The Blanco Drain is separated from the Salinas River by a flap gate, which prevents high-water conditions in the Salinas River from migrating up the Blanco Drain channel. Summer flows in the Blanco Drain are generally tile drainage and runoff from irrigated agriculture. Winter flows include stormwater runoff, although some fields remain in production and are irrigated year-round.

In 2009-2010, the Monterey County Water Resources Agency constructed the Salinas River Diversion Facility downstream of the Blanco Drain. The Salinas River Diversion Facility includes an inflatable rubber dam that impounds water during the summer months to supply the diversion pump station. To overcome the backwater into the Blanco Drain channel, a new slide gate and pump station were installed at the lower end of the Drain, several hundred feet above the confluence with the Salinas River. The pump station lifts Blanco Drain flows past the slide gate and into the gravity portion of the channel. **Table 2-5, Blanco**

Drain Flow Availability Estimate (acre-feet) shows an estimate of flows in Blanco Drain (Schaaf & Wheeler, 2014b).

Table 2-5
Blanco Drain Flow Availability Estimate (acre-feet)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals
Estimated Flow Availability	209	223	246	252	225	274	277	244	184	168	133	185	2,620

2.5.4.4 Monterey Peninsula: Urban Runoff

The Proposed Project includes diversion and use of stormwater that presently is stored at Lake El Estero and discharged to nearby beaches before large storm events. The cities of the Monterey Peninsula generally use storm drain infrastructure to collect, convey and discharge urban runoff that does not sheet flow to natural areas. Infrastructure for collection and discharge of urban runoff in the cities does not connect to the wastewater collection system, except in the City of Pacific Grove where the City has implemented three phases of a dry weather Urban Runoff Diversion Project in order to reduce pollutant discharges and comply with the requirements of the Areas of Special Biological Significance program (City of Pacific Grove, plans and environmental documents for Urban Runoff Diversion Project Phases 1 through 3).[10] The cities of Pacific Grove and Monterey are also in the planning stages of an additional wet weather diversion project that would expand the existing dry weather diversion facilities as part of their efforts to comply with additional Areas of Special Biological Significance requirements.[11]

Within the watersheds of the Areas of Special Biological Significance, surface storage locations for detaining stormwater are limited or non-existent in the cities of Pacific Grove and Monterey. In addition, much of the soils underlying Pacific Grove and Monterey are granitic, and thus, have a very low ability to infiltrate and reduce runoff. Large flows of stormwater runoff become available within a very short time after initiation of a storm event. The City of Monterey's stormwater system includes the use of two lakes, Del Monte Lake and Lake El Estero. The City actively manages the water levels in these lakes so that there is storage capacity for large storm events. Prior to a storm event, the lake levels are lowered by pumping or gravity flow for discharge to the beaches north of the lakes. Additional information about existing Monterey Peninsula stormwater collection systems is presented in **Section 4.11, Hydrology/Water Quality: Surface Water**.

During the 2012 to 2013 wet season, MRWPCA, the Water Management District, and the City of Monterey partnered to collect flow gage data of runoff from Lake El Estero. For the

[10] The three phases of the Urban Runoff Diversion Project include redirecting dry weather flows in the storm drain system to the sanitary sewer from a 652-acre watershed area under normal non-rainfall conditions (typically, April 1 – November 1 of each year). Urban Runoff Diversion Project Phase 1, completed in 2004, redirected seasonal urban runoff collected from a 487-acre drainage area into the sanitary sewer system at two locations. The Urban Runoff Diversion Project Phase 2, completed in 2006, expanded the Phase 1 system by collecting surface runoff from an additional 99 acres before feeding directly into the Phase 1 pipelines. The Urban Runoff Diversion Project Phase 3 is currently being constructed to pump discharges from an additional 66 acres of the watershed into the storm drain facilities installed under Phase 2, which then connect to the facilities installed in Phase 1.

[11] More information is provided at: http://www.monterey.org/Portals/1/peec/stormwater/Monterey-PG_ASBS_Stormwater_Management_Project_DEIR.pdf (Accessed February 2014).

purpose of this EIR, Schaaf & Wheeler prepared hydrologic calculations using rainfall gage data, National Resource Conservation Service hydrologic soil group information, and land use data to develop estimates of surface runoff into Lake El Estero (Schaaf & Wheeler, 2014a). **Table 2-6, Estimated Monthly and Annual Historic Urban Runoff into Lake El Estero with Existing Infrastructure (AF)** shows an estimate of stormwater runoff from the Lake El Estero watershed, a 2,810-acre drainage basin.

Table 2-6
Estimated Monthly and Annual Historic Urban Runoff into Lake El Estero with Existing Infrastructure (AF)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Average	70	52	40	16	2	1	0	0	2	9	30	45	268
Maximum	273	653	246	142	31	17	9	4	72	59	199	215	1,232

The City of Monterey is a member city in the Monterey Regional Stormwater Management Program,[12] which collectively monitors systems in Northern Monterey County under the statewide General Permit for the Phase II Small Municipal Separate Storm Sewer System (MS4) Program, and is described in detail at the State Water Resources Control Board website.[13]

2.5.5 CalAm Monterey District Water Supply Facilities

Several existing CalAm infrastructure facilities would be used to extract purified recycled water produced by the Proposed Project from the Seaside Groundwater Basin and convey the water to urban customers.

2.5.5.1 Seaside Groundwater Basin Extraction and Treatment Facilities

CalAm's operations within the Seaside Groundwater Basin are described above in **Section 2.3.2.2** and in more detail in **Section 4.10, Hydrology/Water Quality: Groundwater.**

2.5.5.2 Aquifer Storage and Recovery Project

Under the Proposed Project, existing CalAm wells, including four wells used for the Monterey Peninsula Aquifer Storage and Recovery Project, would be used to extract purified recycled water from the Seaside Groundwater Basin. **Figure 2-17, Aquifer Storage and Recovery Project Location Map,** shows the location of the Aquifer Storage and Recovery wells in the Seaside Groundwater Basin. The Monterey Peninsula Aquifer Storage and Recovery Project is cooperatively implemented by the Water Management District and CalAm, and involves the diversion of excess winter/spring flows from the Carmel River system for recharge of, storage in and subsequent recovery from the Seaside Groundwater Basin. Carmel River water is diverted when there is excess water in the River (i.e., minimum flow criteria are met), treated by CalAm to potable drinking water standards, conveyed in the CalAm distribution system, and then injected into the Santa Margarita aquifer of the Seaside Groundwater Basin via four existing Aquifer Storage and Recovery wells located at two

[12] See www.montereysea.org for program description and details
[13] State Water Resources Control Board, accessed January 2014. http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Aquifer Storage and Recovery facilities. The injected water is stored within the aquifer and subsequently extracted and distributed by CalAm for use during dry periods. The overall objective of the Aquifer Storage and Recovery Project is to facilitate the conjunctive use of water supplies in the Carmel River system and Seaside Groundwater Basin that would benefit the resources of both systems.

Aquifer Storage and Recovery operations generally consist of three components or phases: (1) injection of drinking-quality water into the aquifer through the Aquifer Storage and Recovery wells; (2) storage of the injected water within the aquifer; and, (3) recovery of the stored water by pumping at one or more of the Aquifer Storage and Recovery wells or at CalAm production wells within the basin. Periodic samples of the injected, stored, and recovered waters are collected from the Aquifer Storage and Recovery wells and associated monitoring wells and analyzed for a variety of water-quality constituents pursuant to requirements of the Central Coast Regional Water Quality Control Board oversight of the Aquifer Storage and Recovery Project and the extracted groundwater must also meet SWRCB Division of Drinking Water drinking water regulations..

The first phase (Phase 1) of the Aquifer Storage and Recovery Project included two MPWMD injection/extraction wells at the Santa Margarita site and was approved in 2006 and operational in 2007; however, test injections began in 2001 and test extractions began in 2003. Phase 1 operational injections began in Water Year 2007-2008 and extractions from the Aquifer Storage and Recovery wells for use in the CalAm system began in Water Year 2010-2011. Phase 2 of the project has been constructed and includes operation of two additional permanent wells (the 3rd and 4th Aquifer Storage and Recovery Wells, or ASR-3 and ASR-4) at the Seaside Middle School site. The new ASR wells that will be operational within 2015 or early 2016 and will serve as additional extraction wells from which CalAm can extract existing groundwater in the Seaside Basin, and in the future, they may be used to extract the water that would be injected by the Proposed Project, mixed with existing native groundwater and other waters. In addition, if the Monterey Peninsula Water Supply Project desalination project is built, the wells would extract desalinated water that is proposed to be injected into the Seaside Basin using the 5th and 6th ASR wells that are proposed to be built as part of that project.

2.5.5.3 CalAm Monterey District Distribution Facilities and Demands

Under the Proposed Project, existing CalAm distribution systems would be used to convey the purified recycled water extracted from the Seaside Basin to CalAm's customers. CalAm's Monterey District includes a "main" system and several satellite systems, and has approximately 38,500 connections. CalAm provides water service to most of the Monterey Peninsula, including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and the unincorporated areas of Carmel Highlands, Carmel Valley, and Pebble Beach via the Monterey District's water distribution system. This is referred to as the Main Monterey System and its location is shown in **Figure 2-1, Project Location Map**. In addition to the main system, CalAm also operates the following satellite water systems that provide water to customers within Monterey County: Bishop/Pasadera, Ambler, Hidden Hills, Ryan Ranch, Toro, Chualar, and Ralph Lane. CalAm's Monterey District service area is supplied by the Carmel River system and groundwater from the coastal subareas of the Seaside Groundwater Basin. The Bishop/Pasadera, Hidden Hills, and Ryan Ranch systems also rely on groundwater from the Seaside Groundwater Basin. The remaining systems (Toro, Chualar, and Ralph Lane) do not rely on either the Carmel River or the Seaside Basin.

Table 2-7, CalAm Monterey District Service Area Demand shows total annual demand in CalAm's Monterey system over the 5-year period from 2007 to 2011. Annual demand during the time period of 2007 – 2011 ranged from 11,989 AF to 14,644 AF, and averaged 13,291 AF. The maximum annual demand during this time period (14,644 AF in 2007) occurred before the economic downturn (estimated to have occurred in 2008), before the 3-year drought of 2012 - 2015, and before implementation of additional water conservation measures which were initiated in response to the SWRCB Cease and Desist Order.

Table 2-7
CalAm Monterey District Service Area Demand

Calendar Year (Jan-Dec)	Total Annual Demand (AF)
2007	14,644
2008	14,460
2009	13,192
2010	12,171
2011	11,989
5-Year Average	**13,291**

The following are the components of CalAm's forecasted total customer demand in its Monterey District of 15,296 acre-feet per year, as described by the California Public Utilities Commission in the Plant Size and Operation Agreement for CalAm's Monterey Peninsula Water Supply Project (California Public Utilities Commission, 2013):[14]

- 13,290 AF 5-year customer demand
- 500 AF for economic recovery
- 325 AF for Pebble Beach buildout
- 1,181 AF for legal lots of record

Based on total forecasted demand of 15,296 acre-feet per year, CalAm estimates that new water supplies of 9,752 acre-feet per year would be required, along with use of the following existing sources:

- Supply from Carmel River Wells - 3,376 AF
- Extraction from Seaside Groundwater Basin – 774 AF[15]
- Average Aquifer Storage and Recovery Capacity - 1,300 AF
- Sand City Plant Firm Yield to CalAm – 94 AF

Because the CalAm system was initially built to deliver water from Carmel Valley to the Monterey Peninsula cities, a hydraulic trough currently exists in the CalAm peninsula distribution system that prevents water delivery at adequate quantities from the Seaside

[14] California Public Utilities Commission. Filings for Proceeding A1204019 (referred to as one of the "Settlement Agreements") filed 7/31/13) and found at http://www.watersupplyproject.org/Websites/coastalwater/files/Content/3877658/Sizing_Agreement_PDFA.pdf, accessed November 2013.

[15] CalAm and the Seaside Groundwater Basin Watermaster reached an agreement on the replenishment of CalAm's historical overpumping of the Seaside Groundwater Basin per the adjudication decision. The agreement requires California American Water to reduce extraction from the Basin by 700 acre-feet of water annually on a 5-year average basis for an estimated twenty five years. The reduced annual extraction volume from the Seaside Groundwater Basin would be 774 acre-feet. The reduction in extraction volume is not treated as demand but is instead treated as a reduction in supply. (Joe Oliver, MPWMD, October 30, 2014)

Groundwater Basin to most of Monterey, and all of Pacific Grove, Pebble Beach, Carmel Valley, and the City of Carmel areas. The hydraulic trough is an area of the CalAm distribution system with very small pipe diameters and very low elevation such that the required high flow rates of water and high pressures needed to convey water from the north between two pressure zones of the system cannot be achieved with the current infrastructure. This system deficiency would need to be addressed regardless of whether the Proposed Project is implemented by itself, CalAm's Monterey Peninsula Water Supply Project with the full-size desalination plant is implemented without the GWR Project, or the variant to the Monterey Peninsula Water Supply Project that includes both a smaller desalination plant and the GWR Project is implemented.

2.5.5.4 CalAm Historic Water Production

Table 2-8, CalAm Water Production for Water Years 2006 – 2014 (in Acre-Feet) presents the CalAm water production for their Monterey District Service Area, including the "Main System" and the "Laguna Seca Subarea" (LSS) that draws water exclusively from the Seaside Basin.

Table 2-8
CalAm Water Production for Water Years 2006 – 2014 (in Acre-Feet)

	Production by Sources						Production by CalAm System	
Water Year	Sand City Desal Project	ASR Projects Recovery	Seaside Basin Coastal Subareas	Seaside Basin Laguna Seca Subarea	Carmel Valley Alluvial Aquifer	Carmel River	Main System (all sources except LSS)	All Sources Total (Main System plus LSS)
2006	--	0	3,263	446	10,542	0	13,805	14,251
2007	--	0	3,625	435	10,443	0	14,068	14,503
2008	--	60	3,329	534	10,600	0	13,989	14,523
2009	--	182	2,449	516	10,285	0	12,916	13,432
2010	46	0	3,283	430	8,673	0	12,002	12,432
2011	276	1,111	3,034	382	7,441	0	11,862	12,244
2012	242	1,224	2,701	370	7,515	0	11,682	12,052
2013	188	644	2,700	377	7,713	0	11,245	11,622
2014	179	0	2,871	362	7,744	0	10,793	11,154
SUMMARY STATISTICS FOR SELECTED PERIODS								
Water Years 2006-2014								
Mean	NA	358	3,028	428	8,995	NA	12,485	12,913
Median	NA	60	3,034	430	8,673	NA	12,002	12,432
Minimum	NA	0	2,449	362	7,441	NA	10,793	11,154
Maximum	NA	1,224	3,625	534	10,600	NA	14,068	14,523
Water Years 2010-2014								
Mean	186	596	2,918	384	7,817	NA	11,517	11,901
Median	188	644	2,871	377	7,713	NA	11,682	12,052
Minimum	46	0	2,700	362	7,441	NA	10,793	11,154
Maximum	276	1,224	3,283	430	8,673	NA	12,002	12,432

NOTES:
(1) ASR = Aquifer Storage and Recovery; ~~CVA = Carmel Valley Aquifer; CR = Carmel River;~~ LSS = Laguna Seca Subarea of Seaside Basin. Carmel River System production values include reductions for water produced for injection into the Seaside Basin.

(2) Carmel River System and Seaside Basin production values were compiled by the MPWMD from monthly production reports submitted by the California American Water (Cal-Am), Monterey Division.
(3) "NA" in the "Summary Statistics for Selected Periods" sections indicate "Not Applicable" when production data for that source are not included for the entire indicated period.
Source: MPWMD, 2014.

2.6 Overview of Proposed Project Facilities and Operations

2.6.1 Proposed Project Facilities Overview

This and the following sections describe the new physical components of the Proposed Project. **Figure 2-18, Proposed Project Facilities Overview** shows an overview of the Proposed Project facilities and **Figures 2-19 and 2-20** provide overall project process flow schematics to illustrate the existing and proposed facilities and relevant water flow paths by type of water. **Figure 2-19, Proposed Project Flow Schematic – Source Water to Treatment**, shows the flow paths and facilities to be used for collection and conveyance of source water to the Regional Treatment Plant. **Figure 2-20, Proposed Project Flow Schematic –Regional Treatment Plant**, shows the flows into and out of the Regional Treatment Plant. The following project components are described in the subsections below:

- *Source water diversion and storage* – facilities to enable diversion of new source waters to the existing municipal wastewater collection system and conveyance of those waters as municipal wastewater to the Regional Treatment Plant to increase availability of wastewater for recycling. Modifications would also be made to the existing Salinas Industrial Wastewater Treatment Facility to allow the use of the existing treatment ponds for storage of excess winter source water flows and later delivery to the Regional Treatment Plant for recycling.
- *Treatment facilities at Regional Treatment Plant* – use of existing primary and secondary treatment facilities at the Regional Treatment Plant, as well as new pre-treatment, advanced water treatment (AWT), product water stabilization, product water pump station, and concentrate disposal facilities, and modifications to the Salinas Valley Reclamation tertiary treatment plant.
- *Product water conveyance* – new pipelines, booster pump station, appurtenant facilities along one of two optional pipeline alignments to move the product water from the Regional Treatment Plant to the Seaside Groundwater Basin injection well facilities.
- *Injection well facilities* – new deep and vadose zone wells to inject Proposed Project product water into the Seaside Groundwater Basin, along with associated back-flush facilities, pipelines, electricity/ power distribution facilities, and electrical/motor control buildings.
- *Distribution of groundwater from Seaside Groundwater Basin* – new CalAm distribution system improvements needed to convey extracted groundwater and deliver it to CalAm customers. These same CalAm distribution improvements also would be needed if CalAm were to implement the Monterey Peninsula Water Supply Project, which is undergoing separate CEQA review.

2.6.2 Proposed Project Operations Overview

The Proposed Project would operate with annual and seasonal variations based on the amount of available runoff, the water year type, the varying irrigation demand for recycled water, and the amount of water stored in the Seaside Groundwater Basin as a drought reserve each year.

The primary project objective is to replenish the Seaside Groundwater Basin to produce high quality water to replace CalAm water supply as required by State Orders. The ability of the project to meet the primary project objective of providing CalAm extractions of 3,500 AFY would not depend on water year type (wet, normal, or dry).

The Proposed Project would also increase the amount of recycled water available for crop irrigation within the existing CSIP service area by approximately 4,500 to 4,750 AFY during normal and wet years, and by up to 5,900 AFY during drought conditions. For MRWPCA to secure the necessary rights and agreements to use the source waters needed for the Proposed Project, preliminary negotiations with stakeholders indicate that MRWPCA also would need to increase the amount of recycled water provided to the CSIP area. This amount is within the total permitted capacity of the Salinas Valley Reclamation Plant of 29.6 mgd. Irrigation demands vary seasonally, peaking in the spring and summer months, and also by water year type, increasing in dry and hotter years. Irrigation demand can also change in response to changes in cropping patterns and irrigation practices. The Salinas Valley Reclamation Plant produces tertiary-treated, disinfected water supply (recycled water) from treated municipal wastewater for the CSIP. Peak irrigation demands in the CSIP system exceed the amount of available treated municipal wastewater, so additional water is supplied from the Salinas River and the Salinas Groundwater Basin. The Proposed Project would increase the availability of recycled water during the peak demand periods by providing new sources of water supply to the Salinas Valley Reclamation Plant. The Project also would increase the availability of recycled water for crop irrigation during low demand periods by modifying the Salinas Valley Reclamation Plant to allow production and delivery at lower daily rates, thus further reducing pumping from supplementary groundwater wells.

In addition, to better accommodate variable annual crop irrigation demands for recycled water, an additional 200 AFY would be produced and injected into the Seaside Groundwater Basin during most years to develop a drought reserve of up to 1,000 acre-feet of stored water. This would allow MRWPCA to reduce deliveries of product water to the Seaside Groundwater Basin during drought years, while still enabling CalAm to pump 3,500 AFY from the Seaside Groundwater Basin by using the reserved water. By reducing deliveries of product water to the Seaside Groundwater Basin during drought years, MRWPCA would be able to increase deliveries of recycled water to growers by a commensurate amount.

The Proposed Project's AWT Facility would be designed and constructed to allow production rates from 1.3 mgd (900 gpm) to 4.0 mgd (2,700 gpm). During a wet or normal year, the AWT Facility would operate at an average rate of 3.5 mgd during the summer months (April to September). If the drought reserve is full (1,000 acre-feet additional have been "deposited" in the Seaside Groundwater Basin), the winter production rate would remain 3.5 mgd. If the drought reserve is not full, the winter production rate would be increased to 4.0 mgd to allow the production of an additional 200 AFY. During certain dry years, the AWT Facility production rate would be decreased in the summer months, to rates as low as 1.3 mgd, depending upon the amount of water "deposited" in the drought reserve and the demands of the CSIP irrigators. The Proposed Project would produce enough advanced treated water in each year so that the amount of injected water plus the amount of "withdrawn" drought reserve equals the 3,500 AFY extracted by CalAm. Water supplies not used for the AWT Facility would be used by the Salinas Valley Reclamation Plant to produce additional recycled water for the CSIP.

Table 2-9, Proposed Project Monthly Flows for Various Flow Scenarios summarizes typical flow operations for the AWT Facility based on seasonal flow and demand conditions. Although presented as fixed water year types, actual system operation would require daily or weekly management of the production rates to address the variability in irrigation demands and supply availability. Source water diversions would be similarly managed to maximize water availability during the peak irrigation season, as discussed in **Section 2.7.1**.

Table 2-9
Proposed Project Monthly Flows for Various Flow Scenarios

AWT Facility Influent/Feed

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total (AFY)
Advanced Water Treatment Facility Reverse Osmosis Feed (acre-feet) (See Note 1)													
1. After drought reserve complete	367	331	367	355	367	355	367	367	355	367	355	367	4,321
Extra to build drought reserve	42	38	42	-	-	-	-	-	-	42	41	42	247
2. Wet and Normal Years	409	369	409	355	367	355	367	367	355	409	396	409	4,568
3. Drought Years when Full Drought Reserve	409	369	409	133	137	133	137	137	133	409	396	409	3,211

Purified Recycled Water Delivery

Product Water Delivery Schedules for Seaside Basin Injection			Acre-Feet per Month (AF/month)												Total	Add to	Reserve as
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	AFY	Reserve	of April 1
1	Drought Reserve <1,000 AF (Oct)	Wet/Normal Year	331	321	331	331	299	331	288	297	288	297	297	288	3,700	200	-
2	Drought Reserve 1,000 AF (Oct)	Wet/Normal Year	297	288	297	297	268	297	288	297	288	297	297	288	3,500	-	-
3	Drought Reserve <1,000 AF (Oct)	Drought Year	331	321	331	331	299	331	255	263	255	263	263	255	3,500	200	200
4	Drought Reserve <1,000 AF (Oct)	Drought Year	331	321	331	331	299	331	222	229	222	229	229	222	3,300	200	400
5	Drought Reserve <1,000 AF (Oct)	Drought Year	331	321	331	331	299	331	189	196	189	196	196	189	3,100	200	600
6	Drought Reserve <1,000 AF (Oct)	Drought Year	331	321	331	331	299	331	156	162	156	162	162	156	2,900	200	800
7	Drought Reserve <1,000 AF (Oct)	Drought Year	331	321	331	331	299	331	124	128	124	128	128	124	2,700	200	1,000
8	Drought Reserve 1,000 AF (Oct)	Drought Year	297	288	297	297	268	297	124	128	124	128	128	124	2,500	-	1,000

Maximum Monthly Injection Rates	Gallons per Minute (gpm)												Maximum Injection Rate
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	(gpm)
Santa Margarita Aquifer (90%)	2,175	2,179	2,175	2,175	2,175	2,175	1,955	1,951	1,955	1,951	1,951	1,955	2,179
Paso Robles Aquifer (10%)	242	242	242	242	242	242	217	217	217	217	217	217	242
Total	2,417	2,422	2,417	2,417	2,417	2,417	2,173	2,168	2,173	2,168	2,168	2,173	2,422

Note 1: These estimated flows exclude the membrane filtration backwash quantities that would be recirculated back to the Regional Treatment Plant headworks and thus would not be considered to be new flows.

Operation of the Proposed Project facilities would require some additional staff at the MRWPCA Regional Treatment Plant and administrative office. The AWT Facility would require up to five personnel to operate the facility 24-hours a day, 7-days a week. The Salinas Valley Reclamation Plant would operate with the same number of staff as currently assigned, but operations would extend into the wet season. The source water diversion and product water conveyance and injection facilities would not require on-site staff, but would require periodic site visits and maintenance activities. These are discussed in detail in the sections below regarding each component.

The Proposed Project would require an estimated 10,952 megawatt-hours per year (mW-hr/yr). Power use for the Crop Irrigation component would peak during drought years when additional recycled water is being produced. Electrical power at the existing MRWPCA facilities comes from solar panels and from generators running on a mix of methane (from the Regional Treatment Plant) and natural gas (from PG&E), with back-up electrical service from PG&E. Additional power would be generated using increased methane from processing of new source water, and increased purchase of natural gas from PG&E. Electrical power for the source water diversion facilities, product water booster pump station, and injection well facilities would be purchased from PG&E.

Table 2-10, Overview of Typical Facility Operations – Proposed Project provides an overview of typical facility operations, truck trips and employees under the Proposed Project. **Table 2-11, Overview of Proposed Project Electricity Demand (all in megawatt-hours per year)** summarizes the power demands of the Proposed Project.

Table 2-10
Overview of Typical Facility Operations – Proposed Project

Proposed Project Component Site	Trucks (per day)	Employees	Employee Trips (per day)	Operations Schedules
Source Water Diversion and Storage Sites				
Salinas Pump Station Diversion	0	0	0	24 hours per day, 365 days per year. No new operations/ maintenance staff expected beyond existing MRWPCA staff.
Salinas Treatment Facility Storage and Recovery	0	0	0	24 hours per day, 365 days per year. No new operations/ maintenance staff expected beyond existing City staff.
Reclamation Ditch and Tembladero Slough Diversions	1	1	2	24 hours per day, 365 days per year. For Reclamation Ditch one trip up to three times per week. For Tembladero no new operations/maintenance staff expected beyond existing MRWPCA staff.
Blanco Drain Diversions (in this case the pump station site)	0	0	0	24 hours per day, 365 days per year. No new operations/ maintenance staff expected beyond existing County and MRWPCA staff.
Lake El Estero Diversion	0	0	0	24 hours per day for urban runoff, wet season (typically ~~November~~ October through April) dependent on pipe and pump station capacity and weather. No new operations and maintenance staff expected beyond existing City of Monterey staff.
Treatment Facilities at Regional Treatment Plant				
All new and modified treatment facilities, including AWT Facility, Brine Mixing Facility, Product Water Pump Station and SVRP Modifications	2	5	10	24 hours per day, 365 days per year (10% offline time for maintenance)
Product Water Conveyance				
Pipelines, appurtenant facilities, and Booster Pump Station	1	1	2	24 hours per day, 365 days per year (10% offline time for maintenance)
Injection Well Facilities				
- Injection Wells (4 clusters of 2), each includes a deep injection well, a vadose zone well, and a motor control/electrical building - Monitoring wells (six clusters of 2) - Back-flush water pipeline, product water conveyance pipelines, and electrical conduit under new roadways to each site	0	2	4	24 hours per day, 365 days per year (each well assumed to be inoperable 20% of the year for back-flushing and maintenance)
Total without the CalAm components	**4**	**9**	**18**	
CalAm Distribution of Seaside Groundwater Basin Water via the CalAm System, including the proposed new Monterey and Transfer Pipelines	0	0	4	24 hours per day, 365 days per year
Total with the CalAm components	**4**	**9**	**22**	

Table 2-11
Overview of Proposed Project Electricity Demand (all in megawatt-hours per year)

Source Water Diversion and Storage Sites (Source: Vinod Badani, E2 Consulting, October 2014, except as noted)	
Existing MRWPCA Wastewater Collection System Pump Stations (increased pumping for source water collection) (Source: Bob Holden, MRWPCA, October 2014)	1,100
Proposed Salinas Pump Station Diversions (lighting, SCADA, misc. electricity)	10
Proposed Salinas Industrial Wastewater Treatment Plant Storage and Recovery Component (pumping, lighting, SCADA, misc. electricity)	224
Existing Salinas Treatment Facility and Stormwater Operations (reduction of pumping, Ron Cole, February 2014 modified by MRWPCA staff October 2014)	(1,875)
Proposed Reclamation Ditch Diversion (pumping, lighting, SCADA, misc. electricity)	250
Proposed Tembladero Slough Diversion (pumping, lighting, SCADA, misc. electricity)	461
Proposed Blanco Drain Diversion (pumping, lighting, SCADA, misc. electricity)	731
Proposed Lake El Estero Diversion (lighting, SCADA, misc. electricity)	10
Treatment Facilities at Regional Treatment Plant (Source: Bob Holden, October 2014)	
Existing Primary and Secondary Processes (existing on-site cogeneration facility would provide a reduction in this value, see below) (9,900 AFY more wastewater flows through treatment processes)	3,673
Existing Salinas Valley Reclamation Plant (existing plant operations use solar array electricity, which has reduced electricity demand by up to 1,400 mWhr/yr) (4,260 AFY more crop irrigation water produced)	1,300
AWT Facility (new treatment facilities, not including product water pumping; assumes 3,700 AFY of water production to build drought reserve; demand will be less when Drought Reserve is at full capacity and when Drought Reserve is being used by CSIP)	7,007
CSIP Supplemental Wells **(Source: Bob Holden, MRWPCA, October 2014)**	
Reduction of use of CSIP Supplemental Wells by 4,260 AFY	(1,900)
Product Water Conveyance (Source: TG Cole, October 2014)	
Pumping of product water to Injection Well Facilities under either option (RUWAP or Coastal)	1,912
Injection Well Facilities (Source: Vinod Badani, E2 Consulting Engineers, October 2014)	
Back-flush of four (4) deep injection wells, lighting, HVAC, meters, instruments, SCADA	147
CalAm Distribution System Changes (Source: CalAm, 2014)	
Increase by moving 3,500 AFY extractions from Carmel River to Seaside Basin wells	630
Proposed New Electricity Generation at Existing Cogeneration Facility	**(2,726)**
TOTAL NET NEW ELECTRICITY DEMAND (in megawatt-hours per year)	10,952

2.7 SOURCE WATER

2.7.1 Overview of Source Water Approach

The preliminary determination of feasibility of the Proposed Project required technical investigations to estimate the regulatory and design requirements, and preliminary capital and operational costs of Proposed Project facilities. One of the key feasibility/planning actions was to assess the ability for the Proposed Project to obtain supplemental source waters to augment existing secondary-treated wastewater flows available to the Project. Water supply sources considered included urban stormwater and dry-weather runoff, surface water diversions from water bodies receiving agricultural tile drainage, and use of industrial wastewater currently treated by the City of Salinas. Additional technical studies were prepared for those sources identified as feasible in the initial studies.

Previous interagency agreements established entitlements to recycled water produced from the existing municipal wastewater flows to the Regional Treatment Plant. As source flows for the Proposed Project were studied and the seasonal variability of each was understood, the stakeholder agencies entered into a Memorandum of Understanding Regarding Source Waters and Water Recycling (MOU) provided in **Appendix B rev**. The Parties to the MOU are the Monterey Regional Water Pollution Control Agency, the Monterey County Water Resources Agency, the City of Salinas, the Marina Coast Water District, and the Monterey Peninsula Water Management District. The MOU is an agreement to "negotiate a Definitive Agreement to establish contractual rights and obligations of all Parties," that would include (1) protection of Marina Coast Water District's recycled water right entitlement, (2) provision of up to 5,290 AFY of recycled water to Monterey County Water Resources Agency for the CSIP, and (3) provision of 3,500 AFY of purified recycled water for injection into the Seaside Groundwater Basin and extraction by CalAm. The MOU also includes provisions for creation of a drought reserve by allowing the GWR Features to produce, convey and inject up to 200 AFY of additional purified recycled water during wet and normal years. The MOU reflects the stakeholder agencies' positions regarding the combined benefits and conditions that would be required to secure the necessary rights and agreements to use the source waters needed for the Proposed Project.

Based on the preliminary feasibility studies and the MOU, the following sources of water are included for collection and use by the Proposed Project:

- Monterey Peninsula urban stormwater and runoff (in particular, the Proposed Project includes diversion and use of water that currently flows into Lake El Estero and then is pumped by the City of Monterey, or allowed to flow by gravity, through storm drain pipelines to Del Monte Beach);[16]

[16] Projects that propose to capture stormwater flows from other Monterey Peninsula watersheds, including areas of the cities of Pacific Grove and Monterey that flow to the Areas of Special Biological Significance in the Monterey Bay, and divert them to the MRWPCA wastewater collection system are assumed to occur with or without implementation of the Proposed Project. Although other stormwater flows from the Monterey Peninsula are referenced in the MOU for Source Waters and Water Recycling, diversion and use of these flows are assumed to occur independently from the Proposed Project and have independent utility (i.e., to reduce stormwater containing pollutants from flowing into the portion of the ocean that is an Area of Special Biological Significance) and thus the implementation and assessment of impacts of other stormwater diversion project(s) are included as

- City of Salinas urban stormwater and runoff from the southwest portion of the city that is currently discharged into the Salinas River near Davis Road via a 66-inch outfall line;
- Salinas agricultural wash water, 80 to 90% of which is water used for washing produce, that is currently conveyed to the Salinas Treatment Facility for treatment (aeration) and disposal by evaporation and percolation;
- Urban and agricultural runoff and tile drainage water from the Reclamation Ditch and Tembladero Slough (to which the Reclamation Ditch is tributary);[17]
- Water from the Blanco Drain, a man-made reclamation ditch that collects drainage from approximately 6,400 acres of agricultural lands near Salinas;[18]
- Municipal wastewater from MRWPCA member agencies that is treated with existing primary and secondary processes at the Regional Treatment Plant and would otherwise be discharged to the Pacific Ocean (i.e., not treated to a tertiary level for agricultural irrigation).

To maximize the ability to use these sources, two existing facilities would be modified:

- Modifications to the existing Salinas Valley Reclamation Plant to enable the plant to run at less than 5 mgd, and
- Addition of a pipeline and pump station at the Salinas Treatment Facility and slip-lining of an existing 33-inch industrial wastewater pipeline between TP1 and the Salinas Treatment Facility to allow storage and recovery of winter agricultural wash water and south Salinas stormwater.

This combination of source waters and modifications to existing treatment facilities would be capable of achieving the project objectives at a reasonable cost. In particular, the proposed source waters except Blanco Drain diversions would use existing infrastructure facilities with available capacity for conveyance purposes, thus minimizing capital costs and environmental impacts.

2.7.1.1 Summary of Source Water Flow Availability for Proposed Project

Table 2-12, Source Waters Flows: Existing and Assumed Available for Proposed Project (in AFY) summarizes the results of the Water Management District and MRWPCA's analysis of the data and assumptions used to estimate source water availability and use. These estimates have been used to identify the range of flows affecting design of the Proposed Project facilities. **Appendices B <u>rev</u>** and **C <u>rev</u>** include the assumptions regarding source water availability, including estimates by month to develop the range of potential

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cumulative project(s) (see **Section 4.1, Environmental Setting, Impacts, and Mitigation Measures,** of this Draft EIR).

[17] The amount of water has been estimated based on assuming water available for diversion for the Proposed Project would be in excess of required fish passage flows and under the flow rate that can be conveyed to the Regional Treatment Plan using the existing municipal wastewater collection system.

[18] The Blanco Drain is the only source of supply not located near an existing wastewater collection facility which could be used to convey flows to the Regional Treatment Plant. Development of this source would require not only a new pump station, but also a pipeline crossing the Salinas River. The pipeline may extend to the Regional Treatment Plant headworks or may connect to the gravity portion of the Salinas interceptor (to be determined during detailed design).

flows for use in designing Proposed Project facilities (for Advanced Water Treatment Facility, Product Water Conveyance, and Injection Well Facilities) to meet the primary Proposed Project goal of delivering purified recycled water to the Seaside Groundwater Basin, as well as the secondary Project goals of increasing crop irrigation water for growers in the CSIP area and establishing a drought reserve of up to 1,000 AF (Schaaf & Wheeler, 2015c).

Table 2-12
Source Waters Flows: Existing and Assumed Available for Proposed Project (in AFY)

Type of Source Water:	Definitions of "Existing" Flows (in AFY)							Projected future flows in 2017 (AFY)	Proposed Project Maximum Use of Source Water Flows, (AFY) (Note 2)
	2012 (actual)	2013 (actual)	Historical Average Flows (averaging period)						
			2012-13 *(2-yr average)*	2009-13 *(5-yr average)*	2007-13 *(7-yr average)*	2004-13 *(10-yr average)*	All data (see below)		
Excess/Unused Regional Treatment Plant Municipal Effluent (MRWPCA, Regional Treatment Plant flow monitoring data, January 2014)	9,714	4,621	7,183	8,225	8,704	9,457	10,300 (1999-2013)	6,242 (Note 1)	3,000 to more than 5,000
Agricultural Wash Water Flows (Source: City of Salinas and MRWPCA, 2014)	3,058	3,228	3,143	2,676	2,579	NA (Note 3)	2,579 (2007-13)	3,732 (Note 1)	2,579
City of Salinas Urban Runoff to Salinas River (Source: Schaaf & Wheeler, 2015a)	229	19	124	196	165	176	225 (1932-2013)	225	
Reclamation Ditch at Davis Road (Source: Schaaf & Wheeler, 2015b)	6,759	1,965	4,362	7,034	6,374	7,482	7,159 (2003-13)	7,159	1,522
Tembladero Slough at Castroville (Source: Schaaf & Wheeler, 2015b)	9,190	2,610	5,900	9,536	8,531	10,030	9,593 (2003-13)	9,593	1,135
Blanco Drain Diversions (Source: Schaaf & Wheeler, 2014b)	NA (Note 5)	NA (Note 5)	NA (Note 5)	NA	NA	NA	2,620 (2010-12)	2,620 (Note 5)	2,620
Lake El Estero Storage Management Water (Source: Schaaf & Wheeler, 2014a)	65	0	33	66	55	60	87 (1952-2013)	87	87
TOTALS (Note 6)	**22,256**	**10,478**	**16,383**	**21,557**	**20,034**	**NA (Note 4)**	**25,404**	**NA**	**9,311 (Note 6)**

Notes:
1. Projection of flows available in first year of Proposed Project operation 2017 (See **Appendix B rev**).
2. Source: Schaaf & Wheeler/Monterey Peninsula Water Management District, 2015 (see **Appendix B rev**).
3. Flows not available for years prior to 2007.
4. Due to lack of data regarding agricultural wash water prior to 2007 and recent trends, these numbers could not be summed to provide a total of source water flows for this averaging period.
5. Blanco Drain flows calculated based on seasonal pumping records (April to November)
6. The total use of source water would be less than the sum of all source waters due to seasonal nature of the demands and losses due to Salinas Treatment Facility Storage and Recovery. The analysis assumes that new source water that exceeds the amount used by the Proposed Project for recycling would be disposed via the MRWPCA existing ocean outfall. The amount of effluent to be disposed to the MRWPCA ocean outfall would be less with Proposed Project than current conditions as shown in **Appendix B rev**.
NA = Not available.

2.7.1.2 Source Water Operation: Diversion, Treatment and Use

The availability of some of the sources of water supplies for the Proposed Project would vary inversely with the Project's water demands. The sources of supply that capture rainfall (urban runoff and surface water diversions within urban areas in their watershed) peak during periods of low irrigation demands, and have minimal or no available flows during periods of peak irrigation demands. By contrast, two sources of supply, agricultural wash water and secondary treated municipal wastewater, have some seasonal variability but are available year-round.

To address the seasonality of supplies and demands, the use of source water would be prioritized by source, and in some cases managed by season. **Table 2-13, Source Water Use Scenarios, including Priority, Seasonality, and Use by Project Phase and Drought Reserve Status** lists proposed sources by priority of use wherein excess unused wastewater is assumed to be used first as the most efficient source water to collect, convey, and treat. Detailed use scenarios are provided in **Appendix B rev** to demonstrate some potential operational scenarios that may be used in various water year types to optimize the Proposed Project by prioritizing source waters for energy efficiency and reduction of ocean discharges (Schaaf & Wheeler, 2015c).

Treated municipal wastewater currently is used to produce recycled water at the Salinas Valley Reclamation Plant for crop irrigation. Recycled water users under previous agreements have the first right to this supply. Under the Proposed Project, at times when unused treated municipal wastewater is not needed for crop irrigation, and instead would otherwise be discharged through the ocean outfall, it would become the first priority source of supply for the AWT Facility, with a goal of minimizing the amount of flow discharged to the ocean and energy use by the Proposed Project.

Agricultural wash water, which is currently treated at the Salinas Treatment Facility, is available year-round and is the most reliable source of new water supply for the Project. It would be diverted to the Regional Treatment Plant during peak irrigation time periods and managed to meet the peak summer demand season by storing winter flows in the existing ponds at the Salinas Treatment Facility. In the summer months, both the incoming agricultural wash water and the stored stormwater would be directed to the Regional Treatment Plant, allowing production of advanced treated water for groundwater injection and increased recycled water production for CSIP.

Urban stormwater runoff may be diverted to the sanitary sewer collection system for minimal cost and without a water rights permit, and is therefore the next priority source of supply for the Proposed Project. However, when this supply is most available, irrigation demands are low and secondary-treated municipal wastewater would typically be available in adequate quantities to meet project objectives. If that is the case, urban runoff at Lake El Estero may not be diverted, and urban runoff from the City of Salinas would not be routed to the Salinas Treatment Facility for seasonal storage. Runoff from summer storms would be diverted from the City of Salinas stormwater system when available.

Table 2-13
Source Water Use Scenarios, including Priority, Seasonality, and Use by Project Phase and Drought Reserve Status

Priority	Source	Seasonal Availability	Usage Period	Projected Use Scenarios by Type of Operational Year (AFY)		
				While Building Drought Reserve	Drought Reserve is Full at 1,000 AFY	During Years when CSIP Uses Drought Reserve
1	Unused Treated Municipal Wastewater	October through March	When available	1,992	1,787	1,503
2	Agricultural Wash Water (See Note 1)	Year-round	Store at Salinas Treatment Facility for summer	2,579	2,579	2,362
3	Salinas Urban Stormwater Runoff (See Note 1)	October through April				
4	Reclamation Ditch at Davis Road	Year-round, higher in October through April	When available	721	721	1,071
5	Blanco Drain Pump Station	Year-round, higher in April through September	When available	1,268	1,020	2,003
6	Tembladero Slough At Castroville	Year-round, higher in October through April	When available	0	0	478
7	Monterey Stormwater at Lake El Estero (See Note 2)	October through April	When available	0	0	0

Notes:
1. The amount of Agricultural Wash Water and Salinas Urban Stormwater Runoff source water use shown in this table are combined because they will be mixed, stored, and diverted to the Regional Treatment Plant together. The ability of the Proposed Project to recycle the full amount available (shown in Table 2-12) would be reduced due to the storage and recovery of these waters at the Salinas Treatment Facility and the associated percolation and evaporation during storage. The storage and recovery component does, however, shift the availability of the supplies to the dry season when there is a greater demand for irrigation water within the CSIP area.
2. Wet season supply from Lake El Estero is not required in these typical scenarios shown; however, there may be conditions during which diversions may occur.
See **Appendix B rev** for detailed monthly source water use projections based on water year type, drought reserve status, and project phase.

Water rights permits from the SWRCB would be required for surface water diversions from the Blanco Drain, Reclamation Ditch, and Tembladero Slough. Pursuant to the provisions of the MOU Regarding Source Waters and Water Recycling, the MRWPCA and the Water Management District would work with the Monterey County Water Resources Agency to secure water rights needed for the Proposed Project. The County Water Resources Agency has filed SWRCB application 32263 to secure rights to use the water within these water bodies. The Proposed Project would not need all of the water in Blanco Drain, Reclamation Ditch and Tembladero Slough. A maximum expected diversion flow has been developed for the Proposed Project based on an assessment of infrastructure capacity and peak flow availabilities in those water bodies. Flows in these channels are less seasonal than urban runoff, but still peak in the winter months during rain events. These sources would be diverted when flows are available and when the other sources of supply are not sufficient to meet the full Project demands. Radio-controlled supervisory control and data acquisition (SCADA) equipment at each diversion pump station would allow the system operators to adjust the diversion rates in response to daily rainfall and irrigation conditions.

Based on the maximum expected diversion flows developed for the Proposed Project, the following water rights would be needed for the Proposed Project:

1) diversion from the Reclamation Ditch at Davis Road of up to 2,000 AFY with a 6 cfs maximum diversion rate;
2) diversion from Tembladero Slough at the Castroville pump station of up to 1,500 AFY with a 3 cubic foot per second (cfs) maximum diversion rate; and
3) diversion from the Blanco Drain of up to 3,000 AFY with a 6 cfs maximum diversion rate.

The place of use in each of these applications would be for storage in the Seaside Basin and use within the CSIP area and CalAm's Monterey District system. The 6 cfs quantity was determined to be the peak water flows that could be diverted from the Reclamation Ditch at Davis Road (Schaaf & Wheeler, 2015b) and the peak amount of flow available in the Blanco Drain for diversion in new infrastructure (Schaaf & Wheeler, 2015b). Currently, the wastewater collection and conveyance infrastructure between Castroville and the Regional Treatment Plant can only feasibly accommodate flows of up to 3 cfs and thus limits the amount of water that would be diverted in Castroville from the Tembladero Slough. It should be noted that the annual diversion amounts are considered "face amounts" that cannot be exceeded in any single year. These amounts do not reflect the Proposed Project use on an average basis. In addition, the Proposed Project description of yield and the assumed diversions for the impact analyses (i.e., biological resources and surface water hydrology) assumes some water would be left in the Reclamation Ditch and Tembladero Slough for fisheries resources. Specifically, flows of 0.69 cfs and 2.0 cfs are proposed to be left in the Reclamation Ditch at Davis Road from June through November and December through May, respectively. A minimum flow of 1 cfs is proposed to remain in the Tembladero Slough year round; however much more than that is anticipated to be present even under Proposed Project diversions. See **Section 4.4, Biological Resources: Fisheries,** for more discussion of fisheries issues.

The Monterey County Water Resources Agency may pursue an additional application for the remainder amounts. The remainder application for additional diversions above amounts in the Proposed Project would be the responsibility of Monterey County Water Resources Agency to take forward as a separate project and is not part of the Proposed Project nor are the impacts of those diversions evaluated in this EIR. The application amounts for a remainder permit could be up to 85 cfs in direct diversions and a remainder diversion amount of up to 18,500 AFY that would bring the combined annual diversion amount for all permits up to a limit of 25,000 AFY.

2.7.2 Source Water Types and Diversion Methods

2.7.2.1 Quantity Needed for Injection into the Seaside Basin

The Proposed Project would produce 3,500 AFY of high quality water for injection into the Seaside Groundwater Basin for use by CalAm. In addition, in normal or wet years when the drought reserve is being filled, the Proposed Project would produce an additional 200 AFY for storage in the Seaside Groundwater Basin. The Proposed Project would require more source water than the amount of water to be produced due to the loss of water (reject) from operation of the reverse osmosis system at the Advanced Water Treatment Facility, which is estimated to operate at an 81% product water recovery rate. In this case, to produce 3,700 AFY of treated water, a total of 868 AFY (19% of the AWT Facility influent) of concentrated reject water from the reverse osmosis system would be disposed through the ocean outfall. To produce 3,700 AFY of treated water, the Proposed Project would require a minimum of approximately 4,568

AFY of raw source waters to feed the proposed new AWT Facility in wet and normal years (assumed five years out of six).

2.7.2.2 Quantity for Crop Irrigation

During wet and normal years, approximately 4,500 to 4,750 AFY of additional source water is proposed to be collected to augment recycled water supplies for crop irrigation by distribution through the CSIP. This quantity is within the approved capacity of the Salinas Valley Reclamation Plant of 29.6 mgd. The total maximum amount of recycled water that would be treated and made available to the existing CSIP areas under the Proposed Project would be less than 29.6 mgd which represents:

- The monthly average dry weather flow capacity of the Regional Treatment Plant pursuant to the permits for the plant; and
- The daily design capacity and annual expected maximum "basic demand" of the Salinas Valley Reclamation Plant described on pages 5 and 7, respectively, of the Agreement between the MCWRA and the MRWPCA for Construction and Operation of a Tertiary Treatment System (June 16, 1992).

During drought conditions, when dry season crop irrigation demands within the CSIP area cannot be met by other non-groundwater sources, the Proposed Project would reduce its production for injection into the Seaside Groundwater Basin to as little as 2,600 AFY, allowing the growers served by the Salinas Valley Reclamation Plant and CSIP to use up to 1,000 acre feet more of the available source water (up to as much as 5,900 AFY). The actual dry year AWT Facility production for injection to the Seaside Basin would depend upon the amount of drought reserve water previously injected, so that the CalAm Water supply extraction of GWR water (including production plus the previous reserve "deposits") would continue to total 3,500 AFY in every year. The results and assumptions of this analysis are contained in **Appendix B <u>rev</u>**. Descriptions of the source waters discussed above are summarized in the following descriptions.

2.7.2.3 Unused Treated Wastewater from MRWPCA Regional Treatment Plant

Description and Estimated Yield

Secondary effluent from the Regional Treatment Plant currently is used as influent for the tertiary treatment plant that is referred to as the Salinas Valley Reclamation Plant, which supplies tertiary treated recycled water for agricultural irrigation use via the distribution system that comprises the CSIP. To determine how much and when to treat the secondary effluent to a tertiary level outside of the growing season, the growers submit water orders one to three days before water is needed. This prevents MRWPCA from creating excess tertiary-treated water that would remain too long in the tertiary storage pond creating too much algae to be used by the growers. During the growing season, MRWPCA treats as much recycled water as possible. If the storage pond fills, then MRWPCA slows down or stops creation of recycled water. If the pond water level descends to a specific elevation, Salinas River water stored behind the Salinas River Diversion Facility is pumped, screened, disinfected, and mixed into the pond.

Secondary effluent in excess of the CSIP demands is not sent to the tertiary treatment plant, and instead is discharged to the Monterey Bay through MRWPCA's existing ocean outfall. Under the Proposed Project, effluent that otherwise would be discharged through the ocean outfall would instead be sent to the AWT Facility and treated for injection into the Seaside

Groundwater Basin. In addition, some of the secondary effluent that otherwise would be sent to the ocean outfall during winter months would be used to produce additional recycled water for crop irrigation during low demand periods. The Salinas Valley Reclamation Plant was designed for a minimum daily flow of 8.0 mgd. Facility modifications within the plant would be implemented to lower the minimum daily flow. See **Section 2.8.2** for a description of those improvements.

No new off-site conveyance facilities would need to be constructed to use water from this source.[19] Therefore, use of this source is preferred over other potential new sources.

The quantity of excess secondary effluent that otherwise would be discharged to the ocean outfall each year is highly variable, because the CSIP demands are both weather-dependent, peaking in dry years, and crop dependent, varying by what is planted. Ocean outflows have ranged from 4,600 AFY (water year 2013, record low rainfall) to 12,100 AFY (water year 2006, above average rainfall with a particularly wet spring). Average unused secondary effluent flows are estimated to total 6,242 AFY in 2017 (the anticipated year that the GWR Features would commence operations). Depending upon the water year type and the drought reserve status, the Proposed Project may use from 3,000 AFY to 4,800 AFY from this source, predominantly in the winter months. The methodology for estimating these available flows is found in **Appendix B rev** of this EIR.

Diversion Method and Facilities

As described above, municipal wastewater is conveyed to the Regional Treatment Plant through existing infrastructure, and undergoes primary and secondary wastewater treatment before being either supplied to the Salinas Valley Reclamation Plant for tertiary treatment or discharged through the ocean outfall. To use this treated wastewater, the Proposed Project would include construction of a new diversion structure on the existing secondary effluent pipeline to capture unused secondary-treated effluent. This facility is described as part of the Treatment Facilities at the Regional Treatment Plant in **Section 2.8.1.**

Construction

Construction of the secondary-treated effluent diversion structure and pipeline is discussed as part of the Treatment Facilities at the Regional Treatment Plant in **Section 2.8.1.**

Operations and Maintenance

Operation of the secondary-treated effluent diversion is discussed as part of the Treatment Facilities at the Regional Treatment Plant in **Section 2.8.1.**

2.7.2.4 Agricultural Wash Water

Description and Estimated Yield

Salinas agricultural wash water, 80 to 90% of which is water used for washing produce, is currently conveyed to the Salinas Treatment Facility for treatment (aeration) and disposal by evaporation and percolation.

[19] Use of wastewater from member agencies would not require construction of new source water delivery infrastructure.

To use water from this source for the Proposed Project, this water would be diverted to the existing Salinas Pump Station using a new diversion structure and new short pipelines connecting the existing agricultural wash water pipeline to the existing municipal wastewater system just prior to the Salinas Pump Station. The agricultural wash water would then mix with the municipal wastewater and be conveyed through the existing 36-inch diameter Salinas interceptor to the Regional Treatment Plant. A temporary connection was installed in April 2014, diverting all agricultural wash water to the Regional Treatment Plant to augment the Salinas Valley Reclamation Plant production of recycled water during the current drought, to provide data regarding treatability of the agricultural wash water (with and without municipal wastewater) using the demonstration facility, and to allow the City of Salinas to perform maintenance on the Salinas Treatment Facility. The new physical facilities proposed to be constructed to divert this source water are described below.

Agricultural wash water influent to the Salinas Treatment Facility totaled 3,228 AF in 2013, and is projected to total 3,733 AF in 2017 (the anticipated year that GWR Features would commence operations) based on data showing that agricultural processing wastewater flows have increased by about 0.25 mgd each year since 2010. The feasibility analysis for the Proposed Project did not assume any continued increases in this source beyond 2017, although development of new or expanded facilities may continue to occur pursuant to the Salinas Agricultural Industrial Center Specific Plan, contributing additional wastewater flows to the Salinas industrial wastewater collection system beyond that year.

Agricultural wash water would be available year-round, with peak flows occurring during the summer harvest season. To maximize the use of all available sources, agricultural wash water would only be diverted directly to the Regional Treatment Plant during the peak irrigation demand months (typically April through October). From November through March, agricultural wash water flows would be sent to the Salinas Treatment Facility for treatment and stored in the existing ponds, which can hold approximately 1,250 acre-feet. From May to October, the incoming flows would be diverted to the Salinas Pump Station, and stored water would be pumped from the Salinas Treatment Facility ponds back to the Salinas Pump Station. Taking into consideration evaporative losses, seepage losses and recovery of stored water, the Salinas Treatment Facility ponds would be empty by the end of each irrigation season. The net yield after accounting for storage losses would be approximately 2,710 AFY. The following section describes the facility modifications that would be needed to achieve this yield.

Diversion Method and Facilities

Salinas Pump Station Diversion Structure and Pipelines

Two of the proposed sources of raw water for the Proposed Project would be captured and diverted from subsurface conveyance structures to the existing MRWPCA Salinas Pump Station: agricultural wash water and City of Salinas urban runoff (described in **Section 2.7.2.3**). Both of these sources would necessitate construction of new diversion structures and short pipelines near the existing Salinas Pump Station, as shown in **Figure 2-21, Salinas Pump Station Source Water Diversion Conceptual Site Plan**. The Salinas Pump Station Diversion site (also referred to as Treatment Plant 1, or TP1) would include several new diversion facilities to redirect flows of agricultural wash water and City of Salinas stormwater and dry weather runoff to the existing Salinas Pump Station for blending with Salinas municipal wastewater and treatment and recycling at the Regional Treatment Plant. The combined storm and waste waters would be conveyed from the existing Salinas Pump Station through the MRWPCA's existing 36-inch diameter interceptor to the Regional Treatment Plant. The diversion facility would also accommodate the routing of agricultural wash water and winter stormwater to the Salinas Treatment Facility for seasonal storage, and would provide a termination point for the pipeline that would carry returned flows of stored waters to the Salinas Pump Station. Key existing and proposed facilities at this site are shown in **Figure 2-21, Salinas Pump Station Source Water Diversion Conceptual Site Plan**. Generally, these facilities include the following:[20]

- A new underground junction structure to be constructed over the existing 48-inch sanitary sewer line, to mix sanitary, agricultural wash water and stormwater flows. This structure would also receive agricultural wash water and stormwater return flow from the Salinas Treatment Facility's Pond 3.
- Modifications to the existing agricultural wash water underground diversion structure, and addition of approximately 150-foot long 42-inch diameter underground pipeline and metering structure between this structure and the new junction structure to be constructed over the existing 48-inch sanitary sewer line.
- An underground stormwater diversion structure (Stormwater Diversion Structure No. 1) and underground pipeline between this new structure and the existing 33-inch agricultural wash water line.
- An underground stormwater diversion structure (Stormwater Diversion Structure No. 2) near the existing stormwater pump station and underground pipeline to divert stormwater flow to the Salinas Pump Station through an existing 30-inch abandoned pipeline.
- Meters, valves, electrical and control systems, and fencing around the diversion structures.

Salinas Treatment Facility Pond Storage and Recovery

The City of Salinas is constructing a new 42-inch industrial wastewater pipeline to replace the existing 33-inch gravity main between the City's TP1 site (the site on which the Salinas Pump Station is located) and the Salinas Treatment Facility. Winter flows of agricultural wash water and Salinas urban stormwater runoff would be conveyed to the ponds using the new 42-inch pipeline. Water within the Salinas Treatment Facility currently moves as gravity overflows from the aeration basin to Pond 1, then Pond 2 and finally, Pond 3.

[20] As of October 2014, the City's planned new 42-inch industrial wastewater pipeline is under construction. In addition, a separately proposed sanitary sewer overflow structure and pipeline is planned to be built prior to the release of the Draft EIR, independent from the Proposed Project; therefore, these facilities are shown as "planned" on **Figure 2-22, Proposed Salinas Treatment Facility Storage and Recovery Conceptual Site Plan.**

Seasonal storage of agricultural wash water and Salinas urban stormwater runoff at the Salinas Treatment Facility ponds would require construction of a new return pipeline and pump station to return the stored water to the Salinas Pump Station Diversion site. The proposed return pipeline would be an 18-inch pipeline, installed inside the existing, soon to be abandoned 33-inch pipeline. A new return pump station, and a new valve and meter vault would be located within the existing Salinas Treatment Facility site near the existing pump station. The new return pump station would include two variable frequency drive pumps, a primary and a secondary. A new pipeline would be constructed from the lower end of the Pond 3 to the new return pump station. A second new pump station near the lower end of Pond 3 would be needed to lift stored agricultural wash water and stormwater into a pipeline returning to the return pump station. A new short pipeline would also be constructed to convey the treated wastewater from the aeration basin to the pipeline that returns water from Pond 3 or directly to the return pump station. The proposed new pipelines and pumps are shown in **Figure 2-22, Proposed Salinas Treatment Facility Storage and Recovery Conceptual Site Plan**

Construction

Salinas Pump Station Diversion Site

Construction activities at this site would include demolition, excavation, site grading and installation of new junction structures, new meter vault or flow measurement structures and short pipeline segments. Existing pump stations operations would be ongoing during construction due to the uninterruptible nature of conveyance of wastewater (and in some cases, stormwater flows). For this reason, temporary shunts of various waters may be necessary to maintain the collection and conveyance of waters to treatment facilities. Construction may occur up to 24 hours per day, 7 days per week due to the necessity of managing wastewater flows; however, major construction of new facilities would be limited to daytime hours. Approximately 0.75 acres would be temporarily disturbed and up to 0.25 acres of new impervious surfaces would be added to the site. The permanent facilities would be subsurface. The site would be under construction for up to five months.

Salinas Treatment Facility Storage and Recovery

The majority of the construction activity for the Salinas Treatment Facility Storage and Recovery Facilities would occur within the existing 281-acre Salinas Treatment Facility site. New pipelines from Pond 3 and the aeration basin to the return pump station, including precast concrete manholes, would be constructed within the existing unpaved access road and parallel to the existing pipelines. A new lift station would be constructed at Pond 3 to return water to the return pump station. This new lift station would be constructed adjacent to the existing City of Salinas irrigation transfer station in Pond 3. If the work for the new lift station in Pond 3 must be performed while it is full, sheet piling and dewatering equipment will be required. The return pump station would be located near the existing influent pump station at the east end of the site. Return pump station and pipelines construction would include trenching and installation of new pipelines, new pump and lift station, new pumps/pump motors, electrical facilities, valve vaults and flow meter, requiring equipment delivery trucks, loaders, compactors, and backhoes.

The recovery or return pipeline from the Salinas Treatment Facility to the Salinas Pump Station Diversion site would be constructed inside the existing 33-inch influent pipeline, which is scheduled to be abandoned in place in late 2015 after a new 42-inch pipeline is completed. Installing a new pipeline inside the existing pipeline would require excavating access pits every 600-ft to 800-ft along the existing alignment, cutting into the existing pipe, pulling the new assembled pipe into the existing pipe and connecting the new pipe segments before closing the pit. The work area at each pit would be up to 20-ft wide, approximately 60-ft long and up to 10-feet deep. Equipment would include equipment delivery trucks, loaders, backhoes, pipe cutting and welding equipment, pipeline fusing equipment (if fusible pipe is used), and pipeline pulling equipment. If work must occur in an existing street, paving equipment would be required for repairing the site.

Operations and Maintenance

The Salinas Pump Station Diversion site is adjacent to and north of the existing Salinas Pump Station within the City's Treatment Plant 1 site (also called, TP1), and would be maintained by the same MRWPCA operations staff as currently operate the pump station. No additional employee site visits would be required at the Salinas Pump Station site. The facility would operate continually using automated flow metering, gates and valves. Operations would consist of seasonally adjusting the diversion settings to direct flows to the Pump Station or to the Salinas Treatment Facility. Gates and valves would be exercised annually if not operated more frequently. Installed flow meters would require periodic inspection and calibration on a less-than-annual frequency. Power usage at the site would be incidental to the existing pump station and would only be needed for SCADA and metering and controls for the gates and valves. No ongoing materials delivery or solid waste generation would occur.

Similarly, the new storage and recovery facilities at the Salinas Treatment Facility would be managed by the same number of staff that currently operates the Salinas Treatment Facility. During the storage season (November to April), the return pumps would not be operated. The Salinas Treatment Facility aeration pond would continue to operate as it currently does. Volumes in Ponds 1, 2, and 3 would be monitored. If inflows exceed the storage capacity, some flows would be diverted to the existing drying beds, or adjustments may be made at the Salinas Pump Station Diversion to send some agricultural wash water to the Regional Treatment Plant. The return pumps at the Salinas Treatment Facility and the Pond 3 lift station would be inspected during the storage season, and routine mechanical services would be scheduled during this season. Trucks with lifting equipment would be required to pull the pumps out of the wet wells for maintenance.

During the return pumping season (June to October), the return pump station would operate during the period of off-peak electrical rates, at flow rates up to 5 mgd, depending upon the daily volume of new agricultural wash water diverted directly to the Salinas Pump Station. The pumping rate may be reduced during the peak hours of agricultural wash water flows. Stored water in Pond 3 (the westernmost pond at the Salinas Treatment Facility) would be conveyed to the return pump station using a new lift state and gravity pipeline. At the end of this season, the Salinas Treatment Facility ponds would be empty or nearly empty, allowing maintenance to be performed, if needed, on the gates, valves, overflow structures, pump stations and levee banks.

2.7.2.5 City of Salinas Urban Runoff to Salinas River

Description and Estimated Yield

City of Salinas urban runoff and stormwater from the southwest portion of the city is currently discharged into the Salinas River near Davis Road via a 66-inch outfall line. Rain events may occur year-round, but the majority of the flows occur between November and April.

Under the Proposed Project, City of Salinas urban runoff and stormwater would be diverted to the Regional Treatment Plant rather than discharged to the Salinas River. This source is estimated to yield an average raw water supply of 225 AFY, based upon estimated daily runoff from the contributing portions of the city and available capacity at the Salinas Pump Station (see **Table 2-14, Estimated Urban Runoff Available for Capture from the City of Salinas to Salinas River (in AF)**). The memorandum describing the methodology for calculating flows available for, and capable of, diversion to the Regional Treatment Plant is found in **Appendix O rev** (Schaaf & Wheeler, 2015a).

Table 2-14
Estimated Urban Runoff Available for Capture from the City of Salinas to Salinas River (in AF)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Average	8	23	47	52	41	34	16	2	0	0	0	2	225

To use water from this source for the Proposed Project, stormwater would be diverted by gravity from the existing city stormwater pipelines to the existing MRWPCA Salinas Pump Station using one or two new diversion structure(s). It would also be diverted into the Industrial Wastewater System for storage at the Salinas Treatment Facility ponds and returned to the Salinas Pump Station for conveyance to the Regional Treatment Plant for recycling and summer use (as discussed under Agricultural Wash Water).

Consistent with existing conditions, excess stormwater during large rain events, which exceeds the available Salinas Pump Station capacity or the conveyance capacity to the Salinas Treatment Facility, would be discharged to the Salinas River through the existing stormwater infrastructure. In extreme storm events, stormwater also could continue to overflow to the Blanco Detention Basin, an existing earthen depression adjacent to the Salinas Pump Station that currently captures excess stormwater runoff that cannot be conveyed to the storm drain pipeline that discharges to the Salinas River.

Diversion Method and Facilities

The Salinas Pump Station Diversion structures and pipelines that are described in **Section 2.7.2.2** would also be used to divert Salinas urban runoff to the Regional Treatment Plant for recycling for crop irrigation demands and use by the AWT Facility.

Construction

Construction of the Salinas Pump Station urban runoff diversion structure is discussed as part of the Agricultural Wash Water facility construction in **Section 2.7.2.~~2~~4.**

Operations and Maintenance

Operation of the Salinas Pump Station diversion structures is discussed as part of the Agricultural Wash Water facility operation in **Section 2.7.2.~~2~~4.**

2.7.2.6 Reclamation Ditch / Tembladero Slough

Description and Estimated Yield

Two source water diversions from the Reclamation Ditch system are proposed as sources of supply for the Proposed Project, requiring water rights permits for diversion and use, which would be pursued through an amendment to a previously-submitted water right application.[21]

The first diversion point would be located on the Reclamation Ditch at Davis Road, where an existing 54-inch City of Salinas sanitary sewer main crosses the Reclamation Ditch. A new diversion structure would be installed in the ditch, and a new pump station, valve and meter vaults would be installed on the southern bank, to divert flows, when available, into the existing 54-inch sanitary sewer main, which conveys wastewater to the MRWPCA Salinas Pump Station. Based on the available conveyance capacity in the gravity sewer system between the point of diversion and the Salinas Pump Station and the historic flows in the Reclamation Ditch, diversions of up to 6 cubic feet per second (cfs) were estimated, assuming an in-stream (by-pass) flow requirement of 0.69 cfs in the months of June to November, and 2.0 cfs during the months of December to May for fish migration. This source would yield an average 1,522 AFY for a 6 cfs water right permit. Monthly yields are presented in **Table 2-15, Estimated Average-Year Diversion from the Reclamation Ditch at Davis Road (acre-feet)**.

Table 2-15
Estimated Average-Year Diversion from the Reclamation Ditch at Davis Road (acre-feet)

Maximum Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
6 cfs	162	143	165	162	97	132	129	121	80	87	98	146	**1,522**

Note: Assumes 0.69 cfs remains in-stream from Jun-Nov, and 2.0 cfs remains in-stream Dec-May

The other diversion point would be located on Tembladero Slough just west of Highway 1, at the MRWPCA Castroville Pump Station. A new diversion structure would be installed in the Tembladero Slough, and a small pump station would be installed on the northern bank, to divert flows, when available, to the existing pump station that feeds the existing MRWPCA Castroville interceptor pipeline. Based on the existing conveyance capacity within the MRWPCA system and the historic flows, diversions up to 3 cfs were estimated, assuming an in-stream (by-pass) flow requirement of 1.0 cfs year-round. This portion of the Reclamation Ditch system is tidally influenced, so the lower bypass flow rate would be needed to maintain the required depth of water in the channel. This source would yield an average of 1,135 AFY as shown in **Table 2-16, Estimated Average-Year Diversion from the Tembladero Slough at Castroville (acre-feet)**.

[21] SWRCB Permit Application No. A032263, filed by Monterey County Water Resources Agency.

Table 2-16
Estimated Average-Year Diversion from the Tembladero Slough at Castroville (acre-feet)

Maximum Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
3 cfs	131	117	142	154	145	67	66	62	41	45	50	115	**1,135**

Note: Assumes 1.0 cfs remains in-stream and 6.0 cfs is diverted at Davis Road

Based on the availability of other supply sources for the Proposed Project, diversions from these sources may be reduced during the winter months. The proposed diversion facilities would be equipped with supervisory control and data acquisition (SCADA) equipment which allows the diversions to be turned off remotely. If excess treated municipal wastewater is available at the Regional Treatment Plant, these diversions would be shut off rather than diverting surface water while simultaneously discharging treated wastewater to the ocean outfall. The methodology used for estimating available flows is found in **Appendix P** (Schaaf & Wheeler, 2015b).

Diversion Method and Facilities

Reclamation Ditch Diversion Pump Station at Davis Road

The Reclamation Ditch Diversion would consist of a new intake structure on the channel bottom, connecting to a new wet well (manhole) on the channel bank via a new gravity pipeline. The new intake would be screened to prevent fish and trash from entering the pump station. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a locked, weatherproof cabinet near the wet well and above flood level. The new pump station would discharge through two new short force mains (approximately 50-ft each), discharging to an existing manhole on the City of Salinas 54-inch sanitary sewer main. Two new underground vaults would be installed along the force main, one to hold the check and isolation valves, and one for the flow meter. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring and facilitate the management of by-pass flows. Key existing and proposed facilities at this site are shown in **Figure 2-23, Reclamation Ditch Diversion Conceptual Site Plan and Cross Section**

Tembladero Slough Diversion Pump Station at Castroville

The Tembladero Slough Diversion would consist of a new intake structure on the channel bottom, connecting to a new lift station wet well (manhole) on the channel bank via a new gravity pipeline. The new intake would be screened to prevent fish and trash from entering the new pump station. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a locked, weatherproof cabinet near the wet well and above flood level. The new pump station would discharge through a new short force main (approximately 100-ft in length), discharging to the existing wet well at the MRWPCA Castroville Pump Station. A new underground valve vault would be installed along the force main to hold the check valves, isolation valves and flow meter. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring and facilitate the management of by-pass flows. Key existing and proposed facilities at this site are shown in **Figure 2-24, Tembladero Slough Diversion Conceptual Site Plan and Cross Section.**

Construction

Reclamation Ditch Diversion Site

Construction of the Reclamation Ditch diversion would include minor grading, installation of a wet well/diversion structure, modification of an existing sanitary sewer manhole and a short pipeline from the existing manhole to the new pump station. The work would disturb approximately 0.15 acres of land, including the Reclamation Ditch banks and channel bottom. The channel carries flow year-round, so a temporary coffer dam would be required above and below the site, with a small diversion pump to convey existing channel flows past the project construction area. The temporary coffer dams would consist of waterproof tarps or membranes wrapped around gravel fill material, which would be removed when the work is completed.

The new pump station wet well, intake structure and pipelines would be constructed using open-trench excavation. The construction excavation may be as large as 40-feet long by 10-feet wide. Due to the steepness of the banks and depth of the excavation, a tracked, long-arm excavator would be required. The below-grade components may use pre-cast concrete structures, so that the underground work would take less than a week to complete. Once the excavations are closed, the channel protection (concrete or riprap) may be installed and the temporary cofferdams and by-pass pumping system removed. The pumps and controls would be installed in the wet well and valve vault using a large excavator or crane.

During the period the channel is blocked with temporary cofferdams, the work may proceed 7 days a week to minimize the impact and duration. Electrical power used during construction may come from a temporary electrical service by PG&E, from permanent electrical service by PG&E if installed in advance of the site work, or from portable generators. The by-pass pumps would need to operate until the in-channel work is complete, so power would be required 24-hours a day. The site is in an industrial area, so there are no nearby residents to be disturbed by the noise at night.

Tembladero Slough Diversion Site

Construction of the Tembladero Slough diversion would include minor grading, installation of a new wet well/diversion structure, modification of the existing wet well at the Castroville Pump Station and construction of a short pipeline from the wet well to the new pump station. The work would disturb approximately 0.25 acres of land, including the Tembladero Slough banks and channel bottom. The channel carries flow year-round, so a temporary coffer dam would be required around the construction site, with a small channel left open to allow flows past the project site. The temporary coffer dams may consist of geomembrane tubes filled with water or driven sheet piles, depending upon the site conditions. Any cofferdam installed would be removed when the work is completed.

The new pump station wet well, intake structure and pipelines would be constructed using open-trench excavation. The construction excavation may be as large as 100-feet long by 10-feet wide. Due to the steepness of the banks and depth of the excavation, a tracked, long-arm excavator would be required. The below-grade components may use pre-cast concrete structures, so that the underground work would take less than a week to complete. Once the excavations are closed, the channel protection (concrete or riprap) would be installed and the temporary cofferdams and dewatering pumping system removed. The diversion pumps and controls would be installed in the wet well and valve vault using a tracked excavator or crane.

Modification of the existing pump station wet well may require by-pass pumping of the existing wastewater flows within the pump station. A portable electric or engine-driven by-pass pump may be required. The new pipeline connecting the new pump station to the existing wet well would be installed using open trench methods.

During the period the channel is blocked with temporary cofferdams, the work may proceed 7 days a week to minimize the impact and duration.

Electrical power used during construction may come from a temporary electrical service by PG&E, the permanent electrical service by PG&E if installed in advance of the site work, or from portable generators. The dewatering pumps would need to operate until the in-channel work is complete, so power would be required 24-hours a day. The site is in an agricultural area, with only one nearby residence located approximately 1,000 feet north of the site.

Operations and Maintenance

Both the Reclamation Ditch Pump Station and the Tembladero Slough Pump Station would be configured to operate autonomously, based upon diversion and by-pass flow settings. A system operator would visit each site at most once per day to check for alarms and vandalism, and to visually inspect the intake screen for clogging. The Tembladero Slough site is adjacent to the MRWPCA Castroville Pump Station, so those inspections would be performed by the same operator at that pump station, requiring no additional staff or visits. The Reclamation Ditch is assumed to require one employee visit per day at most (two one-way trips). Approximately once per month an operator would need to access the channel bottom to physically clear vegetation or debris from the intake screen. The pumps would require annual inspection and servicing, using a lift truck to remove the pumps from the wet well. The flow meters would require inspection and calibration less than once per year.

2.7.2.7 Blanco Drain

Description and Estimated Yield

Potential flow diversion from the Blanco Drain was analyzed using data from the existing pump station location, based on station operating records. Due to the limited flow data available, the yield was estimated as a percentage of the applied irrigation and rainfall across the watershed. An average annual yield of 2,620 AFY was calculated, which equates to an average return rate of 17%. A water right permit for diversions up to 6 cfs would be required to capture that full amount. The monthly yields are provided in **Table 2-17, Estimated Average-Year Diversion from the Blanco Drain (acre-feet)**. Due to the existing pump station and slide gate operations, poor water quality, and lack of aquatic habitat in this channel, these yield estimates assume that all available flow would be diverted, and none would be required to remain in-stream.

Table 2-17
Estimated Average-Year Diversion from the Blanco Drain (acre-feet)

Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
6.0 cfs	209	223	246	252	225	274	277	244	184	168	133	185	2,620

The Blanco Drain is the only source of supply not located near an existing wastewater collection facility which might be used to convey flows to the Regional Treatment Plant. Development of this source would require not only a new pump station, but also a two-mile pipeline that would cross under the Salinas River.

Diversion Method and Facilities

The proposed new Blanco Drain Diversion pump station would be located adjacent to the existing seasonal pump station operated by Monterey County Water Resources Agency. The new pump station would consist of a new intake structure on the channel bottom, connecting to a new wet well (manhole) on the channel bank via a new gravity pipeline. The intake would be screened to prevent debris and trash from entering the pump station. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a locked, weatherproof cabinet above the wet well and above flood level. The new pump station would discharge through a new 18-inch force main running from the pump station to a connection in the existing 36-inch Salinas Interceptor before it discharges into the headworks of the Regional Treatment Plant.[22] The segment of the pipeline crossing the Salinas River would be installed using trenchless methods. A new underground valve vault would be installed adjacent to the pump station to hold the check and isolation valves, and a second vault would hold the flow meter. Due to the high pressure in the pipeline, a new surge tank would be installed at the new pump station. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring. When the new pump station is operating, the existing slide gate in the channel would be closed to facilitate diversion of all flows to the Regional Treatment Plant. Key existing and proposed facilities at this site are shown in **Figure 2-25, Blanco Drain Diversion Pump Station and Force Main Conceptual Site Plan.**

Construction

Construction of the Blanco Drain Diversion would include minor grading, installation of a new wet well/diversion structure, installation of a new force main by open trench and by trenchless methods. The work would temporarily disturb approximately 0.15 acres of land at the pump station, including the Blanco Drain banks and channel bottom, and approximately 5 acres along the pipeline alignment including the excavation pits for constructing the pipeline under the Salinas River. The channel carries flow year-round, so a temporary coffer dam would be required above the construction site, with a small diversion pump to convey existing channel flows past the project site and the existing slide gate downstream of the adjacent Monterey County Water Resources Agency pump station. The temporary coffer dam would consist of a waterproof tarps or membrane wrapped around gravel fill material, which would be removed when the work is completed. West of the river crossing and south of the landfill site, the new force main would intersect the existing MRWPCA Salinas Interceptor. The new Blanco Drain source water force main would connect to the existing Salinas Interceptor to the Regional Treatment Plant headworks. A hydraulic analysis of the Salinas Interceptor will be conducted during final design to determine the feasibility of the upstream connection from the Blanco Drain source water force main. The EIR analysis in Chapter 4 assumes that the new pipeline would go all the way to the headworks at the Regional Treatment Plant. Any reduction in length of the pipeline that might be achieved through this modification would result in less environmental impacts.

[22] Two options are currently being considered to connect the Blanco Drain diversion pipeline to the Salinas Interceptor before it enters the headworks. One option connects at the headworks and the other option connects 1,000 feet further upstream. The current proposal for the location of the connection is shown on **Figure 2-25, Blanco Drain Diversion Pump Station and Force Main Conceptual Site Plan**.

The new pump station wet well, intake structure and on-site pipelines would be constructed using open-trench excavation. The construction excavation may be as large as 40-feet long by 10-feet wide. Due to the steepness of the banks and depth of the excavation, a tracked, long-arm excavator would be required. The below-grade components may use pre-cast concrete structures, so that the underground work would take less than a week to complete. Once the excavations are closed, the channel protection (concrete or riprap) may be installed and the temporary cofferdam and by-pass pumping system removed. The concrete deck, pumps and controls would be installed in the wet well and valve vault and hydropneumatic tank installed using a tracked excavator or crane. Some cast-in-place concrete work is expected, requiring concrete trucks accessing the site.

During the period the channel is blocked with temporary cofferdams, the work may proceed 7 days a week to minimize the impact and duration. A portion of the new pipeline must be installed using trenchless methods. That work may require 24-hour operations during the drilling phase. A portion of the pipeline would be installed within the existing Regional Treatment Plant site. That work may be performed at night to minimize impacts to plant operations.

The force main pipeline must cross under the Salinas River. This work would be performed using a trenchless method, most likely directional drilling. The crossing method would be determined during detailed design and permitting. Trenchless construction would require work areas approximately 40-ft by 60-ft on each side of the river. The rest of the pipeline may be installed using open-trench methods. The final portion of the pipeline would cross the existing Regional Treatment Plant site and may require limited bore and jack construction to cross existing utilities which must remain in-service.

Electrical power used during construction may come from a temporary electrical service by PG&E, the permanent electrical service by PG&E if installed in advance of the site work, or from portable generators. Permanent electrical service already exists on-site at the Monterey County Water Resources Agency pump station and Regional Treatment Plant site, so it is anticipated that a temporary construction power service would be available. The by-pass pumps would need to operate until the in-channel work is complete, so power would be required 24-hours a day. The site is isolated from any urban uses within an agricultural area, so there are no nearby residents to be disturbed by nighttime construction.

Operations and Maintenance

The Blanco Drain Pump Station would be similar to the Reclamation Ditch and Tembladero Slough Pump Stations, configured to operate autonomously based upon diversion settings. A system operator would visit the site once a day to check for alarms, vandalism and to visually inspect the intake screen for clogging. The site is adjacent to the Monterey County Water Resources Agency's Blanco Drain Pump Station, and may require separate visits by operators from the two agencies or the two agencies can enter into an agreement for shared maintenance responsibilities. The existing Monterey County Water Resources Agency pump station operates currently and the diversion would operate in a similar way. Consequently the number of daily operator visits would not increase measurably. Approximately once per month an operator would need to access the channel bottom to physically clear vegetation or debris from the intake screen. The pumps would require annual inspection and servicing, using a lift truck to remove the pumps from the wet well. Since the two pump stations are the responsibility of different agencies, scheduled maintenance would be independent of the adjacent pump station. The new station flow meter would require inspection and calibration at a less-than-annual frequency.

The pipeline valves would be inspected and exercised once per year. Any above-grade air-release valves would be inspected quarterly, requiring a system operator to drive the pipeline alignment.

2.7.2.8 Lake El Estero Storage Management Water

Description and Estimated Yield

Monterey Peninsula urban stormwater and dry weather runoff that flows into Lake El Estero is currently stored in the lake and then pumped by the City of Monterey, or allowed to flow by gravity, through storm drain pipelines to Del Monte Beach.

To use water from this source for the Proposed Project, the portion of the Lake El Estero water that currently is pumped or flows onto Del Monte Beach into Monterey Bay would, instead, be diverted via a short new pipeline, using a new pump or by gravity flow, into the municipal wastewater system at a sanitary sewer manhole immediately adjacent to the existing Lake El Estero pump station. After the lake water enters the manhole, it would flow through an existing 21-inch City sanitary sewer main into the existing Pacific Grove interceptor and then to the existing MRWPCA Monterey Pump Station.[23] From there, the water would flow through the existing MRWPCA conveyance system to the Regional Treatment Plant. This new diversion system would capture stormwater which would otherwise be discharged to the Monterey Bay; the average lake level would remain unchanged. The new physical facilities proposed to be constructed to divert this source water are described in **Section 2.6.1.3.**

This source would yield an average raw water supply of 87 AFY, based upon estimated daily runoff into the Lake and available conveyance capacity in the municipal wastewater system. This flow estimate is based on monitoring data collected between November 2013 and March 2014 at the existing 21-inch City of Monterey sanitary sewer gravity main between the Lake El Estero diversion site and the MRWPCA collection system. Monitoring indicated that the gravity main is half full at the daily peak hour, leaving an estimated 2,400 gallons per minute (or 3.5 mgd) of available wet weather capacity.

The memorandum describing the methodology for calculating flows available for diversion to the Regional Treatment Plant is found in **Appendix R** (Schaaf & Wheeler, 2014a).

Diversion Method and Facilities

The Lake El Estero Source Water Diversion System would consist of one of the following options: (1) installation of a new pumping system, consisting of a new column pump installed in the wet well of the existing lake management pump station, upgrades to the existing electric panel, and a new 30-foot long, 12-inch diameter discharge pipe to the sanitary sewer; or (2) installation of a new gravity system, consisting of a new headwall and screened intake pipe on the lake bank, a new 40-foot long, 12-inch diameter discharge pipe to the sanitary sewer, and a

[23] This Proposed Project component is intended to operate the same as the existing lake management pumping activities conducted by the City except that pumping would occur to the sanitary sewer system in lieu of pumping to Del Monte Beach. The City currently pumps down the lake levels to prevent flooding. That practice would continue but the water would be diverted to the sewer system instead of released to the beach. The City would continue to maintain adequate lake levels to allow the City to irrigate its nearby parks with Lake El Estero water.

new controlled and motorized isolation valve. Both systems would be entirely underground or within existing pump dry and wet well structures and the connecting pipeline would include a flow meter and a check valve to prevent backflow of sewage into the lake. The City and MRWPCA would select the preferred option based upon technical and economic considerations at the time that design plans are prepared. Key existing and proposed facilities at this site are shown in **Figure 2-26, Lake El Estero Diversion Conceptual Site Plan and Cross-Section.** Either of the proposed new diversion systems would require some maintenance and would include controls to prevent overloading the wastewater collection system.

Construction

At the Lake El Estero Diversion site, less than 0.1 acres of disturbance would occur. The disturbance would be entirely within the paved area of the existing pump station at that site. Pavement demolition, trenching and installation of new pumps/pump motors, electrical facilities, and flow meters would all be installed below grade using only equipment delivery trucks, loaders, and backhoes.

Operations and Maintenance

The Lake El Estero diversion pump station would operate autonomously, based upon lake levels and water levels in the receiving sanitary sewer. System operators from the City would visit the site with the same frequency as operators visit the existing pump station, approximately once per week when not operating and multiple times per day while in operation. If a lakeside intake is used, approximately once per month an operator may need to physically clear vegetation or debris from the intake screen. The pumps would require annual inspection and servicing, using a lift truck to remove the pumps from the wet well. This maintenance may be scheduled to coincide with the adjacent pump station. The flow meter would require inspection and calibration less than once per year.

2.8 TREATMENT FACILITIES AT THE REGIONAL TREATMENT PLANT

2.8.1 Overview of Treatment Facilities at the Regional Treatment Plant

Under the Proposed Project, a new AWT Facility would be constructed to receive Regional Treatment Plant secondary effluent for advanced treatment and, ultimately, injection into the Seaside Groundwater Basin.[24] In addition, modifications to the existing Salinas Valley Reclamation Plant are proposed in order to enable increased use of tertiary treated wastewater for crop irrigation during winter months. The proposed new and modified treatment facilities at the Regional Treatment Plant, including the Advanced Water Treatment Facility (or AWT Facility) and the Salinas Valley Reclamation Plant Modifications, would be constructed on approximately 3.5 acres of land within the MRWPCA Regional Treatment Plant (Regional

[24] As described in previous sections, the Proposed Project proposes to divert additional water sources and convey those waters with municipal effluent to the Regional Treatment Plant, including urban and agricultural runoff, agricultural wash water flows, and excess/unused Regional Treatment Plant secondary-treated wastewater.

Treatment Plant) site west of the existing treatment facilities (see **Figure 2-10, Projected Regional Treatment Plant Flows).** The following is a list of the proposed structures and facilities proposed to be constructed at the Regional Treatment Plant (see **Figure 2-27, Advanced Water Treatment Facility Site Plan**):

- inlet source water diversion structure, an influent pump station, and an approximately 360-foot long, 24-inch diameter pipeline to bring secondary effluent to the AWT Facility;
- advanced treatment process facilities, including
- chloramination,
- ozonation,
- biologically active filtration (if required),
- automatic straining,
- membrane filtration treatment,
- booster pumping of the membrane filtration filtrate,
- cartridge filtration,
- chemical addition,
- reverse osmosis membrane treatment,
- advanced oxidation using ultraviolet light and hydrogen peroxide (advanced oxidation),
- decarbonation, and
- product-water stabilization with calcium, alkalinity and pH adjustment;
- final product storage and distribution pumping;
- brine mixing facilities; and
- modifications to the Salinas Valley Reclamation Plant (see **Section 2.8.2** for a detailed description this Proposed Project component).

The proposed advanced treatment facilities would include several structures as tall as 31 feet and totaling approximately 60,000 square feet. The proposed brine mixing facility would be up to 16 feet tall and totaling approximately 10,000 square feet. New pipes and pumps would be underground. Additional information on each component of the AWT Facility is presented in the following sections. **Figure 2-28, Proposed Advanced Water Treatment Flow Diagram,** provides a simplified AWT Facility process flow diagram illustrating the proposed treatment facilities.

2.8.1.1 AWT Facility Design Flows and System Waste Streams

The proposed new AWT Facility would have a design capacity of 4.0 mgd of product water. As described in **Section 2.7.1**, a range of monthly source water flows has been estimated, depending upon the seasonal availability of source waters. The facility would be operated to produce up to 3,700 AFY of purified recycled water for injection, which equates to an annual production rate of 3.3 mgd. The 4.0 mgd facility size is required to allow for peak seasonal operation and system down time. Similarly, the system components must be sized to allow for losses during treatment such as backwashing and brine disposal. Additional information on the proposed AWT Facility component design is presented in **Tables 2-18 and 2-19.**

Table 2-18
AWT Facilities Design Summary

Component	Design Capacity (See Note a)
Pipeline from secondary treatment system outfall pipe to AWT Facility	N/A
AWT Facility Influent Wetwell	0.2 mg
Influent Pumping (see Note b)	2.7 to 5.9 mgd
Ozone System(see Note b)	5.9 mgd
Biologically Active Filtration (if required) (see Note c)	5.5 mgd
Membrane Filtration System	4.9 mgd
Reverse Osmosis System	2.2 to 4.9 mgd
Advanced Oxidation System, Product Water Stabilization and Pumping	4.0 mgd

Notes:
a. Capacities represent process feedwater flows; units are million gallons (mg) and million gallons per day (mgd).
b. For the case where biological filtration is not included, the range for the influent pumping would be 2.7 to 5.5 mgd, and the ozone system would be sized for 5.5 mgd.
c. The biologically active filtration would be sized to treat up to 80 percent of the process flow; the 5.5 mgd represents the total product flow when combined with the by-pass.

In producing highly purified water, the proposed new AWT Facility would also produce two to three waste streams: biological filtration backwash (if included in the system), membrane filtration backwash, and reverse osmosis concentrate. The biological filtration backwash and membrane filtration backwash would be diverted back to the Regional Treatment Plant headworks. The reverse osmosis concentrate would be piped to a proposed new brine and effluent receiving, mixing, and monitoring facility. The AWT Facility is expected to be able to produce water at up to 90% of design capacity, on average, due to some anticipated down time for membrane “clean in place” practices and repairs. The down time is assumed to be evenly distributed each month, though planned events would be scheduled for times when the least source water is available. The AWT Facility would need to be large enough to produce the required product water during the operational times (90% of each month). The resulting flow quantities for the AWT Facility are shown in **Table 2-19, Proposed Project AWT Facility Process Design Flow Assumptions** below.

Based on these assumptions (including the 90% in-service, 81% reverse osmosis recovery, 90% microfiltration recovery), an AWT Facility design flow rate of 4.0 mgd would be required to provide up to 3,700 AFY of high quality water for groundwater injection.

Table 2-19
Proposed Project AWT Facility Process Design Flow Assumptions

	Annual Flows[1]	Average Flow Conditions[1]	Maximum Flow Conditions[2]
AWT Facility Process	**AFY**	**mgd**	**mgd**
Ozone System Feed	5,496	4.9	5.9
Biologically Active Filtration Feed	4,481	4.0	4.8
Biologically Active Filtration Backwash returned to Regional Treatment Plant Headworks	421	0.4	0.5
Biologically Active Filtration Bypass[3]	1,015	0.9	1.1
Membrane Filtration Feed	5,075	4.5	5.5
Membrane Filtration Backwash retuned to Regional Treatment Plant Headworks	508	0.5	0.6
Reverse Osmosis Feed	4,567	4.1	4.9
Reverse Osmosis Concentrate	867	0.8	0.9
Reverse Osmosis Product Water (AWT Facility Design Size)	3,700	3.3	4.0
Advanced Oxidation Process	3,700	3.3	4.0

Notes:
1. Average annual flows reflect 3,700 AFY, typical annual production while building the drought reserve.
2. Maximum flow condition reflects design peak production rate.
3. 80% of the flow would pass through the Biologically Active Filtration, and 20% may bypass directly to the membrane filtration

2.8.1.2 Inlet Raw Water Diversion Structure and Pump Station

A new diversion structure would be installed on an existing secondary effluent pipeline at the Regional Treatment Plant to divert and convey secondary effluent source water through a new gravity pipeline to the proposed AWT Facility. A new influent pump station consisting of a subgrade wetwell and pumps would accept and equalize the Regional Treatment Plant secondary effluent flow.

2.8.1.3 Raw Water Pretreatment

Before membrane filtration, the secondary effluent would be pretreated using pre-screening and up to three separate subsystems:

- Chloramination
- Ozonation
- Biological filtration (if required)

Chloramination. Chloramines would be used to reduce biofouling of the membrane systems. The chloramination system would include sodium hypochlorite storage, and chemical feed pumps and an inline injection and mixing system. Sodium hypochlorite would be injected upstream of ozonation or upstream of membrane filtration. Sodium hypochlorite reacts with ammonia present in the source water to form chloramine, which is an effective biocide that reduces biological fouling on the membrane filtration and reverse osmosis process membranes.

Ozonation. Ozone treatment is proposed to provide a chemical/pathogen destruction barrier and reduce the membrane fouling. The ozone system would be comprised of several components: liquid oxygen storage and vaporizers or an onsite oxygen generator; a nitrogen boost system; an ozone generator and power supply unit; a cooling water system; a side-stream injection system; ozone contactor; and ozone destruct units. There are two potential approaches for supplying high-purity oxygen for ozone generation: (1) liquid oxygen delivered to onsite cryogenic storage tanks and evaporated through vaporizers, or (2) produce oxygen at the treatment facility using a pressure-swing adsorption oxygen generation system. The liquid oxygen system is included in the 10% design, but an on-site generation system would occupy approximately the same amount of space. Ozone generators would convert oxygen gas into a mixture of oxygen and ozone gas. The mixture of oxygen and ozone gas would be injected into a side stream of feed water flow that would then be recombined with the main supply line after ozone injection. The ozonated water would flow into one or more parallel contactors to provide contact time for disinfection/oxidation, ozone residual decay, and off-gassing. Off-gas would be treated through a catalytic-based ozone destruct system to prevent the release of ozone to the atmosphere. Once dissolved in the process water, ozone reacts with various contaminants in the water, resulting in several treatment benefits, including (1) reduction of organic compounds that cause membrane fouling, (2) reduction of many constituents of emerging concern (CECs),[25] and (3) inactivation of pathogenic microorganisms. A quenching system to eliminate any ozone residual that remains in the water is included at the end of this process step. Quenching would be performed through the addition of sodium bisulfite, hydrogen peroxide or calcium thiosulfate, which would be stored on-site.

[25] See **Chapter 3. Water Quality Permitting and Regulatory Overview** for more information about the current understanding and regulation of these substances.

Biologically Active Filtration (if required): This process may be used downstream of ozone treatment to reduce the concentration of ammonia and residual organic matter present in the ozone effluent and to reduce the solids loading on the membrane filtration process. The biologically active filtration system would consist of gravity-feed filter basins with approximately 12 feet of granular media, and an underdrain/media support system. Ancillary systems would include an alkalinity addition system for pH control, backwash water basin (also used for membrane filtration backwash), backwash pumps, an air compressor and supply system for an air scour system, an air compressor and supply system for process air, and a wash water basin to facilitate filter backwashing. Depending upon the discharge permitting conditions, this process step may not be required; therefore, it may not be constructed until the AWT Facility completes initial start-up and testing.

2.8.1.4 Microfiltration/Ultrafiltration Membrane Treatment System

The membrane filtration system would remove suspended and colloidal solids, including bacteria and protozoa through hollow fiber membrane modules. Additional components of the membrane filtration system include valve manifolds to direct the flow of feed, filtrate, cleaning system, backwash supply, backwash waste, and compressed air to the corresponding module piping. Feed pumps would draw water from the feed clearwell and supply a pressurized feed to pretreatment strainers and the membrane units. Cleaning chemicals would include acid, caustic, and sodium hypochlorite, which would be stored on-site. Backwash and screening residuals would be adjusted to a neutral pH and returned to the Regional Treatment Plant headworks, along with residuals associated with the cleaning system. The projected recovery of treated water from the membrane filter system is roughly 90%; this recovery accounts for waste residuals associated with backwashing, cleaning, and pretreatment straining.

2.8.1.5 Reverse Osmosis Membrane Treatment System

A reverse osmosis process that employs semi-permeable membranes is proposed to remove dissolved salts, inorganic and organic constituents, and pathogens from the membrane filtration treated water. The proposed reverse osmosis system would consist of a single pass, which separates the membrane filtration filtrate feed water into a purified product stream (permeate) and a concentrated brine stream (concentrate). The proposed reverse osmosis would include a second stage to increase the product water recovery.

The proposed reverse osmosis system would include individual process trains, housing the process membranes in pressure vessels along with connecting piping and valve manifolds for feed, permeate, concentrate, cleaning and flush supplies. The ancillary equipment for the overall reverse osmosis system would include a membrane cleaning system and permeate flush system. Reverse osmosis membrane cleaning chemicals would likely include proprietary anticipant chemicals, acid, and caustic detergent, stored on-site.

Feed to the reverse osmosis system would be delivered from the upstream membrane filtration system through an intermediate equalization tank. Low-pressure booster pumps would move the water into the pretreatment system. Pretreatment would include cartridge filters, followed by the addition of an antiscalant and acid to lower the pH, which would be injected into a low pressure line. High-pressure feed pumps would move the water from pretreatment into the reverse osmosis treatment trains. Concentrate from the reverse osmosis system would be discharged to a new brine mixing structure with final disposal through the existing MRWPCA ocean outfall. Product water would flow to the advanced oxidation system. Separate cleaning and flush system equipment would also be included.

2.8.1.6 Advanced Oxidation Process System

The proposed advanced oxidation system would provide a final polishing step for pathogen disinfection and an additional chemical destruction barrier for the reverse osmosis permeate. The proposed advanced oxidation system would consist of a chemical feed to add hydrogen peroxide and reactors housing arrays of ultraviolet lamps along with ballasts to power the ultraviolet system. Ultraviolet light reacts with hydrogen peroxide to form hydroxyl radicals, which, along with the ultraviolet light, oxidizes, destroys, or inactivates chemicals of concern and pathogens. The system sizing would be driven by the requirement in the California Code of Regulations, Title 22, §60320.200 et seq., "Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application" criteria for advanced oxidation. Support facilities for the reactors would include chemical storage and metering pumps, and ballasts. The advanced oxidation product water would be directed to the post-treatment system for stabilization.

2.8.1.7 Post-Treatment System

Product water from the advanced oxidation process would be sent to the proposed post-treatment system. Due to the high removal of minerals that is achieved through reverse osmosis treatment, post-treatment stabilization of the product water would be needed to prevent corrosion of pipe materials in the product water conveyance system. Stabilization would also be used to reduce the potential for product water to leach minerals and other chemicals from the soils within the Seaside Groundwater Basin upon injection. Reverse osmosis permeate is a soft, low alkalinity water, and the final product water quality would be adjusted to specific goals for hardness, alkalinity, and pH. This adjustment would include decarbonation by air stripping to remove carbon dioxide (CO_2), the addition of calcium and alkalinity, and pH adjustment with CO_2 addition. There are two proposed options for calcium and alkalinity adjustment: (1) the addition of purchased hydrate lime slurry (calcium hydroxide slurry), or (2) addition of sodium hydroxide (NaOH) and calcium chloride ($CaCl_2$). Sodium hypochlorite may be added to the product water for secondary disinfection.

2.8.1.8 Product Water Pump Station

The new Product Water Pump Station would be located at the AWT Facility immediately south of the product water stabilization facilities. This pump station is described in detail in **Section 2.9**, **Product Water Conveyance Facilities**, below.

2.8.1.9 Brine Mixing Facility

As discussed above, the new AWT Facility would produce reverse osmosis concentrate water that would be disposed or discharged via the MRWPCA's existing ocean outfall. In addition to the AWT reverse osmosis reject water, other water that is currently discharged to the outfall includes secondary effluent from the Regional Treatment Plant, and brine waste collected from individual water softeners and private desalination facilities and delivered by truck to the Regional Treatment Plant. Proper disposal of these waste streams to the outfall, and eventually the ocean, requires flow metering and water quality sampling and monitoring. The proposed new brine mixing facility would accomplish the required mixing, metering and sampling, using the following processes and facilities:

- Two (2) cast-in-place concrete vaults on the existing outfall, one to divert secondary treated effluent to the mixing facility and one approximately 170-ft downstream to return the blended flows to the outfall. Both structures would be equipped with two slide gates to control the amount of secondary effluent diverted through the mixing facility and passed through to the outfall

- A cast-in-place concrete mixing structure, configured to receive secondary effluent and brine waste from separate inflow pipes and equipped with a 60-inch (nominal) static mixer in a fiberglass mixing pipe and an air release valve on the upstream end of the static mixer
- A 54-inch pipeline (high density polyethylene) from the diversion vault to the mixing structure and then to the return vault
- 48-inch flow meters on the pipelines entering and leaving the mixing structure, installed below-grade in concrete boxes
- A sampling port in the return vault for access to measure total dissolved solids, pH, dissolved oxygen temperature, and other constituents of the blended effluent as required by permit conditions

Only one new above-grade structure, the Lab and Control Building would be built and would receive architectural treatment similar to the other buildings at the Regional Treatment Plant. The maximum depth of excavation would be 30 to 32 feet. A new cast concrete driveway would extend from the existing road on the north side to the Lab and Control Building delivery door on the north side. A new four-foot wide concrete walkway would extend along the south side. Storm water drainage would be directed through site grading to a new retention basin at the west end of the site for percolation.

2.8.1.10 Power Supply

The AWT Facility power would be supplied through a new PG&E utility connection to the Regional Treatment Plant. The system components would include a utility service, transformers, and switchgear. The major electrical loads would be from the new influent pumping, oxygen generator (if liquid oxygen is not used), ozone generator, biological filtration backwash pumps (if included in the final system), membrane filtration and reverse osmosis feedwater pumping, ultraviolet light reactors, and product water pumping. In the case of a power failure, the AWT Facility would shut down and the secondary treated influent water would bypass the AWT Facility and be discharged to Monterey Bay, if not used first by the Salinas Valley Reclamation Plant. The Regional Treatment Plant has three power supplies: cogeneration, utility connection, and a standby diesel generator. If all three power supplies fail, there are provisions to connect mobile generators to the critical facilities. See **Section 2.6.3** for a summary of the power demands of the proposed Treatment Facilities at the Regional Treatment Plant. (Source: V. Badani, E2 Consulting Engineers; A. Wesner, SPI Engineering; B. Holden' MRWPCA; and T.G. Cole, October 2014)

2.8.1.11 AWT Facility Construction

Construction workers would access the proposed AWT Facility site via Charles Benson Road and existing access roads serving the existing treatment plant. Construction activities would include cutting, laying, and welding pipelines and pipe connections; pouring concrete footings for foundations, tanks, and other support equipment; constructing walls and roofs; assembling and installing major advanced treatment process components; installing piping, pumps, storage tanks, and electrical equipment; testing and commissioning facilities; and finish work such as paving, landscaping, and fencing the perimeter of the site. Construction equipment would include excavators, backhoes, graders, pavers, rollers, bulldozers, concrete trucks, flatbed trucks, boom trucks and/or cranes, forklifts, welding equipment, dump trucks, air compressors, and generators. Mechanical components of the pretreatment, membrane filtration systems, reverse osmosis, advanced oxidation, and post-treatment facilities would be prefabricated and delivered to the site for installation. Approximately 3.5 acres would be disturbed during construction. Construction activities related to the AWT Facility are expected to occur over 18 months, plus three months for testing and start-up.

2.8.1.12 AWT Facility Operation

Regional Treatment Plant secondary effluent that would include a treated mixture of the source waters would be drawn from a new diversion structure on an existing main pipeline. Pumping facilities would be controlled remotely through the AWT SCADA system. The AWT Facility would operate at an overall water recovery rate of 81 percent.[26] Waste residuals would include backwash from the biological filtration system (if included), backwash and cleaning wastes from the membrane filtration treatment system and concentrate and cleaning wastes from the reverse osmosis system. Cleaning wastes from each system would be neutralized and returned to the head of the Regional Treatment Plant, along with backwash waste residuals from the membrane treatment system. Reverse osmosis concentrate would be discharged through a new brine mixing structure to the existing Regional Treatment Plant ocean outfall. The AWT Facility would target an annual production rate of up to 3,700 AFY, requiring an average annual reverse osmosis feed supply of 4,568 AFY and producing waste residuals (reverse osmosis concentrate) of 868 AFY.

2.8.2 Overview of Salinas Valley Reclamation Plant Modifications

The existing Salinas Valley Reclamation Plant produces tertiary-treated, disinfected recycled water for agricultural irrigation within the CSIP service area. The Salinas Valley Reclamation Plant can only operate within the range of 5 to 29.6 mgd. When off-peak irrigation demands fall below the minimum plant capacity, those demands are met using Salinas Valley Groundwater. The Proposed Project includes Salinas Valley Reclamation Plant modifications to allow tertiary treatment at lower daily production rates, facilitating increased use of recycled water during the late fall, winter and early spring months to meet demands as low as 0.5 mgd.

The existing Salinas Valley Reclamation Plant uses a three step chemical and filtration process (**Figure 2-29, Salinas Valley Reclamation Plant Process Flow Diagram**). Secondary treated effluent from the Regional Treatment Plant is pumped to a flocculation basin where an alum polymer is introduced to bind together any remaining dissolved organic matter. This creates tiny clumps called floc. In the second step, the floc is removed in the tertiary filters. Treated water filters through a 6-foot bed of anthracite coal, sand and gravel in which the floc is trapped. After filtration, the water flows to the third step for disinfection in the chlorine contact basins. Disinfection destroys pathogens by maintaining a specific chlorine level in the water for at least one and one half hours. The final product is clear, odorless and safe to use for irrigation of food

[26] This recovery rate does not include the filter backwash flows routed through the Regional Treatment Plant, as these flows would be recycled through the plant and return as source water, thus not decreasing the system recovery.

crops. The recycled water is temporarily held in an 80 acre-foot storage pond before it is distributed to growers via the CSIP pipelines[27].

The Salinas Valley Reclamation Plant has a design capacity from 8 mgd to 29.6 mgd. Through operational efficiencies, the plant managers can meet irrigation demands as low as 5 mgd, which is still not small enough for winter and wet-year demands. These small irrigation demands are currently met using Salinas Valley groundwater. Under the Proposed Project, the Salinas Valley Reclamation Plant would be enhanced to enable the plant to produce more continuous flows in the winter when demand by the CSIP growers decreases to as low as 0.5 mgd. Proposed improvements would include new sluice gates, a new pipeline between the existing inlet and outlet structures within the storage pond, chlorination basin upgrades, and a new storage pond platform. Instead of holding recycled water in the 80 acre-foot pond, one of the chlorine contact basins would be used as a wet-season storage reservoir, while the second basin would continue to function as the disinfection step. All of the modifications would occur within the existing Salinas Valley Reclamation Plant footprint. This component is expected to facilitate the delivery of up to 1,283 AFY of additional recycled water to the CSIP area.

2.8.2.1 Construction

Modification of the existing Salinas Valley Reclamation Plant would primarily occur within the existing 16-acre plant site. Installation of motorized sluice gates in the chlorine contact basins, installation of a motorized sluice gate and platform at the entrance of the storage pond, installation of a pipeline between the entrance and exit structures within the storage pond, and motorizing the existing sluice gate at the exit of the storage pond all would be within the existing Salinas Valley Reclamation Plant. Construction activities would include cutting, laying, and welding pipelines and pipe connections; pouring concrete footings for foundations, and other support equipment; installing piping, sluice gates and electrical equipment; testing and commissioning facilities; and finish work such as repairing the existing storage pond lining. Construction equipment would include excavators, backhoes, concrete trucks, flatbed trucks, boom trucks and/or cranes, forklifts, welding equipment, dump trucks, air compressors, temporary tanks and generators. Construction activities related to the Salinas Valley Reclamation Plant Modifications are expected to occur over 12 months. Any work requiring a full system shut-down would occur during the winter months when irrigation demands for recycled water are lowest.

2.8.2.2 Salinas Valley Reclamation Plant Facility Operation and Maintenance

Operation of the modified facility would be similar to the current operational method. During the peak irrigation season, the plant would operate at full capacity with both chlorine contact basins used for disinfection and the 80 acre-foot pond used for tertiary-treated product water storage. During the off-peak, low demand months, normal low flow (5 to 8 mgd) volumes of flow would be sent to the plant, one or two coagulation/flocculation tanks would be used, between one and three filters would be active, and only one chlorine contact tank would be used for disinfection, while the other tank would provide product water storage. When the tertiary-treated product water has filled the storage basin, the flow to the Salinas Valley Reclamation Plant could be

[27] Salinas Valley Reclamation Plant description at:
http://www.mrwpca.org/about_facilities_water_recycling.php, accessed October 2014.

reduced or stopped until additional water is needed. This production would reduce the amount of secondary-treated wastewater discharged to the ocean outfall.

Operation of the system year-round would increase the time required for system maintenance, because portions of the treatment train would remain in operation as compared to the current winter shut-down. These operations occur year-round within the overall MRWPCA facility, so this increased maintenance window should not affect the overall daily level of maintenance effort.

2.9 PRODUCT WATER CONVEYANCE FACILITIES

The Proposed Project would include construction of a new pipeline to convey the advanced treated product water from the proposed AWT Facility to the Seaside Groundwater Basin for injection, along one of two potential pipeline alignments. The first alignment option, referred to herein as the RUWAP Alignment, would generally follow what is commonly known as the RUWAP (Regional Urban Water Augmentation Project) recycled water pipeline route through the City of Marina, California State University Monterey Bay, and the City of Seaside. The second alignment option, referred to herein as the Coastal Alignment, would follow in parallel with a portion of CalAm's proposed new Monterey Peninsula Water Supply Project desalination product water pipeline along the eastern side of the Transportation Agency of Monterey County (Transportation Agency) railroad tracks. See **Figure 2-18, Proposed Project Facilities Overview**. The southern portion of the Coastal Alignment would also be located in the former Fort Ord within the cities of Marina and Seaside. These two options for product water pipeline alignments are discussed in more detail below.

The northernmost component of the proposed new product water conveyance system would be the new AWT Product Water Pump Station (hereafter, the AWT Pump Station). As noted previously, the new AWT Pump Station is proposed to be located within the site of the proposed AWT Facility, all of which would be constructed within the current boundary of the MRWPCA's Regional Treatment Plant. The new AWT Pump Station would pump the AWT product water into the product water conveyance pipeline.

Farther down the new pipeline, either of the two alignments for the conveyance pipeline system would also require a new approximately 2,100 square foot and up to 25 feet tall Booster Pump Station to provide adequate pressure to convey the AWT product water to the proposed new Injection Well Facilities.

For the RUWAP Alignment, the 2,100 square-foot Booster Pump Station is proposed to be located on the east side of 5th Avenue, just south of 3rd Street in Marina. For the Coastal Alignment, the Booster Pump Station is proposed to be located at the southwest corner of the intersection of Divarty Street and Second Avenue, within the City of Seaside. The exact location for the Booster Pump Station at this intersection is yet to be determined; however, for the purposes of environmental analysis in this EIR, the location is assumed to be immediately adjacent to the intersection to minimize conflicts with future plans for development of that site. Each pipeline alignment option would also require new flow control valves, isolation valves, blow down structures for maintenance, air and vacuum release valves, and other appurtenant below ground facilities within the pipeline conveyance alignment. The proposed Booster Pump Station sites are shown on **Figure 2-18, Proposed Project Facilities Overview**.

2.9.1 Design Criteria of Product Water Conveyance

The proposed new Product Water Conveyance system is designed to convey a total of up to 3,700 AFY of product water to the proposed new injection wells. The conveyance system design would accommodate an average monthly flow of 3.3 mgd and a peak daily flow rate of 4.0 mgd. The AWT Facility may operate at daily rates as low as 1.3 mgd during periods when water is being “withdrawn” from the drought reserve. Several factors are expected to affect the actual daily flow rates through the conveyance system: seasonal variations; source water supply variations; down-time for maintenance of mechanical equipment of pumping systems and the AWT Facility; and maintenance of the wells. Hence, it is necessary and prudent to size facilities, particularly the conveyance pipeline, to handle these flow variations to enable the project to meet the annual recharge target volume of 3,700 AFY in a variety of conditions. Using this design flow criterion, the pipeline size would be 24 inches in diameter. A maximum daily flow of 4.0 mgd was used for the design criteria for the pump stations.

Other product water conveyance facility design provisions include standby pumping units for pump stations; in-line isolation valves on the pipeline approximately every 2,000 feet, in case an unforeseen leak occurs or subsequent construction activities result in damage to the pipeline; compliance with pipeline separation requirement by the SWRCB Division of Drinking Water; and remote monitoring of the Booster Pump Station performance and pipeline pressure via SCADA system. The design of any buildings associated with the booster pumps shall consist of Monterey/Mission style architecture to match the design of the structures that have been built on the Santa Margarita ASR site and the Seaside Middle School ASR Site, per the City of Seaside’s comments.

2.9.1.1 RUWAP Product Water Alignment

The RUWAP Alignment would follow a portion of the recycled water pipeline alignment of Marina Coast Water District’s previously approved and partially-constructed Regional Urban Water Augmentation Program Recycled Water Project. The proposed new product water conveyance pipeline would be located primarily along paved roadway rights-of-way within urban areas. The Recycled Water Project was approved by the Marina Coast Water District in 2005; however, only portions of the recycled water distribution system have been built and no recycled water has been delivered to urban users. MRWPCA and the Water Management District may pursue a shared easement to accommodate both pipelines in some portions of the alignment (i.e., leaving space for completion of the planned separate RUWAP pipeline). It is also possible that in the future these agencies may decide to jointly use a single pipeline for both the Product Water Conveyance and the RUWAP Recycled Water Project ~~agreements and permits to use a portion or portions of the pipeline originally proposed and/or constructed for the Recycled Water Project~~ by Marina Coast Water District (i.e., converting the purpose of the pipeline for use by both the Proposed Project to convey advanced-treated Product Water from the AWT Facility to the Injection Well Facilities as well as to convey water to MCWD pursuant to the 2009 RUWAP MOU) ~~or they may pursue a shared easement to accommodate both pipelines in some portions of the alignment.~~ However, joint use of a shared pipeline is beyond the scope of the Proposed Project. MCWD has stated that it appreciates MRWPCA's inclusion of the Project Water Conveyance RUWAP Alignment Option in the Draft EIR and remains willing to discuss potential mutually beneficial options for use of the RUWAP facilities and/or alignment by the Proposed Project. That said, MCWD notes that such options must ensure that MCWD can meet its contractual obligations to provide water supplies to the Ord Community.

If the RUWAP Alignment is selected, the new product water conveyance pipeline would begin at the AWT Facility and run southeast along its western boundary and then depart the Regional Treatment Plant site in a southeasterly direction before turning southwest across the open country of the Armstrong Ranch and then entering the City of Marina street system. The alignment would follow Crescent Avenue south for about 4,000 feet, and then through several other streets, including California Avenue and 5th Avenue, until eventually intersecting General Jim Moore Boulevard (General Jim Moore). The pipeline route would be in the northbound lanes of General Jim Moore approximately 2 miles, past the developed, military housing area (called Fitch Park), through the open land around a water reservoir used by the nearby golf courses, connecting to Eucalyptus Road, then southerly to the Injection Well Facilities area. The portion of conveyance system from Normandy Drive south is common to both the Coastal and RUWAP Alignments. These alignments are shown on **Figure 2-18, Proposed Project Facilities Overview**.

Construction drawings prepared by Carollo Engineers, (90% design, dated December 2006) show the details of this RUWAP alignment up to Normandy Road. Portions of the pipeline within this alignment have been constructed by Marina Coast Water District, which reported that a segment in General Jim Moore from Normandy Road south to a point just north of Eucalyptus Road/Coe Avenue was constructed using 20-inch diameter pipe, and the pipeline continues south in General Jim Moore using 16-inch diameter pipe all the way to South Boundary Road.

If the RUWAP Alignment for the GWR product water conveyance pipeline is selected, the ~~pipeline may be constructed by Marina Coast Water District in accordance with the currently designed RUWAP or~~ MRWPCA may construct a separate pipeline parallel to the currently designed pipeline. **Figure 2-30, Product Water Conveyance Options near Regional Treatment Plant,** shows the location of the AWT Pump Station and the beginning portions of both product water alignment options.

2.9.1.2 Coastal Product Water Alignment

The Coastal Alignment would follow a portion of CalAm's proposed new Monterey Peninsula Water Supply Project desalination product water conveyance pipeline alignment that is currently the subject of CalAm's CPUC Application A.12-04-019.

If the Coastal Alignment is selected, the GWR product conveyance pipeline would depart from the Regional Treatment Plant site and run along its western boundary northerly to the Marina interceptor right of way.[28] From there, it would turn southwesterly along the Marina interceptor right of way to Del Monte Boulevard. The pipeline would turn south on Del Monte Boulevard and be located within land owned by the Transportation Agency for Monterey County (Transportation Agency) adjacent to the roadway. If the Coastal Alignment is selected, SWRCB Division of Drinking Water would require that MRWPCA and CalAm provide adequate separation between the existing MRWPCA wastewater interceptor in this area, the new GWR product water pipeline and CalAm's Monterey Peninsula Water Supply Project desalination product water pipeline.

[28] Use of the MRWPCA easement for the land portion of the ocean outfall alignment was also considered as an option for a portion of the Coastal Alignment of the product water pipeline between the Regional Treatment Plant and Del Monte Boulevard and is discussed and analyzed as a component alternative in Chapter 7, Alternatives to the Proposed Project.

The Coastal Alignment would continue south, under the Highway 1 overpass, past MRWPCA's Fort Ord Pump Station. The Fort Ord gravity interceptor is farther away from the proposed alignments of both CalAm's Monterey Peninsula Water Supply Project desalination product water pipeline and the GWR product water pipeline than the separation distance required by SWRCB Division of Drinking Water. Hence, pipeline separation distance is not a concern in this area. The pipeline would continue south in the Transportation Agency's land to the Seaside city limit. From this point, the Coastal Alignment would cease to parallel CalAm's Monterey Peninsula Water Supply Project proposed desalination product pipeline alignment. For more information about CalAm's desalination product pipeline, see the relevant California Public Utilities Commission website at: www.cpuc.ca.gov/Environment/info/esa/mpwsp/index.html.

The GWR Project Coastal Alignment would cross under Highway One at the Divarty Street underpass. The pipeline would follow Divarty Street to Second Avenue, where the new Booster Pump Station would be located. This portion of the alignment and the Booster Pump Station site were recommended by the City of Seaside, Fort Ord Reuse Authority, and Marina Coast Water District representatives at a meeting on 13 November 2013. **Figure 2-31, Proposed Booster Pump Station Options,** shows the proposed location of, and conceptual site plan for, the Booster Pump Station for the Coastal Alignment.

From the proposed Booster Pump Station site, the pipeline would turn south and follow on the west side of Second Avenue to Lightfighter Drive within CSUMB property. At the intersection of Second Avenue and Lightfighter Drive the pipeline would be constructed under Lightfighter Drive by either directional drilling or bore and jack techniques to avoid disruption to this main thoroughfare. From this intersection the alignment would turn eastward and would be constructed on the south side of the Lightfighter Drive roadway, but off the pavement, up to the intersection with General Jim Moore. The pipeline would follow the southbound ramp from Lightfighter Drive onto General Jim Moore where it would merge to the same alignment as the RUWAP alignment. **Figure 2-18, Proposed Project Facilities Overview** shows the remainder of the proposed Product Water Pipeline alignment in General Jim Moore to a cut-off route through open space to the Injection Well Facilities site. This portion is coincident with the RUWAP Alignment option.

Booster Pump Station

The proposed new Booster Pump Station would receive flow from the first "leg" of the Product Water Conveyance Pipeline. The product water would flow under pressure to the pump(s) in the Booster Pump Station. The pipeline supplying the Booster Pump Station would have residual pressure (about 5 to 10 psi) available to "prime" the booster pumps. The Booster Pump Station would pump the product water into one of the two proposed alternative alignments that merge to a single alignment along General Jim Moore.

Because of noise considerations, the pump motors and discharge piping would be housed in a split-faced block, or similar building measuring approximately 30 feet by 70 feet and up to 25 feet tall with architectural treatment consistent with nearby facilities subject to approval by the City of Seaside and California State University Monterey Bay. In addition to the pumps and motors, the building would include electrical power equipment and HVAC, instrumentation and control equipment. Maintenance access would be provided to and around the building. Electrical supply transformer and a pressurized surge tank for the pump system would be located outside the pump station building. **Figure 2-31, Proposed Booster Pump Station Options** presents conceptual site plans for the Booster Pump Station for both the RUWAP and Coastal Alignments.

2.9.2 Construction of Product Water Conveyance

2.9.2.1 Pipeline Construction

To implement the Proposed Project, workers would install approximately 10 miles of Product Water pipelines primarily within existing roads and infrastructure easements. Pipeline installation would generally progress by 250 feet per day within or along roadways. For some pipelines in open (undeveloped) areas, work could progress at up to 400 feet per day. Progress at intersections or major utility crossings may be slower. Most pipeline segments would be installed using conventional open-trench technology; however, where it is not feasible or desirable to perform open-cut trenching, trenchless methods would be used.

Typical construction equipment for pipeline installation would include flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, Baker tanks, pickup trucks, arch welding machines, generators, air compressors, cranes, drill rigs, and skip loaders. Pipeline segments would typically be delivered and installed in 6- to 40-foot-long sections. Soil removed from trenches and pits would be stockpiled and reused, to the extent feasible, or hauled away for offsite disposal. Expected soil haulage quantities are provided in **Table 2-21, Proposed Project Construction Assumptions.**

Under typical circumstances, the width of the disturbance corridor for pipeline construction would vary from 50 to 100 feet, depending on the size of the pipe being installed. Trenchless technologies could require wider corridors at entry and exit pits. Pipeline installation would be ongoing throughout the entire 18-month construction period for the Proposed Project, with multiple pipe segments being installed simultaneously. Pipeline installation would be sequenced to minimize land use disturbance and disruption to the extent possible.

Open-Trench Construction

For pipeline segments to be installed using open-trench methods, the construction sequence would typically include clearing and grading the ground surface along the pipeline alignments; excavating the trench; preparing and installing pipeline sections; installing vaults, manhole risers, manifolds, and other pipeline components; backfilling the trench with non-expansive fills; restoring preconstruction contours; and revegetating or paving the pipeline alignments, as appropriate. A conventional backhoe, excavator, or other mechanized equipment would be used to excavate trenches. The typical trench width would be 6 feet; however, vaults, manhole risers, and other pipeline components could require wider excavations. In addition, much of the project construction area is underlain by sandy soils that may require a laid-back trench cross-section due to considerations such as duration of construction, efficiency, and safety. In these cases, trench widths may be up to 12 feet wide. Work crews would install trench boxes or shoring or would lay back and bench the slopes to stabilize the pipeline trenches and prevent the walls from collapsing during construction. After excavating the trenches, the contractor would line the trench with pipe bedding (sand or other appropriate material shaped to support the pipeline). Construction workers would then place pipe sections (and pipeline components, where applicable) into the trench, connect the sections together by welding or other applicable joining methods as trenching proceeds, and then backfill the trench. Most pipeline segments would have 4 to 5 feet of cover. Open-trench construction would generally proceed at a rate of about 150 to 250 feet per day. Steel plates would be placed over trenches to maintain access to private driveways or public recreation areas. Some pipeline installation would require construction in existing roadways and could result in temporary lane closures or detours.

Trenchless Technologies

Where it is not feasible or desirable to perform open-cut trenching, trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, and/or microtunneling would be employed. Pipeline segments located within heavily congested underground utility areas would likely be installed using horizontal directional drilling or microtunneling. Jack-and-bore methods would also be used for pipeline segments that cross beneath highways, major roadways, or drainages.

Jack-and-Bore and Microtunneling Methods. The jack-and-bore and microtunneling methods entail excavating an entry pit and receiving pit at either end of the pipe segment. A horizontal boring machine or auger is used to drill a hole, and a hydraulic jack is used to push a casing through the hole to the opposite pit. As the boring proceeds, a steel casing is jacked into the hole and pipe is installed in the casing.

Drill-and-Burst Method. The drill-and-burst method involves drilling a small pilot hole at the desired depth through a substrate, and then pulling increasingly larger reamers multiple times through the pilot hole until the hole reaches the desired diameter. The pipe is then installed through the drilled hole.

Horizontal Directional Drilling. Horizontal directional drilling requires the excavation of a pit on either end of the pipe alignment. A surface-launched drilling rig is used to drill a small horizontal boring at the desired depth between the two pits. The boring is filled with drilling fluids and enlarged by a back reamer or hole opener to the required diameter. The pipeline is then pulled into position through the boring. Entry and receiving pits would range in size depending on the length of the crossing, but typically would have dimensions of approximately 50 by 50 feet.

2.9.2.2 Pump Station Construction

Two pump stations would be constructed: the AWT Product Water Pump Station and the Booster Pump Station (the latter would be located in one of two potential locations based upon the Product Water Conveyance alignment selected, either Coastal or RUWAP). Construction crews would prepare the pump station sites by removing vegetation and grading the sites to create a level work area. Construction activities would include excavations for wet wells, installing shoring and forms, pouring concrete footing for foundations; assembling and installing piping, pumps, and electrical equipment; constructing concrete enclosures and roofs; and finish work such as paving, landscaping, and fencing the perimeter of the pump station sites. Construction access would be provided via existing access roads and roadways.

The AWT Product Water Pump Station would be constructed on a new concrete pad adjacent to the new product water stabilization facilities at the Regional Treatment Plant. It is assumed that the entire 3.5-acre AWT Facility site could be disturbed during project construction activities. Construction of either Booster Pump Station would result in approximately 2,400 square feet of temporary disturbance and permanent facility (including driveways and fenced areas).

2.9.3 Operation and Maintenance

It is assumed that the proposed pump stations and pipelines could operate continuously for up to 24 hours a day. Although pump stations would typically be operated remotely via SCADA, facility operators would conduct routine visits to the pump station sites approximately once daily to monitor operations, conduct general maintenance activities, and service the pumps.

General operations and maintenance activities associated with pipelines would include annual inspections of the cathodic protection system and replacement of sacrificial anodes when necessary; inspection of valve vaults for leakage; testing, exercising and servicing of valves; vegetation maintenance along rights-of-way; and repairs of minor leaks in buried pipeline joints or segments. Above-grade surge tanks would require periodic inspection (once every five years) and recoating (once every twenty years).

2.10 INJECTION WELL FACILITIES

Under the Proposed Project, product water would be injected into the Seaside Groundwater Basin using new injection wells. The proposed new Injection Well Facilities would be located east of General Jim Moore Boulevard, south of Eucalyptus Road in the City of Seaside, including a total of eight injection wells (four deep injection wells, four vadose zone wells), six monitoring wells, and back-flush facilities. Space would be included within the Injection Well Facilities area to accommodate the future construction of replacement injection wells which would be built only if the adjacent deep injection well fails, which typically would occur after the well's estimated 20 to 30 year life. The proposed site plan for the new injection wells and back-flush facilities are shown in **Figure 2-32rev, Injection Well Site Plan**. As shown on Figure 2-32rev, the injection wells, backflush facilities, and connecting driveway with pipelines and electrical conduits below it, would be located within a 150-foot wide corridor along the City of Seaside's eastern border. This area is also referred to as the Borderland development area adjacent to the Natural Resources Management Area owned by the U.S. Bureau of Land Management in the Fort Ord Habitat Management Plan (USACOE, Sacramento District, 1997).The proposed new deep injection wells are numbered DIW-1 through DIW-4 and the proposed new vadose zone wells are numbered VZW-1 through VZW-4, going from north to south, in the order of anticipated sequence for construction of the wells. DIW-1 and VZW-1 would be built in close proximity to each other to share electrical, motor control, pumps, and site building pad infrastructure. Similarly, DIW-2 and VZW-2, would be constructed in close proximity to one another, as would each successive pair of wells. Each site is referred to as a well cluster. Each well cluster would include concrete pads at each well head, approximately 10-ft by 10-ft, a back-flushing pump and motors for the deep well, above and below grade injection and back-flush wash pipelines, valves and flow meters, and a small building (approximately 16-ft by 24-ft) to hold the electrical and control equipment in a fenced area measuring up to 7,000 square feet. Suitable paint colors, materials, and screening landscape around each fenced enclosure would be provided subject to approval of the City of Seaside. **Figure 2-33, Injection Well Cross-Section,** shows a cross-section of the proposed injection wells in relation to the groundwater basins and other facilities. **Figure 2-34, Conceptual Injection Schematic,** shows the relationship between the proposed and existing facilities, underground water flow paths, and the groundwater basin. **Figure 2-35, Conceptual Site Plan and Schematic of Typical Well Cluster,** is an example of the details of one of the four proposed well clusters.

2.10.1 Design of Injection Well Facilities

2.10.1.1 Injection Wells

Wells within the same target aquifer are proposed to be spaced from 800 to 1,000 feet apart to minimize well interference. Separate turnouts with isolation valves would be provided to each individual well site from the product water conveyance pipeline. Proceeding southwesterly, the pipeline would step down in size after the third well. Each deep injection well would have an isolation valve, flow meter and an air release shutoff valve at the well head to prevent air from entering the well during injection operations.

Four deep injection wells and four vadose zone wells are proposed so that the product water could readily be allocated among the two well types and aquifers. With water levels below sea level in both the Paso Robles Aquifer, the uppermost aquifer that is unconfined, and the Santa Margarita Aquifer, the deeper confined aquifer, it has been determined by the Watermaster that recharge into both aquifers would be beneficial for protection against seawater intrusion and for water supply. However, most of the basin production is from the Santa Margarita aquifer where water levels are below sea level throughout the northern coastal subarea and more than 40 to 60 feet below sea level down-gradient and adjacent to the Injection Well Facilities site (see **Figure 2-4 rev, Seaside Groundwater Basin Groundwater Levels).** Groundwater modeling was performed to identify the optimal allocation of recharge to the two aquifers to minimize both: (1) water outflow from the basin, and (2) changes in storage in the basin (Hydrometrics WRI, 2013).

Based on the modeling performed for the Proposed Project, the Santa Margarita aquifer is targeted to receive 90% of the product water from the Project and the Paso Robles aquifer is targeted to receive 10% of the product water. Injection to the Paso Robles aquifer would be through vadose zone wells (relatively shallow and less expensive to construct and operate than deep injection wells). This project configuration would provide maximum flexibility for well operation and for managing short-term production benefits with the benefits of long-term storage.

Deep injection well design capacity (or maximum volumetric flowrate of water that can be injected in the well for a short period) is conservatively estimated at 1,000 gpm, based on nearby Aquifer Storage and Recovery wells operated by Water Management District (see **Figure 2-17, Aquifer Storage and Recovery Project Location Map** for location of Aquifer Storage and Recovery wells). Using an additional conservative factor of 80% capacity to account for occasional time offline for maintenance (including well back-flushing), four wells would have an operational injection capacity of about 3,200 gpm of water. A preliminary design for the deep injection wells is shown on **Figure 2-36, Deep Injection Well Preliminary Design;** this design is based on the design and functional capability of the nearby Santa Margarita Aquifer Storage and Recovery wells.

Vadose zone well capacity is less certain, but a preliminary analysis by Todd Groundwater indicates that 500 gpm would be a reasonable estimate of capacity (Todd Groundwater, 2015). Using this estimated rate, a total of four vadose zone wells would provide an additional capacity of about 2,000 gpm. A conceptual vadose well diagram is shown on **Figure 2-37, Vadose Zone Well Preliminary Design.** The design is based, in part, on details provided by the City of Scottsdale, Arizona, where several hundred similar vadose zone wells have been successfully operated for many years.

Collectively, the four shallow and four deep injection wells represent a maximum injection capacity of about 6,000 gpm. This capacity is well above the Proposed Project design flows of 3,700 AFY (with an anticipated maximum daily flow rate of 2,780 gpm with no downtime), and thus would allow for backup of pumping capacity if one or more wells are not functioning, well maintenance, and other operational benefits. In addition, GWR product water could readily be re-allocated among the two well types and aquifers as basin conditions change in the future and to ensure compliance with SWRCB Division of Drinking Water requirements (i.e., response retention time).[29] In addition, if there are future changes in the daily flow rates, sufficient number and total capacities of wells would be available to accommodate peak flows. Wells may be installed in a phased approach (from north to south) as actual well capacity and required peak flow rates are more clearly defined. This EIR assumes all eight injection wells would be built. <u>The design of the buildings associated with the Injection Well Sites would consist of Monterey/Mission style architecture to match the design of the structures that have been built on the Santa Margarita ASR site and the Seaside Middle School ASR Site, as requested by the City of Seaside.</u>

2.10.1.2 Back-flush Facilities

Over time, injection well capacity can decrease because of several factors, including air entrainment, filtration of suspended or organic material, bacterial growth, and other factors. To regain "lost capacity," the deep injection wells are planned to be pumped periodically, a process referred to as back-flushing. For back-flushing, wells are usually pumped at an extraction rate that is twice the injection rate. Each deep injection well would be equipped with a well pump to back-flush the well. The back-flushing rate would be approximately 2,000 gallons per minute (gpm) and would require a well pump and motor. Pump speed would be variable by inclusion of a variable frequency drive, so that back-flushing can be ramped up (manually or with an automated program) from initial lower flow to full flow. The shallow vadose zone wells would not be equipped with back-flushing pumps as the bottom of those wells would be over one hundred feet above the aquifer.

Based on the experience of the Water Management District in the operation of its nearby Aquifer Storage and Recovery wells, back-flushing of each deep injection well would occur about weekly and would require discharge of the back-flush water to a percolation basin (basin), with a storage capacity of about 240,000 gallons. Water percolated through the basin would recharge the Paso Robles aquifer. **Figure 2-32 <u>rev</u>, Injection Well Site Plan** shows the proposed basin in the middle of the injection well facilities site. The operational size of the basin would be approximately 50-feet wide by 180-feet long by 3-feet of water depth. The overall basin depth would be five feet (three feet water depth plus two feet free board). The embankment of the basin would have 3:1 side slopes and 12-foot wide perimeter access road. The basin would be located in an area between the middle two injection well clusters.

Each well would have a flow meter to monitor the amount of water applied for recharge. A separate pipeline would measure rate of flow and convey the back-flushed water to the Basin. Each deep injection well would have a back-flush pump and motor. The estimated motor size for each pump is approximately 400 hp. Electrical cabinets would be located at each well for electrical supply, monitoring and supervisory control and data acquisition (SCADA) connections.

2.10.1.3 Monitoring Wells

Monitoring wells would be used to monitor project performance and compliance with State Board Division of Drinking Water regulations. Because the Proposed Project would recharge

[29] This concept is defined in more detail in **Chapter 3, Water Quality Permitting and Regulatory Overview.**

two separate aquifers (Paso Robles and Santa Margarita aquifers), monitoring wells would be installed in both. The monitoring wells would also be used to satisfy regulatory requirements for monitoring of subsurface travel time, tracer testing, and other requirements for a groundwater replenishment project. The City of Seaside has indicated that its approval of the proposed Injection Well Facilities monitoring wells and roadway/pipeline alignments would be conditioned to require that the project owner relocate any monitoring well within the interior lands of the Injection Well Facilities site that would create a substantial interference with future development opportunities in the City of Seaside. Based on current State Board regulations, a minimum of four monitoring wells would be required: two for each of the two aquifers. One set of monitoring wells would be located approximately 100 feet from the injection wells between the injection wells and the nearest down-gradient water supply wells. The second set of monitoring wells would be located between the project wells and the nearest down-gradient water supply wells. **Figure 2-32rev, Injection Well Site Plan** shows the approximate location of the monitoring wells whose locations are subject to discretionary approval by the City of Seaside and the State Water Resources Control Board and Regional Water Quality Control Board.

2.10.1.4 Electrical Power Supply and Instrumentation for Injection Wells

Injection wells would require a new permanent power supply to the site, including electrical equipment, electrical control buildings for back-flush pumps, external electrical control cabinets at the well clusters, wiring and connections of electrical power and instrumentation and control facilities. Power supply capability by the utility company, PG&E, must be confirmed prior to final design of the electrical power supply facilities. There are high-voltage (21 kV) overhead power lines in close proximity to the Injection Well Facilities Site; therefore, it is likely that the PG&E power at 4.16 kV would be brought to each cluster site from offsite overhead power poles. However, the locations for connections and conveyance are unknown at this time. From this location, the power line would likely be in a buried conduit, encased in concrete, routed to the locations of the power demand, namely near the motor control and electrical building at each of the four well sites (discussed in **Section 2.10.1.1** above) The proposed electrical control buildings would each house the SCADA and electrical controls and pump drive and adjacent to each building would be a transformer (approximately 400 to 450 kVA), located such that it would step down the line voltage from 4.16 kV to 3-phase, 60 Hz, 480-volt power for the well pumps. Further step down from 480-volt to 220 and 120 volt would be required for power supply to instrumentation and SCADA equipment, site lighting, building lighting and ventilation and other small, miscellaneous needs. In addition to incidental power requirements (instrumentation and monitoring equipment, site lighting, isolation valve motor operators, etc.), major power supply would be required to drive only one back-flush pump motor at a time.

Step-down transformers would be outdoor type units located near the electrical buildings. Adequate clearance would be provided around the transformer to meet electrical code requirements.

An electrical building would house the motor control center and variable frequency drive unit at each cluster site and would be located near the transformer. The electrical building would measure approximately 400 square feet and would be up to 15 feet tall. The material of construction would be brick-faced concrete block with architectural treatment of the buildings subject to review and approval by the City of Seaside.

2.10.2 Construction

2.10.2.1 Well Construction

Installation of any of the wells (deep injection, vadose zone and monitoring wells) typically follows a three-step process: drilling and logging, installation, and testing and equipping. This section describes these three processes.

Drilling and Logging

The deep injection well would be drilled with rotary drilling methods. The method would be customized to minimize borehole impacts from drilling fluids and may incorporate air rotary methods or specialized drilling fluids (such as polymers). Cuttings from the borehole would be logged by a California Certified Hydrogeologist. Open-hole geophysical logging would also be conducted.

It is anticipated that one of the deeper, Santa Margarita monitoring wells would be installed prior to the installation of the first deep injection well. This would provide site-specific information and inform details of injection well design. The well would also provide a critical monitoring point during injection well testing. The direct rotary drilling method would likely be used for the monitoring wells.

Installation

The deep injection well design would be based on the Aquifer Storage and Recovery wellfield design and would incorporate 18-inch to 20-inch diameter production casing and a wire-wrap stainless steel screen. Based on downhole velocity logs completed following construction of the downgradient Aquifer Storage and Recovery project wells and the first GWR monitoring well north of the proposed Injection Well Facilities, the lower 200 feet of the aquifer has been found to be the most productive section of the Santa Margarita and would be targeted for the injection zone screen. Screen selection and filter pack design would be developed using both cuttings from the adjacent monitoring well (to be drilled as part of the Proposed Project) in addition to data collected from nearby Aquifer Storage and Recovery wells. Mechanical and pumping techniques would be used to develop the well after installation.

Testing and Equipping

Both constant discharge and constant injection testing would be completed in the injection well following well drilling. Test details have not yet been developed but an 8-hour test for each test is assumed. Constant rate tests would be preceded by step tests, as appropriate, to identify preferred rates for each test. Flowmeter surveys would be conducted following pumping and injection testing to identify water movement within the wellbore. Depending on the objectives of the test, both static and dynamic flow testing may be recommended.

At the end of the constant rate discharge test, a water quality sample would be collected to confirm local groundwater quality. Constituents targeted for analysis would be based on compliance with the Drinking Water regulations and Engineering Report as well as ambient groundwater quality in the Santa Margarita aquifer in the area. The Aquifer Storage and Recovery wells had some power constraints from PG&E and incorporated a 400-horsepower, variable speed pump. For planning and cost purposes, a similar pump is envisioned for each proposed deep injection well.

2.10.2.2 Back-flush Pipeline Facilities Construction

As described above, the back-flush facilities at each injection well site would include a flow meter, a back-flush pump and 400-hp motor, and an electrical cabinet, monitoring and SCADA. A main electrical power supply/transformer and motor control building would be built for PG&E power supply. In addition to incidental power requirements (instrumentation and monitoring equipment, site lighting, etc.), major power supply would be required to drive only one injection pump motor at a time. To construct the back-flush pipeline and basin, the contractor would excavate pipe trenches, retain the spoilage on site, import and install bedding material, and lay pipe, backfill & compact trench.

Estimated construction time for this component is approximately 4 months. The temporary construction area along the alignment of the 14-inch diameter back-flush water pipeline would be approximately 25 to 50 feet wide, for its approximate 3,000-foot length. Hence, the ground surface disturbance area would be between 1.75 and 3.5 acres. The construction area width is to provide space for a backhoe, trucks for hauling excess soil material and imported bedding material. The depth of the pipeline trench would be approximately five feet to allow for bedding of the pipe and about three to four feet of cover material.

2.10.2.3 Pump Motor Control/Electrical Conveyance Construction

A main electrical power supply/transformer and motor control building would be built at each injection well facility site for PG&E power supply. In addition to incidental power requirements (instrumentation and monitoring equipment, site lighting, etc.), major power supply would be required to drive only one injection pump motor at a time. The following activities would be required to construct the pump motor control and electrical conveyance facilities:

- excavation, spoilage handling, import and install bedding material, building foundation, trench, place concrete, backfill & compact trench, finish concrete floor of electrical building;
- install exterior electrical control cabinets on the paved area at the four clusters of vadose and deep injection wells; and
- for electrical buildings, construct block walls, doors, louvers, roof and appurtenances, then interior finishes, lighting and HVAC; and electrical equipment and wiring.

The estimated construction period for these facilities is approximately 6 months. The temporary construction area would be approximately 25 to 50 feet wide within the alignment of the 14-inch diameter back-flush water pipeline, which is approximately 3,000 feet long.). There would be no additional surface disturbance <u>for construction of electrical conduits</u> beyond that for the 14-inch back-flush water pipeline, described in the previous section. Construction activities would include a buried electrical power conduit and instrumentation conduits, all of which would be underground and encased in a concrete ductbank, which would run in parallel and near the 14-inch back-flush pipeline. The depth of the ductbank trench would be approximately 4.5 to 5 feet to allow for about 3 feet of cover material. The electrical control building that would house the electrical and instrumentation (SCADA) transmission equipment would be approximately 16 feet by 24 feet. Its foundation construction would be slab-on-grade; hence, excavation would be only about 3 feet deep. The construction surface area would be about 600 square feet.

2.10.3 Operation and Maintenance

Injection wells and associated electrical and mechanical systems would operate 24 hour per day, 7 days per week throughout the year, although it is unlikely that all eight wells would be actively injecting at the same time for any length of time. Operations and maintenance staff would visit the Injection Well Facilities site most likely once daily Monday through Friday nearly every week. In addition to operation and maintenance of the wells, the workers would inspect above ground valves and appurtenances to assure they are properly functioning and to conduct and monitor the back-flush operations.

For the purposes of evaluating the injection impacts on groundwater basin, MRWPCA has evaluated the availability and amounts of source waters, capacity of the AWT Facility, minimum delivery targets, and operational guidelines in order to develop potential delivery schedules for recharge to the Seaside Basin. Based on this analysis, there are eight potential delivery schedules that could occur, based on two water management decision points made in each year of GWR operation. These eight delivery schedules were presented in **Table 2-9, Proposed Project Monthly Flows for Various Flow Scenarios.** The two management decisions that determine appropriate deliveries to the Seaside Basin are described below.

The first management decision would be made by October 1, the beginning of the water year,[30] and would dictate which of two delivery schedules is followed during October through March of that water year. The decision would be based on whether or not the drought reserve account is full. If the account is full (1,000 AF), the project would deliver monthly amounts from October through March based on average annual deliveries (highlighted in purple on **Table 2-9**, **Proposed Project Monthly Flows for Various Flow Scenarios**; for example, see October through March deliveries for Schedule 2 and Schedule 8). If the account balance is 800 AF ~~of~~ or less on October 1, then an additional 200 AF would be delivered from October through March (highlighted on **Table 2-9, Proposed Project Monthly Flows for Various Flow Scenarios** in blue; for example, see October through March delivery schedules 1, and 3 through 7). For wet or normal years, these two recharge schedules would produce a total of 3,700 AFY (Schedule 1) or a total of 3,500 AFY (Schedule 2) (**Table 2-9, Proposed Project Monthly Flows for Various Flow Scenarios**).

Based on the experience of the Water Management District in the operation of its nearby Aquifer Storage and Recovery wells, back-flushing of each injection well would occur for about four hours weekly and would require discharge of the back-flush water to the percolation basin. The Water Management District conducts manual back-flushing and visual checks and field-tests the back-flush water discharge to confirm adequate flushing time has been provided. Approximately once per year, a disking machine would be used to scarify the bottom of the pond to increase/restore the percolation rate.

Monitoring wells would be used to monitor project performance and compliance with State Board – Drinking Water Division regulations. Because the Proposed Project would recharge two separate aquifers (Paso Robles and Santa Margarita Aquifers), monitoring wells would be sampled to satisfy regulatory requirements for monitoring of subsurface travel time, tracer testing, and other requirements for a groundwater replenishment project.

[30] A Water Year is defined as October 1 through September 30, and is based on the annual precipitation pattern in California. The Water Year is designated by the calendar year in which it ends.

2.11 CALAM DISTRIBUTION SYSTEM

CalAm would use existing Seaside Groundwater Basin wells, in addition to existing treatment facilities and existing pipelines in its Monterey District Service area, to recover, treat and deliver potable water from the Seaside Groundwater Basin to its customers; the water that CalAm extracts would include some of the Proposed Project product water along with other groundwater from the Basin.

In addition to using existing wells, treatment facilities, and pipelines, CalAm would need to construct additional pipeline segments to deliver the full amount of product water to its customers. Because the CalAm system was initially built to deliver water from Carmel Valley to the Monterey Peninsula cities, a hydraulic trough currently exists in the CalAm peninsula distribution system that prevents water delivery at adequate quantities from the Seaside Groundwater Basin to most of Monterey, and all of Pacific Grove, Pebble Beach, Carmel Valley, and the City of Carmel areas. The hydraulic trough is an area of the CalAm distribution system with very small pipe diameters and very low elevation such that the required high flow rates of water and high pressures needed to convey water from the north between two pressure zones of the system cannot be achieved with the current infrastructure. This system deficiency would need to be addressed regardless of whether the Proposed GWR Project is implemented by itself, CalAm's Monterey Peninsula Water Supply Project with the full-size desalination plant is implemented without the GWR Project, or the variant to the Monterey Peninsula Water Supply Project that includes both a smaller desalination plant and the GWR Project is implemented. Under all three of these scenarios, for CalAm to be able to deliver increased quantities of water extracted from the Seaside Groundwater Basin to its customers, the company would need to construct pipeline improvements to bridge this trough. In CalAm's Monterey Peninsula Water Supply Project, CalAm is proposing to construct two new pipelines--the Transfer and Monterey pipelines--to bridge this trough. In addition, CalAm is proposing to construct a new Terminal Reservoir to add storage and pressure equalization within the water supply system; however, MRWPCA understands that the Terminal Reservoir would not be needed if the GWR Project is implemented by itself. Therefore, the Transfer and Monterey Pipelines are the only CalAm Distribution System components proposed to be built by CalAm and included in the analysis of impacts of the Proposed Project.

While MRWPCA would not be approving, constructing or operating the CalAm distribution improvements, the improvements would be needed for a stand-alone GWR Project, and therefore they are included in the environmental evaluation of the Proposed GWR Project. These same CalAm improvements are also included in the Monterey Peninsula Water Supply Project as a component of that project. The proposed alignment of these pipelines is shown in **Figures 2-38, CalAm Distribution System Pipeline: Eastern Terminus**, and **2-39, CalAm Distribution System Pipeline: Western Terminus**.[31]

[31] Alternative routes for the Monterey and Transfer Pipelines have been submitted to the California Public Utilities Commission by CalAm. The alternative routes are addressed in this EIR within Chapter 7, Alternatives to the Proposed Project.

2.11.1 Transfer Pipeline

The new three-mile-long, 36-inch-diameter Transfer Pipeline would allow for flows to be conveyed in either direction and would be used to convey potable water extracted from the Seaside Groundwater Basin to CalAm customers by conveying the water to the Monterey Pipeline.[32] From the intersection of Del Monte Boulevard/La Salle Avenue, the proposed Transfer Pipeline would be routed east along La Salle Avenue for approximately 0.9 mile to Yosemite Street, turn south and continue for approximately 1 mile to Hilby Avenue, and then continue east for approximately 0.4 mile along Hilby Avenue to General Jim Moore Blvd (see **Figure 2-38, CalAm Distribution System Pipeline: Eastern Terminus**).

2.11.2 Monterey Pipeline

The new 5.4-mile-long, 36-inch-diameter Monterey Pipeline would allow for bi-directional flows and would convey potable water supplies from the new Transfer Pipeline to the Monterey Peninsula. The Monterey Pipeline would utilize the pressure (called "hydraulic head") provided by CalAm extraction operations to convey water to the Monterey Peninsula cities. The Monterey Pipeline would connect two pressure zones in the CalAm system (one in the area of the City of Pacific Grove and one in the area of the City of Seaside). With implementation of this pipeline, water stored in Forest Lake Tanks could flow via gravity to the lower Carmel Valley or be pumped to the upper Carmel Valley.

The eastern terminus of the new Monterey Pipeline would be connected to the new Transfer Pipeline[33] at the intersection of Del Monte Boulevard/La Salle Avenue. The Monterey Pipeline would be routed southwest on the west side of Del Monte Boulevard, generally following the Monterey Peninsula Recreational Trail and Transportation Agency right-of-way. The alignment would pass under Highway 1, and adjacent to the Naval Postgraduate School and El Estero Park. East of El Estero Park, the pipeline would turn south on Figueroa Street and west along Franklin Street. At High Street, the alignment would bear north and traverse the Presidio of Monterey by paralleling an existing CalAm pipeline in an existing CalAm easement. At the western boundary of the Presidio of Monterey, the alignment would continue on to Spencer Street. The alignment would then turn from Spencer Street southwest on Eardley Street and terminate near the existing Eardley Pump Station (see **Figure 2-39, CalAm Distribution System Pipeline: Western Terminus**).

2.11.3 Construction of CalAm Extraction / Distribution System

Construction of CalAm's Transfer Pipeline and Monterey Pipeline would use similar equipment and methods as those described in **Section 2.9.2** for the Product Water Conveyance Pipeline, and are omitted here for brevity. Pipeline installation would generally progress at a rate of 150 to 250 feet per day. The Transfer Pipeline construction is anticipated to take 6-months, and

[32] If the Monterey Peninsula Water Supply Project is approved and implemented, the Transfer pipeline would also be used to: convey desalinated product water from the Transfer Pipeline east to the Terminal Reservoir for storage; convey Aquifer Storage and Recovery product water west to the Monterey Pipeline; and convey water stored in the Terminal Reservoir west to the Monterey Pipeline.

[33] In the case of the proposed Monterey Peninsula Water Supply Project, the Monterey Pipeline would also connect with the Transmission Main at this location.

construction of the Monterey Pipeline is anticipated to take 12-months. Construction of the pipelines may be performed concurrently under one or separate contracts.

2.11.4 Operation of CalAm Extraction / Distribution System

Unlike the injection period for Aquifer Storage and Recovery supplies, which is limited to periods of high flow between December and May in the lower stretches of the Carmel River, GWR product water would be injected into the Seaside Groundwater Basin year-round. GWR product water would typically be pumped from the groundwater basin during summer months and periods of peak demand. Operation of the existing Aquifer Storage and Recovery wells and groundwater wells for extraction and delivery of GWR Project water from the Seaside Groundwater Basin would match the current CalAm operational practices.

It is assumed that the distribution system pump stations could operate continuously for up to 24 hours a day. Although pump stations would typically be operated remotely via SCADA, facility operators would conduct routine visits to the pump station sites to monitor operations, conduct general maintenance activities, and service the pumps.

General operations and maintenance activities associated with the new Transfer and Monterey pipelines would include annual inspections of the cathodic protection system and replacement of sacrificial anodes when necessary; inspection of valve vaults for leakage; testing, exercising and servicing of valves; vegetation maintenance along rights-of-way; and repairs of minor leaks in buried pipeline joints or segments.

2.12 PROPOSED PROJECT CONSTRUCTION SUMMARY

The Proposed Project construction activities would include site preparation, grading, and excavation; pavement demolition; concrete and paving; installation of prefabricated components (e.g., pretreatment and advanced treatment processes, storage tanks, etc.); construction of buildings to house electrical, pump motors, and chemicals; construction of pipelines; well drilling and development; installation of overhead and underground powerlines; and disposal of construction waste and debris. Construction equipment and materials associated with the various components of the Proposed Project would be staged and stored within the respective construction work areas. Construction equipment and materials associated with pipeline installation would be stored along the pipeline alignments and at nearby designated staging areas. Staging areas would not be sited in sensitive areas such as riparian areas or critical habitat for protected species. To the extent feasible, parking for construction equipment and worker vehicles would be accommodated within the construction work areas and on adjacent roadways.

Before construction mobilization for the source water diversion facilities, AWT Facility, pipeline installation, and the proposed injection wells, the contractors would clear and grade construction areas (including temporary staging areas), and remove vegetation and debris as necessary, to provide a relatively level surface for the movement of construction equipment. Workers would clear the construction work areas in stages as construction progresses to limit soil erosion. In addition to grading the ground surface, the contractor might need to mow or place gravel over staging areas for fire prevention. Upon completion of construction activities, the construction contractor would remove any added gravel, contour the construction work areas and staging areas to their original profile, and hydro-seed or repave the areas, as appropriate.

A preliminary construction schedule is provided in **Figure 2-40, Proposed Project Construction Schedule** to show the general timeframes, durations, and overlap of construction activities of the various components of the Proposed Project. As shown, the Proposed Project is anticipated to require approximately 18 months to construct, plus 3-months of testing and start-up, and is planned for initial operation by late 2017. MRWPCA is currently evaluating the use of alternative construction approaches, such as design-build, to expedite the construction schedule. **Table 2-20, Construction Area of Disturbance and Permanent Footprint** summarizes the construction areas of disturbance and permanent footprint for each of the Proposed Project construction sites. General construction activities, equipment, and hours are summarized in **Table 2-21, Proposed Project Construction Assumptions**. In the sections following the table, the construction activities at each site are described in more detail.

Table 2-20
Construction Area of Disturbance and Permanent Footprint

Project Component	Construction Boundary (feet)		Permanent Component Footprint (feet)			
	Length	Width	Length	Width	Maximum Height (above ground surface)	Maximum Depth (below ground surface)
Source Water Diversion and Storage Sites						
Salinas Pump Station Diversion (several discrete trenches and pits totaling 0.75 acres)	175	175	30	25	0	20
Salinas Treatment Facility Storage and Recovery						
Recovery Pump Station	50	50	30	15	10	10
Recovery Pipeline (Note 1)	500	20	7,700	<6	0	10
Pond 3 pump station and inlet structure	50	50	15	30	10	20
Pipeline from Pond 3	6,000	20	6,000	<6	0	10
Reclamation Ditch Diversion	120	50	80	20	10	20
Tembladero Slough Diversion	200	50	50	20	10	20
Blanco Drain Diversion						10 (trenched sections); 25 (trenchless sections and pits)
Diversion Pump Station	50	50	50	20	10	
Force Main and Gravity Pipeline (including pipelines located at the Regional Treatment Plant)	8,500	20	8,500	<6	0	
Lake El Estero Diversion	50	50	20	2	0	15
Treatment Facilities at Regional Treatment Plant						
AWT Facility	600	450	500 (triangular)	350	31	10
Brine Mixing Facility					16	31
Pipelines, AWT product water pump station					0	15
Salinas Valley Reclamation Plant modifications	700	400	600	300	25	10
Salinas Valley Reclamation Plant pipeline	900	20	900	<6	0	10
Product Water Conveyance Facilities						
Product Water Pipelines (Note 2)						10 (trenched sections); 25 (trenchless sections and pits)
RUWAP AWT to Booster Pump Station	*28,000*	*10 – 15*	*28,000*	*<6*	*0*	
RUWAP Booster Pump Station to Injection Wells	*18,900*	*10 – 15*	*18,900*	*<6*	*0*	
Coastal AWT Facility to Booster Pump Station	*29,100*	*10 – 15*	*29,100*	*<6*	*0*	
Coastal Booster Pump Station to Injection Wells	*15,100*	*10 - 15*	*15,100*	*<6*	*0*	
Booster Pump Station (one of two optional sites)	*100*	*60*	*80*	*60*	*25*	10

Table 2-20
Construction Area of Disturbance and Permanent Footprint

Project Component	Construction Boundary (feet)		Permanent Component Footprint (feet)			
	Length	Width	Length	Width	Maximum Height (above ground surface)	Maximum Depth (below ground surface)
Project Component	Construction Boundary (feet)		Permanent Component Footprint (feet)			
	Length	Width	Length	Width	Maximum Height (above ground surface)	Maximum Depth (below ground surface)
Injection Well Facilities						
Well cluster, including: one Deep Injection Well, one Vadose Zone Well, motor control building, transformer, and space for replacement wells (4)	100	100	85	90	15	1,050 (Deep) 600 (Vadose)
Back-flush basin	280	150	225	125	2-3 for pipe outlet only	10
Monitoring wells, including: up to six well clusters with two wells at each site (6)	100	100	3	3	0	900
Access Roads to Injection Wells, including: underground pipeline & electrical	4200	40	4200	20	0	10
Electrical conduit along Eucalyptus Rd.	1200	10	1200	3	0	6
Access roads to monitoring wells	1000	20	1000	10	0	2
CalAm Distribution System Improvements						
Transfer Pipeline	13,000	30–80	13,000	Note 3	0	15 (trenched sections); 25 (trenchless sections, pits)
Monterey Pipeline	28,700	30–80	28,700	Note 3	0	

Note 1: The existing 33-inch industrial wastewater conveyance pipeline would be slip-lined with the new 18-inch recovery pipeline. This would require the excavation of up to 12 sending/receiving pits measuring approximately 60-feet long by up to 20-feet wide.
Note 2: The Product Water Conveyance Pipeline between the Regional Treatment Plant and the General Jim Moore Boulevard /Lightfighter Rd intersection would be built within either the RUWAP or the Coastal Alignment, not both.
Note 3: Pipeline trenches would generally be no more than seven (7) feet wide, except in areas with sandy soils and lack of constraints to a wider trench. Constraints include known sensitive or protected resources, geography such as steep slopes, existing utilities, buildings, or other facilities that restrict the construction area. A trench section with a ground surface width of up to approximately 10 to 15 feet would be potentially used in some soil types to increase efficiencies related to shoring the trench.

Table 2-21
Proposed Project Construction Assumptions

Project Component	Excess Spoils/Debris to Off-Haul (cubic yards)	Construction Equipment (see Appendix E. Air Quality and Greenhouse Gas Technical Analysis for more details)	Construction Shifts and Work Hours (see Table 4.17-4 in Section 4.17, Traffic and Transportation, for assumed construction worker and truck trip information)
Source Water Diversion and Storage Sites			
Salinas Pump Station Diversion 1) wet well/diversion structures (up to 4) 2) pipelines totaling 100 linear feet 3) electrical/SCADA box	100	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers	Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday; some workers may have to be on-site at night to ensure continual operations of the wastewater conveyance facilities.
Salinas Treatment Facility Storage and Recovery Recovery Pump Station, flow meter and valves, electrical/SCADA cabinet, approximately 7,700 linear feet of pipeline from the site to Salinas Pump Station site, inlet pump station at Pond 3, approximately 6,000 linear feet of pipeline from Pond 3 to recovery pump station, approximately 50 linear feet of gravity pipeline from aeration basin to connect with pipeline from Pond 3 to recovery pump station	1,200	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, skip loader, pavers and rollers, directional drilling equipment	Two daytime shifts: Shift from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday
Reclamation Ditch Diversion 1) wet well/diversion structure 2) flow meter, valves and approximately 60 linear feet of pipelines 3) electrical/SCADA cabinet 4) concrete lining of channel banks and invert at intake	20	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers	One daytime shift from 7 AM -6 PM Monday through Saturday
Tembladero Slough Diversion 1) wet well/diversion structure 2) flow meter, valves and approximately 100 linear feet of pipelines 3) electrical/SCADA cabinet 4) concrete lining of channel banks and invert at intake	20	Same as above, plus crane and vibratory driver for cofferdam to work within the tidal portion of the Tembladero Slough	One daytime shift from 7 AM to 6 PM Monday through Saturday
Blanco Drain Diversion 1) wet well/diversion structure 2) flow meter, valves and on-site surge tank 3) electrical/SCADA cabinet 4) concrete lining of channel banks and invert at intake 5) approximately 8,500 linear feet of force main and gravity pipeline from the site to the Regional Treatment Plant	1,500	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers, directional drilling equipment	One daytime shift: from 7 AM to 6 PM Monday through Saturday).

Table 2-21
Proposed Project Construction Assumptions

Project Component	Excess Spoils/Debris to Off-Haul (cubic yards)	Construction Equipment (see Appendix E. Air Quality and Greenhouse Gas Technical Analysis for more details)	Construction Shifts and Work Hours (see Table 4.17-4 in Section 4.17, Traffic and Transportation, for assumed construction worker and truck trip information)
Lake El Estero Diversion pipeline, valves, flow meters, and new pumps in existing pump station at the northwest corner of lake and,	10	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers	Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday.
Treatment Facilities at the Regional Treatment Plant			
AWT Facility Inlet source water diversion structure and influent pump station to bring secondary effluent AWT Facility, prescreening, ozonation, upflow biologically active filtration (optional), chemical addition, membrane filtration treatment, booster pumping of the membrane filtration filtrate (potentially with intermediate storage), cartridge filtration (optional), chemical addition, reverse osmosis membrane treatment, advanced oxidation using ultraviolet light and hydrogen peroxide (advanced oxidation), decarbonation (optional), product-water stabilization with calcium, alkalinity and pH adjustment, product water pump station (AWT Pump Station), brine mixing facilities.	510	Excavators, backhoes, air compressors, loaders, boom trucks, cranes, pavers and rollers, concrete transport trucks, concrete pump trucks, flatbed trucks, generators, pickup trucks, trucks for materials delivery	Up to four (4) shifts with construction occurring 24-hours per day, 7 days per week
Salinas Valley Reclamation Plant Modifications New sluice gates, chlorination basin upgrades, a new platform in the 80AF pond and a pipeline connecting the existing inlet and outlet structures in the 80AF pond.	150	Flatbed trucks; backhoes; pipe cutting and welding equipment; trucks for materials delivery; compaction equipment; pickup trucks; arc welding machine; generators; air compressors; skip loader, specialty equipment for cutting and seaming the pond liner	One daytime shift from 7 AM to 6 PM Monday through Saturday). Pipeline installation would occur during the winter months when the 80 AF pond is dewatered.
Product Water Conveyance (Either RUWAP or Coastal would be built, but not both. The product water pump station at the AWT/Regional Treatment Plant is included above)			
RUWAP Pipeline Alignment		Flatbed trucks ; backhoes; excavators; pipe cutting and welding equipment; haul trucks for spoils transport; trucks for materials delivery; compaction equipment; baker tank(s); pickup trucks; arc welding machine; generators; air compressors; 80-ton crane; skip loader; pavers and rollers	**RUWAP Pipeline Alignment**
Regional Treatment Plant to Booster Pump Station	5,090		Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday
Booster Pump Station to Injection Well Facilities	3,580		
Coastal Pipeline Alignment			**Coastal Pipeline Alignment**
Regional Treatment Plant to Booster Pump Station	5,290		Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday
Booster Pump Station to Injection Well Facilities	2,890		

Table 2-21
Proposed Project Construction Assumptions

Project Component	Excess Spoils/Debris to Off-Haul (cubic yards)	Construction Equipment (see Appendix E. Air Quality and Greenhouse Gas Technical Analysis for more details)	Construction Shifts and Work Hours (see Table 4.17-4 in Section 4.17, Traffic and Transportation, for assumed construction worker and truck trip information)
Booster Pump Station (applies to either Coastal or RUWAP alignment option location)	180	Excavator, backhoe, air compressor, boom truck or small crane, generator, concrete pump truck, paving equipment, flatbed truck, pavers and rollers, welding equipment, baker tank	Two daytime shifts, Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday
Injection Well Facilities			
1) Deep Injection Wells (4) 2) Vadose Zone Wells (4) 3) Monitoring Wells (12)	600 320 320	Loader backhoe, bucket auger drill rig, reverse rotary rig, forklift (reverse rotary support), truck-mounted pump rig, generator, concrete delivery and pumper trucks	Up to four shifts because construction would occur for up to 24-hour/day, 7 days/week
Back-flush Water Pipeline and Basin	4,000	Tractor/loader/backhoe, excavators, dumper trucks, rubber tired dozers	
Roadways, pipelines and electrical conduit	3,500		
Proposed Project Total Excess Construction Spoils (without CalAm Distribution System Pipelines)	21,080	See above	Overall Construction Schedule: mid summer 2016 through Mar. 2018, including 3 months of testing/start-up
Cal-Am Distribution System Pipelines			
a) Monterey Pipeline b) Transfer Pipeline	a) 10,680 b) 3,330	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers	To the extent feasible, pipeline installation and associated construction activities would occur during daytime hours (with some nighttime construction at certain locations to expedite pipeline installation schedule)
CalAm Total Excess Spoils and Debris	Approx. 14,010		Monterey and Transfer Pipelines proposed construction Schedule July 2016 to December 2017 (18 months)
Combined Excess Spoils and Debris to Off-Haul	35,090 cubic yards		

2.13 PERMITS AND APPROVALS

This EIR is intended to inform decision-makers of the environmental consequences associated with implementation of the Proposed Project. In addition, the Proposed Project would be subject to various regulations and would require discretionary permits from federal, state, and local jurisdictions. **Table 2-22, List of Permits and Authorizations** lists the permits and authorizations that would likely be required to construct, operate, and maintain the Proposed Project.

Table 2-22
List of Permits and Authorizations

Agency /Entity	Permitting Regulation/Approval Requirement	Discussion
Federal Agencies		
U.S. Environmental Protection Agency (EPA)	Class V Underground Injection Control Program (Part C, Safe Drinking Water Act) Registration	The EPA Underground Injection Control program requires, at a minimum, that the disposed fluid will not endanger the groundwater and that the operator submit the proper inventory information to the permitting authority.
Monterey Bay National Marine Sanctuary (MBNMS)	Review and coordination of all Regional Water Quality Control Board (RWQCB) 404, Section 10, and National Pollutant Discharge Elimination System permits	Authorization by the Monterey Bay National Marine Sanctuary's superintendent is required for any permit, lease, license, approval, or other authorization issued or granted by a federal, state, or local agency for activities within the sanctuary. This authorization indicates that the Monterey Bay National Marine Sanctuary Advisory Council does not object to issuance of the permit or other authorization, including the terms and conditions deemed necessary to protect sanctuary resources and qualities.
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act (ESA) compliance Section 7 consultation	MRWPCA may be required to consult with the USFWS to determine whether the proposed action is likely to adversely affect a federally listed terrestrial or freshwater animal or plant species under USFWS jurisdiction, or the designated critical habitat for such species; jeopardize the continued existence of such species that are proposed for listing under ESA; or adversely modify proposed critical habitat. To make this determination, the project applicant prepares a Biological Assessment, the outcome of which determines whether the USFWS will conduct "formal consultation" and issue a Biological Opinion concerning the effects of the project. If the USFWS finds that the project may jeopardize the species or destroy or modify critical habitat, reasonable and prudent alternatives to the action must be considered.
	Fish and Wildlife Coordination Act (16 USC 661-667e; Act of March 10, 1934; ch. 55; 48 stat. 401)	Under Fish and Wildlife Coordination Act, a proposed water resource development project that receives federal funds or permits and that may impact to fish and wildlife is required to consult with National Oceanic and Atmospheric Administration (NOAA) Fisheries and USFWS.
National Oceanic and Atmospheric Administration (NMFS)	Endangered Species Act compliance Section 7 consultation	The need for a federal permit requires the project applicant to consult with NMFS to determine whether the proposed action is likely to adversely affect a federally listed marine species or designated critical habitat for such species, jeopardize the continued existence of such species that are proposed for listing under ESA, or adversely modify proposed critical habitat. To make this determination, the project applicant prepares a Biological Assessment, the outcome of which determines whether NMFS will conduct "formal consultation" with the agency and issue a Biological Opinion concerning the effects of the proposed action. If NMFS finds that the action may cause jeopardy or critical habitat destruction or modification, it will propose reasonable and prudent alternatives to the action. Alternatively, if no jeopardy is found, then the action can proceed.
Army Corps of Engineers (USACE)	Nationwide or Individual Section 404 Permit (Clean Water Act, 33 USC 1341)	Projects that would discharge dredged or fill material into waters of the United States, including wetlands, require a USACE permit under Clean Water Act Section 404.
	Section 10, Rivers and Harbors Act Permit (33 U.S.C. 403)	Any obstruction or alteration of any navigable water requires a Section 10 permit. This includes work that affects the course, location or condition of the water body.
Federal Aviation Administration (FAA)	Form SF 7460-1 Notice of Proposed Construction & Alteration for Airport Airspace Aeronautical	14 CFR Part 77.9 requires that a project proponent submit notification of proposed construction at least 45 days prior notification of construction or alteration within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.
State Agencies		
California Public Utilities Commission (CPUC)	Monterey Peninsula Water Supply Project (MPWSP) Certificate of Public Convenience and Necessity (Application No. 12-04-019)	The CPUC has the authority to issue a Water Purchase Agreement to CalAm for purchase of water produced by the GWR Project.
State Water Resources Control Board (SWRCB), Regional Water Quality Control Board (RWQCB)	National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (99-08-DWQ)	Any discharge of stormwater to surface waters of the United States from a construction project that encompasses one (1) acre or more of soil disturbance requires compliance with the General Permit: Development and implementation of a stormwater pollution prevention plan that specifies best management practices to prevent construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving offsite into receiving waters;

Table 2-22
List of Permits and Authorizations

Agency /Entity	Permitting Regulation/Approval Requirement	Discussion
		Elimination or reduction of non-stormwater discharges to storm sewer systems and other waters of the U.S. and inspection of all best management practices.
	Water rights permit for development of new surface water diversions (Water Code Section 1200 et seq) and wastewater point of discharge change application/approval (Water Code Section 1211 et seq)	A water right permit is an authorization to develop a water diversion and use project. , including for diversions proposed at the Reclamation Ditch, Tembladero Slough, Blanco Drain, and Lake El Estero. A wastewater point of discharge change application would also be needed for the diversions of agricultural wash water to the Regional Treatment Plant.
	Waste Discharge Requirements (Water Code 13000 et seq.)	Any activity that results or may result in a discharge of waste that directly or indirectly impacts the quality of waters of the state (including groundwater or surface water) or the beneficial uses of those waters is subject to waste discharge requirements.
	401 Water Quality Certification (Clean Water Act Section 401)	Under Section 401 of the Clean Water Act, the RWQCB must certify that actions receiving authorization under Section 404 of the Clean Water Act also meet state water quality standards. Any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into navigable waters, must provide the licensing or permitting agency a certification that the activity meets state water quality standards.
	National Pollutant Discharge Elimination System (NPDES) Permit (Clean Water Act Section 402)	Discharges of effluent into surface waters of the United States, including wetlands and MBNMS, requires NPDES permit approval. It is assumed that the MRWPCA Waste Discharge Requirements Order No. R3-2008-0008 NPDES Permit No. CA0048551 would be revised to include the Proposed Project reverse osmosis reject water (concentrate or brine).
State Water Resources Control Board – Division of Drinking Water	Permit to Operate a Public Water System (California Health and Safety Code Section 116525)	The State Board has permitting authority over the operation of a public water system and provides oversight with respect to the quality of the product water produced.
	Approval for Recharge of Purified recycled Water	Approval of Engineering Report (see Chapter 3 for discussion).
California State Lands Commission	Right-of-Way Permit (Land Use Lease) (Public Resource Code Section 1900); Lease amendment	Issuance of a grant of right-of-way across state lands allows the permittee to conduct work or construction on public lands.
California Department of Fish and Wildlife (CDFW)	Incidental Take Permits (California Endangered Species Act Title 14, Section 783.2 (potential)	The take of any endangered, threatened, or candidate species may be allowed by permit if it is incidental to an otherwise lawful activity and if the impacts of the authorized take are minimized and fully mitigated. No permit may be issued if the activity would jeopardize the continued existence of the species.
	Streambed Alteration Agreement (California Fish and Wildlife Code Section 1602) (potential)	In order to substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources, or to use any material from the streambeds, the CDFW must first be notified of the proposed activity.
California Coastal Commission (CCC)	Coastal Development Permit (Public Resources Code 30000 et seq.)	Development proposed within the Coastal Zone requires a Coastal Development Permit from the CCC, except where the local jurisdiction has an approved Local Coastal Program (LCP) in place. If an approved LCP is in place, primary responsibility for issuing permits in coastal areas shifts from the CCC to the local government, although the CCC will hear appeals on certain local government coastal development decisions. Regardless of whether a Coastal Development Permit must be obtained from a local agency in accordance with an approved Local Coastal Program, the CCC retains coastal development permit authority over new development proposed on the immediate shoreline, including intake and outfall structures on tidelands, submerged lands, and certain public trust lands, and over any development that constitutes a "major public works project." (Public Resources Code Sections 30601, 30600[b][2]).
California Department of Transportation (Caltrans)	Encroachment Permit (Streets and Highway Code Section 660)	Caltrans has permitting authority over encroachments in, under, or over any portion of a state highway right-of-way.
California State Historic Preservation Officer (SHPO)	National Historic Preservation Act (NHPA) Section 106 Consultation (16 USC 470)	The NHPA requires federal permitting agencies to consider the effects of proposed federal undertakings on historic properties. Federal agencies are required to initiate consultation with the SHPO and give the Advisory Council on Historic Preservation a reasonable opportunity to comment as part of the Section 106 review process.
California State University	Right of Way Agreements and/or Easements	A right-of-way agreement with the State of California for access across state lands around

Table 2-22
List of Permits and Authorizations

Agency /Entity	Permitting Regulation/Approval Requirement	Discussion
Monterey Bay (CSUMB)		CSUMB.
Regional/Local Agencies		
Cities of Seaside and Marina, Sand City, Monterey, Salinas	Use Permits, encroachment/easement permits, grading permits and erosion control permits may be required pursuant to local city/county codes.	The Cities of Seaside, Marina, Sand City, Monterey, and Salinas may require discretionary permits for encroachment, tree removal or trimming, building permits, grading or variances. Note: City of Marina does not allow trenchless construction under an encroachment permit; the project must comply with Marina Municipal Code section 12.20.100. Excavations greater than 10 cubic yards within an Ordinance Remediation District, in the Former Fort Ord areas, require a permit in compliance with Chapter 15.34, Digging and Excavation, on the Former Fort Ord Ordinance ("Seaside's Ordinance"). Permit approval is subject to requirements placed on the property by an agreement executed between the city, the city's ~~redevelopment~~ successor agency, Fort Ord Reuse Authority, and California Department of Toxic Substances Control. In the event that the project proponents do not pursue a consolidated permit as discussed in the above line item of this table related to the Coastal Commission's permitting authority, local agency approvals of one or more Coastal Development Permits may be required for one or project components in areas that are: (1) in the Coastal Zone, and (2) governed by Coastal Commission-approved Local Coastal Programs/Land Use Plans. The potential components/areas that may require local approval are: (1) the Tembladero Slough diversion and a short segment of the Coastal alignment option of the Product water Conveyance pipeline in the Monterey County North Land Use Plan area, (2) the Coastal alignment option of the Product Water Conveyance pipeline in the City of Marina, and (3) the Monterey Pipeline component of the CalAm Distribution System in Monterey, Sand City, and Seaside. Agreements would be required with the County of Monterey for surface water diversions from the Reclamation Ditch, Tembladero Slough, and Blanco Drain, with the City of Salinas for diversion of agricultural wash water and urban runoff, and with the City of Monterey for diversion of Lake El Estero water. See Appendix C rev and Section 4.18 of the Draft EIR for more information.
Fort Ord Reuse Authority	Coordination with Fort Ord Reuse Authority for right of entry	In order to access specific sites during construction and operations, MRWPCA will be required to coordinate with Fort Ord Reuse Authority.
Marina Coast Water District	Ownership/easements of RUWAP pipeline and its alignment and recycled water rights per Third Amendment to the 1992 Agreement between Monterey County Water Resources Agency, MRWPCA, and Marina Coast Water District	Possible lease agreement for use of RUWAP pipeline or easement and possible agreement to utilize a portion of secondary effluent for which Marina Coast Water District has rights
Monterey Bay Unified Air Pollution Control District	Authority To Construct (Local district rules, per Health and Safety Code 42300 et seq.) and Permit To Operate (local district rules)	An authorization to construct permit is required for projects that propose to build, erect, alter, or replace any article, machine, equipment, or other contrivance that may emit air contaminants from a stationary source or may be used to eliminate, reduce, or control air contaminant emissions. Applicable to gas-powered generators.
Monterey County Health Department, Environmental Health Division	Well Construction Permit (Monterey County Code, Title 15 Chapter 15.08, Water Wells)	Construction of new water supply / monitoring wells requires written permit approval from Monterey County's health officer, whose decisions may be appealed to the Board of Supervisors.
	Hazardous Materials Business Response Plan (Health and Safety Code Chapter 6.95)	Hazardous Materials Management Services is designated as the local Certified Unified Program Agency in Monterey County and is responsible for inspecting facilities in the county to verify proper storage, handling and disposal of hazardous materials and hazardous wastes. A Materials Business Response Plan is required during specific types of construction.
	Hazardous Materials Inventory (Health and Safety Code Chapter 6.95)	A Hazardous Materials Inventory and Certification form will have to be submitted to the Monterey County Environmental Health Division.
	Review/approval of Injection Well Operations/Discharges	MRWPCA may need to submit an application to the Monterey County Environmental Health Department for review of Waste Discharge Requirements and/or Injection Well Facilities operations.
	Variance from Monterey County Noise Ordinance (MCC 10.60.030)	The Proposed Project may require a noise ordinance permit if operation or equipment noise levels exceed 85dBA at 50 feet.

Table 2-22
List of Permits and Authorizations

Agency /Entity	Permitting Regulation/Approval Requirement	Discussion
Monterey County Public Works Department	Encroachment Permit (Monterey County Code (MCC) Title 14 Chapter 14.040)	Designated activities within the right-of-way of a county highway require encroachment permit approval by the director of the Public Works Department.
Monterey County Resource Management Agency	Use Permit (MCC Chapter 21.74 Title 21) may be required pursuant to County codes.	A Use Permit is either issued by the zoning department of the Planning Commission, depending on the specific zoning and intended use; this permit may be needed for the Product Water Conveyance Pipeline (both options) between the Regional Treatment Plant and the City of Marina.
	Coastal Development Permit. (Public Resources Code 30000 et seq.)	A Coastal Development Permit is a document required by the California Coastal Act to permit construction of certain uses in a designated Coastal Zone. Any project in the Coastal Zone, which requires discretionary approval, may require a Coastal Permit.
	Grading Permit (Grading and Erosion Control Ordinance, Monterey County Code 16.08 – 16.12)	Grading, subject to certain exceptions, may require a permit from the Monterey County Planning and Building Inspection Department..
	Erosion Control Permit (Grading and Erosion Control Ordinance, Monterey County Code 16.08 – 16.12)	An Erosion Control Permit from the Director of Building Inspection may be required for any project development and construction activities (such as site cleaning, grading, and soil removal or placement) that is causing or is likely to cause accelerated erosion.
Monterey County Water Resource Agency	Ownership of flood control waterways and SWRCB water rights application for diversions from surface water bodies	Coordination/agreements for Proposed Project components within Monterey County Water Resources Agency-controlled waterways, including agreements to assign/transfer water rights to allow diversion, and involving the Castroville Seawater Intrusion Project and Salinas Valley Reclamation Project.
Monterey Peninsula Water Management District	Water System Expansion Permit (Monterey Peninsula Water Management District Board of Directors Ordinance 96)	A permit is required for any project activity that would expand the water delivery system within the Monterey Peninsula Water Management District jurisdiction.
	Water purchase agreement	The Proposed Project will require a water purchase agreement that describes the arrangement between MRWPCA, Monterey Peninsula Water Management District, and CalAm for the purchase of GWR product water or the rights to pump it from the Seaside Groundwater Basin.
Monterey Regional Waste Management District	Electric Power Purchase Agreement	A power purchase agreement between Monterey Peninsula Water Management District and MRWPCA and PG&E for a specific amount of time and cost.
Seaside Basin Watermaster	Permit for Injection/Extraction/Storage	Injection/extraction/storage activities that would affect the Seaside Groundwater Basin require approval of the Seaside Groundwater Basin Watermaster.
Transportation Agency of Monterey County	Easement/ encroachment permit	An encroachment permit may be necessary to conduct investigations and to install a conveyance pipeline across this agency's property.
Monterey Peninsula Airport District//Airport Land Use Commission	Consistency determination	Lake El Estero Diversion site is within Monterey Airport Influence Area; construction may require a Consistency Determination by the Airport Land Use Commission
Private Entities		
Landowners	Land lease/sale; easements and encroachment agreements	Construction that may occur on private lands may require lease agreements and easements for access.
California American Water Company (CalAm)	Water purchase agreement	The Proposed Project will require a water purchase agreement that describes the arrangement between MRWPCA, Monterey Peninsula Water Management District, and CalAm for the purchase of GWR product water or the rights to pump it from the Seaside Groundwater Basin.
Pacific Gas and Electric	Electric Power Will-Serve Letter/Purchase Agreement	New construction and/or commercial additions will need an "ability to serve" letter stating that Pacific Gas and Electric can serve power from existing (or if necessary, upgraded) infrastructure.

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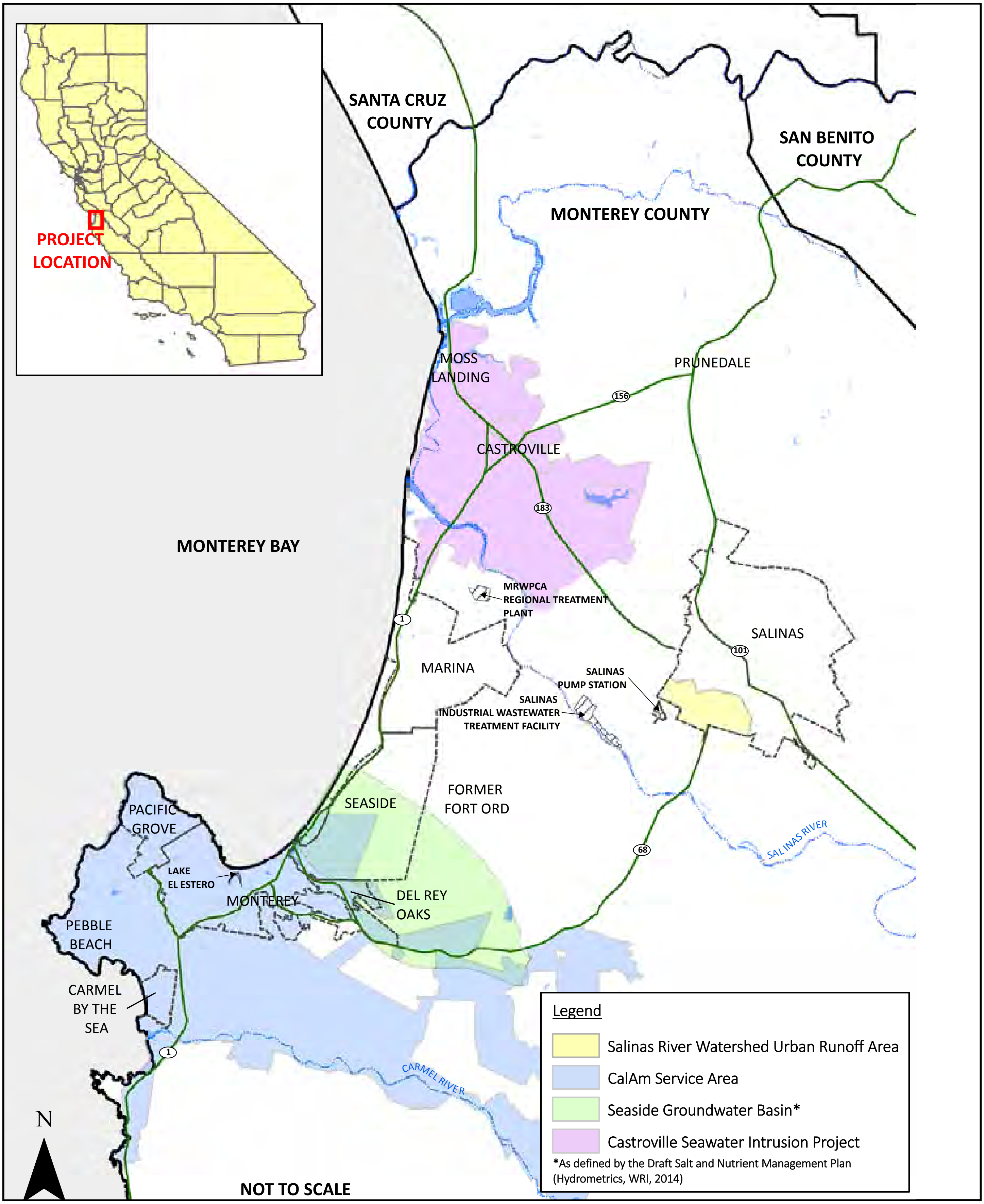


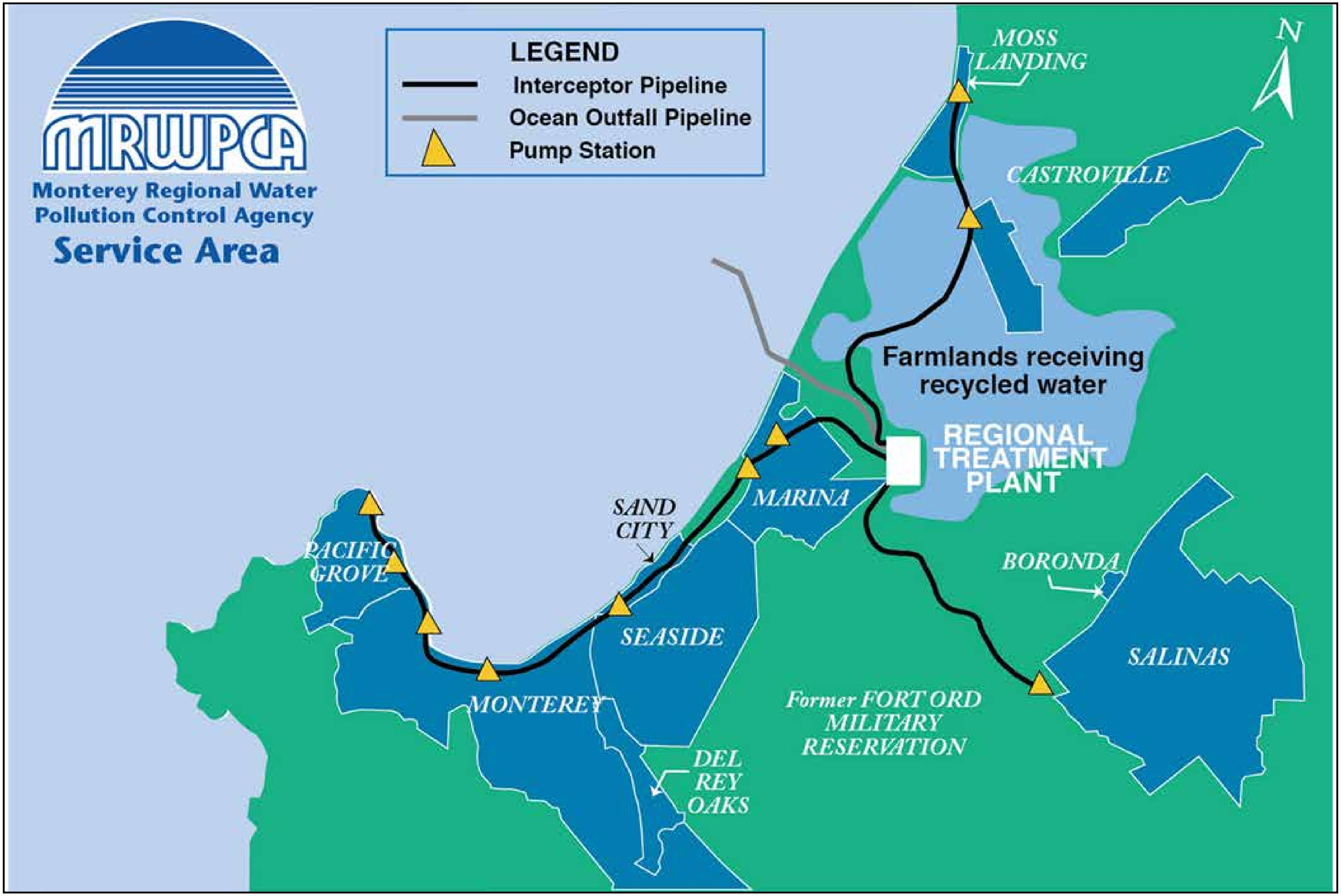
DD&A

Project Location Map

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-1

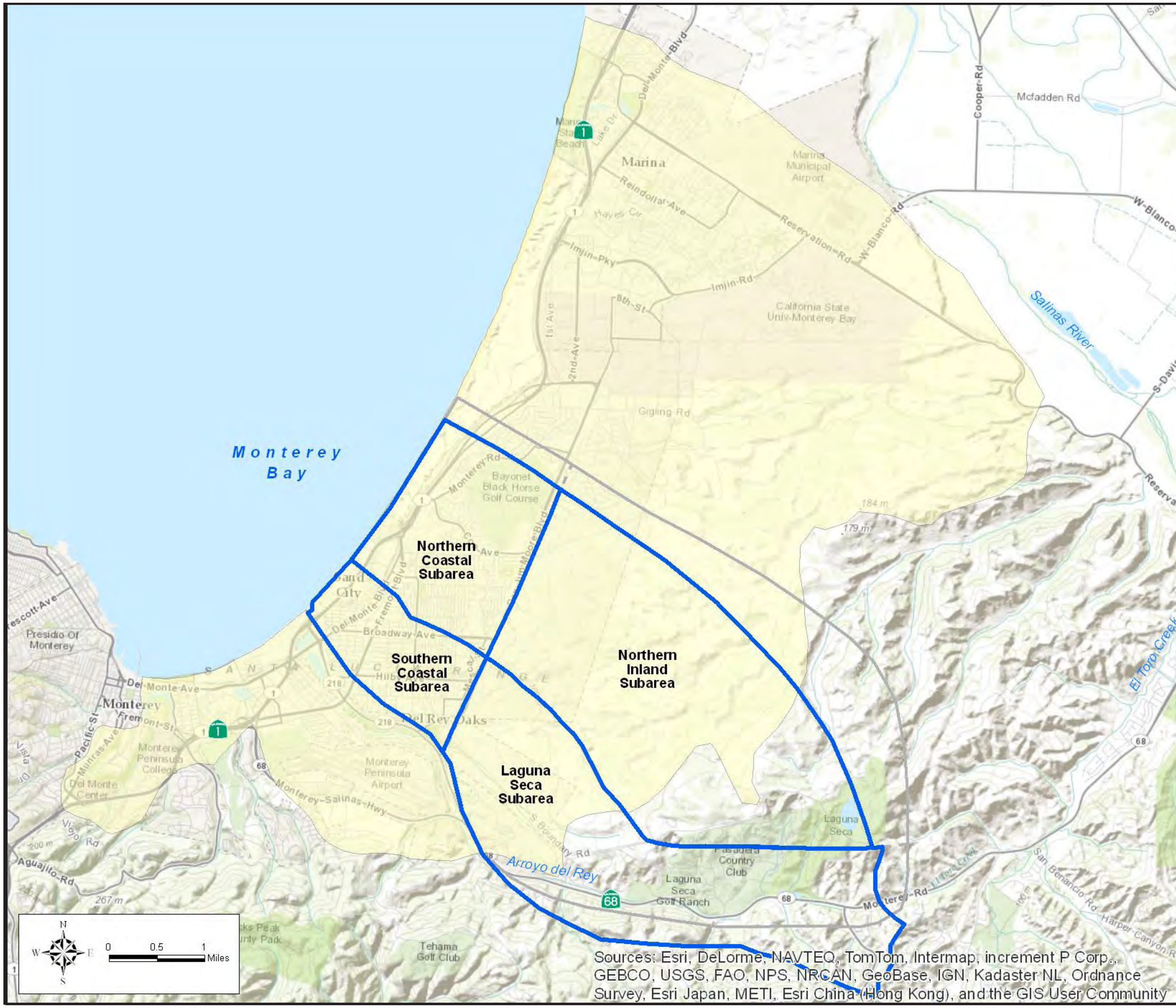


MRWPCA Service Area Map

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 2-2



~~Adjudicated~~ Seaside Groundwater Basin ~~Boundary~~

- Adjudicated Basin Boundary
- Subarea Boundary
- Seaside Area Subbasin of Salinas Valley Goundwater Basin (DWR Bulletin 118)
- Seaside Basin Boundary per Monterey Peninsula IRWMP

DD&A

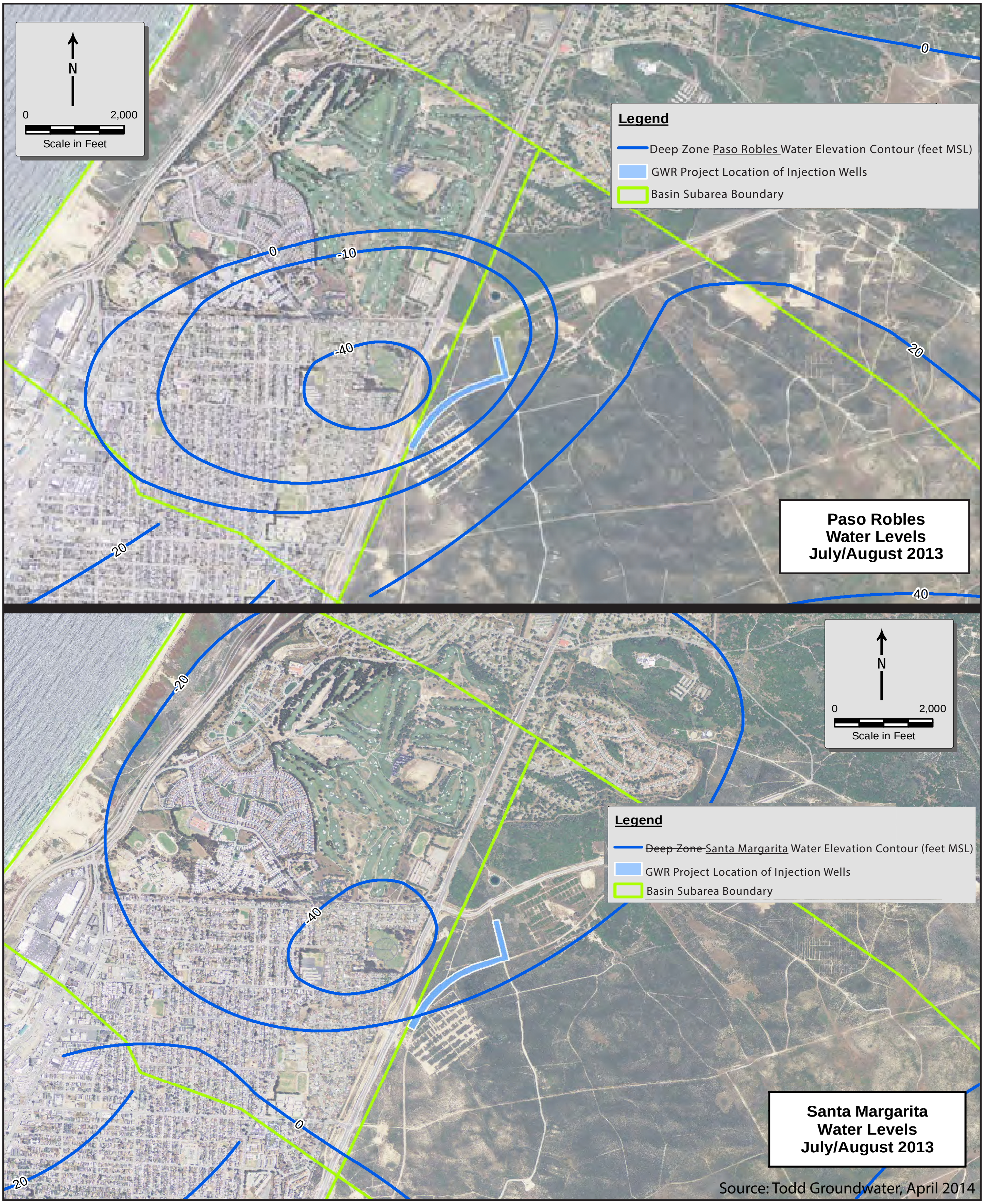
Seaside Groundwater Basin Boundaries

This figure has been revised in response to comment N-6.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure 2-3 rev



Seaside Groundwater Basin Groundwater Levels

This figure has been revised in response to comment N-7.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure 2-4 rev

Source: Schaaf & Wheeler Consulting Civil Engineers, 2014

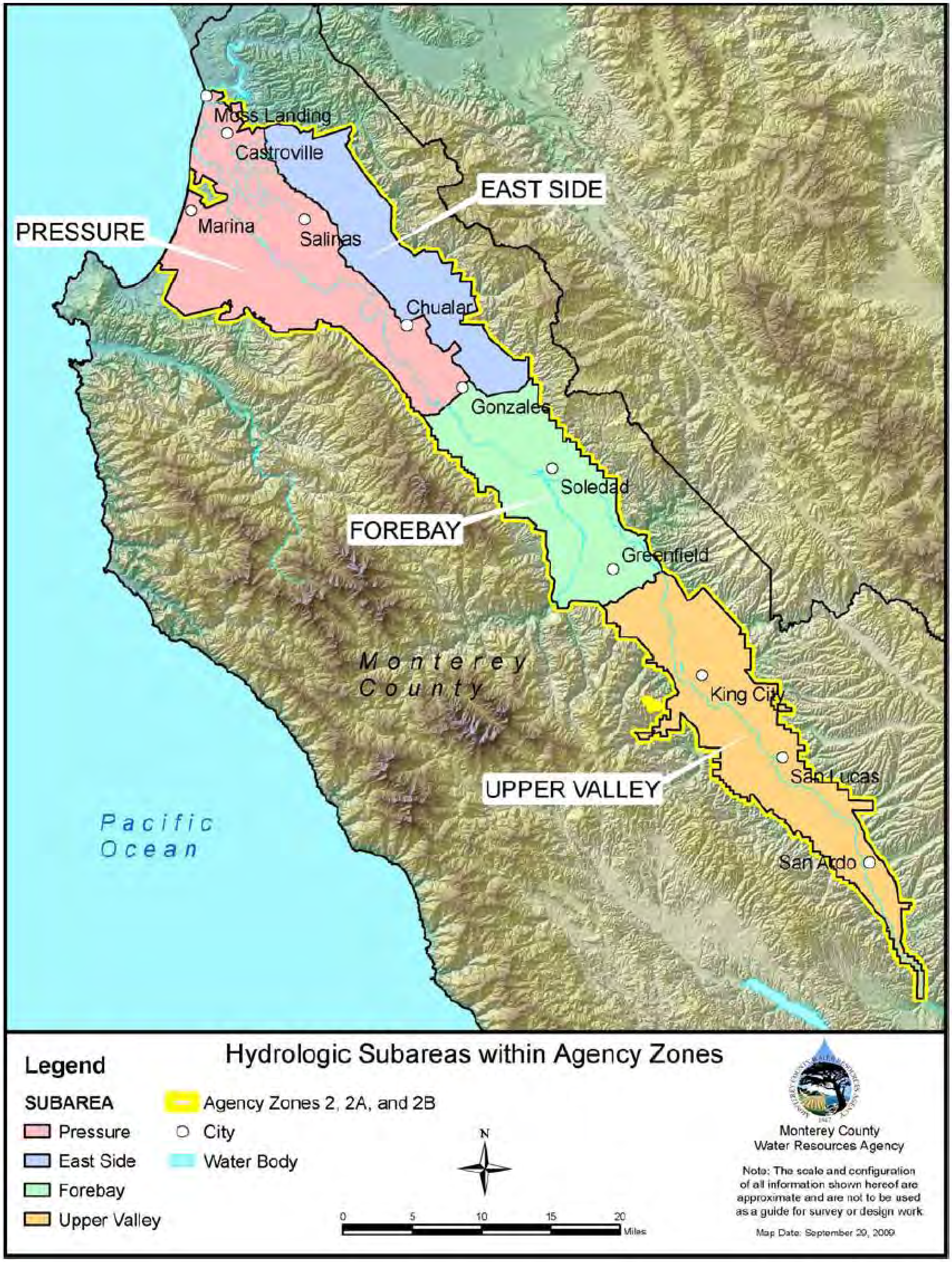
DD&A

Salinas River Basin

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-5



Source: Schaaf & Wheeler Consulting Civil Engineers, 2014

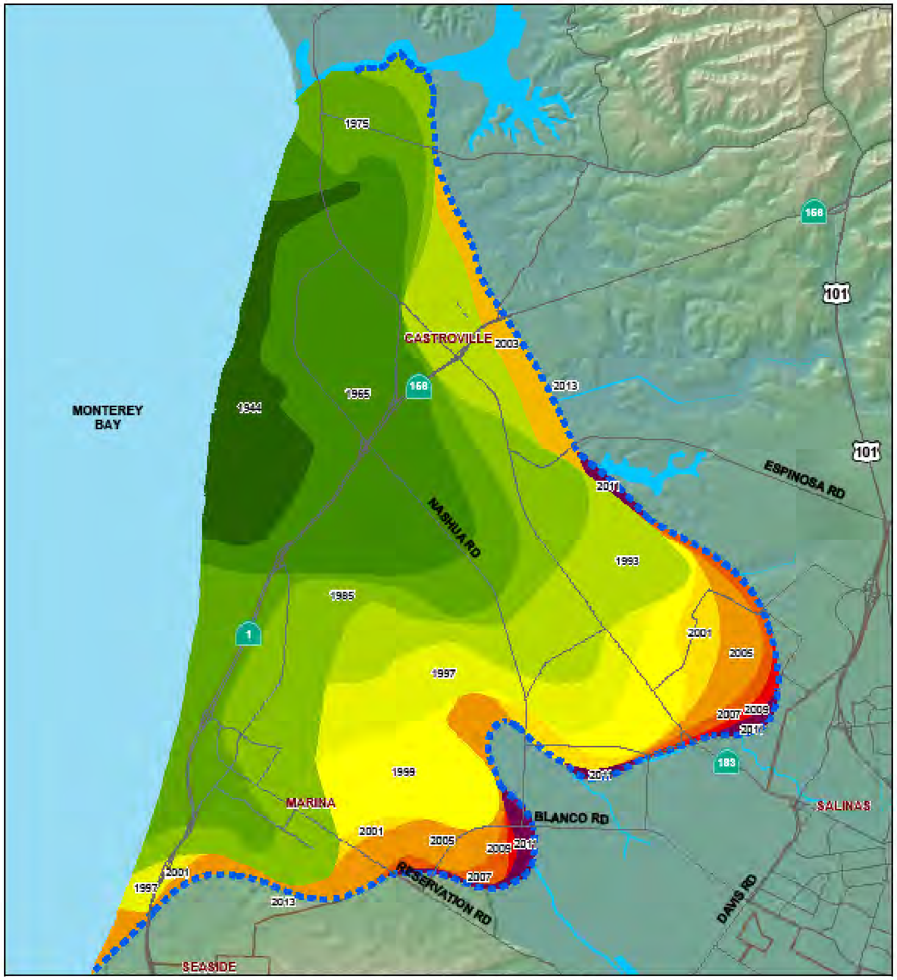
DD&A

Salinas Valley Groundwater Basin

April 2015

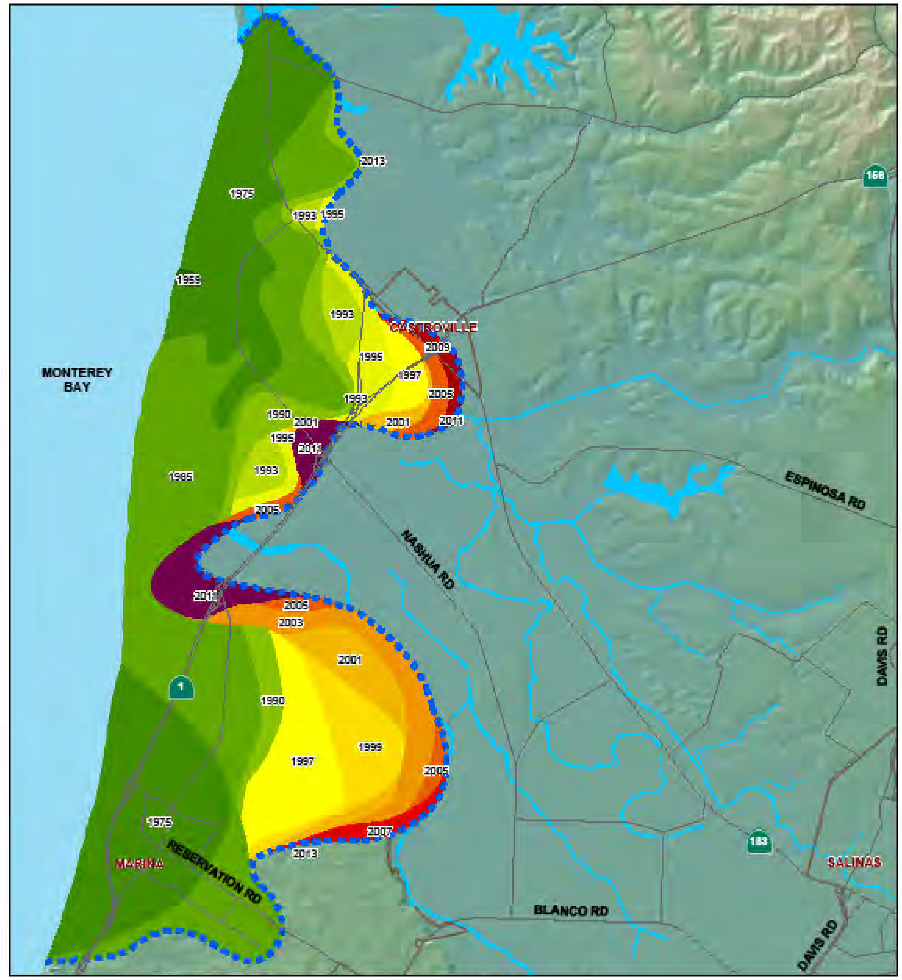
Pure Water Monterey GWR Project
Draft EIR

Figure
2-6



Historic Seawater Intrusion Map

Pressure 180 Foot Aquifer - 500 mg/L Chloride Areas



Historic Seawater Intrusion Map

Pressure 400 Foot Aquifer - 500 mg/L Chloride Area

Legend

Seawater Intrusion Levels by Year

Cities	1993	2005
1944	1997	2007
1965	1999	2009
1975	2001	2011
1985	2003	2013

0 0.5 1 1.5 2 Miles

Map Date: December 16, 2014

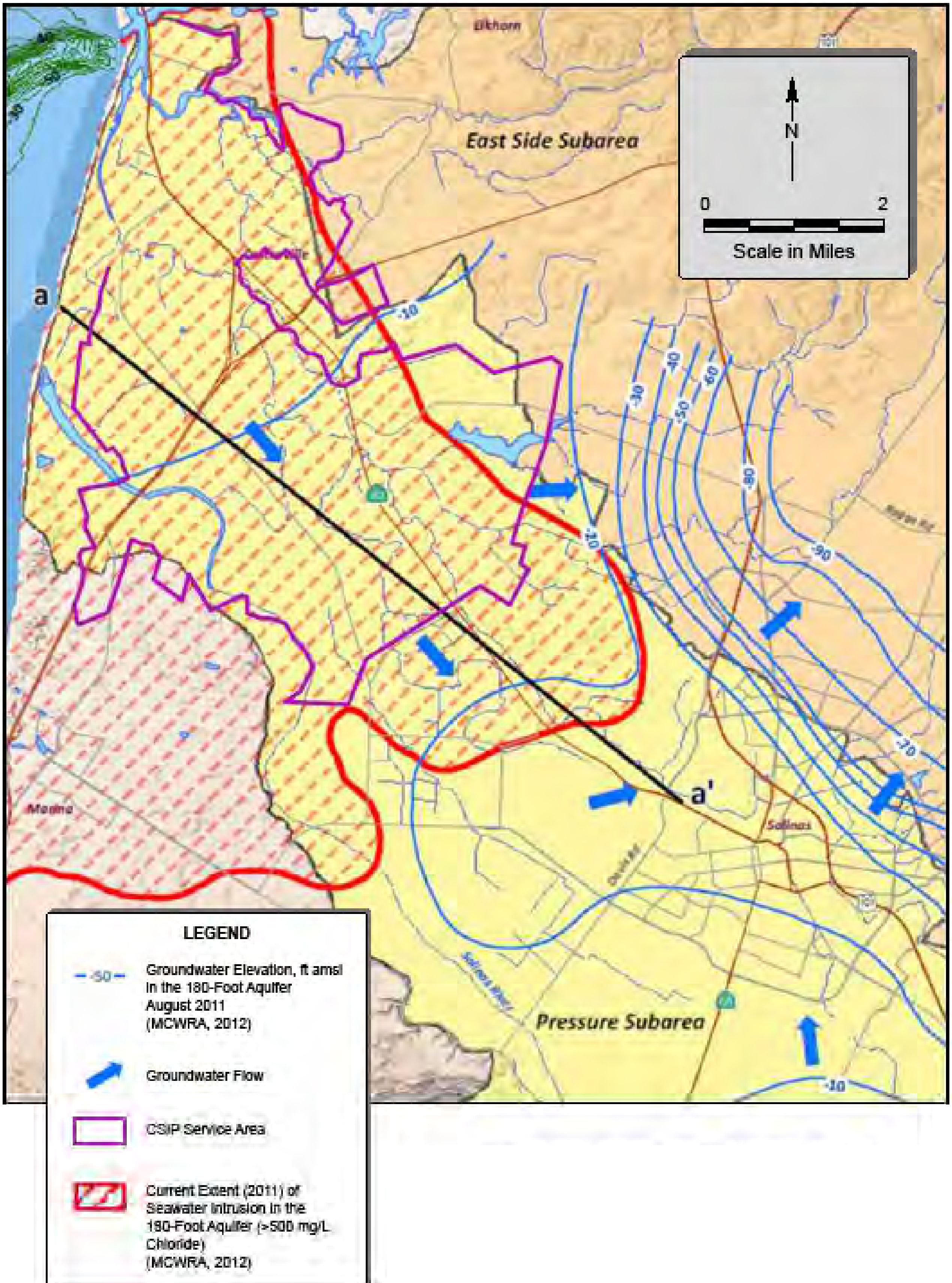
Salinas Valley Groundwater Basin Seawater Intrusion

This figure has been revised in response to comment H-40.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure
2-7 rev



Source: Geoscience Support Services, 2013

DD&A

Salinas Valley Groundwater Levels and Flow Directions

This figure was added in response to comment H-39.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure
2-7a new

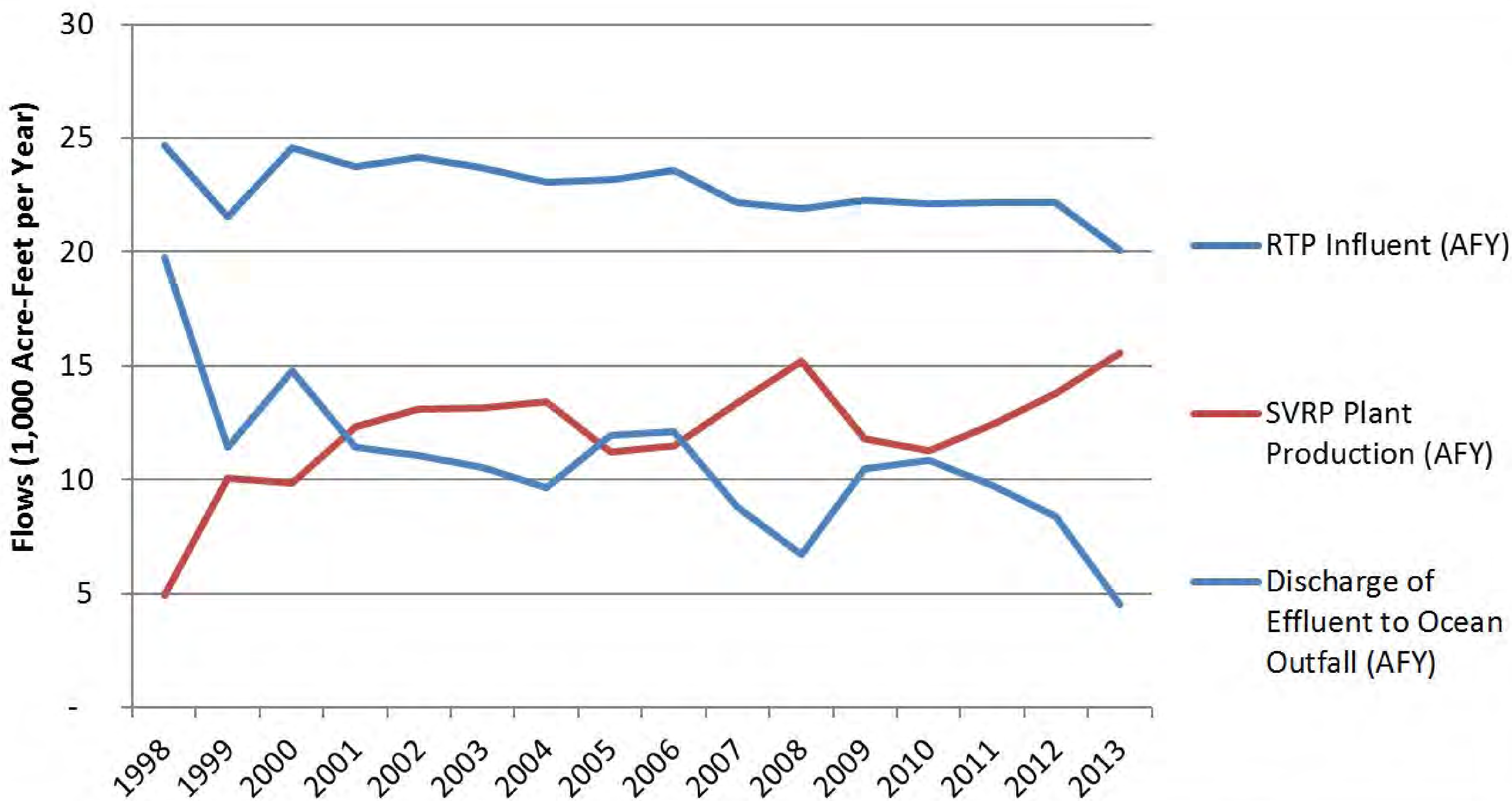
DD&A

Existing Regional Treatment Plant Facilities Map

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-8

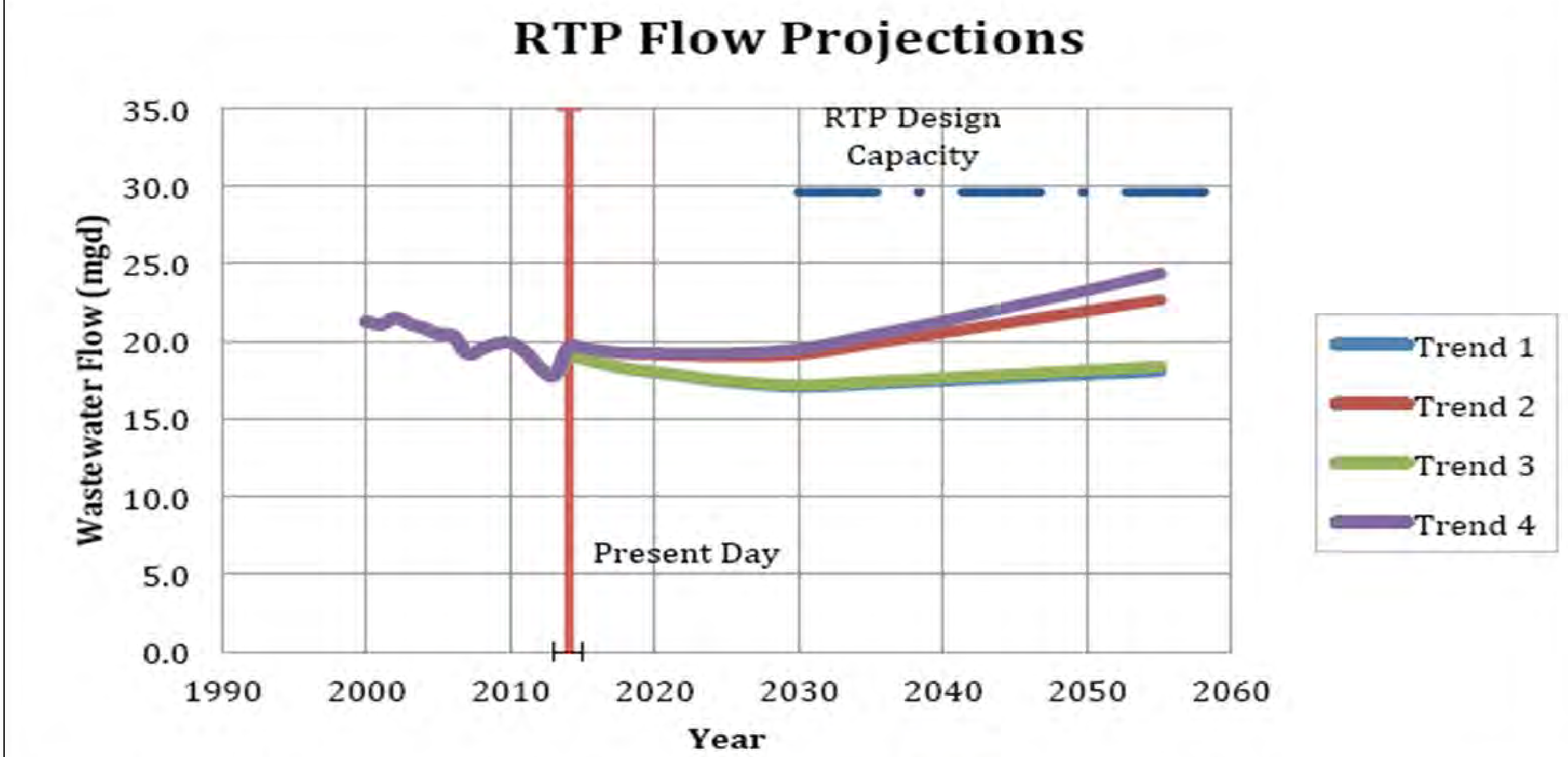


Historic Regional Treatment Plant Flows

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-9



Source: MRWPCA 40-Year Flow Projections Report, Brezack & Associates, 2014

Legend	Description
Trend 1	A linear curve is fitted to data from year 2000 to 2012
Trend 2	A linear curve is fitted to data from year 2006 to 2012
Trend 3	An exponential curve is fitted to data from year 2000 to 2012
Trend 4	An exponential curve is fitted to data from year 2006 to 2012

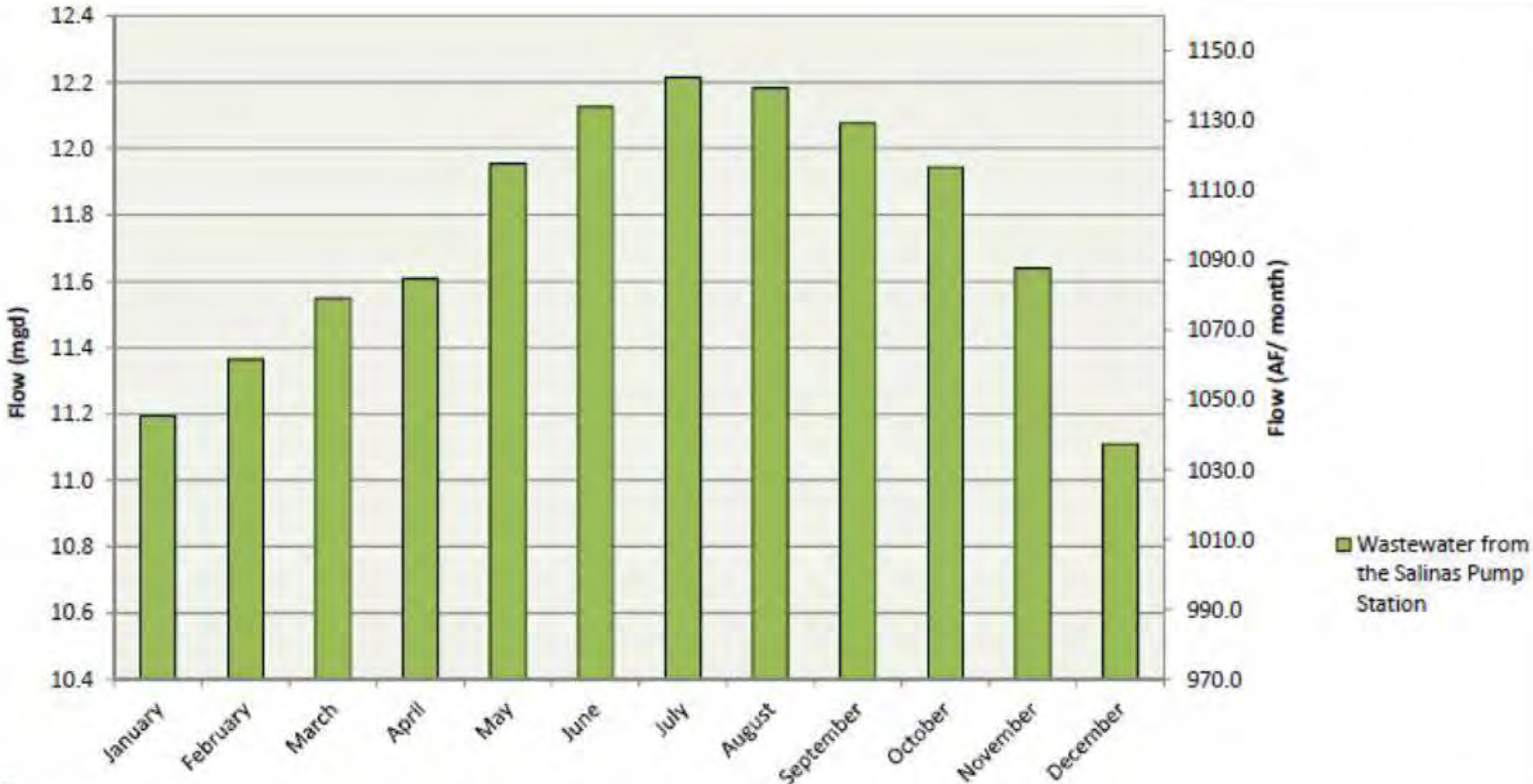
DD&A

Projected Regional Treatment Plant Flows

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-10



Notes:
1. Scale expanded to show differences in monthly flow rates.

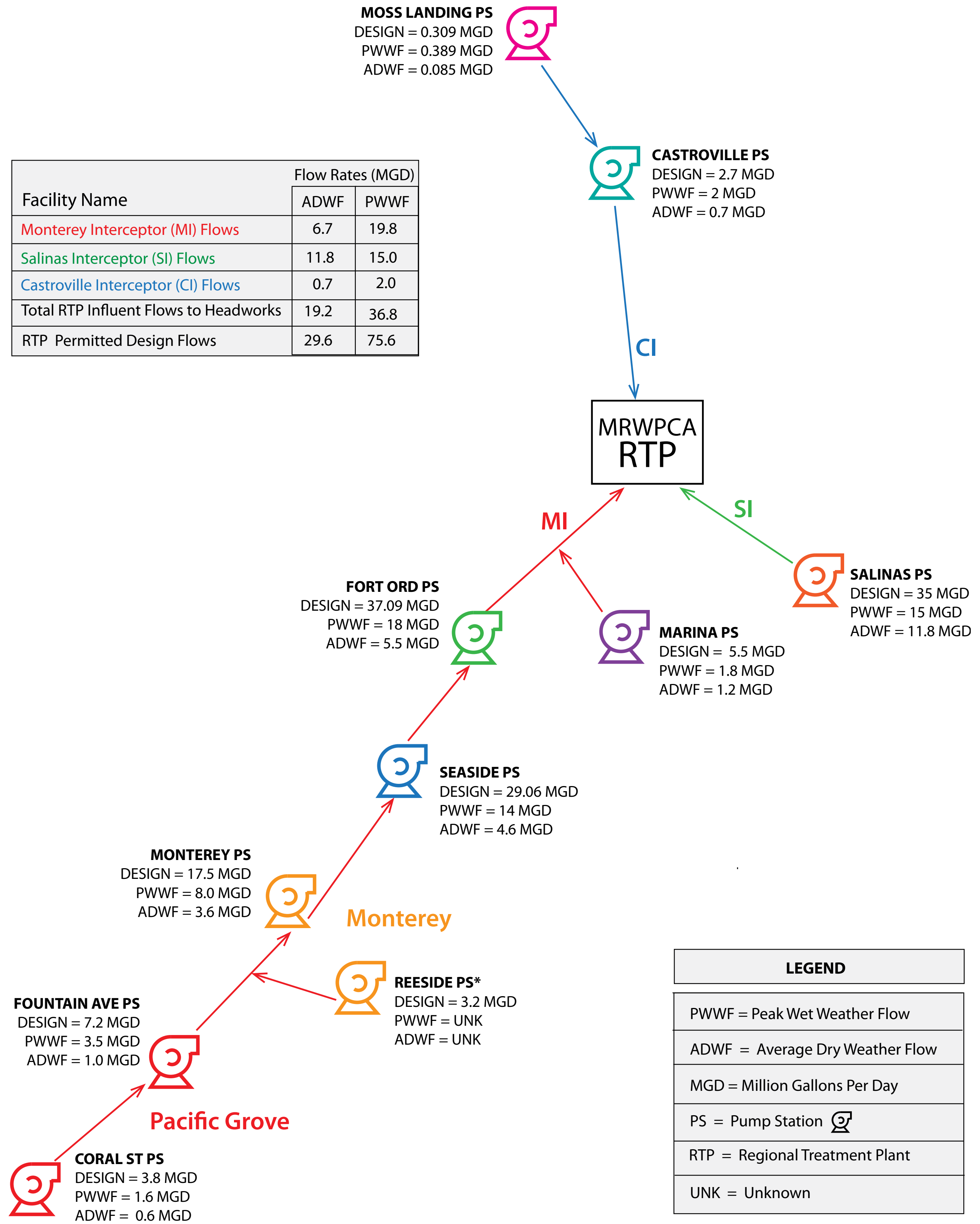
Salinas Pump Station Monthly Average Discharge

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-11

Facility Name	Flow Rates (MGD) ADWF	PWWF
Monterey Interceptor (MI) Flows	6.7	19.8
Salinas Interceptor (SI) Flows	11.8	15.0
Castroville Interceptor (CI) Flows	0.7	2.0
Total RTP Influent Flows to Headworks	19.2	36.8
RTP Permitted Design Flows	29.6	75.6



LEGEND

PWWF = Peak Wet Weather Flow
ADWF = Average Dry Weather Flow
MGD = Million Gallons Per Day
PS = Pump Station
RTP = Regional Treatment Plant
UNK = Unknown

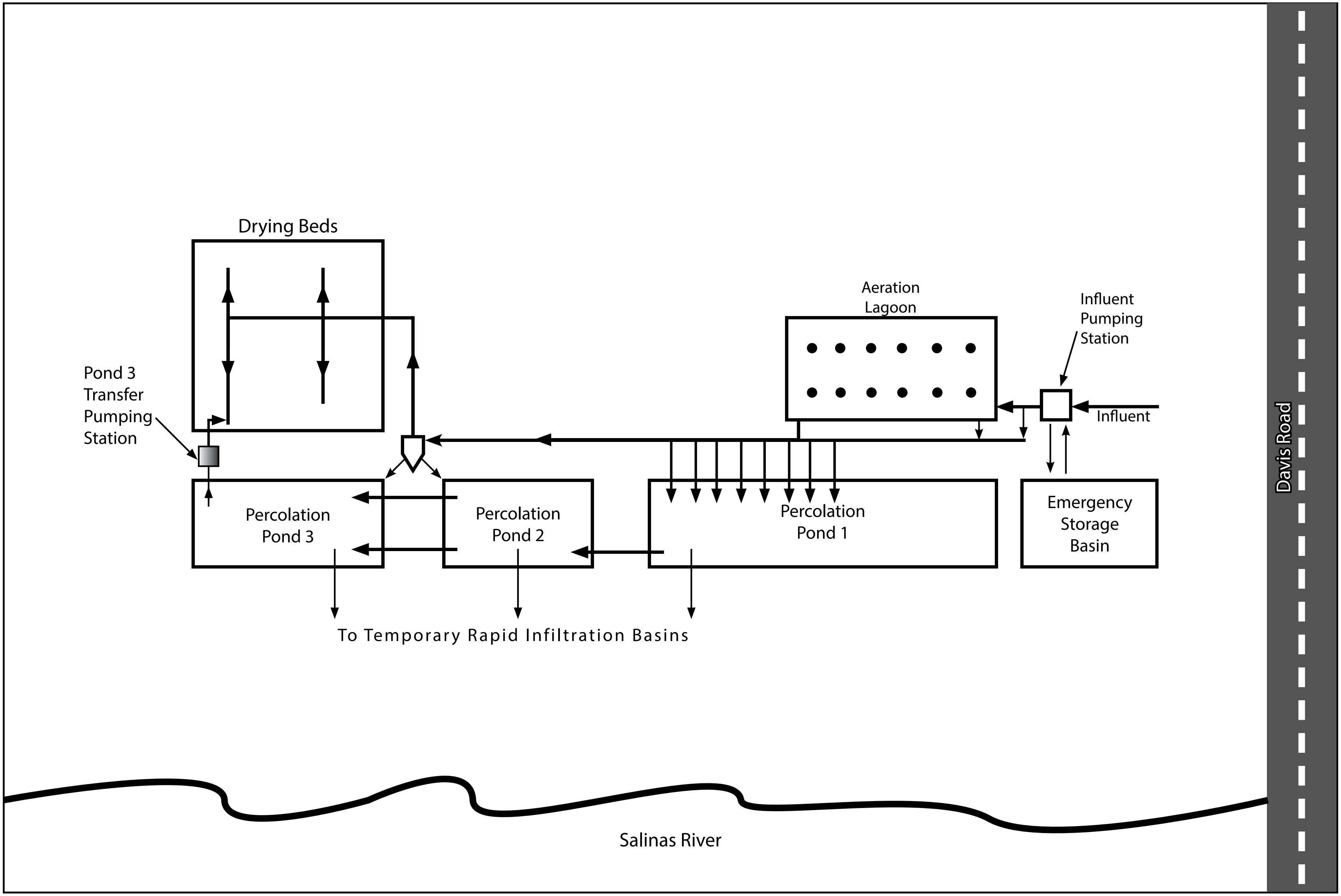
Source: Brezack & Associates, September 2013

DD&A

MRWPCA Wastewater Collection System Network Diagram and Pump Station Flows
April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-12

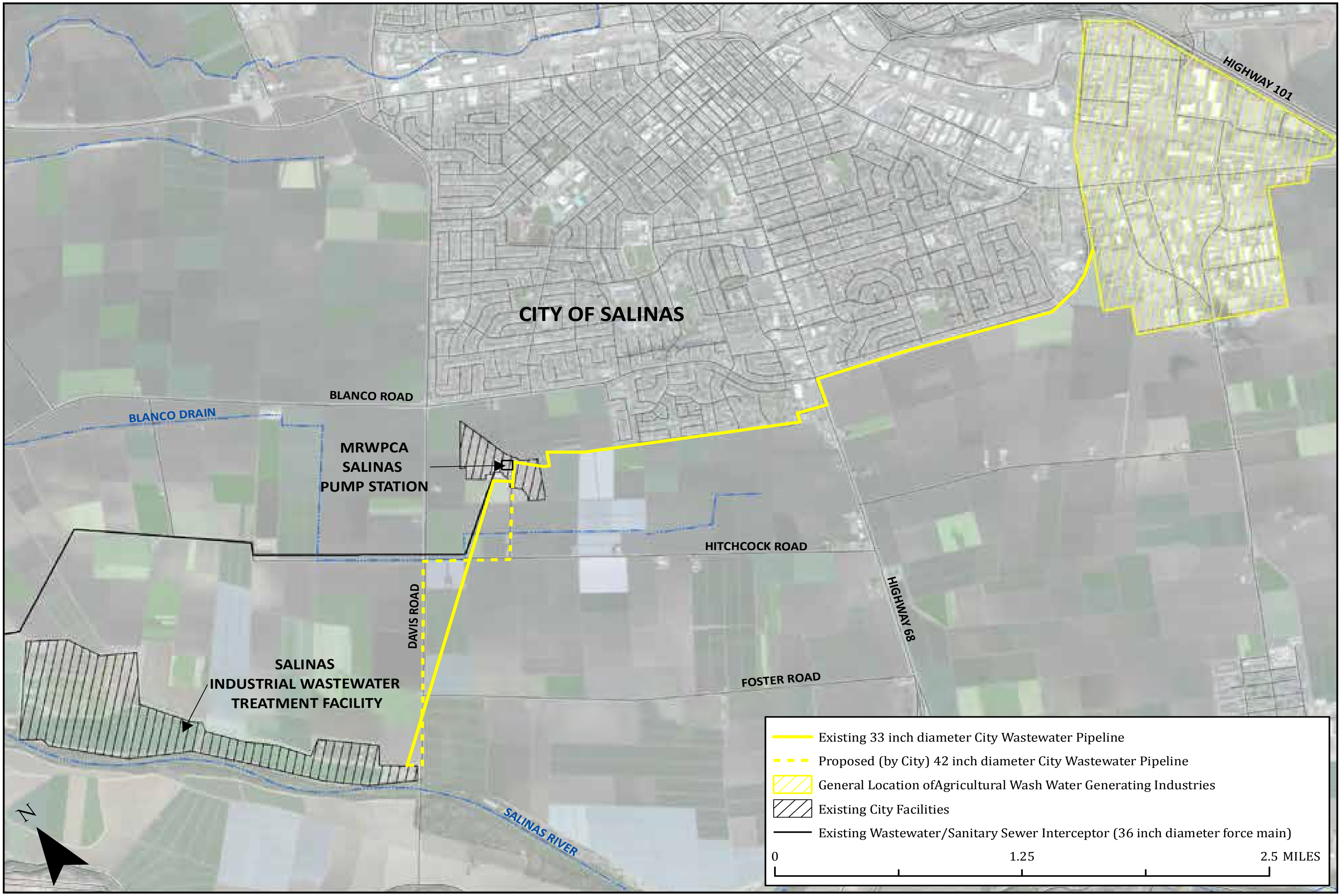


Salinas Industrial Wastewater Treatment Facility Process Flow Schematic

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 2-13



DD&A

Salinas Industrial Wastewater System Location Map

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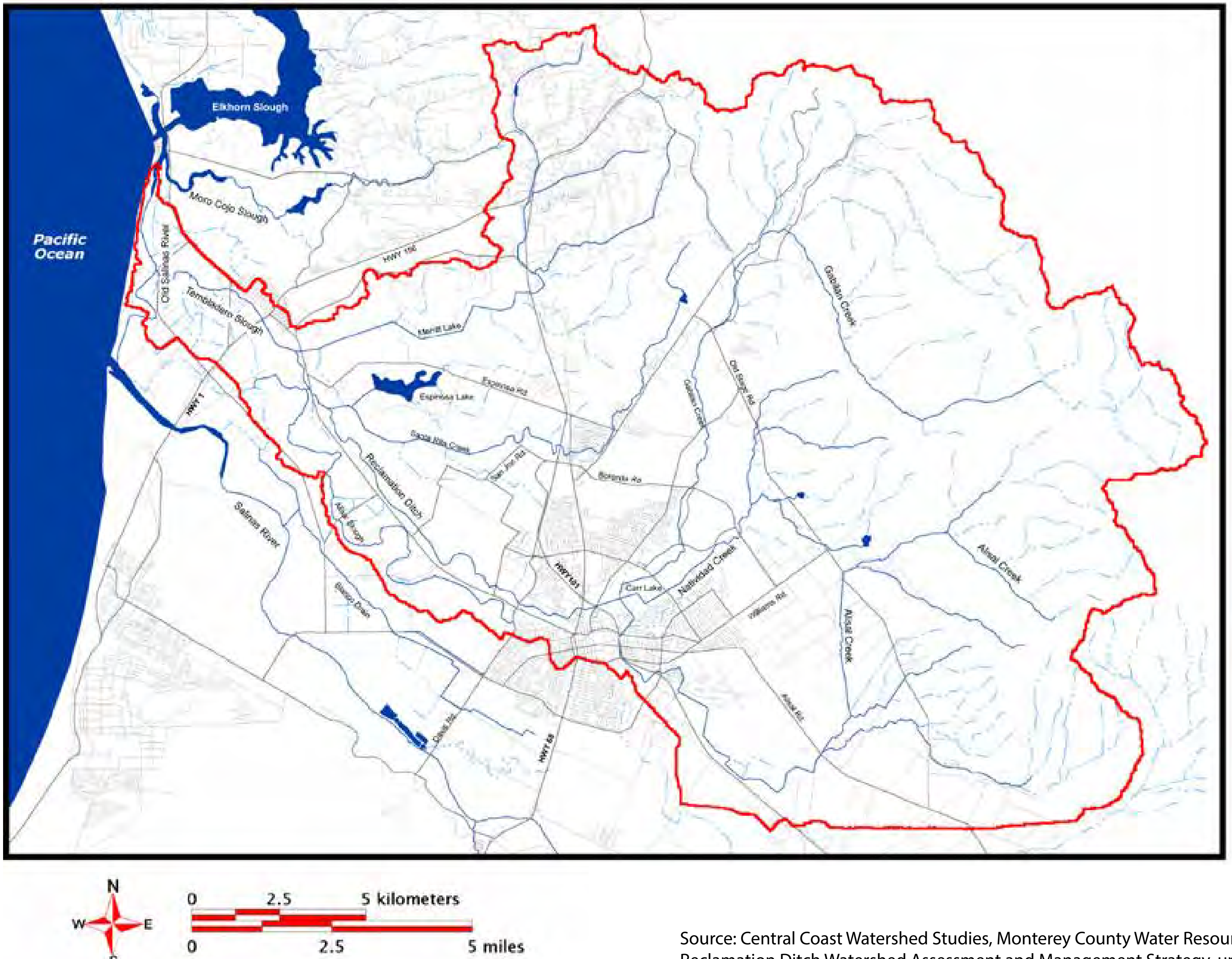
Pure Water Monterey GWR Project
Draft EIR

Figure
2-14



Source: Central Coast Watershed Studies, Monterey County Water Resources Agency - Reclamation Ditch Watershed Assessment and Management Strategy, undated

Reclamation Ditch Watershed Boundary

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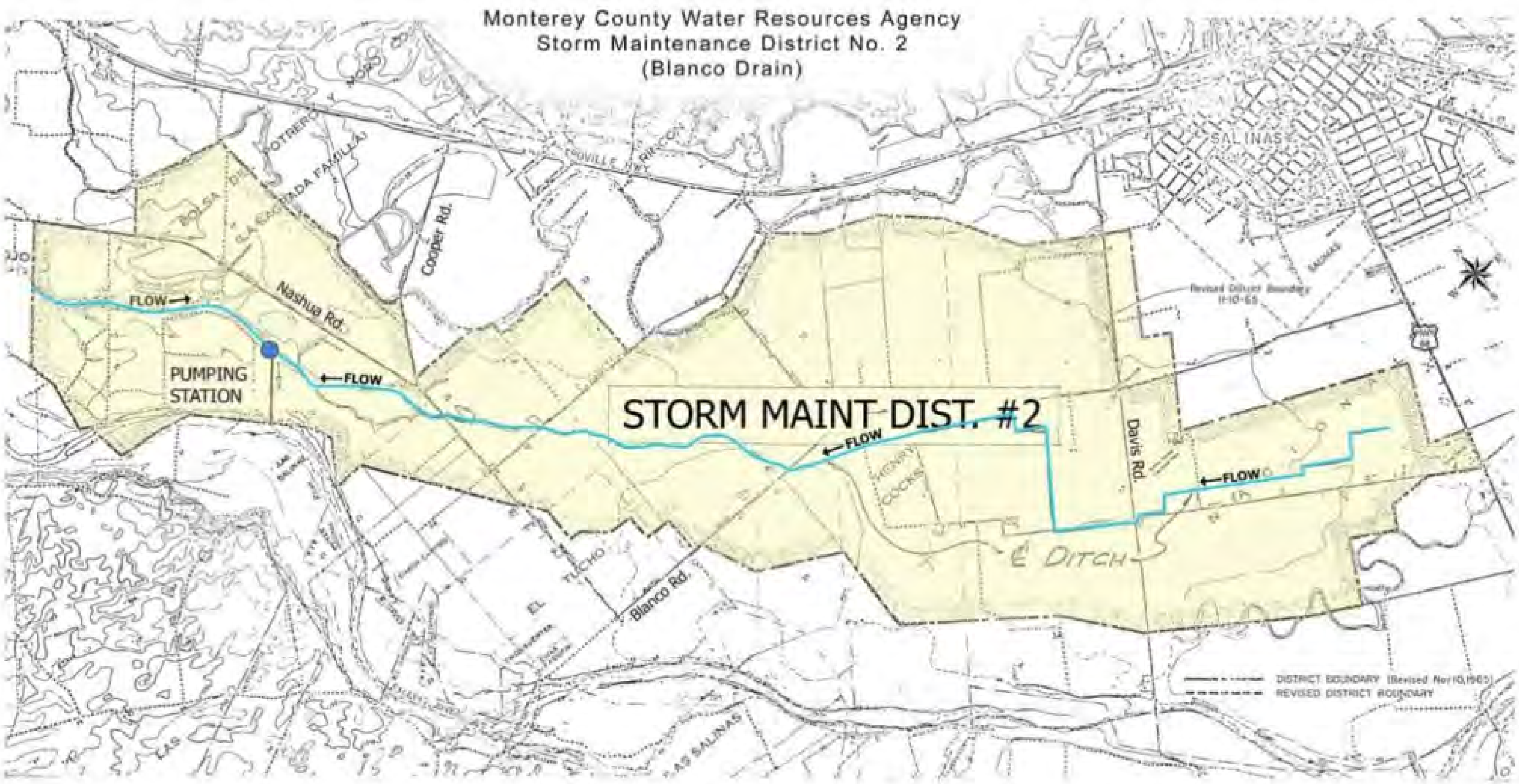
Pure Water Monterey GWR Project
Draft EIR

Figure
2-15



The pump station shown has been replaced with a new one that is shown on Figure 2-25a.

Source: Schaaf & Wheeler Consulting Civil Engineers, 2014

DD&A

Blanco Drain Storm Drain Maintenance District

This figure has been revised in response to comment M-8.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure
2-16 rev

Aquifer Storage and Recovery Project Location Map

April 2015

Pure Water Monterey GWR Project
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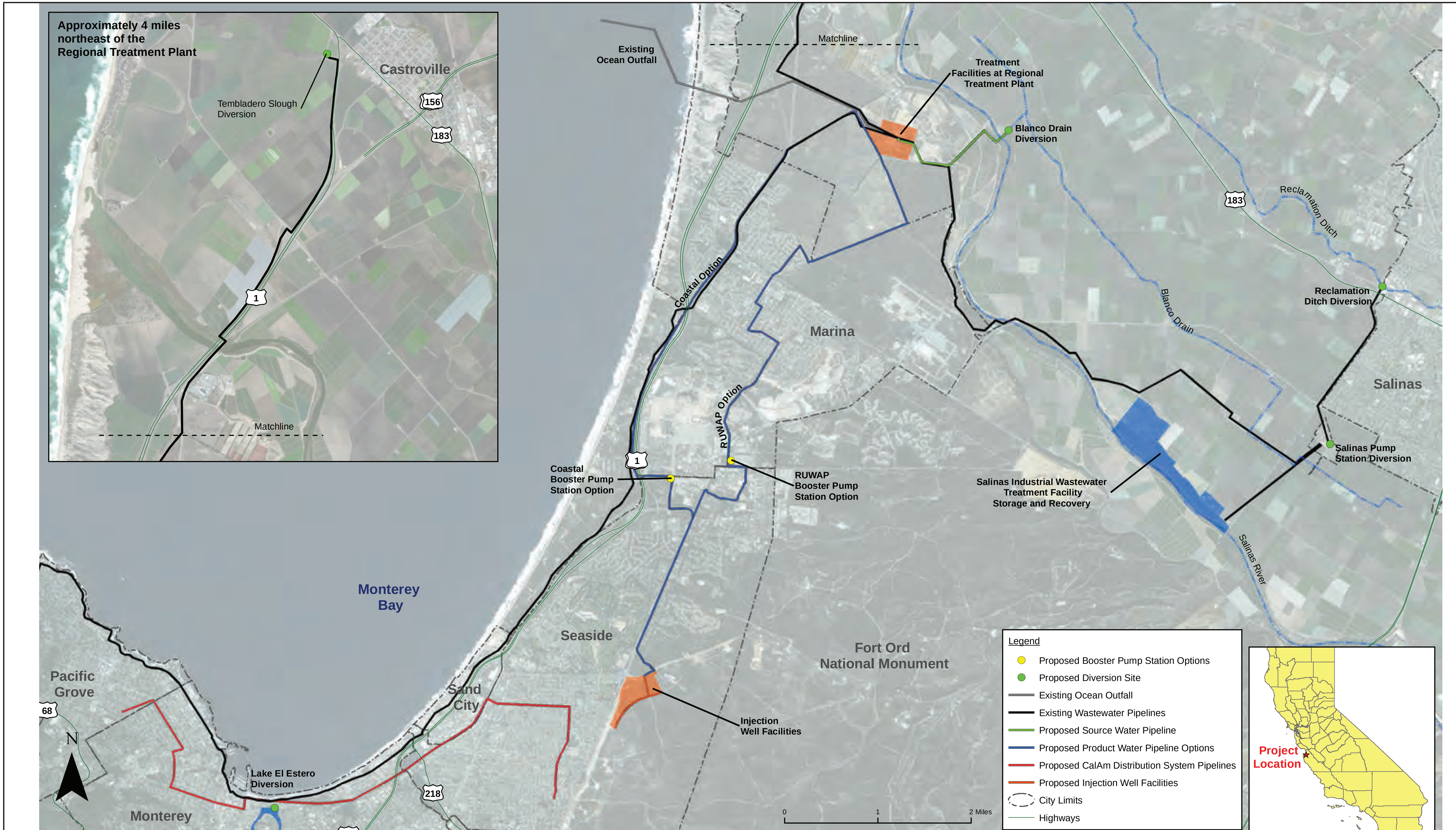
Figure
2-17



DD&A

Proposed GWR Project Facilities Overview

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 2-18

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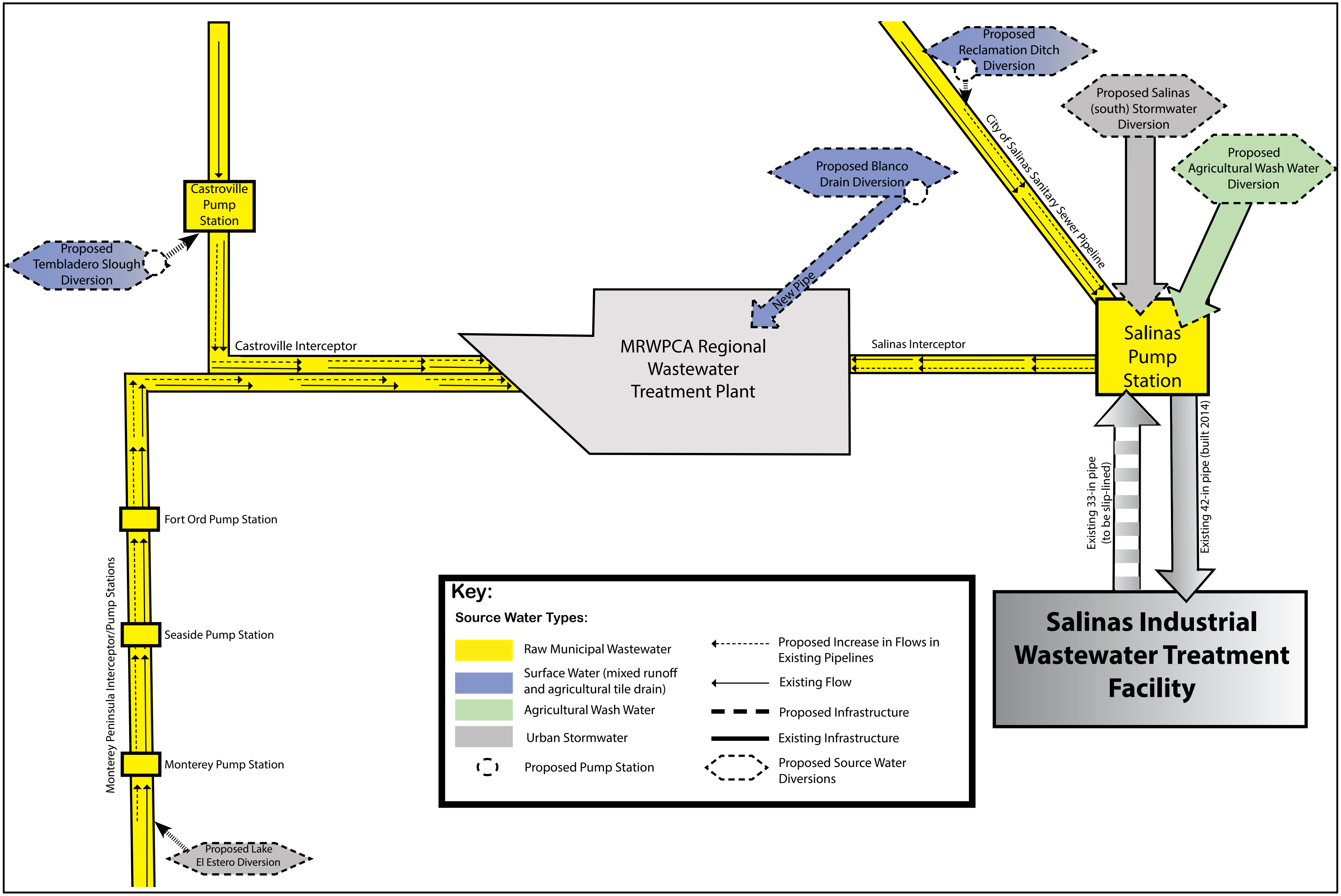
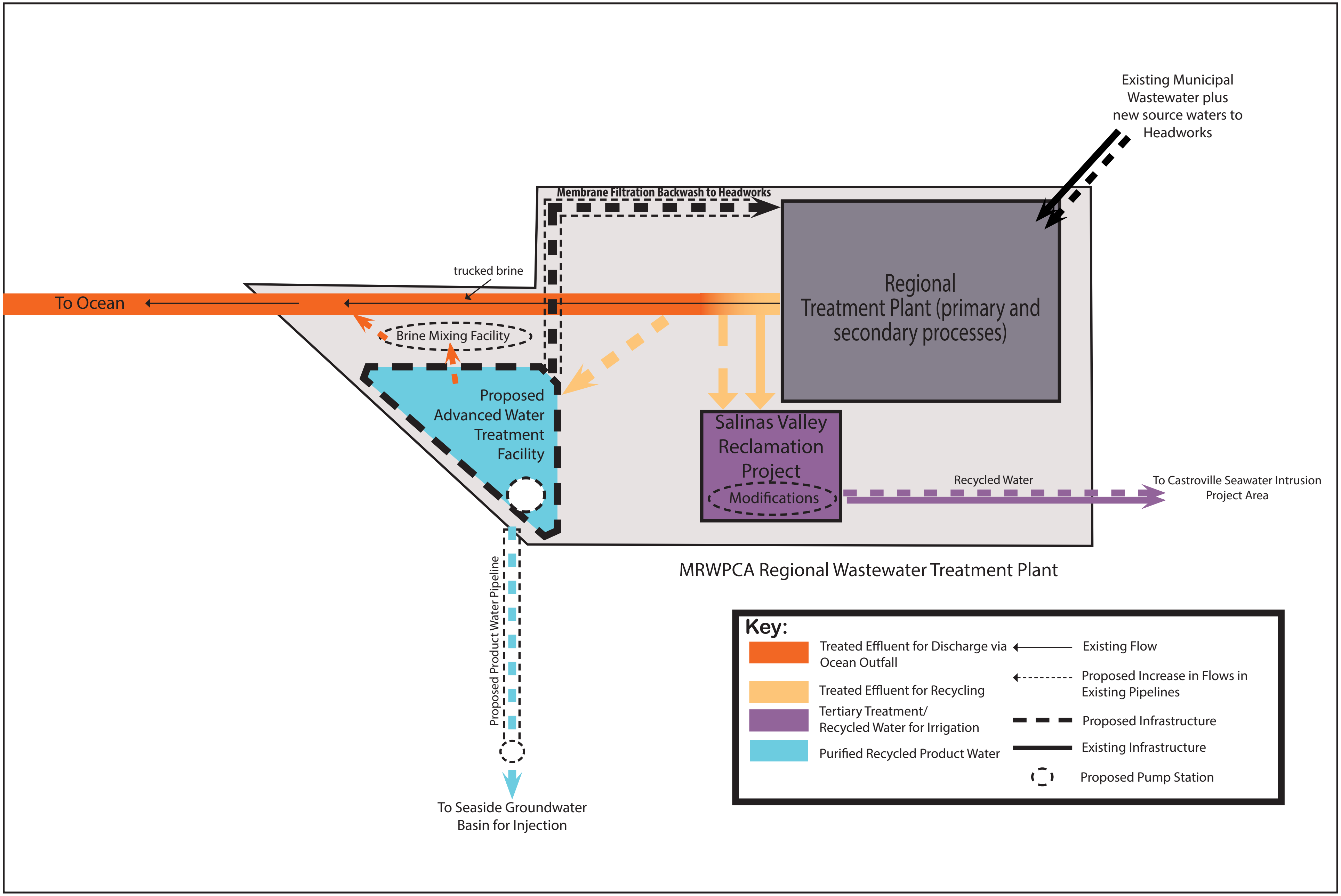


Proposed Project Flow Schematic - Source Water to Treatment

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-19



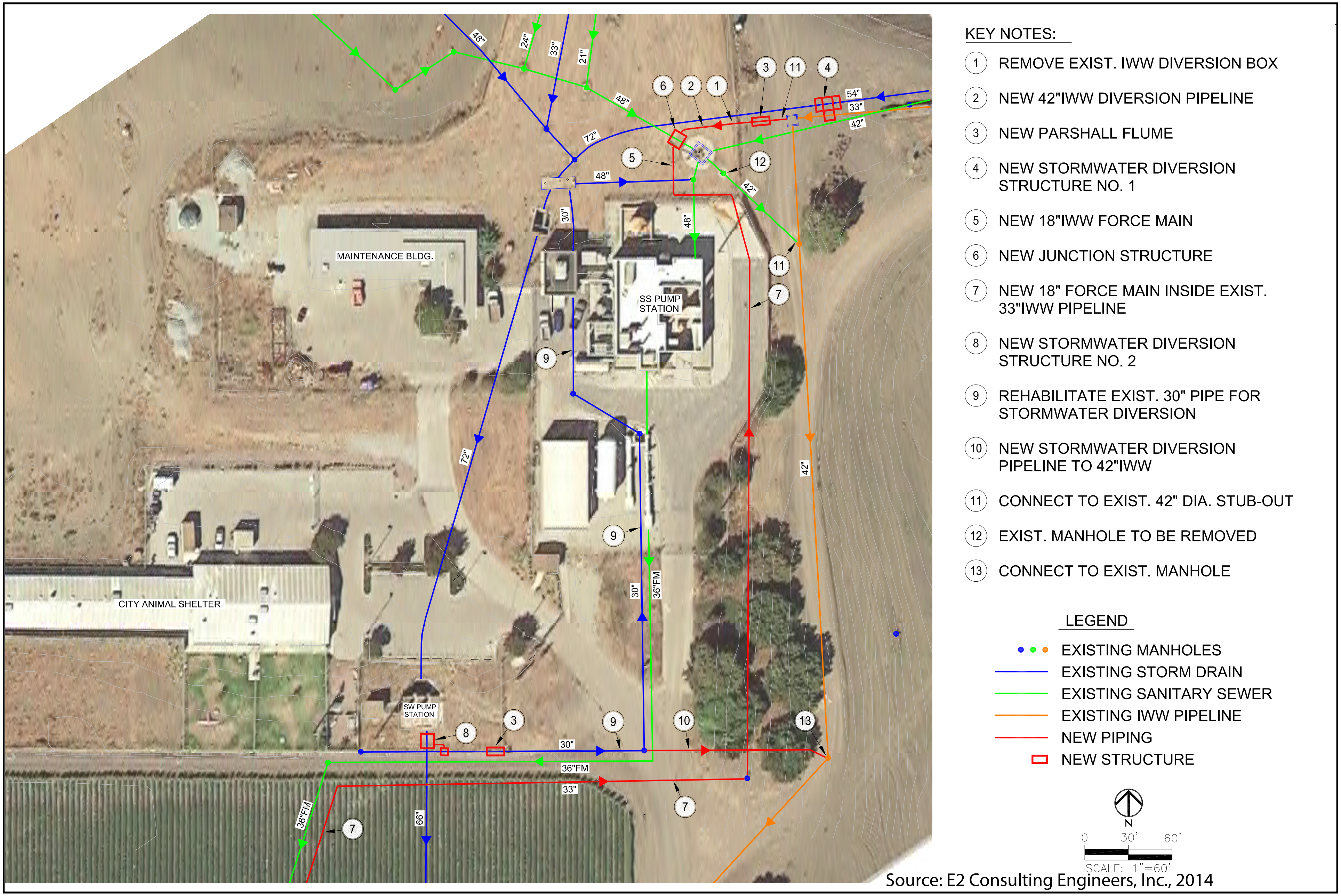
DD&A

Proposed Project Flow Schematic - Regional Treatment Plant

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-20



Source: E2 Consulting Engineers, Inc., 2014

DD&A

Proposed Salinas Pump Station Site Plan

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-21

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KEY NOTES:

1. NEW POND 3 PUMP STATION INLET BOX
2. NEW POND 3 PUMP STATION WET WELL
3. NEW 18" FORCE MAIN
4. NEW DIVERSION STRUCTURE NO. 3
5. EXISTING PRESSURE M.H. ON 30" LINE
6. NEW 30" GRAVITY MAIN
7. RETURN PUMP STATION WET WELL
8. RETURN PUMP STATION VALVE VAULT
9. NEW FLOW METER VAULT
10. NEW 18" FORCE MAIN INSIDE EXIST. 33" IWW PIPELINE TO SALINAS P.S.
11. EXIST. 42" IWW PIPELINE
12. EXIST. IWW PUMP STATION
13. EXIST. 24" IWW INLET PIPELINE
14. EXIST. 18" IWW OUTLET PIPELINE
15. EXIST. 30" IWW DISTRIBUTION PIPELINE
16. EXIST. INLET TO POND
17. EXIST. RISER MANHOLE
18. EXIST. 24" IWW DISTRIBUTION PIPELINE
19. EXIST. POND INLET STRUCTURE
20. EXIST. POND 3 PUMP STATION
21. EXIST. IRRIGATION BEDS DISTRIBUTION STRUCTURE
22. EXIST. DISTRIBUTION PIPELINES TO IRRIGATION BEDS

LEGEND

EXISTING MANHOLES
EXISTING STORM DRAIN
EXISTING SANITARY SEWER
EXISTING IWW PIPELINE
NEW PIPING
NEW STRUCTURE

0 300' 600'
SCALE: 1"=600'

Source: E2 Consulting Engineers, Inc. 2014

DD&A

Industrial Wastewater Treatment Plant Conceptual Site Plan

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-22

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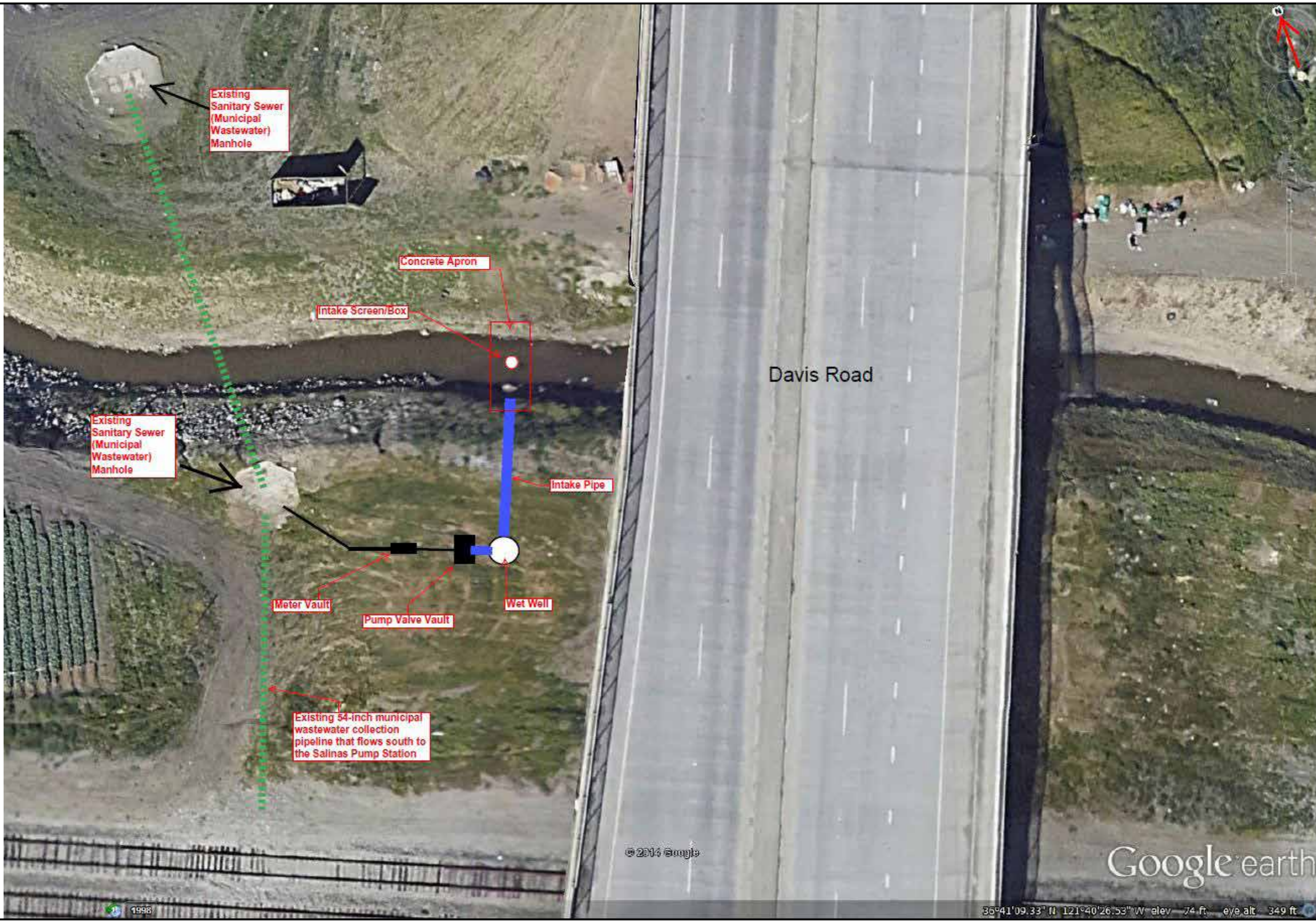
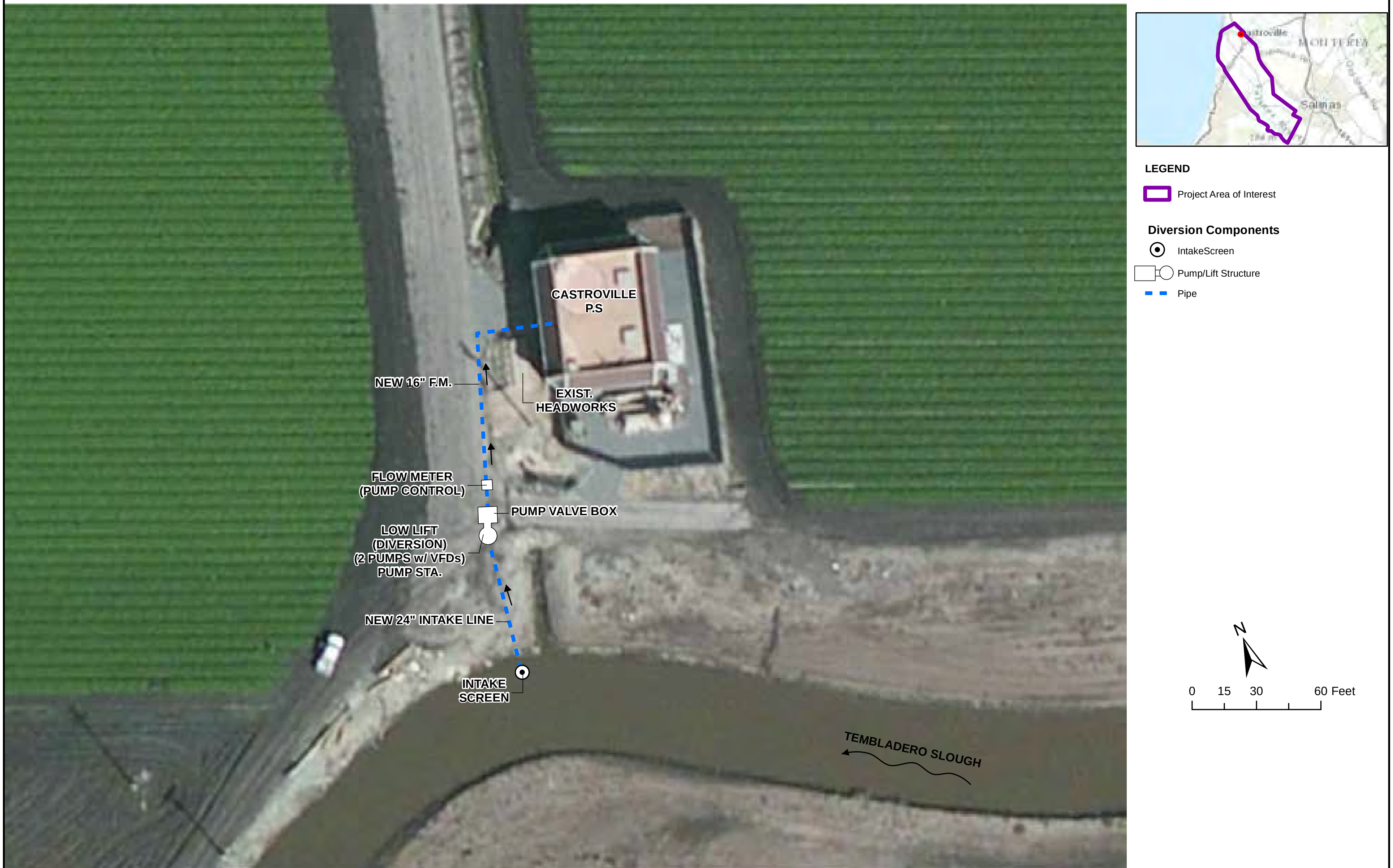


Proposed Reclamation Ditch Diversion Conceptual Plan

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-23



DD&A

Proposed Tembladero Slough Diversion Conceptual Site Plan

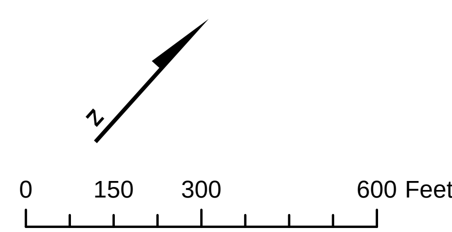
April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-24

LEGEND

- Exist 30" dia Salinas River Diversion Facility (SRDF) Forced Main
- Exist. 36" Salinas Interceptor
- 18" dia. Blanco Drain FM (Alternative 1)
- Proposed System Component/Structure



Blanco Drain Diversion Conceptual Site Plan - Eastern Portion

April 2015

Pure Water Monterey GWR Project
Draft EIR

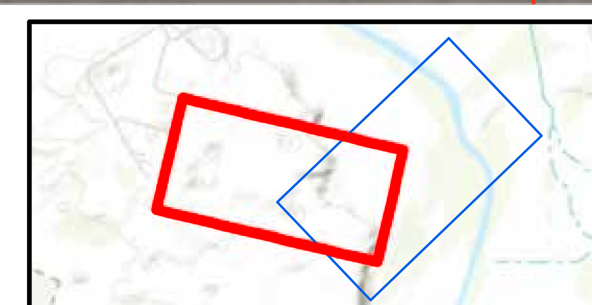
Figure
2-25a

LEGEND

- Exist 30" dia Salinas River Diversion Facility (SRDF) Forced Main
- Exist. 36" Salinas Interceptor
- 18" dia. Blanco Drain FM (Alternative 2)
- 18" dia. Blanco Drain FM (Alternative 1)

N

0 150 300 600 Feet



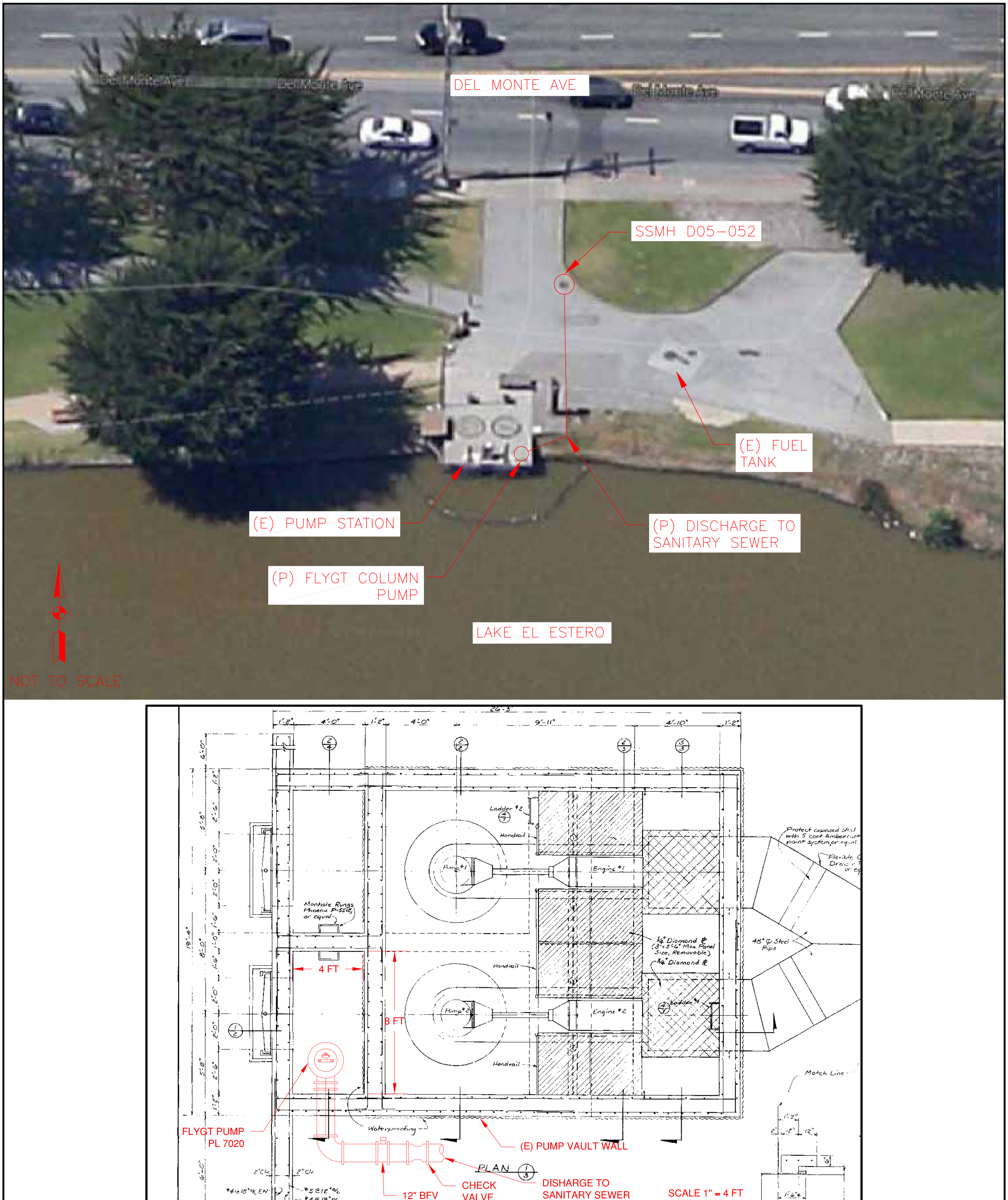
DD&A

Blanco Drain Diversion Conceptual Site Plan - Western Portion

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-25b



Source: Schaaf & Wheeler, February 2014

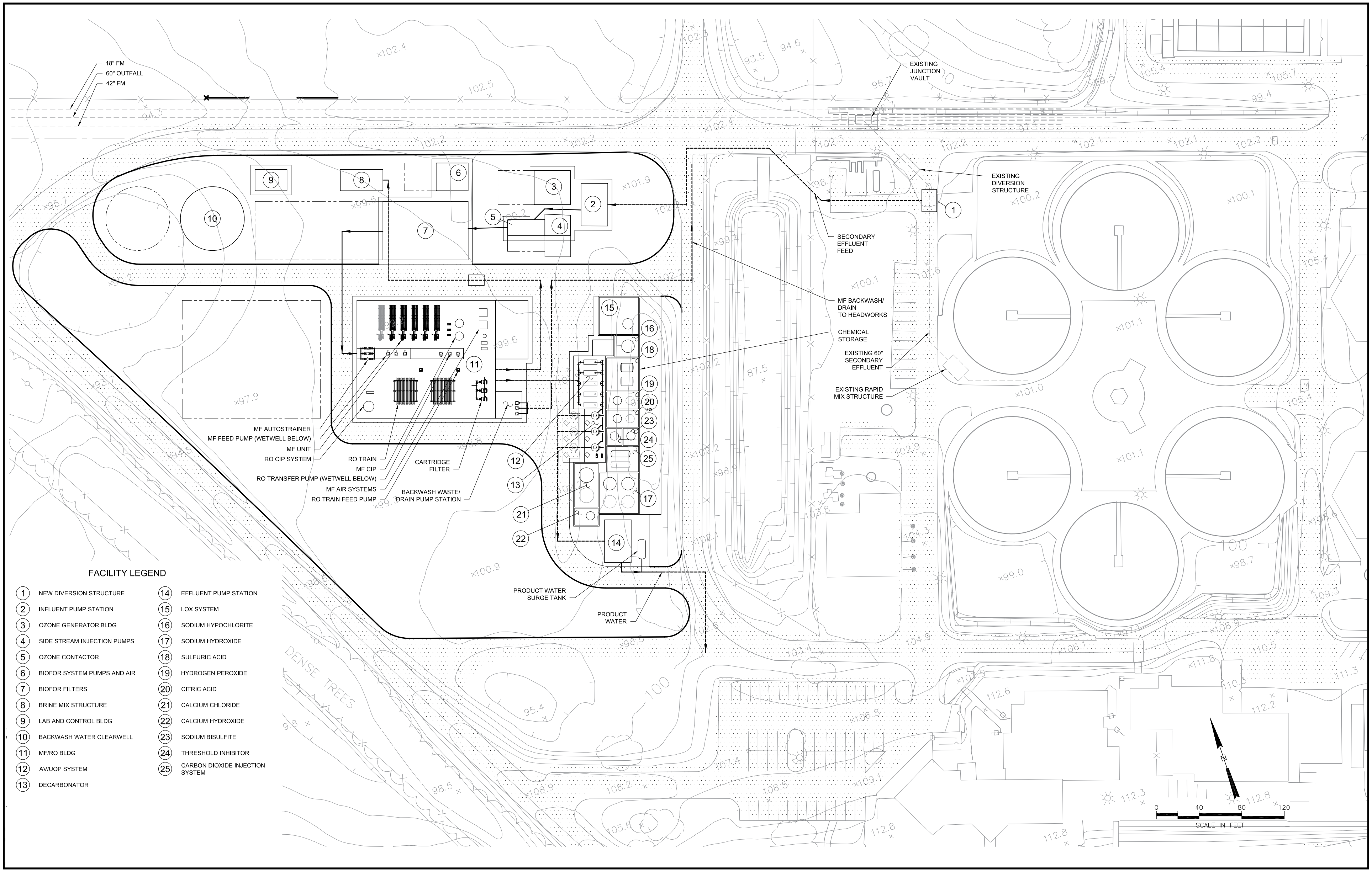
DD&A

Lake El Estero Diversion Conceptual Site Plan and Cross-Section

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-26



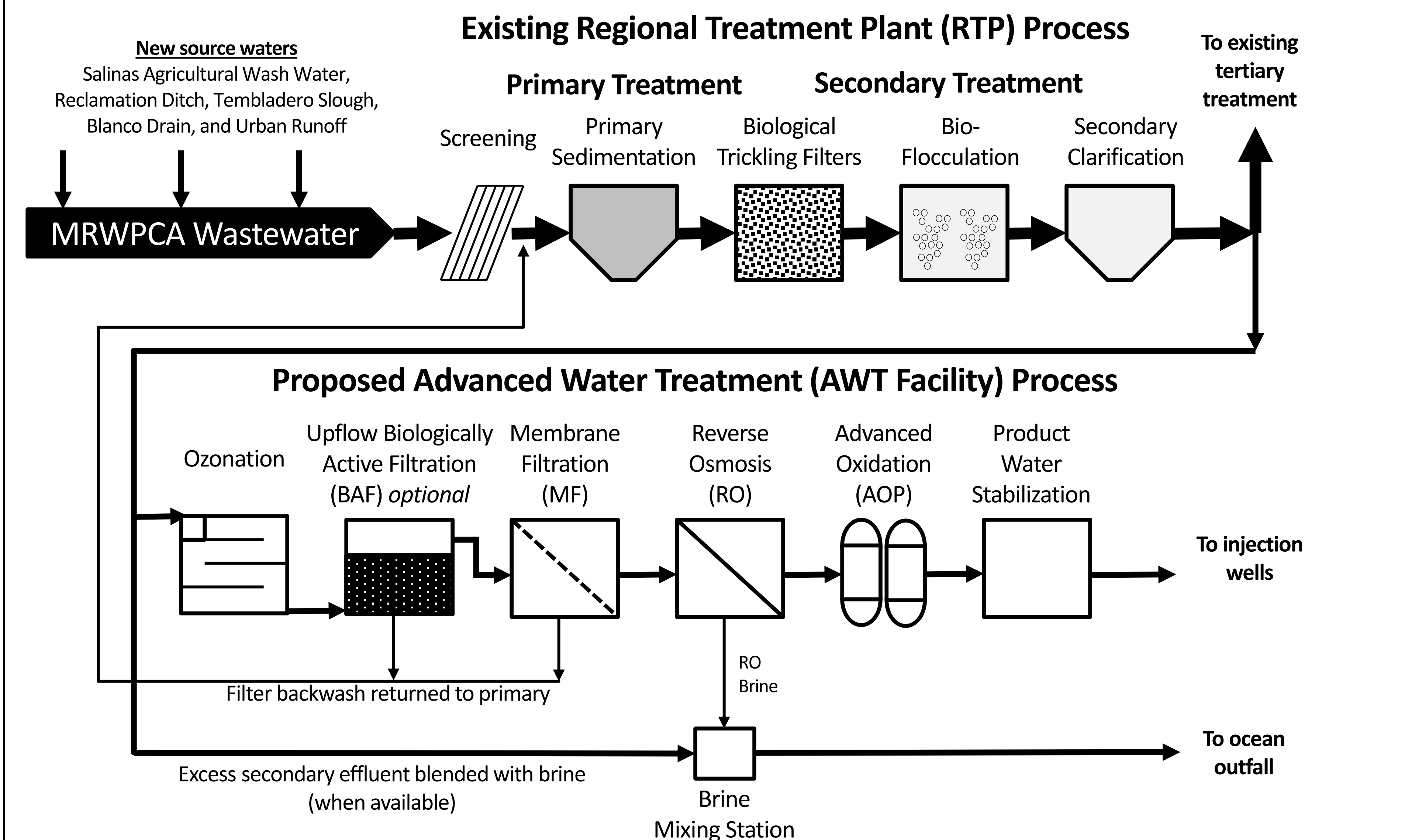
DD&A

Advanced Water Treatment Facility Conceptual Site Plan

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-27

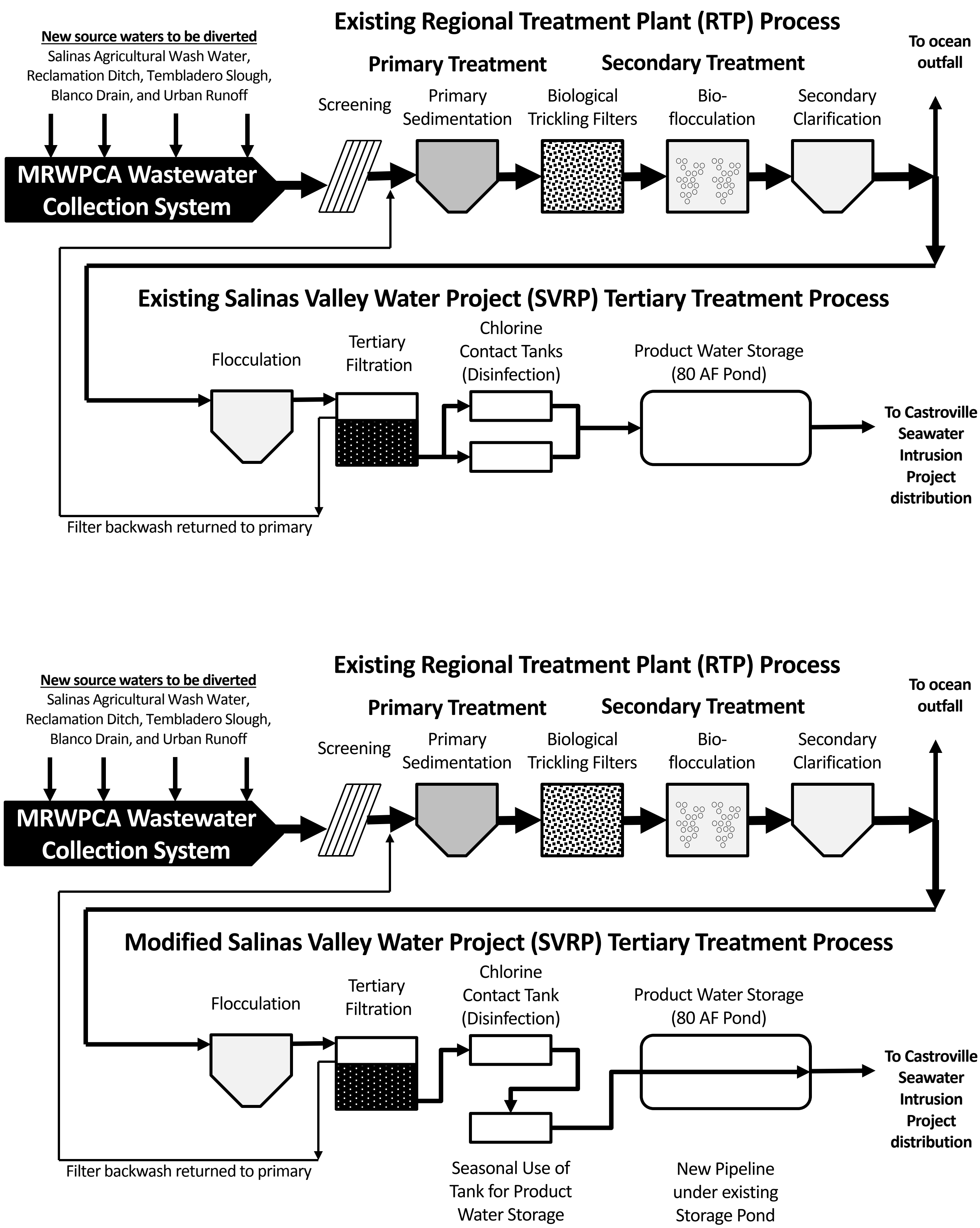


Proposed Advanced Water Treatment Flow Diagram

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-28

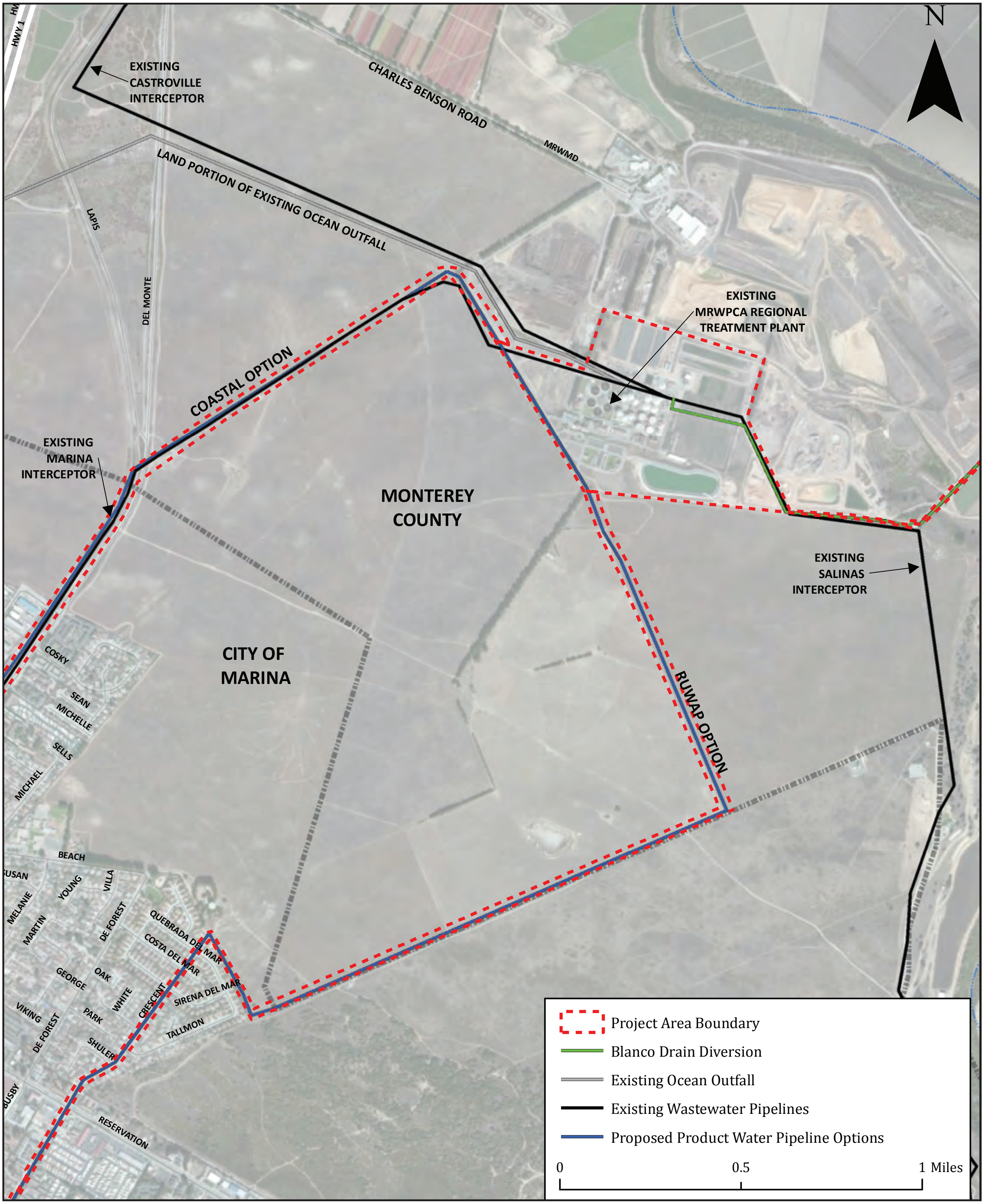


Existing and Proposed Salinas Valley Reclamation Plant Process Flow Diagrams

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-29



Proposed Product Water Conveyance Options Near Regional Treatment Plant

April 2015

Pure Water Monterey GWR Project
Draft EIR

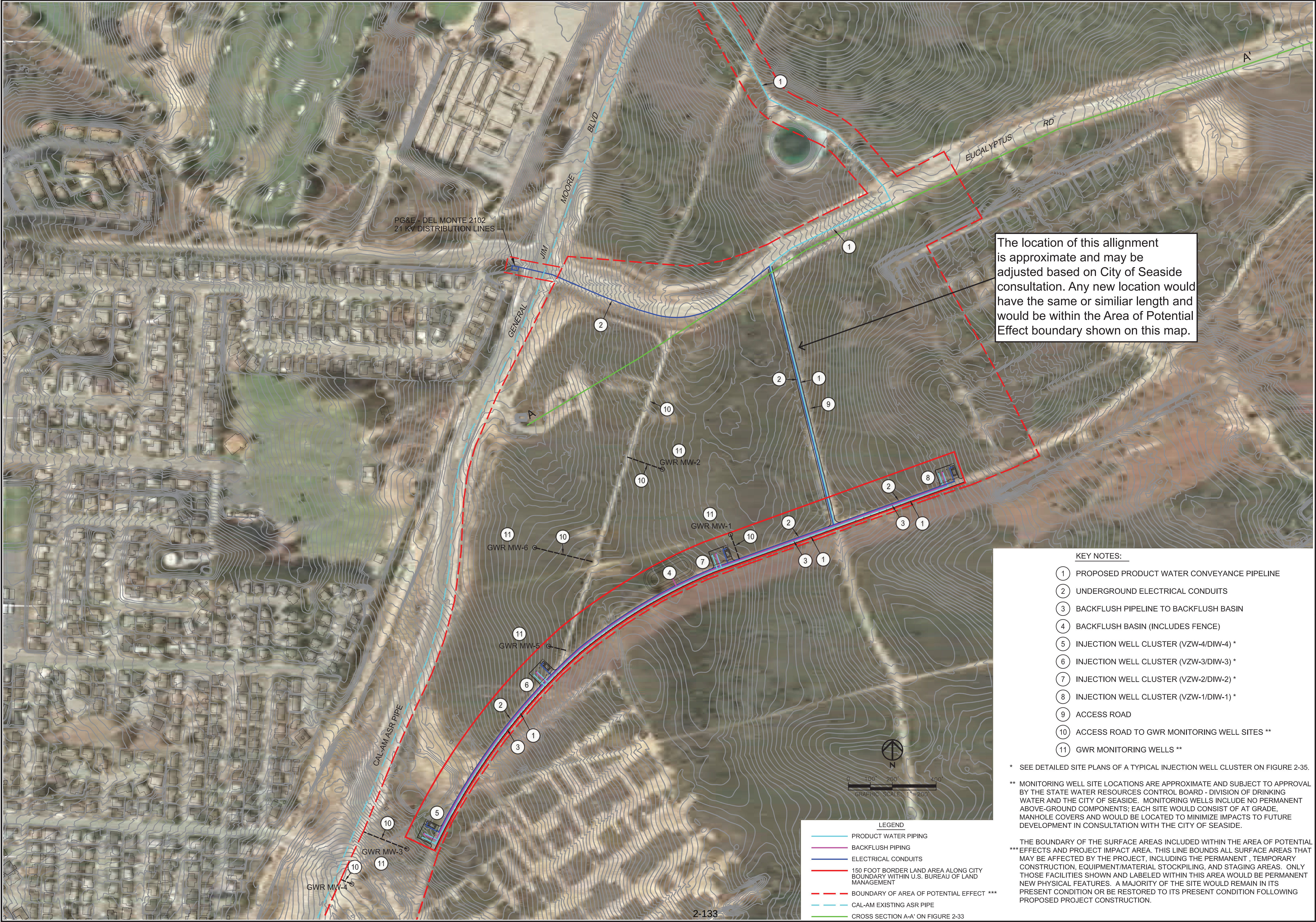
Figure
2-30

Proposed Booster Pump Station Options Conceptual Site Plans

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-31



KEY NOTES:

1. PROPOSED PRODUCT WATER CONVEYANCE PIPELINE
2. UNDERGROUND ELECTRICAL CONDUITS
3. BACKFLUSH PIPELINE TO BACKFLUSH BASIN
4. BACKFLUSH BASIN (INCLUDES FENCE)
5. INJECTION WELL CLUSTER (VZW-4/DIW-4) *
6. INJECTION WELL CLUSTER (VZW-3/DIW-3) *
7. INJECTION WELL CLUSTER (VZW-2/DIW-2) *
8. INJECTION WELL CLUSTER (VZW-1/DIW-1) *
9. ACCESS ROAD
10. ACCESS ROAD TO GWR MONITORING WELL SITES **
11. GWR MONITORING WELLS **

* SEE DETAILED SITE PLANS OF A TYPICAL INJECTION WELL CLUSTER ON FIGURE 2-35.

** MONITORING WELL SITE LOCATIONS ARE APPROXIMATE AND SUBJECT TO APPROVAL BY THE STATE WATER RESOURCES CONTROL BOARD - DIVISION OF DRINKING WATER AND THE CITY OF SEASIDE. MONITORING WELLS INCLUDE NO PERMANENT ABOVE-GROUND COMPONENTS; EACH SITE WOULD CONSIST OF AT GRADE, MANHOLE COVERS AND WOULD BE LOCATED TO MINIMIZE IMPACTS TO FUTURE DEVELOPMENT IN CONSULTATION WITH THE CITY OF SEASIDE.

*** THE BOUNDARY OF THE SURFACE AREAS INCLUDED WITHIN THE AREA OF POTENTIAL EFFECTS AND PROJECT IMPACT AREA. THIS LINE BOUNDS ALL SURFACE AREAS THAT MAY BE AFFECTED BY THE PROJECT, INCLUDING THE PERMANENT, TEMPORARY CONSTRUCTION, EQUIPMENT/MATERIAL STOCKPILING, AND STAGING AREAS. ONLY THOSE FACILITIES SHOWN AND LABELED WITHIN THIS AREA WOULD BE PERMANENT NEW PHYSICAL FEATURES. A MAJORITY OF THE SITE WOULD REMAIN IN ITS PRESENT CONDITION OR BE RESTORED TO ITS PRESENT CONDITION FOLLOWING PROPOSED PROJECT CONSTRUCTION.

LEGEND

- PRODUCT WATER PIPING
- BACKFLUSH PIPING
- ELECTRICAL CONDUITS
- 150 FOOT BORDER LAND AREA ALONG CITY BOUNDARY WITHIN U.S. BUREAU OF LAND MANAGEMENT
- BOUNDARY OF AREA OF POTENTIAL EFFECT ***
- CAL-AM EXISTING ASR PIPE
- CROSS SECTION A-A' ON FIGURE 2-33

Rev	Date	Description	By

Job No. WW-PEB-1182
Designed by VMB
Drawn by WTH
Checked by VMB
Approved VMB

REGISTERED PROFESSIONAL ENGINEER VINOD M. BADANI C-041281 EXP. DATE 3/31/15 CIVIL STATE OF CALIFORNIA

E2 Consulting Engineers, Inc.
1900 Powell Street, Ste. 250 Emeryville, CA 94608 (510) 652-1164
444 Airport Blvd., Suite 201 Watsonville, CA 95076 (831) 728-3232

MRWPCA

Injection Well Site Plan

This figure has been revised in response to comment L-17

Final EIR

September 2015

Figure

2-32 rev

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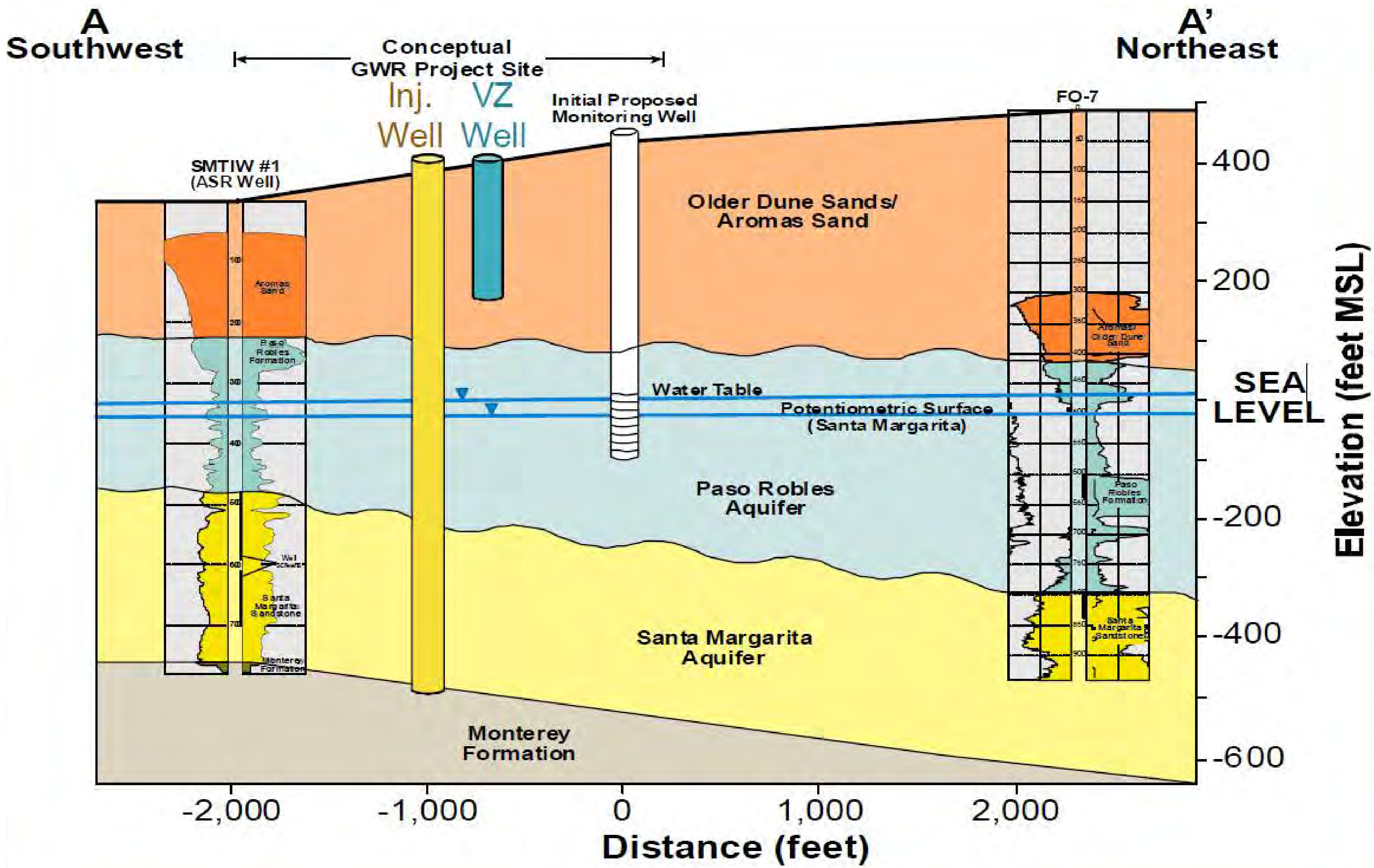


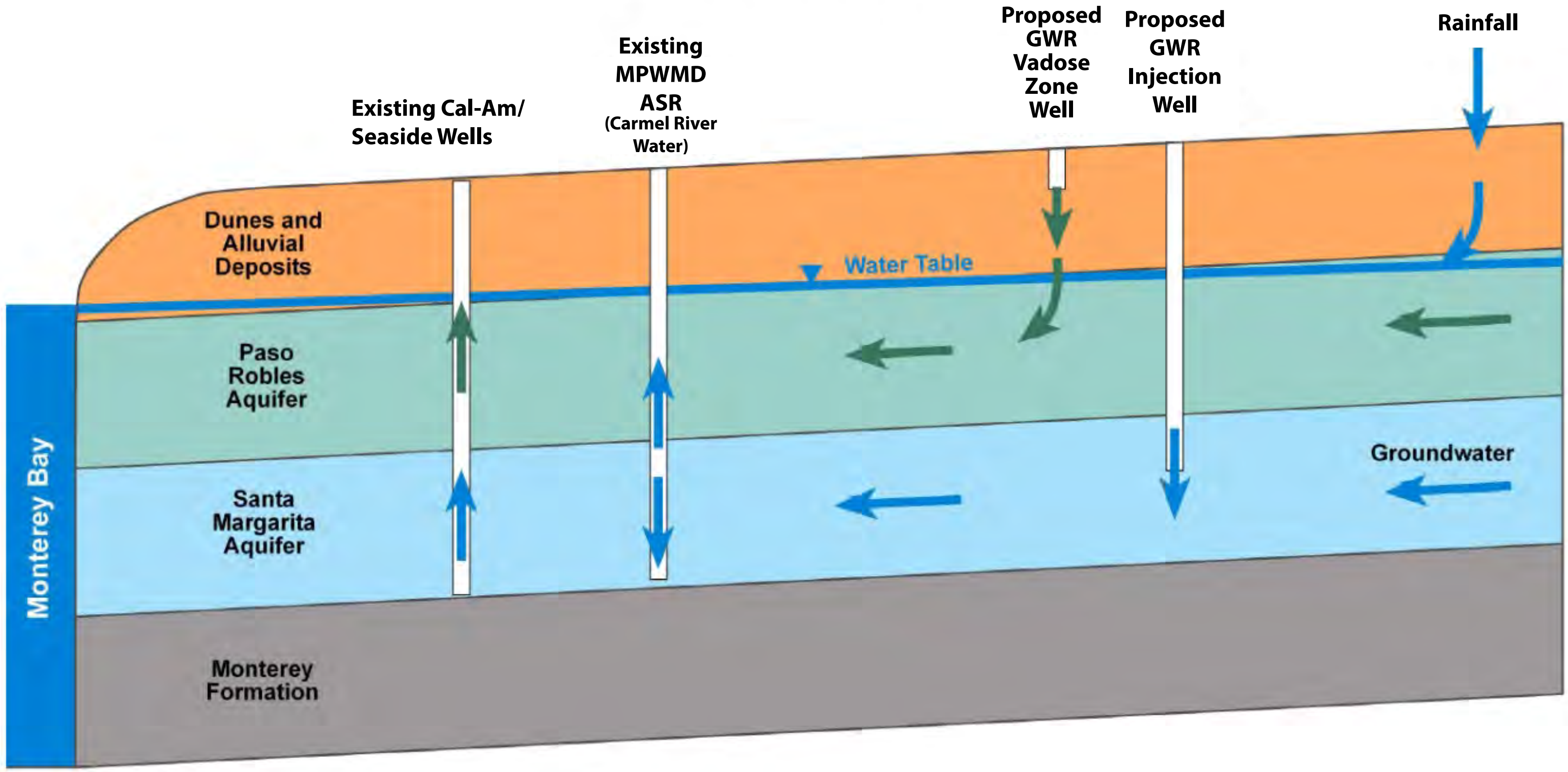
DD&A

Injection Well Cross Section

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-33



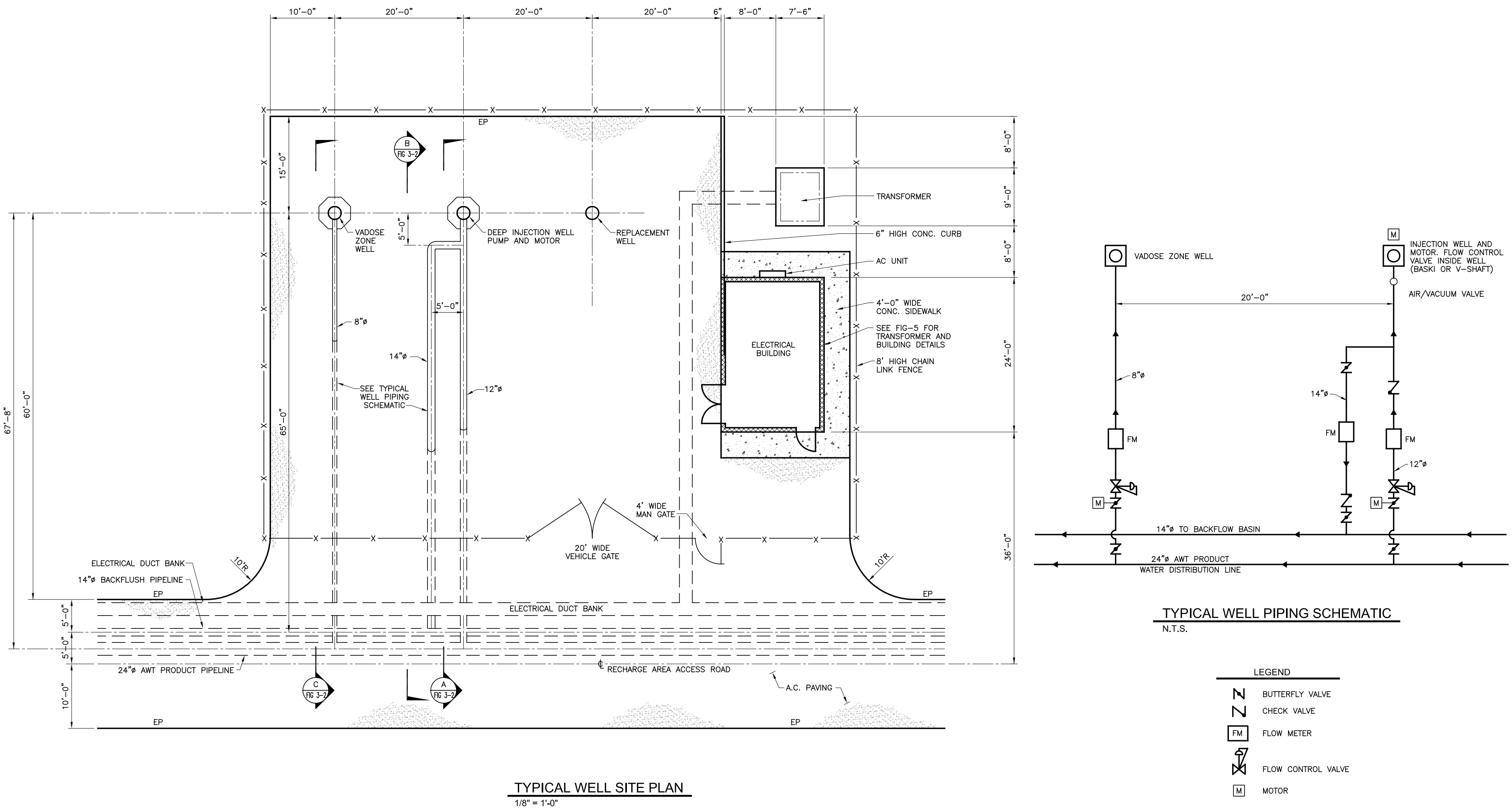
DD&A

Conceptual Injection Schematic

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-34

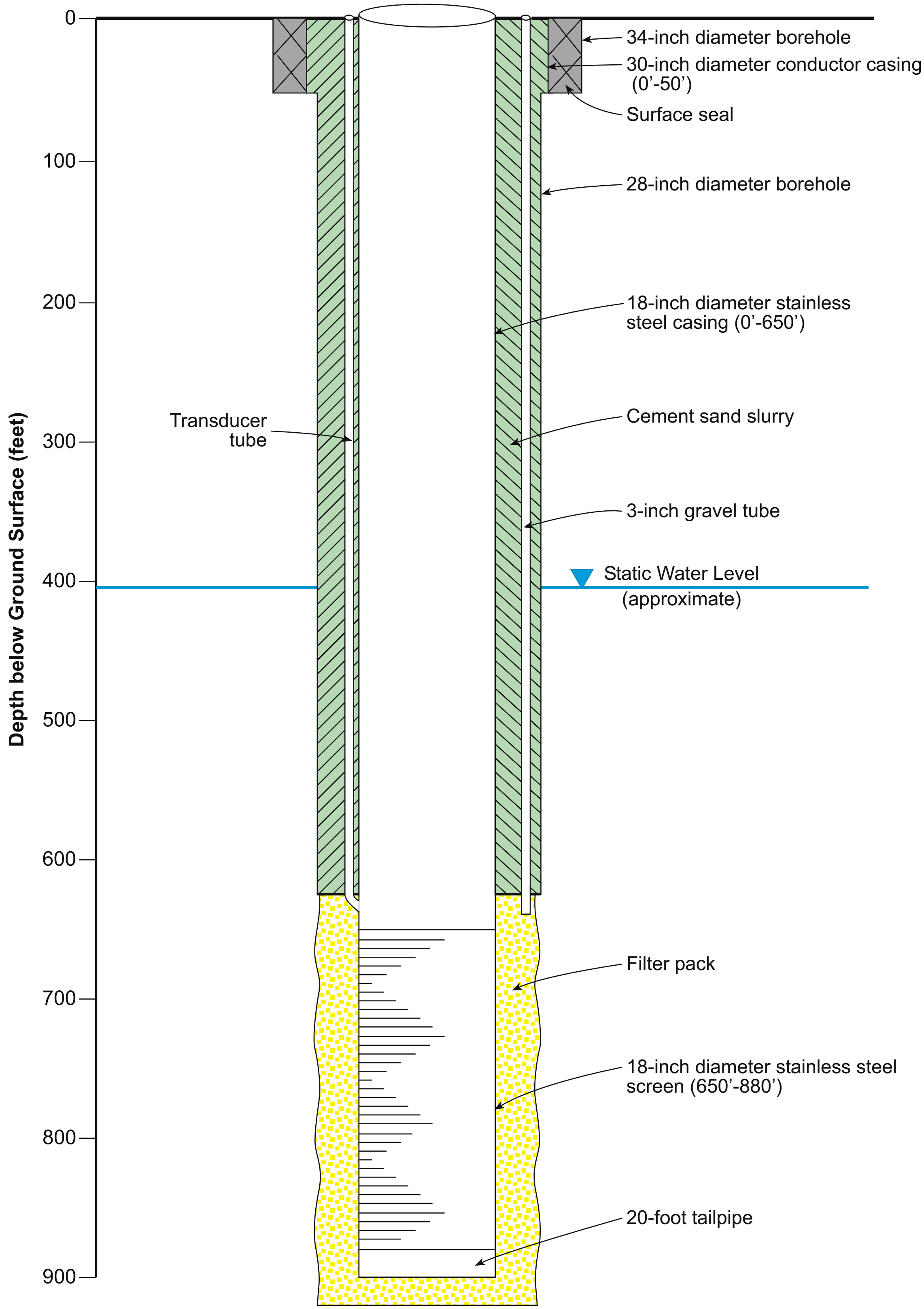


Conceptual Site Plan and Schematic of Typical Well Cluster

April 2015

Figure 2-35

Pure Water Monterey GWR Project
Draft EIR



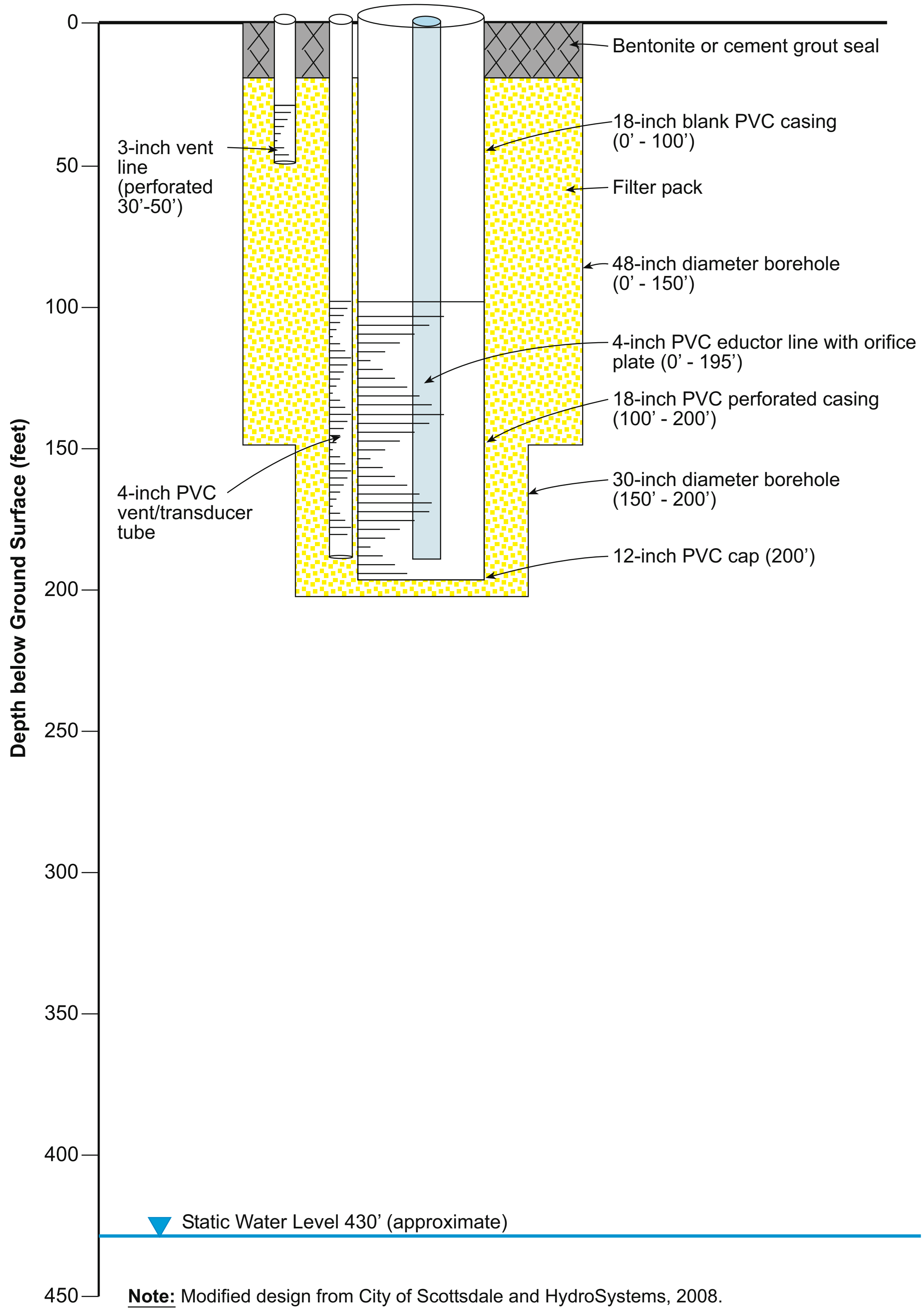
Source: Todd Engineers, October 2014

Deep Injection Well Preliminary Design

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-36



Note: Modified design from City of Scottsdale and HydroSystems, 2008.

Source: Todd Engineers, May 2013

DD&A

Vadose Zone Well Preliminary Design

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-37

DD&A

CalAm Distribution System Pipeline: Eastern Terminus

April 2015

Pure Water Monterey GWR Project
Draft EIR

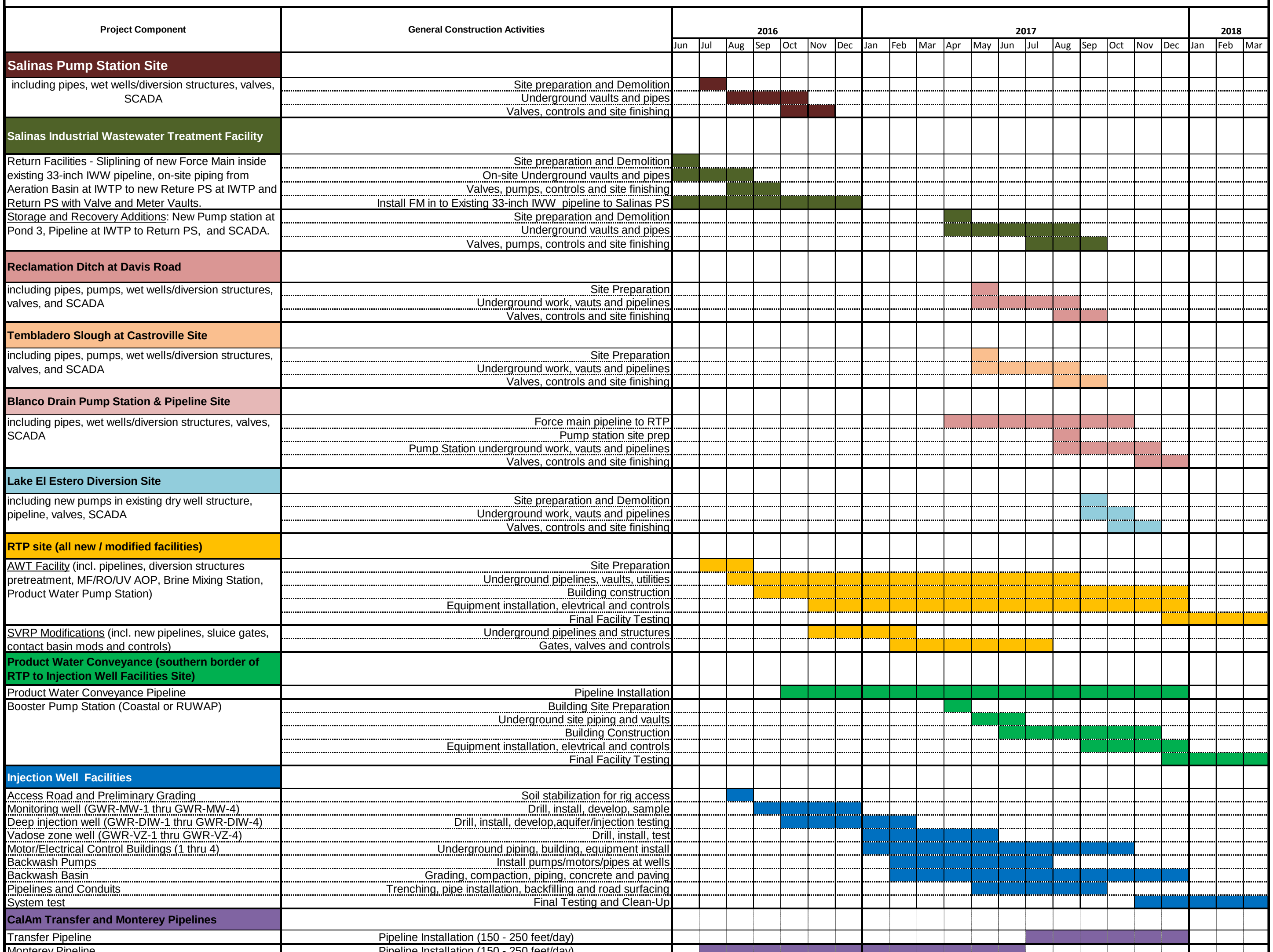
Figure 2-38

CalAm Distribution System Pipeline: Western Terminus

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-39



Proposed Project Construction Schedule

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
2-40

CHAPTER 3 WATER QUALITY STATUTORY AND REGULATORY COMPLIANCE OVERVIEW

Table
3-1 Proposed Project Treatment Barriers

As described in **Chapter 2, Project Description**, the Pure Water Monterey Groundwater Replenishment Project (Proposed Project) would create a reliable source of water supply by collecting a variety of new source waters that would be combined with existing incoming raw wastewater flows for conveyance to and treatment at MRWPCA's Regional Wastewater Treatment Plant (Regional Treatment Plant). The Regional Treatment Plant effluent not further treated to tertiary levels and used for agricultural irrigation in northern Salinas Valley would be conveyed to a new advanced water treatment facility (AWT Facility) that would produce highly-treated purified recycled water (purified recycled water). The purified recycled water would be used to replenish the Seaside Groundwater Basin (Seaside Basin) by injecting this high quality water into a series of shallow and deep injection wells. Once injected into the Seaside Basin, the purified recycled water would mix with the groundwater present in the aquifers and be stored for future extraction from existing potable water supply wells.

The Proposed Project would enable California American Water Company (CalAm) to reduce its diversions from the Carmel River system by up to 3,500 acre-feet per year (AFY) by injecting the same amount of purified recycled water into the Seaside Basin. CalAm is under a State order to secure replacement water supplies and cease over-pumping of the Carmel River by January 2017.

The Proposed Project would also result in additional recycled water supply for agricultural irrigation in northern Salinas Valley. Currently, the only sources of supply for the existing recycled water are municipal wastewater and small amounts of urban dry weather runoff.[1] The recycled water produced by MRWPCA for crop irrigation is treated to a tertiary level in accordance with the statutory and regulatory requirements of the California Water Code Sections 13500 – 13577 and California Code of Regulations, Title 22, Sections 60301 – 60357. The recycled water is produced at the Salinas Valley Reclamation Plant, which is located within the Regional Treatment Plant. Municipal wastewater flows have declined in recent years due to aggressive water conservation efforts by the MRWPCA member entities. By increasing the amount and type of source waters entering the existing wastewater collection system, additional recycled water can be provided for use in the Castroville Seawater Intrusion Project's agricultural irrigation system. It is anticipated that during normal and wet years, approximately 4,500 to 4,750 AFY of additional recycled water supply could be created for Castroville Seawater Intrusion Project irrigation purposes as part of the Proposed Project. During drought conditions, up to 5,900 AFY of recycled water could be

[1] Salinas River water is stored and used for irrigation during the period April 1 to October 31, but is not a source of supply for the tertiary treatment facility.

created for crop irrigation. Some modifications would be made to the water recycling facility to optimize and enhance the delivery of recycled water to growers.

The Proposed Project would also include a drought reserve component. The Proposed Project would provide for an additional 200 AFY of purified recycled water that would be injected in the Seaside Basin in wet and normal years up to a total of 1,000 acre feet (AF). Thus, the Proposed Project would inject up to 3,700 AF into the Seaside Basin in some years, rather than the 3,500 AF needed for CalAm supplies. This would result in a "banked" drought reserve. During dry years, less than 3,500 AF of Proposed Project purified recycled water would be delivered to the Seaside Basin, and the source waters that are not sent to the AWT Facility would be treated to tertiary recycled water specification by the SVRP to increase irrigation supplies for agricultural irrigation. CalAm would be able to extract the banked water to make up the difference to its supplies, such that its extractions and deliveries would not fall below 3,500 AFY.

Planning for the Proposed Project has included a pilot study of some of the source waters and treatment technologies intended to be part of the new AWT Facility. The proposed full-scale AWT Facility would consist of pre-treatment (using ozone, and potentially biologically activated filtration); membrane filtration; reverse osmosis; advanced oxidation using ultraviolet light and hydrogen peroxide; and post-treatment stabilization. In addition, hydrogeologic modeling and soil and geochemical analyses have been performed for the Proposed Project (as described in **Section 4.10, Hydrology and Water Quality: Groundwater Resources**). The California State Water Resources Control Board Division of Drinking Water, the Central Coast Regional Water Quality Control Board, and a National Water Research Institute Independent Advisory Panel have provided oversight for these studies and project planning. The California Division of Drinking Water has conditionally approved the Proposed Project's design based on MRWPCA's proposal, which presented the general concepts of the project (MRWPCA, 2014). More information must be provided as part of the Proposed Project's Engineering Report for Division of Drinking Water approval.

In conjunction with the EIR, the **Water Quality Statutory and Regulatory Compliance Technical Report, Appendix D**, (Nellor Environmental, 2015) was prepared to present pertinent information related to the following: (1) the status of recycled water regulations pertaining to groundwater replenishment; (2) studies of other similar projects that have assessed the effects of using recycled water for groundwater replenishment on groundwater quality and public health; (3) studies that have been specifically conducted for the project related to the AWT Facility design and performance; (4) studies that have been specifically conducted for the project regarding protection of groundwater quality and quantity; (5) Proposed Project compliance with applicable statutes, policies, and regulations; (6) Proposed Project effects on groundwater; and (7) the relevant information and conclusions for the EIR groundwater and other relevant water quality analyses.

This regulatory compliance evaluation has concluded that:

- California has established numerous state laws, regulations and policies governing the use of recycled water for groundwater replenishment to protect groundwater quality and the health of individuals who drink groundwater that is replenished using recycled water, including:
  - Comprehensive regulations for the use of purified recycled water for replenishment of groundwater (Groundwater Replenishment Regulations);
  - State policies related to maintaining high quality water;

  - A Water Quality Control Plan (Basin Plan) implemented by the Central Coast Regional Water Quality Control Board including standards, objectives, and guidelines for the protection of groundwater quality in the GWR Project area; and
  - Effective July 1, 2014, consolidation of the regulatory structure for water, recycled water and wastewater under one agency, the State Water Resources Control Board, to protect public health and promote comprehensive protection of drinking water and other beneficial uses of the state's waters.

- Studies have been conducted for other similar potable reuse projects, including epidemiology studies, risk assessments, and investigations that analyze and compare the toxicological properties of recycled water to those of drinking water. These studies have shown:
  - There is no association between the use of recycled water and adverse health outcomes in individuals consuming groundwater containing recycled water; and
  - Purified recycled water from an appropriately designed and operated AWT Facility presents less risk in terms of regulated chemicals, pathogens, and trace organics compared to the risk from conventional drinking water sources.
- Based on the analytical results of monitoring the source waters to be used for the Proposed Project, the water quality results of the pilot plant testing (using ozone, membrane filtration, and reverse osmosis), information on the predicted performance and water quality of the proposed full-scale AWT Facility based on other existing groundwater replenishment projects and related research/studies:
  - The Proposed Project would comply with the State's Groundwater Replenishment Regulations and would meet all Central Coast Basin Plan standards, objectives, and guidelines.
  - An Independent Advisory Panel and the Division of Drinking Water have reviewed the Proposed Project concept. The Division of Drinking Water has conditionally approved the Proposed Project proposal, pending submittal of additional information per the Groundwater Replenishment Regulations.
- The full-scale proposed AWT Facility and recharge of the purified recycled water would provide reliability and redundancy through the use of multiple treatment barriers. Including the Regional Treatment Plant in combination with the AWT Facility, the integrated treatment system would achieve chemical constituent removal redundancy by employing at least two treatment processes for each constituent type and at least four treatment processes for each pathogen category, as shown in Table 3-1 below.

Table 3-1
Proposed Project Treatment Barriers

Process	Chemical Constituents					Pathogenic Microorganisms		
	Nitrogen	TOC[a]	DPBs[b]	Inorganics	CECs[c]	Bacteria	Viruses	Protozoa
Regional Treatment Plant Primary/ Secondary	✓	✓		✓	✓	✓	✓	✓
Ozone			✓		✓	✓	✓	✓
Membrane Filtration		✓		✓		✓		✓
Reverse Osmosis	✓	✓	✓	✓	✓	✓	✓	✓
Advanced Oxidation Process			✓		✓	✓	✓	✓
Underground Residence Time						✓	✓	✓

a. Total organic carbon – TOC.
b. Disinfection by-products – DBPs.
c. Constituents of emerging concern - CECs

- To evaluate compliance with the State Recycled Water Policy, studies were conducted to (1) analyze the recharge components of the Proposed Project, including recharge wells, operational facilities, and the fate and transport of the purified recycled water in the groundwater basin, and (2) conduct geochemical modeling to test stabilized RO pilot test water[2] compatibility with ambient groundwater. The studies found that:
  - No documented groundwater contamination or contaminant plumes were identified in the Proposed Project area. Therefore, injection of purified recycled water associated with the Proposed Project would not exacerbate existing groundwater contamination or cause plumes of contaminants to migrate.
  - When two water types with different water chemistry are mixed (such as the Proposed Project purified recycled water and groundwater), geochemical reactions could occur in the groundwater system that could potentially result in leaching of natural or anthropogenic constituents, which could also potentially impact groundwater quality. The risk of geochemical impacts from incompatibility would be addressed at the proposed AWT Facility by including a treatment process to ensure that the purified recycled water is stabilized and non-corrosive. The design of the treatment stabilization process will be informed by the geochemical modeling studies.

[2] The samples were reverse osmosis permeate collected from the MRWPCA pilot plant. The reverse osmosis permeate was stabilized using a bench-scale post-treatment stabilization unit to better approximate the water quality anticipated for the proposed AWT Facility.

- A Salt and Nutrient Management Plan has been prepared for the Seaside Groundwater Basin to comply with the Recycled Water Policy.[3] As documented in the Salt and Nutrient Management Plan, ambient groundwater generally exceeds the Basin Plan groundwater objective for total dissolved solids in many areas of the Seaside Basin, while nitrate and chloride concentrations generally meet Basin Plan objectives. Studies conducted to evaluate the water quality of the stabilized reverse osmosis pilot test water found that the concentrations of total dissolved solids, nitrate, and chloride in the reverse osmosis water met all Basin Plan objectives. Further, these concentrations were generally lower than average concentrations in groundwater. As such, replenishment of the Seaside Basin using the Proposed Project purified recycled water would not degrade, but would provide benefits to, local groundwater quality.
- Based on the source water sampling, results of the pilot testing and hydrogeologic studies, other relevant research, and information from other groundwater replenishment projects operating in California, the following conclusions are offered with regard to the Proposed Project's effect on groundwater resources:
  - The Proposed Project purified recycled water would meet groundwater quality standards in the Basin Plan and state drinking water quality standards. A monitoring program would document project performance.
  - The Proposed Project purified recycled water would contain much lower concentrations of total dissolved solids and chloride than ambient groundwater and would be expected to provide a benefit to the basin groundwater quality.
  - No documented groundwater contamination or contaminant plumes have been identified in the Proposed Project area. Therefore, injection associated with the Proposed Project would not exacerbate existing groundwater contamination or cause plumes of contaminants to migrate.
  - Injection of AWT Facility purified recycled water would not degrade groundwater quality.
  - The Proposed Project purified recycled water would be stabilized as part of the AWT Facility to ensure no adverse geochemical impacts in the Seaside Basin. Geochemical modeling will be used to inform the AWT Facility stabilization procedures, which can be adjusted as needed.
  - The Proposed Project would result in both higher and lower water levels in wells throughout the Seaside Basin at various times. Although water levels would be slightly lower during some time periods, the difference in water levels between the Proposed Project and the No Project modeling results were generally small and judged insignificant. Basin modeling indicates that the Proposed Project would not lower water levels below protective levels in coastal wells and would not exacerbate seawater intrusion.

[3] Hydrometrics, WRI, 2014. Salt and Nutrient Management Plan, prepared for Monterey Peninsula Water Management District (http://www.mpwmd.dst.ca.us/programs/Seaside_Salt_Nutr_Plan_FINAL.PDF)

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CHAPTER 4 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

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4.1 INTRODUCTION

This chapter provides a project-level analysis of the physical environmental effects of implementing the Pure Water Monterey Groundwater Replenishment Project (GWR) Project (Proposed Project). This chapter describes the environmental setting, assesses impacts, and identifies mitigation measures for significant impacts.

4.1.1 Scope of Analysis

This Draft Environmental Impact Report (DEIR) analyzes the potential effects of the proposed GWR Project (Proposed Project or Project) on the environment under the applicable environmental resource topics listed in the California Environmental Quality Act (CEQA) Initial Study Checklist in Appendix G of the CEQA Guidelines. The checklist includes the environmental resource topics identified in **Table 4.1-1, Resource Topics/Sections and Abbreviations Key** below.

Table 4.1-1
Resource Topics/Sections and Abbreviations Key

Resource Topics (Section Number)	Abbreviations
Aesthetics (see Section 4.2)	AE
Air Quality and Greenhouse Gas (see Section 4.3)	AQ
Biological Resources: Fisheries (see Section 4.4)	BF
Biological Resources: Terrestrial (see Section 4.5)	BT
Cultural, Indian Trust Assets, and Paleontological Resources (see Section 4.6)	CR
Energy and Mineral Resources (see Section 4.7)	EN
Geology, Soils, and Seismicity (see Section 4.8)	GS
Hazards and Hazardous Materials (see Section 4.9)	HH
Hydrology/Water Quality: Groundwater (see Section 4.10)	GW
Hydrology/Water Quality: Surface Water (see Section 4.11)	HS
Land Use, Agriculture and Forest Resources (see Section 4.12)	LU
Marine Biological Resources (Section 4.13)	MR
Noise and Vibration (see Section 4.14)	NV
Population and Housing (see Section 4.15)	PH
Public Services, Recreation, and Utilities (see Section 4.16)	PS
Traffic and Transportation (see Section 4.17)	TR
Water Supply and Wastewater Systems (see Section 4.18)	WW

Each environmental resource section includes a discussion of the environmental setting, applicable regulations pertaining to the resource area, impact assessment, and mitigation measures where applicable. Each section of **Chapter 4** contains the following elements:

Environmental Setting. This subsection presents a description of the existing physical environmental conditions in the vicinity of the Proposed Project with respect to each resource area at an appropriate level of detail to understand the impact analysis.

Regulatory Framework. This subsection provides a brief discussion of federal, State, and local regulations and policies that are applicable to the resource topic and the Proposed Project.

Impacts and Mitigation Measures. This subsection evaluates the potential for the Proposed Project to affect the physical environment. Significance criteria for evaluation of environmental impacts are defined in the beginning of the impact analysis section, including an explanation of how the significance criteria are used in the evaluation of impacts for the Proposed Project. This subsection includes a discussion of the approach to the analysis, including identification of the significance criteria that are not applicable to the Proposed Project. Potential impacts are identified and characterized. Where feasible, mitigation measures are identified to avoid or reduce identified significant impacts to a less-than-significant level.

The Impacts and Mitigation Measures Section in each resource chapter includes an impact statement followed by the evaluation of the impact for each of the relevant facility components, and a conclusion regarding the combined impact for the Proposed Project as a whole. For instance, if some of the components evaluated under a particular impact statement were deemed to have a less-than significant or no impact and one component was determined to have a significant impact that could be reduced with mitigation, the significance determination shown in parentheses in the impact statement would be less than significant with mitigation, to reflect the combined impact of all components, which would include a significant impact. Mitigation is included in the evaluation and applied to the relevant components as indicated in the text of the mitigation.

Because of the multiple components and facility sites associated with the Proposed Project, overlapping environmental impacts may occur due to, or may be exacerbated by, concurrent construction periods of more than one component (for example, where more than one of the GWR component facility sites are located in the same geographic area and have concurrent construction periods). See **Figure 2-30**,, in **Section 2.7.1 Construction Activities Overview**. Where this would be the case, it is identified in the Approach to Analysis section in the resource chapter.

Cumulative Impacts and Mitigation Measures. Cumulative impacts are discussed in each environmental resource section following the description of the Project-specific impacts and identified mitigation measures. The cumulative impact analysis considers the effects of the Proposed Project together with other past, present, or probable future projects proposed in the local vicinity and region. The cumulative impact analysis is based on the same setting, regulatory framework, and significance criteria presented in each resource topic section. Additional mitigation measures may be identified if the analysis determines that the Proposed Project's contribution to an adverse cumulative impact would be cumulatively considerable and, therefore, significant. **Section 4.1.3** below describes the assumptions and methodology for assessing cumulative impacts.

4.1.2 Significance Determinations

In accordance with the California Environmental Quality Act (CEQA), specifically, Public Resources Code Section 21068, a "significant effect on the environment" means a substantial, or potentially substantial, adverse change in the environment. As noted above, the significance criteria used for each environmental resource topic are presented in each section of **Chapter 4** following the setting and before the discussion of impacts. For the impact analyses, one of the following significance determinations will be assigned:

No Impact (NI). This determination is made if there is no potential that the Proposed Project could affect the resource at issue.

Less than Significant (LS). This determination applies if there is a potential for some limited impact on a resource, but the impact is not significant in accordance with the significance criterion.

Less than Significant with Mitigation (LSM). This determination applies if there is the potential for a significant adverse effect in accordance with the significance criterion, but mitigation is available to reduce the impact to a less-than-significant level.

Significant and Unavoidable with Mitigation (SUM). This determination applies if the Proposed Project would result in a significant adverse effect in accordance with the significance criterion and there is some mitigation available to lessen the impact, but the residual effect after implementation of the mitigation would remain significant.

Significant Unavoidable (SU). This determination applies to impacts that are significant, but for which there appears to be no feasible mitigation available to substantially reduce the impact.

In addition, the EIR may identify beneficial impacts (*BI*) of the Proposed Project, if evidence exists to substantiate the anticipated benefit(s).

Within each section in this chapter, a summary table is included at the beginning of the impact discussion to summarize the potential impacts of each project component and of the Proposed Project as a whole. This table also indicates the level of impact significance before and after mitigation. Environmental impacts are numbered throughout this EIR, using an abbreviation corresponding to the section name (see **Table 4.1-1** for key to abbreviations) followed by sequentially numbered impacts. Mitigation measures are numbered to correspond to the impact numbers; for example, Mitigation Measure LU-1 addresses Land Use Impact LU-1.

4.1.3 Cumulative Impacts

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor, but collectively significant, actions when added to those of other closely related past, present, or reasonably foreseeable future projects. Guidance for cumulative impact analysis is provided in Section 15130 of the CEQA Guidelines:

a. An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
b. An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
c. A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
d. The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.
e. The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

The cumulative impact analysis for each environmental resource topic is described in the appropriate subsections of this Chapter, following the description of project-specific impacts and identified mitigation measures.

4.1.3.1 Approach to Cumulative Impact Analysis

Two approaches to a cumulative impact analysis are discussed in CEQA Guidelines Section 15130(b). The first approach uses a list of past, present, and reasonably foreseeable future projects producing related or cumulative impacts. The second approach is a summary of projections contained in an adopted local, regional, or statewide plan, such as a general plan or related planning document, or in an adopted or certified environmental document, which describes or evaluates conditions contributing to cumulative effects. For this EIR, other projects that may cause cumulative impacts have been identified using the list approach; however, as required by the Monterey Bay Unified Air Pollution Control District, the plan-based approach is used to assess cumulative impacts on regional air quality. In addition, the cumulative analysis for population and housing and for traffic relies upon population and housing projections and traffic modeling of the Association of Monterey Bay Area Governments, respectively. Greenhouse gases also are assessed using summaries of projections.

Section 15355 of the CEQA Guidelines defines "cumulative impacts" as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental effects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. In addition to assessing the combined impacts of the project and past, present and probable future projects, the EIR determines whether the impact of the Proposed Project is cumulatively considerable.

Three criteria were used to determine an appropriate list of relevant past, present, and future projects to be considered in this cumulative analysis: (1) similar environmental impacts, (2) geographic scope and location, and (3) timing and duration of implementation. A relevant future probable project is defined as one that is "reasonably foreseeable," such as a Proposed Project that has approved funding or for which an application has been filed and deemed complete by an approving agency by the time of commencement of environmental review of the Proposed Project. In addition, some projects may be excluded from the cumulative list if the agency and/or applicant were not actively pursuing further entitlements at the time of preparation of this EIR.

Similar Environmental Impacts

Projects that are relevant to the cumulative impact analysis include projects that could contribute incremental environmental effects on the same resources as, and would have similar impacts to, those discussed in this EIR applicable to the Proposed Project. Cumulative impacts that could occur when the impacts of the Proposed Project are considered in combination with the impacts of other relevant projects are discussed in **Sections 4.2** through **4.16** of this EIR.

Geographic Scope and Location

Projects that are relevant to the cumulative analysis include those that are within the defined geographic scope for the cumulative effect. The defined geographic scope is dependent on the environmental resource affected. Generally, the geographic scope includes the area within and adjacent to the facility component site. However, for certain environmental resource topics the geographic scope extends farther, such as the regional roadway network, regional air basin, or the Seaside Groundwater Basin. The following describes the geographic scope by resource topic:

Aesthetics. The geographic scope for cumulative impact analysis of aesthetic resources consists of all Proposed Project component sites and the immediate vicinity around each of these sites that are visible from the same public vantage point as the Proposed Project component sites.

Air Quality and Greenhouse Gas Emissions. The geographic scope for cumulative analysis of regional air quality impacts is the air basins in which the facilities are being constructed and operated, and any downwind air basins that may be affected by emissions from the project. In this case, the location of the project site and the predominantly west-northwest winds would not affect other air basins; therefore, only projects and plans applicable to the jurisdiction of the Monterey Bay Unified Air Pollution Control District (MBUAPCD) (i.e., the

North Central Coast Air Basin) would apply. Projects throughout this region could have adverse effects on the regional air quality and the same sensitive receptors within the region. For localized air quality effects, the geographic scope is the vicinity of the Proposed Project component sites. Because greenhouse gas (GHG) emissions affect global climate change, the evaluation of GHG emissions is inherently a cumulative impact issue. The geographic scope for cumulative impact analysis of GHG emissions includes the North Central Coast Air Basin, as well as the State of California.

Biological Resources: Fisheries. The geographic scope for cumulative impact analysis of biological fisheries resources consists of the Reclamation Ditch and Salinas River watersheds. The fisheries cumulative analysis focuses on the cumulative projects that could adversely affect surface water flows and water quality in addition to the Proposed Project.

Biological Resources: Terrestrial. The geographic scope for cumulative impact analysis on terrestrial biological resources consists of the overall region (central coastal California) in which the Proposed Project components would be being constructed. Projects throughout the region could have adverse effects on the same sensitive species and habitats that occur within and adjacent to the Proposed Project component sites.

Cultural Resources. The geographic scope for cumulative impact analysis on cultural resources includes all sites upon which past, present and probable future projects could affect the same cultural resources as the Proposed Project. The known cultural resources potentially affected by the Proposed Project are historical and archeological resources along segments of the CalAm Distribution System: Monterey Pipeline.

Energy and Mineral Resources. The geographic scope for cumulative impact analysis of energy and mineral resources consists of Monterey County and PG&E's service area.

Geology, Soils, and Seismicity. The geographic scope for cumulative impact analysis on geology and soils consists of each Proposed Project component site and the immediate vicinity around each of these sites. Geologic and seismic impacts are generally site-specific, because they depend upon the local geology and soil conditions and do not have additive effects with activities/projects beyond the immediate vicinity.

Hazards and Hazardous Materials. The geographic scope for cumulative analysis on hazardous and hazardous materials consists of the Proposed Project component sites and the immediate area surrounding the sites, including roadways.

Hydrology and Water Quality: Groundwater. The geographic scope consists of two primary groundwater basins that are located beneath the Proposed Project area, the Salinas Valley Groundwater Basin and the Seaside Groundwater Basin.

Hydrology and Water Quality: Surface Water and Marine. The geographic scope for cumulative impact analysis on hydrology and water quality of inland surface water includes the watersheds of the surface water bodies that would receive surface flows that originate or interact with other surface water at the Proposed Project sites. The geographic scope for cumulative impact analysis on marine water quality includes the area near the MRWPCA ocean outfall diffusers (the marine study area shown in **Figure 4.13-1, Existing Marine Biological Resources Study Area**).

Land Use, Agriculture, and Forest Resources. The geographic scope for cumulative impact analysis of land use impacts consists of the immediate area of each Proposed Project component site. The geographic scope for cumulative impact analysis on agriculture and forest resources consists of Monterey County.

Marine Biological Resources. The geographic scope for cumulative impact analysis of marine biological resources is the area in the immediate vicinity of the existing MRWPCA ocean outfall and diffusers (the marine study area shown in **Figure 4.13-1**).

Noise and Vibration. The geographic scope for cumulative impact analysis of noise and vibration consists of the Proposed Project component sites, and the immediate vicinity around each of these sites in which noise could combine with noise from the Proposed Project to adversely affect the same sensitive receptors.

Population and Housing. The geographic scope for cumulative impact analysis of population and housing consists of the counties of Monterey, San Benito and Santa Cruz in which construction and operational employees of the Proposed Project may live.

Public Services, Utilities, and Recreation. The geographic scope for cumulative impact analysis of public services consists of the service areas of the public service providers evaluated (fire protection, police protection, schools, and parks). For landfill capacity, the geographic scope includes the service area of the Monterey Regional Wastewater Management District (MRWMD) Landfill. For compliance with solid waste statutes and regulations, the geographic scope encompasses Monterey County, including incorporated cities within which the project components are proposed.

Traffic and Transportation. The geographic scope for cumulative impact analysis of transportation and traffic consists of the roadways affected by construction and operation of the Proposed Project and the areas in northern Monterey County that use the same roadways as the Proposed Project.

Water Supply and Wastewater Systems. The geographic scope for cumulative impact analysis of water supply and wastewater systems includes the service areas for the providers of water supply service and MRWPCA for wastewater treatment.

Timing and Duration of Implementation

Projects that are relevant to the cumulative analysis include projects that could contribute impacts that coincide with Proposed Project impacts during construction (short-term) or operation (long-term). Construction of the Proposed Project would last approximately 18 months (for all of the Proposed Project component sites combined), occurring between approximately June 2016 and November 2017 (see **Chapter 2, Project Description**, **Figure 2-30**, **Proposed Project Construction Schedule**). For temporal impacts such as air pollutant emissions, and increased noise levels and traffic during construction, cumulative effects could overlap with those of the Proposed Project, and would affect the same environmental resources.

4.1.3.2 List of Relevant Projects

Table 4.1-2, Projects Considered for Cumulative Impacts Analysis provides a list of the past, present, and probable future projects within and near the Proposed Project area, including a brief description of the projects and their anticipated construction schedules. **Table 4.1-2** also identifies the potential cumulative effects associated with each of the listed projects. **Figure 4.1-1 <u>rev</u>, Location of Projects Considered in the Cumulative Analysis,** shows the location of the cumulative projects; the numbering of the projects in the table correlates to the numbered location of the projects on the figure. The cumulative impact analysis is presented in each resource topic in the subsections that follow this section. A summary of all the cumulative impacts is provided in **Chapter 6, Cumulative Overview**. One cumulative project that is included in the cumulative analyses for most resource topics is the Monterey Peninsula Water Supply Project (with the 6.4 mgd desalination plant), which includes a smaller desalination plant and improvements to existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities to enable CalAm to inject desalinated product water into the groundwater basin for subsequent extraction and distribution to customers. The following describes this cumulative project in detail due to its integrated relationship to the Proposed Project, including sharing some project objectives, joint use of certain facilities (such as the MRWPCA Regional Treatment Plant site and ocean outfall), and the overlapping geographic locations.

CalAm Monterey Peninsula Water Supply Project and its Variant

The Proposed Project is designed to provide part of the replacement water needed for CalAm to comply with the Cease and Desist Order and the Seaside Basin Adjudication as described in more detail in **Section 2.3.2.4**. The Proposed Project does not propose to produce all of the needed replacement water, but the primary goal of the project is to produce 3,500 AFY to be used by CalAm in order to reduce its Carmel River diversions by that same amount. The Proposed Project could provide this quantity of replacement water regardless of whether the California Public Utilities Commission approves CalAm's application to construct and operate a desalination plant. In other words, the Proposed Project could accomplish its objective, and be useful to reducing Carmel River diversions, independent from approval of CalAm's proposed desalination plant. While the Proposed Project could proceed as an independent project, the Proposed Project is related to the Monterey Peninsula Water Supply Project in that the Proposed Project could reduce the size of CalAm's proposed desalination plant. Further, MRWPCA would not construct the Proposed Project unless the California Public Utilities Commission (CPUC) approves a Water Purchase Agreement that authorizes CalAm to purchase the water that is produced by the Proposed Project.

The CalAm Monterey Peninsula Water Supply Project (MPWSP) is a proposed component of the regional water supply portfolio needed to solve the existing water supply problems facing CalAm's service area. This EIR assumes that the Proposed Project would be built with or without implementation of the desalination plant that CalAm is proposing to build. If the Proposed Project is built, then a desalination plant constructed by CalAm would be built at the smaller size of 6.4 mgd rather than the larger, 9.6 mgd size that also is undergoing evaluation in the CalAm MPSWP EIR. This EIR, therefore, considers the version of the CalAm MPSWP that includes the smaller (6.4 mgd) CalAm desalination plant as a cumulative project.

CalAm's CPUC Application A.12-04-019 calls the project scenario that includes a smaller (6.4 mgd) desalination plant scenario the "MPWSP Variant," and states that the smaller desalination plant along with the GWR Project would be capable of meeting the total demand of 15,296 AFY for CalAm's Monterey District service area (Monterey District) as well as all other project objectives for the MPSWP. Under the MPWSP Variant, the total water produced by the CalAm desalination plant would be 6,252 AFY, compared to 9,752 AFY if CalAm were to construct the larger desalination plant. The MPWSP Variant would require fewer subsurface slant wells (only seven wells) for the seawater intake system as compared to the larger desalination plant that requires ten (10) wells.

Notably, both the CalAm MPSWP (with a 6.4 mgd desalination plant) and the Proposed Project include the CalAm Distribution System: Monterey and Transfer Pipelines. The CalAm Distribution System Pipelines are needed to supply water from the Seaside Basin to CalAm customers whether either the MPSWP or the Proposed Project is implemented, and also is needed if both the MPSWP (with a 6.4 mgd desalination plant) and the Proposed

Project is implemented. A summary of the facilities required to be built and operated for the MPWSP Variant is provided in **Appendix Y**.

Regardless of the size of the desalination plant, the MPWSP would also include improvements to existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities to enable CalAm to inject desalinated product water into the groundwater basin for subsequent extraction and distribution to customers. CalAm’s proposed improvements to the ASR system would also increase the efficiency and long-term reliability of the ASR system for injecting Carmel River water into the groundwater basin. Approximately 1,300 AFY of water would be produced by the ASR system according to the CPUC and CalAm documents. The MPWSP also includes over 30 miles of pipelines, two pump stations, and water storage tanks. The MPWSP area extends approximately 14 miles, from the proposed CalAm desalination plant site located in unincorporated Monterey County in the north to the western terminus of the proposed Monterey Pipeline in the City of Pacific Grove, and east approximately 8 miles to the unincorporated community of Hidden Hills along Highway 68. See **Figure 4.1-2, Monterey Peninsula Water Supply Project Location Map** for MPWSP facilities shown overlain with the GWR Facilities that would be built if the MPWSP with a 6.4 mgd desalination plant were built.

Table 4.1-2
Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
Monterey County					
1	CalAm Monterey Peninsula Water Supply Project (with Smaller 6.4 mgd Desalination Plant) (CalAm/ CPUC*)	See description in **Section 4.1.3.2.**	Geographic scope, location, and timing (Treatment Facilities, Product Water Conveyance System (RUWAP and Coastal Alignments) Product Water Booster Pump Station (RUWAP) Injection Well Facilities CalAm Distribution System Improvements)	2017-2019	See **Figure 4.1-2**. The CalAm desalination plant site would be located ½ mile northwest of the existing RTP (the site of the proposed GWR advanced treatment facilities and Salinas Valley Reclamation Plant improvements) The CalAm proposed subsurface slant wells at CEMEX would be located 2 miles west and/or northwest of the RTP; CalAm pipeline alignments and other CalAm facilities would be located throughout the Proposed Project area within less than ¼ mile in some locations. The Proposed Project and the CalAm Monterey Peninsula Water Supply Project would share the same ocean outfall.
2	Salinas Valley Water Project Phase 2 (Monterey County Water Resources Agency*)	The Salinas Valley Water Project Phase 2 would allow MCWRA to facilitate further offsets of groundwater pumping by delivering additional surface water to the Pressure and East Side subareas. The project would divert up to 135,000 acre-feet per year of water from the Salinas River for municipal, industrial, and/or agricultural uses in the Pressure and East Side subareas. Continued alleviation of groundwater pumping through use of the diverted surface water would help address seawater intrusion in Monterey County. The project proposes two surface water diversion points and their appurtenant facilities for capture, conveyance, and delivery of the water. The capture and diversion facilities would consist of either a surface water diversion facility, similar to the Salinas River Diversion Facility, or subsurface collectors, such as radial arm wells, which has not been determined. The conveyance facilities would be composed of pipelines and pump stations. The pipeline diameter, length, destination, number and location of turnouts, locations of pump stations, and physical layout of the conveyance facilities have not been determined. The delivery facilities may consist of injection wells for aquifer storage and recovery (ASR), percolation ponds, turnouts for direct use of the water, or other options. The construction design and physical location of the delivery facilities will be influenced by the type of facility, the end-user's intended application of the water (agricultural versus urban), and need for water treatment. The project design will be identified	Similar environmental impacts, geographic scope & location (Treatment Facilities, Product Water Conveyance System)	Construction not likely to coincide with Proposed Project. Schedule shows: Draft EIR (2015); project operation (2026)	The project would be located in Monterey County within the Salinas Valley and includes two surface water diversion points, one located near the City of Soledad (26 miles from the Salinas Pump Station) and the other located south of the City of Salinas (5-1/2 miles from the Salinas Pump Station). Each diversion point would be accompanied by conveyance and delivery facilities, the locations and termini of which have not been determined.

Table 4.1-2
Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
		after further feasibility and environmental review. (MCWRA, 2014a)			
3	East Garrison Specific Plan (UCP, Inc.)	Mixed-use development project comprised of residential, commercial, office, institutional, and recreational uses on approximately 244 acres. The project includes the construction of up to 1,470 dwelling units, 75,000 square feet of commercial uses, 11,000 square feet of public and institutional uses, 100,000 square feet of art/cultural/educational uses, and approximately 50 acres of open space. Development under the Specific Plan will be implemented in three phases. Phase I infrastructure has been completed. At end of 2013, construction of Manzanita Place Apartments (64 units) was nearing completion and 37 building permits for single family homes had been issued and were under construction. (Michael Brandman Associates, 2005, FORA, 2014, Monterey County Planning Department, 2013).	Geographic scope and location (Salinas Pump Station, Salinas Treatment Facility Source Water Diversion and Storage Site, Treatment Facilities)	Under construction in 2014 - 2020	Former Fort Ord Military Base, East Garrison Area. Approximately ½ mile southwest of the Salinas Treatment Facility.
4	DeepWater Desal (Deep Water Desal, Inc.)	Construction of a 15-mgd seawater desalination facility located on a 110-acre site in Moss Landing, on Dolan Road, approximately 1,500 feet east of the Moss Landing Power Plant. This project would serve the City of Salinas (Monterey County Planning Department, 2013).	Geographic scope and location (Product Water Pipelines), similar environmental impacts	Beyond 2017	Primary facilities in Moss landing area is approximately 2-1/2 miles northwest from the Tembladero Slough Diversion Site. Pipelines may be located within vicinity of the Proposed Project.
5	Interlake Tunnel (Monterey County Water Resources Agency)	The approximately 11,000-foot gravity-flow tunnel would move water from Lake Nacimiento to Lake San Antonio that would have otherwise been spilled at Nacimiento Dam (MCWRA, 2014b).	Additive beneficial impacts on the Salinas Valley Groundwater Basin water levels and seawater intrusion	Beyond 2020	74 miles southeast of the Salinas Pump Station.
~~6~~	~~Laguna Seca Villas (McIntosh Villas, LLC)~~	~~Construction of 20,306 square feet of professional office space on the Laguna Seca Office Park subdivision (Monterey County Planning Department, 2014).~~	~~Geographic scope and location (Salinas Pump Station, Salinas Treatment Facility Source Water Diversion and Storage Site, Treatment Facilities)~~	~~Unknown~~	~~Highway 68 about 3 miles from the Proposed Project Injection Well Facilities site~~
6	Harper Canyon (Harper Canyon Realty LLC)	The project consists of subdivision of 344 acres into 17 residential lots ranging in size from 5.13 acres to 23.42 acres on 164 acres and one 180-acre remainder parcel	Geographic scope and location (Salinas Pump Station, Salinas Treatment Facility Source Water Diversion and Storage	Approved	South of State Highway 68, Near intersection of Harper Canyon and San Benancio Road and about 3.5 miles from the Salinas Pump Station

Table 4.1-2
Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
			Site, Treatment Facilities)		
7	Corral De Tierra Road (Omni Enterprises, LLC)	Development of a new 100,000-square-foot shopping center that includes retail and office space (Monterey County Planning Department, 2014).	Geographic scope and location (Salinas Pump Station, Salinas Treatment Facility Source Water Diversion and Storage Site, Treatment Facilities)	Approved	Highway 68 over six miles from the Salinas Pump Station
8	Ferrini Ranch Subdivision (Bollenbacher &Kelton, Inc.)	Subdivision of an approximately 866-acre property into 185 residential lots, including 17 inclusionary unites; 28,500 square feet commercial/winery, parcel fronting on River Road, and 700 acres of open space (Monterey County Planning Department, 2014).	Geographic scope and location (Salinas Pump Station, Salinas Treatment Facility Source Water Diversion and Storage Site, Treatment Facilities)	Approved	South side of State Highway 68, between River Road and San Benancio Road and about 3 miles from the Salinas Pump Station
City of Sand City					
9	Monterey Bay Shores Resort (SNG Development Company)	A 341-unit "eco-resort" on 39 acres approved. Proposal calls for 161 hotel rooms, 180 condominiums, a restaurant, conference center, spa and three swimming pools.	Geographic scope and location (Product Water Conveyance - either alignment)	Project approved. Construction start date unknown.	Former Sand Mine site, near the Fremont / Highway 1 interchange about 1-1/2 miles west of the Proposed Project Product Water Conveyance (either alignment)
City of Marina					
10	The Dunes on Monterey Bay (Marina Community Partners)	Mixed-use development project comprised of an additional 1,237 residential units, 500 hotel rooms, and retail and office space on 297 acres. Phase 1 (378,000 sf Retail Center) built in 2007-08. Projects currently underway include the following: (1) South County Housing to develop and build 108 low and very low income affordable apartments to be completed by spring/summer 2014, (2) Cinemark multiple screen movie theater planned to be constructed by summer 2014, (3) Plans approved for two approximately 15,000 sf retail buildings to be built near the proposed movie theater, (4) Veterans Affairs Monterey Health Care Center located on a 14.31 acre project site within the Dunes on Monterey Bay Specific Plan area. (FORA, 2014).	Geographic scope and location (Product Water Conveyance – RUWAP Alignment) and timing of construction	Ongoing construction/full buildout scheduled for 2020	Former Fort Ord Military Base, Highway 1 / Imjin Parkway immediately adjacent to construction activities for the Proposed Project's proposed RUWAP product water conveyance alignment.
11	Marina Airport (City of Marina)	Marina Airport Economic Development Area – Airport development project aimed at promoting growth of the airport. Individual projects include: • Airfield Electrical System Upgrades • Runway Rehabilitation and Extension	Geographic scope and location (Product Water Conveyance – RUWAP Alignment)	Approved 2009–2013	Marina Municipal Airport located on the east side of the City of Marina; The proposed Product Water Conveyance – RUWAP Alignment is about ½ mile from the airport.

Table 4.1-2
Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
		• Taxiway Rehabilitation and Extension • Airfield NAVAIDS Improvements (City of Marina, 2014).			
12	Marina Station: Armstrong Ranch	Development project comprised of 1,360 residential units, approximately 60,000 square feet of retail space, 144,000 square feet of office space, and 652,000 square feet of business park/industrial uses (City of Marina, 2014).	Geographic scope and location (Product Water Conveyance – RUWAP and Coastal alignment options)	Unknown; Approved	The proposed Product Water Conveyance pipeline alignments (both the RUWAP and Coastal options) would pass immediately adjacent to or through the proposed site. Site plans for the previous proposed development at this site accommodated water supply pipelines such as those proposed and evaluated in this EIR.
13	Rockrose Gardens (Interim, Inc.)	Affordable housing for people with disabilities, 20 units of permanent supportive housing for people with psychiatric disabilities. (FORA, 2014)	Geographic scope and location (Product Water Conveyance – RUWAP Alignment)	Approved, construction completed Fall 2014	Former Fort Ord Military Base, Lexington Court in the city of Marina; less than 1 mile from construction activities for the Proposed Project's RUWAP Product Water Conveyance alignment.
14	Cypress Knolls Senior Residential Project	Senior residential community with active-adult housing, care services, senior community center, and supportive amenities and services on 188 acres (City of Marina, 2014).	Geographic scope and location (Product Water either alignment)	Unknown, Approved but Construction Suspended	On the northern side of the CSUMB campus in the city of Marina; immediately adjacent to construction activities for both Proposed Project Product Water Conveyance alignments.
15	Marina Heights	Removal of 828 abandoned residential units and replacement with a combination of 1,050 new townhouse, cottage, and single-family residential units. The project also includes 35 acres of parks, greenbelts, and open space (City of Marina, 2014).	Geographic scope and location (Product Water Conveyance – either alignment)	Unknown, Approved	On the northern side of the CSUMB campus in the city of Marina; immediately adjacent to construction activities for both Proposed Project Product Water Conveyance alignments.
16	North Campus Housing Master Plan (CSUMB*)	Includes 583 student housing units, leasing office, community center on 8-acres (more recently known as the Promontory Housing Project) (FORA, 2014).	Geographic scope and location (Product Water Conveyance- either alignment)	2015	On the northern side of the CSUMB campus in the city of Marina; immediately adjacent to construction activities for both Proposed Project Product Water Conveyance alignments.
17	ITCD Academic Building (CSUMB*)	New 58,000 square foot Information Technology and Communications Design (ITCD) and the School of Business academic building. (FORA, 2014)	Geographic scope and location (Product Water Conveyance, either alignment)	Unknown	Immediately west of the Tanimura and Antle Family Memorial Library on Divarty Street, less than ¼ mile from both Proposed Project Product Water Conveyance alignments.
18	Regional Urban Water Augmentation Project – Desalination (Marina Coast Water District*)	Construction of a 1,500-acre-foot-per-year desalination plant at the Marina Coast Water District Armstrong Ranch property, north of the city of Marina in Monterey County. The RUWAP project would extract seawater and potentially brackish water, produce desalinated water, and convey it to the existing District distribution systems (Marina Coast Water District, 2012).	Similar environmental impacts, geographic scope and location (Product Water Conveyance- RUWAP Alignment)	Unknown	Armstrong Ranch property, immediately adjacent to the RUWAP Product Water Conveyance alignment.
19	Regional Urban Water Augmentation Project – Recycled Water	The Recycled Water Alternative proposed to supply 1,500 AFY of recycled water for the Marina Coast Water District. This alternative also includes the following facility components: a new distribution system, and new operational storage	Similar environmental impacts, geographic scope and location (Product Water Conveyance- RUWAP	Unknown	This project would include facilities at the Regional Treatment Plant, plus facilities immediately south of the plant, pipelines, and pumps through Marina and the former Fort Ord. This project includes the same or similarly located product water pipeline alignment as the RUWAP and some proposed facilities for both

Table 4.1-2
Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
	(Marina Coast Water District*)	tanks and associated pumps (Marina Coast Water District, 2012).	Alignment; Treatment Facilities at Regional Treatment Plant)		this project and the Proposed Project would be located at the Regional Treatment Plant.
20	Slant Test Well Project (California American Water Company)	Construction of a temporary test well for collection of data regarding geology, hydrology, and water quality. The test well would extend diagonally under the floor of the Pacific Ocean through the Dune Sand Aquifer, Salinas Valley Aquitard (if present), and the 180-Foot Aquifer. The facility would operate for a period of up to 24 months (City of Marina, 2014).	No overlapping construction or operations	Approved; Complete in 2015	Cemex Sand Mining Facility, Lapis Road, west of Highway 1 and about 1 mile northwest of the Coastal alignment product water conveyance. The test well is proposed to become one of the permanent wells for Project #1 (MPWSP) if it operates successfully.
City of Seaside					
21	West Broadway Urban Village Specific Plan (City of Seaside*)	Mixed-use, transit-oriented development comprised of residential with ground-floor retail and commercial uses along Broadway Avenue, with supporting future transit-oriented development along the west side of Del Monte Boulevard. Includes a public library and parking structure on Broadway Boulevard and a hotel/conference center mixed-use development at the southeast corner of Canyon Del Rey and Del Monte Boulevards. Broadway infrastructure and street improvements to be completed near term. (City of Seaside, 2013b).	Geographic scope and location (CalAm Distribution System pipelines)	Ongoing construction due to redevelopment plans	West of Fremont Boulevard, along Broadway Avenue, Del Monte Boulevard, and Canyon Del Rey Boulevard, within less than ¼ of the CalAm distribution pipeline (Transfer).
22	Seaside Resort (Seaside Resort Development, LLC)	The first phase, completed in 2009, involved upgrades to the Bayonet and Black Horse Golf Courses. The next phase of development features a four-star hotel with approximately 275 hotel rooms, 175 timeshare units, and 125 residential units (City of Seaside, 2013c).	Geographic scope and location (Product Water Conveyance-either alignment; Injection Well Facilities)	Stage 1 2017-2018	Former Fort Ord Military Base, Monterey Road at Coe Avenue / immediately adjacent to both of the Proposed Project Product Water Conveyance alignments and approx. ½ mile north of the Proposed Project Injection Well Facilities.
23	90-Inch Bay Avenue Outfall Phase 1 (City of Seaside*)	Improvement project to 1) Install a discharge valve at the outfall discharge; 2) Annual maintenance and manual breaching of the sand bar to allow gravity flow through the culvert (requires Coastal Permit); 3) Create an infiltration basin at John Street and Redwood Avenue to mitigate flooding in this area; 4) Reconstruct the existing elevated emergency outlet structure, including doubling the size of the box to increase the width of the emergency outlet structure; and 5) Construct a curbed channel along the top of the existing 90-inch diameter culvert from the emergency out let to the check valve	Similar environmental impacts, geographic scope and location (CalAm Distribution System pipelines)	Unknown	Redwood Avenue and John Street in the City of Sand City, located within ¼ mile of the CalAm distribution pipelines (specifically, the CalAm Monterey Pipeline).
24	Monterey Downs and Horse Park and Central Coast Veteran's	The Specific Plan would include a 225,000-square-foot horse training facility comprised of a track and stabling area, ancillary buildings, and a 6,500-seat sports arena and grandstand; a 330,000-square-foot commercial center; a 15,000-	Geographic scope and location (Product Water Conveyance- RUWAP Alignment; and Injection Well Facilities)	Unknown; Draft EIR released March 2015	Former Fort Ord Military Base East of General Jim Moore Boulevard, south of Inter-Garrison Road and north of Eucalyptus Road over 1 mile east of the RUWAP alignment for the Product Water Conveyance.

Table 4.1-2
Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
	Cemetery Specific Plan (City of Seaside*)	square-foot horse park with a visitors center, office space, veterinary clinic, and horse stables; two affordable extended-stay hotels with a total of 256 units; 1,280 residential units ranging from apartments to single-family residential homes; a 100,000-square-foot office park; a 200-room (100,000-square-foot) hotel; a 5,000-square-foot tennis and swim club; a 73-acre habitat preservation area; and 74 acres dedicated to open space and parks and infrastructure. The Central Coast Veterans Cemetery component of the Specific Plan project includes 13,838 burial sites for 20 years of interments, an administration building, a maintenance yard and building, memorial areas, veterans' hall, cultural history museum, chapel, and a 300-seat amphitheater for special events. An adjacent 45.9-acre parcel is proposed as a habitat restoration area (City of Seaside, 2013a).			
25	Del Monte Blvd Dry Weather Diversion (City of Seaside*)	An existing 90-inch diameter storm drain pipe conveys water from approximately 2,000 acres within the City of Seaside to an outfall at Monterey Bay. The existing water quality is poor due to urban water impacts. The project consists of construction of a Dry Weather Storm Water diversion at Del Monte Boulevard to the sanitary sewer system. Diverted water would be treated by the regional treatment plant and reused for existing non-potable and potential future potable uses.	Similar environmental impacts, geographic scope and location (CalAm Distribution System pipelines)	2015	Broadway Avenue between Del Monte Boulevard and Fremont Boulevard and at Del Monte Boulevard, less than ¼ mile from the CalAm Transfer and Monterey Pipelines.
26	West Broadway Stormwater Retention (City of Seaside*)	The project consists of construction of a storm water treatment and diversion system in Broadway Avenue between Del Monte Boulevard and Fremont Boulevard and at Del Monte Boulevard. Treated water would be diverted to retention structures for groundwater recharge.	Similar environmental impacts, geographic scope and location (CalAm Distribution System pipelines)	Unknown	Broadway Avenue between Del Monte Boulevard and Fremont Boulevard, and Del Monte Boulevard between Broadway Avenue and Contra Costa Street; within ¼ of the CalAm Distribution System Transfer and Monterey Pipelines.
27	Seaside Groundwater Basin Aquifer Storage and Recovery Phase 1 (Monterey Peninsula Water Management District*)	Water supply project comprised of two injection/extraction wells, a backwash percolation basin, a chemical/electrical building, and conveyance pipelines. During high-flow periods in the Carmel River, river water is injected into Seaside Groundwater Basin, then extracted during dry periods or periods of high demand (MPWMD, 2005).	Similar environmental impacts, geographic scope and location (Injection Well Facilities Site)	Construction completed in 2008	General Jim Moore Boulevard and Eucalyptus Boulevard, primary physical facilities located ¼ mile from the Proposed Project Injection Well Facilities.
28	Seaside Groundwater	This phase includes two injection/extraction wells and appurtenant facilities (MPWMD, 2013).	Similar environmental impacts, geographic	Construction completed in 2014	Seaside Middle School General Jim Moore Boulevard at Coe Avenue. This project's

Table 4.1-2
Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
	Basin Aquifer Storage and Recovery Phase 2 (Monterey Peninsula Water Management District*)		scope and location (Product Water Conveyance, Injection Facilities)		physical facilities are located immediately adjacent to the Proposed Project Product Water Conveyance pipeline and ¼ northwest of the Proposed Project's Injection Well Facilities.
29	Dredge Laguna Grande and Roberts Lake (City of Seaside*)	Create additional storage capacity, visitor serving amenities, and habitat enhancements at Laguna Grande and Roberts Lake. The additional storage capacity could act as a reservoir for diversion of stormwater to the proposed GWR project. Conjunctive use of water from Roberts Lake could be a viable alternative to breaching the sand bar to avoid flooding.	Similar environmental impacts, geographic scope and location (CalAm Distribution System pipelines)	Unknown	Near the intersection of Highway 218 (aka Canyon Del Rey Boulevard) and Del Monte Boulevard, immediately adjacent to the proposed CalAm Distribution System: Monterey Pipeline.
City of Monterey					
30	459 Alvarado Street	Development of 36 residential units and 12,000 square feet of commercial uses (City of Monterey, 2014).	CalAm Distribution Pipelines-Monterey Pipeline	Approved; Under Construction	Within ¼ mile of the CalAm Distribution System Monterey Pipeline Alignment in Old Town Monterey.
31	480 Cannery Row	Ocean View Plaza – Mixed-use development project comprised of 87,362 square feet of commercial space, 30,000 square feet of restaurant space, 8,408 square feet of coastal/community use, 38 market-rate condominiums, and 13 inclusionary housing units (City of Monterey, 2014).	CalAm Distribution System-Monterey Pipeline	Unknown	Located approximately 1 mile north of the western terminus of the CalAm Distribution System Monterey Pipeline.
City of Pacific Grove					
32	Local Water Project (City of Pacific Grove*)	Construction of a new local satellite recycled water treatment plant at the former Point Pinos Wastewater Treatment Plant to treat Pacific Grove wastewater and deliver recycled water to irrigation sites in the city (CPUC, 2012a).	Similar environmental impacts, timing and duration of implementation; similar project objectives	2015 - 2016	Sunset Drive adjacent to Pacific Grove Golf Links, approximately 5 miles west of the CalAm Distribution System Monterey Pipeline.
33	Monterey-Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project (Cities of Monterey and Pacific Grove*)	Divert stormwater from the Greenwood Park and Congress Storm Drain Watersheds to the David Avenue Reservoir site, provide treatment, and deliver recycled water to irrigation sites throughout the city. Facilities include a 15-million-gallon storage reservoir and 8,800 lineal feet of recycled water distribution pipeline (CPUC, 2012a).The primary purpose of the project is to improve stormwater quality prior to being discharged into the ASBS, in accordance with State Water Resources Control Board (SWRCB) standards. A secondary project purpose is to provide stormwater as a source of non-potable recycled water supply for local irrigation.	Similar environmental impacts	2018 -2020	Citywide – David Avenue Reservoir, Pine Avenue, Ocean View Blvd, former wastewater treatment plant site, 1 mile north of the CalAm Distribution System Monterey Pipeline.

Table 4.1-2

Projects Considered for Cumulative Analysis (listed by primary geographic area in which project is located)

Cumulative Project No.	Project Name (Proponent or Proponent and Lead Agency)*	Project Description	Areas of Overlap (Potentially Affected Project Components)	Estimated Construction Schedule	Project Location / Approximate Distance to nearest GWR Project Component
City of Salinas					
34	City of Salinas Solar Project	The project would build 17.9 acres of photovoltaic solar panels at the Salinas Treatment Facility Diversion and Storage site. 12.3 acres of those panels and their corresponding power would be leased to MRWPCA for use at the Salinas Pump Station for diversion and pumping of agricultural wash water and southwestern storm water along with sewage.	Geographic scope and location; timing and duration of implementation (Salinas Treatment Facility Diversion and Storage Site)	Start in 2015 and complete in 2016	Adjacent to the Proposed Project facilities at the Salinas Treatment Facility Diversion and Storage site
Other Projects					
35	Fort Ord Dunes State Park Campground (California State Parks*)	The project proposes construction and operation of a campground facility and associated infrastructure within Fort Ord Dunes State Park, including 45 RV sites and two host sites, 10 hike/bike sites, and 43 tent sites; parking; restrooms and showers; a multi-purpose building; outdoor campfire center, interpretation/ viewing areas; renovation of existing bunkers; an entrance station near the 1st Street underpass; modular structures; storage yard and maintenance shop; improved beach access/trails; one plumbed restroom with shower; 200 foot wildlife/habitat corridor; internal campground trail network, trail improvements and roadway improvements; and off-site utilities.	Geographic scope and location; timing and duration of implementation (Product Water Conveyance – Coastal Alignment)	2015	Fort Ord Dunes State Park is located immediately west of the Transportation Agency for Monterey County rail corridor and State Highway 1 west of the former Fort Ord; immediately adjacent to the Proposed Project Coastal Alignment Option Product Water Conveyance alignment.

*Proponent is identified specifically when available and in all cases for water projects. Lead Agency is shown as the jurisdiction unless stated otherwise.

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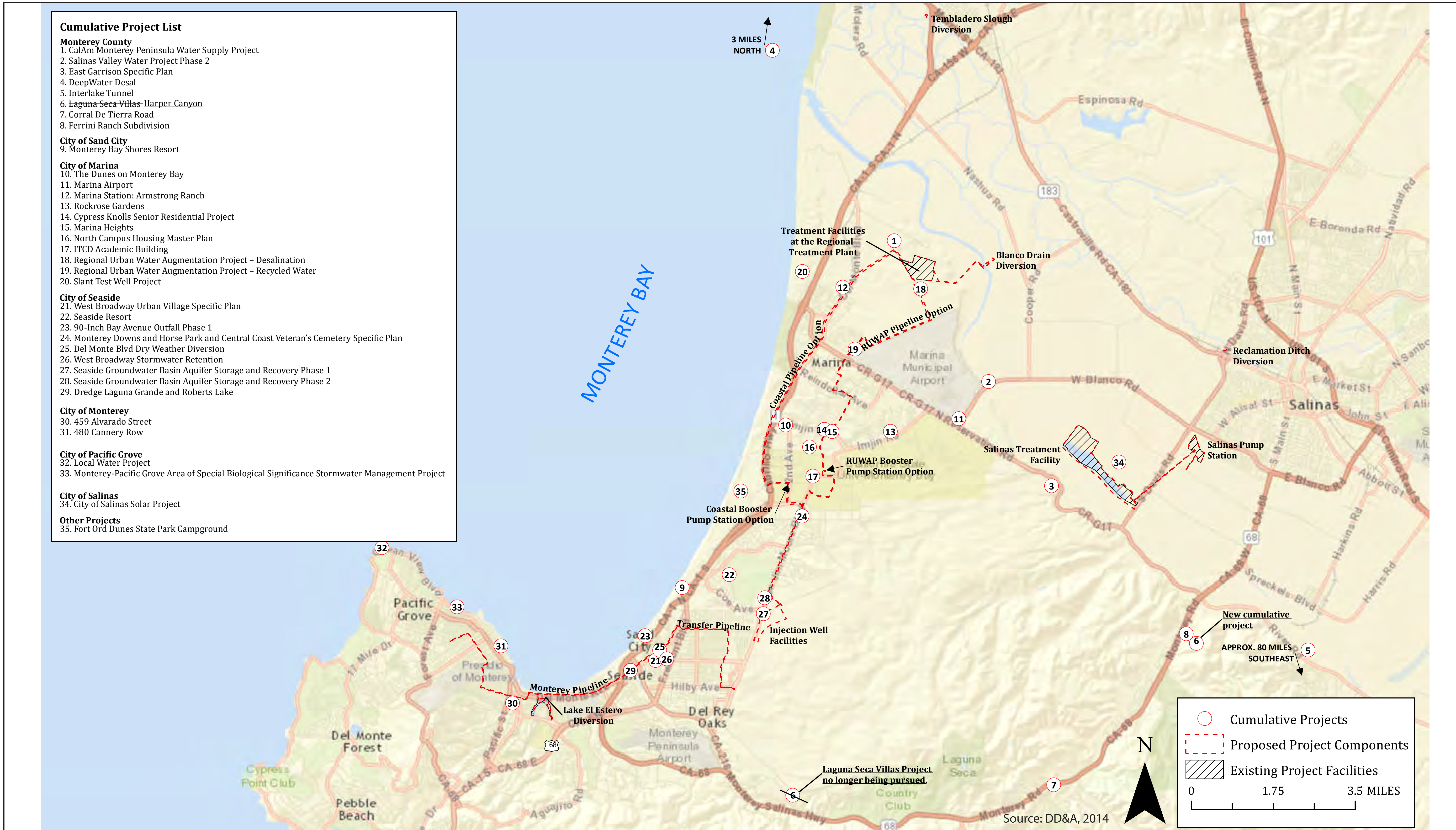

Cumulative Projects Location Map

This figure has been revised in response to comments R-1 and R-2.
September 2015

Pure Water Monterey GWR Project
Final EIR

Figure
4.1-1
rev

DD&A

Monterey Peninsula Water Supply Project Location Map

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.1-2

4.2 AESTHETICS

Sections	Tables	Figures
4.2.1 Introduction 4.2.2 Environmental Setting 4.2.3 Regulatory Framework 4.2.4 Impacts and Mitigation Measures 4.2.5 References	4.2-1 Summary of Visual Sensitivity Conditions 4.2-2 Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Aesthetics and Scenic Resources 4.2-3 Visual Impact Scale for Operational Impact Analysis 4.2-4 Summary of Impacts - Aesthetics	4.2-1A Site Photos-Source Water Diversion Sites from Public Viewpoints 4.2-1B Site Photo of Treatment Facilities at Regional Treatment Plant 4.2-1C Site Photos of Product Water Conveyance Pump Stations 4.2-2 Photosimulation of Injection Well Facilities

4.2.1 Introduction

This section describes the existing visual character of the Proposed Project area and evaluates how the components would affect scenic views and resources. Visual resources information in this section was compiled from site photographs and site surveys conducted by DD&A. Information on proposed structures, including dimensions and architectural details, was provided by MRWPCA and its consultants.

Public and agency comments received during the public scoping period in response to the Notice of Preparation are summarized in **Appendix A, Scoping Report**. No comments were received with regard to aesthetics or visual impacts.

4.2.1.1 Concepts and Terminology

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would alter the visual character and quality of the environment, a visual or aesthetic impact may occur. Visual quality, visual character and visual sensitivity, affected viewers and exposure sensitivity and visual study area are the terms used throughout the analysis, and are defined below.

Visual Quality

Visual quality is defined as the overall visual impression or attractiveness of a site or locale as determined by its aesthetic qualities (such as color, variety, vividness, coherence, uniqueness, harmony, and pattern). Natural and built features combine to form perspectives with varying degrees of visual quality, which are rated in this analysis as low, moderate, and high, as follows:

- **Low.** The location is lacking in natural or cultural visual resource amenities typical of the region. A site with low visual quality will have aesthetic elements that are relatively unappealing and perceptibly uncharacteristic of the surrounding area.
- **Moderate.** The location is typical or characteristic of the region's natural or cultural visual amenities. A site with moderate visual quality maintains the visual character of the surrounding area, with aesthetic elements that do not stand out as either contributing to, or detracting from, the visual character of an area.

- **High.** The location has visual resources that are unique or exemplary of the region's natural or cultural scenic amenities. A site with high visual quality is likely to stand out as particularly appealing and makes a notable positive contribution to the visual character of an area.

Visual Character

Visual character is a general description of the visual attributes of a particular land use setting and the unique set of landscape features. The purpose of defining the visual character of an area is to provide the context within which the visual quality of a particular site or locale is most likely to be perceived by the viewing public. For urban areas, visual character is typically described on the neighborhood level or in terms of areas with common land use, intensity of development, and/or landscaping and urban design features. For natural and open space settings, visual character is most commonly described in terms of areas with common landscape attributes (such as landform, vegetation, or water features).

Affected Viewers and Exposure Sensitivity

Affected viewers and exposure sensitivity conditions address the variables that affect viewers and their visual exposure to the project component sites. The identification of viewer types and volumes describes the type and quantity of potentially affected viewers within the visual study area. Land uses that derive value from the quality of their settings are considered potentially sensitive to changes in visual conditions. Sensitive viewers are those who generally would be considered to have a strong stake or interest in the quality of the landscape when viewing a site from a public vantage point. Examples of viewers with elevated concern for visual quality include travelers on designated scenic routes, and park visitors and other recreationists in public recreational areas.

Viewer exposure considers some or all of the following factors: landscape visibility (the ability to see the landscape); viewing distance (the proximity of viewers to the component sites); viewing angle (whether the component sites would be viewed from a superior, inferior, or level line of sight); extent of visibility (whether the line of sight is open and panoramic to the facility sites or restricted by terrain, vegetation, and/or structures); and duration of view. Generally, viewer sensitivity relates to the level of interest or concern the public has for a particular aesthetic resource.

Visual Sensitivity

Visual sensitivity is the overall measure of a site's susceptibility to adverse visual changes. Visual sensitivity is rated as high, moderate or low and is determined based on the combined factors of visual quality, viewer types and volumes, and visual exposure to the Proposed Project as described above. A setting's overall visual sensitivity is the measure of its susceptibility to significant visual impacts as a result of project-caused visual change. Thus, significant adverse impacts are typically unlikely in a setting with low overall sensitivity.

4.2.1.2 Visual Study Area

For the purpose of this analysis, the visual study area for each component site is what would be visible to the public. The Proposed Project sites are located in both developed and open space settings. In some locations, trees, shrubs, and buildings restrict or block views of component sites as viewers move away from these sites; consequently, these elements limit the visual study area in most places to publicly accessible locations immediately surrounding Proposed Project sites. In other locations, however, favorable topographic relationships or the lack of intervening features extends the distance from which a viewer would be able to observe features of the proposed sites.

4.2.2 Environmental Setting

4.2.2.1 Visual Character of the Project Area

The coastal landscape of northern Monterey County is aesthetically rich and visually diverse, and some areas, such as the Monterey Peninsula, are widely recognized and highly regarded for their aesthetic quality. To summarize the visual setting in northern Monterey County, landscape units were digitized in GIS using aerial photos and observation of the area during site visits. The landscape units are based on combinations of physical and cultural features that result in similar visual quality. While biological groups (e.g., "oak woodland") are sometimes used to describe certain landscape units, these units are strictly aesthetic delineations based on multiple factors including land use, position in the landscape, degree of urbanization, and boundaries of vegetation communities, among others. The landscape units used to describe the project area where Proposed Project sites are located include: urban and developed, hillside residential, agricultural, beaches and coastal dunes, grass and rangeland, riparian, coastal shrub, oak woodland, and forested hills.

Urban and Developed

This landscape unit includes the cities of Salinas, Monterey, Marina, Seaside and Pacific Grove. In addition, this landscape unit includes areas outside these cities that are considerably developed. This landscape unit consists almost entirely of developed features and the aesthetic quality of any particular scene depends on land uses, building style/architecture, condition, height, mass and density, infrastructure improvements, adjacent scenery, and visible background views. Proposed Project components that would be within or adjacent to the Urban and Developed landscape unit include the Reclamation Ditch Diversion, portions of the Blanco Drain Diversion, the Lake El Estero Diversion, the Treatment Facilities at the Regional Treatment Plant, portions of the RUWAP Pipeline Alignment Option, the RUWAP Booster Pump Station Option, portions of the Coastal Pipeline Alignment Option, the Coastal Booster Pump Station Option, and the CalAm Distribution Pipelines(Transfer and Monterey Pipelines).

Hillside Residential

This landscape unit consists of single family residential units on large lots in and around hillside areas. It is distinguished from the urban and developed landscape unit by the significant amount of open space that exists between dwellings. The hillsides are both wooded and open, and often offer expansive views. The visual quality of this landscape unit is moderate to high because of its distinctive relief, and semi-natural state. Hillside residential areas are one of the dominant views from Proposed Project areas in the Monterey Peninsula and around Salinas. The Proposed Project does not include any new or existing components that would be within this landscape unit.

Agricultural

The Salinas Valley is known for its rural and agricultural aesthetic, popularized to a great extent by the novels of John Steinbeck. That quintessential rural landscape brings to mind vast agricultural fields, dairies, farmhouses, water towers, mills and small dusty towns. Though the years have modernized and urbanized much of the Salinas Valley, many areas still retain a rural and agricultural aesthetic. The visual quality of this landscape unit generally varies from moderate to high, depending on the degree to which other modifications (utilities, industry, highways, etc.) either contribute to or detract from its earlier feel. Some modified areas within this landscape unit have a low visual quality, for example, where industrial-type uses have been constructed. Proposed Project components that would be within or adjacent to the Agricultural landscape unit include the Salinas Pump Station Diversion, the Salinas Treatment Facility, the Tembladero Slough Diversion and portions of the Blanco Drain Diversion.

Beaches and Coastal Dunes

The coastal dunes and beaches of Monterey Bay may be one of the most distinctive and visually pleasing landscape units in the project area. In the project area, the coastal dunes can reach 100 feet in height with moderate to steep slopes, and colonized to varying degrees by scattered patches of dune scrub. This scene, adjacent to the waters of Monterey Bay, displays soft forms, curved lines and distinctive natural color contrasts that are visually appealing. The beaches in this landscape unit are gently sloped, broad, white sand beaches that extend along an increasingly curved arc from Moss Landing to Monterey. This landscape unit occurs west of Highway 1 from Moss Landing, south to the Seaside/Monterey boundary. Portions of this landscape unit are within the view corridor of Highway 1 (State Route 1), which is eligible for listing as a California State Scenic Highway in the project area. Portions of the Proposed Project Product Water Conveyance pipeline (coastal option) would be within this landscape unit.

Grass and Rangeland

This landscape unit consists of undulating hills of grass that have historically been logged or grazed, or consist of natural grassland habitat. This unit occurs north of Marina as well as in various hilly areas between Monterey and Salinas. The visual quality of this landscape would be moderate to high because it consists of open space and may or may not be degraded by human activity (grazing, soil disturbance, power lines, etc.) Portions of the Blanco Drain Diversion, portions of the RUWAP Pipeline Alignment Option, and portions of the Coastal Pipeline Alignment Option would be within the landscape unit.

Riparian and Aquatic

This landscape unit consists of wetlands, marshes, sloughs and stream corridors. These areas are often flat and consist of wetland vegetation and riparian trees, including cottonwood, sycamores and willows. The presence of water, pleasing color contrasts, and variety in vegetation gives moderate to high visual quality to this landscape. Portions of the Blanco Drain Diversion would be within the Riparian and Aquatic landscape unit.

Coastal Scrub

This landscape unit occupies non-urbanized areas within well-stabilized sand dunes in and around Marina, Seaside and former Fort Ord. The topography of this landscape is characterized by gently rolling hills that achieve heights of up to 400 feet, and is mantled with vegetation such as coyote brush, manzanita, sticky monkey flower, wild lilac and poison oak. The visual quality of this landscape would be moderate to high because it consists of open space and may or may not be negatively influenced by human activity (adjacent land uses, soil disturbance, power lines, etc.). Project components within this landscape unit would include the Injection Well Facilities Site.

Oak Woodland

Within older, more stable soils are patches of coast live oak woodland. The oak woodland is in and around former Fort Ord and consists of a dense to moderately open shrub canopy with a sparse herbaceous understory. The topography of the landscape consists of hills with gentle to moderate slopes. The Oak Woodland creates a savannah-like to more densely wooded appearance, depending on canopy cover, which ranges from 20% to 60% of the ground surface. The visual quality of this landscape would be moderate to high because it consists of open space and may or may not be negatively influenced by human activity (adjacent land uses, soil disturbance, power lines, etc.). A portion of the RUWAP Pipeline Alignment Option would be within this landscape unit.

Forested Hills

This landscape unit primarily occurs in the mountains between the Pacific Ocean and the Salinas Valley. This landscape unit consists almost entirely of large evergreen trees on moderate to steep slopes. Roads may crisscross the landscape, but it is generally remote and absent of homes or other structures. The visual quality of this landscape is moderate to high, depending on steepness of topography and degree of forest cover. There are no proposed or existing project components within this landscape unit.

4.2.2.2 Scenic Views and Scenic Resources

Scenic Roads

Two state highways in the Monterey region have been designated as scenic highways by the California Department of Transportation (Caltrans), or are deemed eligible for such designation. Designated scenic roadways and eligible scenic roadways in the project area include portions of Highway 1and Highway 68 as described below.

- **Highway 1.** The portion of Highway 1 between Highway 68 and the San Luis Obispo County line is a designated scenic highway. Highway 1 is eligible for designation as a scenic highway between Highway 68 and the Santa Cruz County line.
- **Highway 68.** The segment of Highway 68, also known as the Monterey-Salinas Highway, which extends from Highway 1 in the City of Monterey to the Salinas River, is a state-designated scenic highway; the segment of Highway 68 extending from the Salinas River to the City of Salinas is eligible for designation as a scenic highway.

There are no locally designated scenic roads in the project area. The City of Monterey General Plan identifies Del Monte Boulevard adjacent to Lake El Estero as a “proposed scenic road,” and also states that “all major roads leading to Monterey are scenic corridors.”

Monterey County identifies Reservation Road east of Marina city limits as a proposed scenic route in the Greater Monterey Peninsula Area Plan.

Scenic Views and Resources

The following areas have been identified in local General Plans as being important scenic areas, resources or views:

- **Monterey County.** The Greater Monterey Peninsula Area Plan states that The Greater Monterey Peninsula Visual Sensitivity Map shall be used to designate visually "sensitive" and "highly sensitive" areas generally visible from scenic routes. The map designates the coastline west of Highway 1 as "highly sensitive" (excluding lands within the city limits of Seaside and Marina), and lands east of Highway 1 between Marina city limits and the Salinas River as "sensitive." Visually "sensitive" areas are also designated along Highway 68.
- **City of Marina.** Marina's General Plan identifies that ocean views from Highway 1 shall be maintained to the greatest extent possible, development on the primary ridgeline of the Marina dunes shall be avoided, and new development should be sited and designed to retain scenic views of inland hills from Highway 1, Reservation Road, and Blanco Road.
- **City of Monterey.** According to the City's General Plan, Lake El Estero along with several other water bodies (Washerwoman's Pond, Del Monte Lake at the Naval Postgraduate School, and Laguna Grande to the east of Monterey) are significant visual resources. The following additional scenic views and resources are identified in the City's Local Coastal Program (LCP):
    - Del Monte Avenue as local entry view, the Recreation Trail/Transportation Corridor, views from northbound Highway 1 (proposed scenic highway), and viewpoints from public streets and city and state beaches (Del Monte Beach LCP).
    - Coastal overviews from Canyon Del Rey to Laguna Grande (Laguna Grande/Roberts Lake LCP).
- **City of Seaside.** The City of Seaside General Plan identifies views of significant natural features and unique public views visible from the Highway 1 between Fremont Boulevard and the northern boundary of the City as visual resources to be protected or preserved. The City indicates that the scenic and visual qualities of lakes and coastal areas, including Roberts Lake, Laguna Grande, the coastal sand dunes, and Monterey Bay/Pacific Ocean, including from State Highway 1, shall be considered visual resources of public importance.
- **City of Salinas.** The City of Salinas General Plan (City of Salinas, 2002a) does not identify significant view corridors in the vicinity of Project components, although some areas along Highway 101 outside of Project sites are identified as important gateways to the City.

4.2.2.3 Visual Character and Sensitivity of Project Sites

This section describes the overall visual character and sensitivity of each Proposed Project component site including its visual quality, potentially affected viewers and exposure conditions. **Table 4.2-1, Summary of Visual Sensitivity Conditions** summarizes these attributes, which are described in more detail in the remainder of this section. **Figures 4.2-1A through 4.2-2** include photographs showing existing visual conditions at the project component sites.

Table 4.2-1
Summary of Visual Sensitivity Conditions

Facility Site	Landscape Unit	Visual Quality	Affected Viewers and Exposure Conditions	Visual Sensitivity
Salinas Pump Diversion	Agricultural	Low	Low	Low
Salinas Treatment Facility	Agricultural	Low	Low	Low
Reclamation Ditch Diversion	Urban and Developed	Low	Low	Low
Tembladero Slough Diversion	Agricultural	Moderate	High	High
Blanco Drain Diversion	Agricultural, Riparian and Aquatic, Grass and Rangeland, Urban and Developed	Low	Low	Low
Lake El Estero Diversion	Urban and Developed	High	High	High
Treatment Facilities at Regional Treatment Plant	Urban and Developed	Low	Low	Low
RUWAP Pipeline Alignment Option	Urban and Developed, Grass and Rangeland, Oak Woodland, Coastal Shrub	Moderate	Low	Moderate
RUWAP Booster Pump Station Option	Urban and Developed	Low	Low	Low
Coastal Pipeline Alignment Option	Urban and Developed, Grass and Rangeland, Beaches and Coastal Dunes, Coastal Shrub	Moderate	Moderate	Moderate
Coastal Booster Pump Station Option	Urban and Developed	Moderate	Low	Low
Injection Well Facilities	Coastal Scrub	Moderate	Moderate	Moderate
CalAm Transfer Pipeline	Urban and Developed	Low	Low	Low
CalAm Monterey Pipeline	Urban and Developed	Moderate	Moderate	Moderate

Source Water Diversion Sites

Salinas Pump Station Diversion

The Salinas Pump Station Diversion Site, which contains existing public utility/facility uses, is located in the Agricultural landscape unit. Adjacent lands are actively cultivated agricultural fields. Rural residential uses are located approximately one-third mile to the north along the north side of Blanco Road, and about one-half mile to the east, and are separated from the Salinas Pump Station by actively-farmed agricultural land. The Salinas River is the primary natural feature located in the project component site vicinity, which is located approximately 1.5 miles to the southwest. The City of Salinas Industrial Wastewater Treatment Facility is approximately one mile to the south of the Salinas Pump Station. **Figure 2-18, Proposed Project Facilities Overview**, shows the location of the existing Salinas Pump Station.

- **Visual Quality.** The site is not located within a designated scenic vista or a scenic corridor as defined by the Monterey County General Plan. The site's existing visual features are characterized by the existing industrial-looking development located on the site, including the existing pump station structure, warehouses, tanks, animal shelter and other agricultural equipment and material storage areas. Nearby areas are predominantly characterized by agricultural lands. The site lacks notable natural or cultural features that would make its visual or aesthetic conditions unique or appealing. The conditions at the site are not representative of the open space and agricultural aesthetic that characterizes the surrounding agricultural landscape. The site does not have aesthetic elements that are visually notable or appealing as found in the surrounding area. Therefore, the visual quality of the site is considered low.
- **Affected Viewers and Exposure Conditions.** East Blanco Road, approximately 1/3 mile to the north of the site, is the closest heavily-traveled public roadway to the Salinas Pump Station site. Existing views of the site are dominated by agricultural fields, and the Salinas Pump Station site is not prominently visible due to the distance of over 1/3 mile from East Blanco Road. In addition, numerous large structures to the west and south of the site screen views of the site from the nearby public roadways. Similarly, the site is not highly visible from Davis Road, which is approximately ¼ miles west of the site. Due to the distance from scenic Highway 68 of 1 ¼ miles, the site is not visible from this road. Thus, the visual exposure of the site is considered low.
- **Visual Sensitivity.** Due to the existing low visual quality of the Salinas Pump Station site and low exposure of the site, the overall visual sensitivity of the site is considered low.

Salinas Treatment Facility Storage and Recovery

The existing Salinas Treatment Facility is located adjacent to the Salinas River, downstream of the Davis Road crossing. The site is located in the Agricultural landscape unit. The existing facility consists of an influent pump station, aeration lagoon, percolation ponds, and rapid infiltration beds to treat, percolate and evaporate the industrial wastewater. The total area of the site is approximately 281 acres, with the majority of that area comprised of the percolation ponds. The Salinas Treatment Facility is surrounded by agricultural operations to the north, east, and west, and the Salinas River to the south. **Figure 2-18,** shows the location of the existing Salinas Treatment Plant and **Figure 4.2-1A, Site Photos of Source Water Diversion Sites from Public Viewpoints** shows a photograph of the site.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the Monterey County General Plan. The site contains utility-type development as a water and wastewater treatment and conveyance site, but the site's visual appearance is largely dominated by the existing percolation ponds that have the appearance of man-made open water. Nearby areas are predominantly characterized by agricultural lands. The site lacks notable natural or cultural features that would make its visual or aesthetic conditions unique or appealing. The conditions at the site are not representative of the open space and agricultural aesthetic that characterizes the surrounding agricultural landscape. The site does not have aesthetic elements that are notably appealing as is the case for the surrounding area, and therefore, the visual quality of the site is considered low.

- **Affected Viewers and Exposure Conditions.** The site is adjacent to Davis Road, which is a moderately heavily-traveled public roadway. Existing views are dominated by agricultural fields. The entrance to the facility is visible to motorists on Davis Road; however, the rest of the facility is screened from view due to existing vegetation and a slight change in topography. Due to the distance from scenic Highway 68 of two miles, the site is not visible from this road. Therefore, the visual exposure of the site is considered low.
- **Visual Sensitivity.** Due to the low visual quality and low exposure conditions of the site, the overall visual sensitivity is considered low.

Reclamation Ditch Diversion

The Reclamation Ditch Diversion site is located near the corner of Highway 183 (Market Street) and Davis Road, and is located in the Urban and Developed landscape unit. The site location is adjacent to the existing narrow, open ditch that is generally lacking vegetative growth. The majority of the surrounding area is industrial in nature and appearance. The diversion location is in a fenced area located beneath the overpass of North Davis Road, just north of Highway 183. **Figure 2-18, Proposed Project Facilities Overview**, shows the location of the existing Reclamation ditch.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the Monterey County General Plan. Nearby areas are predominantly characterized by agricultural lands and industrial buildings. The site consists of an artificially constructed ditch surrounded by disturbed land and industrial buildings with little vegetation. The site is not considered to be aesthetically appealing as it lacks vegetation, or notable natural or cultural elements that contribute positively to its visual or aesthetic features. Therefore, the visual quality of the site is considered low.
- **Affected Viewers and Exposure Conditions.** The site is located adjacent to the Davis Road overpass over Highway 183, which is a heavily-traveled public roadway. Existing views are dominated by agricultural fields to the west and the industrial buildings in Salinas to the east. The site is visible from the Davis Road, but only for a short duration, and it is not a prominent visual feature of the surrounding area. The visual exposure of the site is considered low.
- **Visual Sensitivity**. Due to the low visual quality and the low exposure conditions of the site, the visual sensitivity is considered low.

Tembladero Slough Diversion

The Tembladero Slough Diversion is located at the existing MRWPCA Castroville Pump Station, which is located just south of the Highway 1/Highway 183 intersection. The site is located in the Agricultural landscape unit. The existing Castroville Pump Station consists of a small, low-profile building that is fenced and surrounded by agricultural lands. The area of the slough upon which the diversion would be constructed is adjacent to the building on the south. **Figure 2-18**, shows the location of the existing Tembladero Slough and **Figure 4.2-1A** shows a photograph of the site from Highway 1, the public viewpoint that is most visible.

- **Visual Quality.** The site is not located within a designated scenic vista or a scenic corridor as defined by the Monterey County General Plan. However, the site is visible along Highway 1, which Caltrans has identified as being eligible for designation as a scenic highway between Highway 68 and the Santa Cruz County line. The visual quality of the site is characterized by the small existing pump station building adjacent to the Tembladero Slough channel that is surrounded by agricultural lands. The visual quality of the slough is characterized by a relatively narrow, straight, unlined drainage ditch that can overtop the banks during rainy periods. The surrounding area is characterized by agricultural lands with agricultural structures and buildings in Castroville, as well as distant views of the Moss Landing power plant. The site lacks notable natural or cultural visual features in comparison to the open space and agricultural aesthetic that characterizes the surrounding area. Although the site lacks prominent aesthetic qualities, due to the proximity of the Proposed Project site to Highway 1, the visual quality of the site is considered moderate.
- **Affected Viewers and Exposure Conditions.** The site is located approximately 0.1 miles west of Highway 1, which is a heavily-traveled public roadway. The site is visible to motorists and bicyclists on Highway 1 for a limited duration along an approximate 1/4-mile segment of the highway. The visual exposure of the site is considered high. The existing pump station building is similar or smaller in size and scale as many of the other agricultural structures and buildings within Castroville that are visible from this vantage point. The visual exposure of the site is considered high.
- **Visual Sensitivity.** Due to the moderate visual quality and the high exposure conditions of the site, the visual sensitivity is considered high.

Blanco Drain Diversion

The proposed Blanco Drain Diversion pump station site is located adjacent to the existing seasonal pump station (operated by Monterey County Water Resources Agency) in an agricultural area east of the Regional Treatment Plant. The new underground pipeline would extend from the new pump station to the Regional Treatment Plant. The diversion pump station and pipeline would be located within several landscape units as summarized on **Table 4.2-1**. **Figure 2-18** shows the location of the existing Blanco Drain.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the Monterey County General Plan. The site consists of a relatively wide, deep and artificially created drainage channel that is surrounded by actively farmed agricultural fields. The site lacks notable natural or cultural visual features in comparison to the open space and agricultural aesthetic that characterizes the surrounding agricultural landscape. Therefore, the visual quality of the site is considered low.
- **Affected Viewers and Exposure Conditions.** The site is located approximately 0.5 miles west of Nashua Road, which is a moderately-traveled road. Existing views are dominated by agricultural fields. There are no pubic viewpoints of this site. As such, the visual exposure of the site is considered low.

- **Visual Sensitivity.** Due to the low visual quality the low exposure conditions of the site, the visual sensitivity is considered low.

Lake El Estero Diversion

Lake El Estero is located within the City of Monterey within the Urban and Developed landscape, and is surrounded by a mix of recreational, residential and commercial developments. The site is bounded on the north by Del Monte Boulevard, on the south by Lake El Estero, on the east by Camino Aguajito and on the west by Camino El Estero. The lake, which is a prominent visual feature, is “U” shaped, and contains the El Estero Park Complex (including a playground, youth center, ballpark, dance studio, boating concession, snack bar, and skate park), the San Carlos, Saint John’s and El Encinal cemeteries, a city dog park, as well as various walking trails. The Proposed Project component site is near the northeast corner of Lake El Estero. Currently, there is a concrete slab at the site of the proposed improvements, which protrudes slightly into the lake; beneath the slab there are various pieces of equipment that regulate and control the water levels of the lake. **Figure 2-18** shows the location of Lake El Estero and **Figure 4.2-1A** shows a photograph of the site.

- **Visual Quality.** The site is immediately adjacent to Del Monte Boulevard, which is identified as a “proposed scenic road” in the City of Monterey General Plan (see Map 2 in City of Monterey, 2005 General Plan). The City’s General Plan also indicates that Lake El Estero is a significant visual resource. The lake is a prominent visual feature in this location and other environs surrounding the lake, although the existing Proposed Project site consists of a low-profile concrete slab with piping and an electrical box that are visible to drivers along Del Monte Boulevard and from within the surrounding parkland area. Given the lake’s visual prominence and the General Plan identification of Lake El Estero as a significant visual resource, the lake and surrounding area, including the Proposed Project site, are considered unique visual resources that stand out as being particularly appealing and making a notable positive contribution to the visual character of an area. For this reason, the visual quality of this site is considered high.
- **Affected Viewers and Exposure Conditions.** The Monterey Peninsula Recreational Trail (also referred to as the Monterey Bay Coastal Trail) is in close proximity to Lake El Estero, and many other public trails run throughout the area immediately surrounding the lake. The Proposed Project site is visible to varying degrees from Del Monte Boulevard roadway and sidewalks, the Coastal Trail and other nearby areas. The visual exposure of the site is considered high.
- **Visual Sensitivity.** Given that the lake is considered a significant visual resource in the City of Monterey General Plan, Del Monte Boulevard is a proposed scenic road in the City’s General Plan, and considering the high degree of public exposure of the site, the overall visual sensitivity of the site is considered high.

Treatment Facilities at Regional Treatment Plant

The proposed Advanced Water Treatment Plant and Salinas Valley Reclamation Plant Modifications would be located at the existing MRWPCA Regional Treatment Plant (RTP). The RTP site is located in the Urban and Developed landscape unit due to the existing structures and development, although the surrounding area is generally located in the

Agricultural landscape unit. The existing RTP is characterized by large scale public utility/industrial-looking tanks and structures. The tallest structures on site (tricking filter towers) are 37 feet tall. The proposed Advanced Water Treatment Plant site is located in the northwest corner of the RTP, and is a flat unpaved area that is undeveloped and does not contain any treatment facilities or structures. The Salinas Valley Reclamation Plant Modifications would be located within the existing reclamation facilities on the southern part of the site. **Figure 2-18** shows the location of the existing Regional Treatment Plant, **Figure 2-8, Existing Regional Treatment Plant Facilities Map**, shows the locations of the existing RTP facilities in more detail, and **Figure 4.2-1B, Site Photo of Treatment Facilities at the Regional Treatment Plant** shows a photograph of the site.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the Monterey County General Plan. The existing visual quality of the Regional Treatment Plant is characterized by the existing structures, tanks and equipment that result in an industrial-looking appearance. The site does not contain any visual features that are visually unique. Both the RTP site and the Proposed Project locations at the RTP lack notable natural or cultural visual features in comparison to the open space and agricultural aesthetic that characterizes the surrounding agricultural landscape. Therefore, the visual quality of the site is considered low.
- **Affected Viewers and Exposure Conditions.** The site is not visible from any public roads; therefore the visual exposure of the site is low.
- **Visual Sensitivity.** The overall visual sensitivity of the site is considered low due to the low visual quality of the site and the lack of visibility from any public roads.

Product Water Conveyance

RUWAP Pipeline Alignment Option

The RUWAP Pipeline Alignment Option component would begin at the proposed Advanced Water Treatment Facility and continue south to the Injection Well Facilities Site. This alignment option would generally follow what is commonly known as the recycled water pipeline route through the City of Marina, California State University Monterey Bay (CSUMB), and the City of Seaside. The proposed pipeline alignment traverses areas that are primarily within the Urban and Developed landscape unit, with the exception of the following: the northernmost portion is within the Grass and Rangeland unit; a small portion passes through the CSUMB Campus within the Oak Woodland landscape unit; and the southeastern portion near the Injection Well Facilities site is within the Coastal Scrub unit. **Figure 2-18,** shows the location of the RUWAP Pipeline alignment option.

- **Visual Quality.** The pipeline alignment is not located within a designated scenic vista of a scenic corridor as defined by the Monterey County, cities of Marina or Seaside General Plans. From north to south, the pipeline alignment passes through open rolling grasslands, developed residential neighborhoods in the City of Marina, a portion of the college campus at CSUMB, and developed and undeveloped areas in the City of Seaside. The visual character of the area is dominated by urban development with some intervening open areas. The open grassland and small area of oak woodlands maintain the aesthetic of the surrounding area. Overall, the area does not have aesthetic elements that are notably appealing or that are representative of the surrounding area, however the presence of Oak Woodland landscape unit increases the aesthetic value, therefore the visual quality of the component site is considered moderate.

- **Affected Viewers and Exposure Conditions.** There are no new above-ground permanent facilities proposed as part of the RUWAP Pipeline Alignment Option. The areas that the pipelines would pass through are not located within a designated scenic vista or scenic corridor as defined by the General Plans for Monterey County, and the cities of Marina or Seaside. For these reasons, the visual exposure of this component is low.
- **Visual Sensitivity.** The overall visual sensitivity of this site is considered moderate because of the variable natural and urban conditions of the alignment. Although this component (pipeline) would be completely underground upon completion of construction, a portion of the pipeline construction would occur within the Oak Woodland landscape unit that is considered to have a moderate visual sensitivity.

RUWAP Booster Pump Station Option

This Proposed Project site is located off of 5th Avenue in the City of Seaside. The site is located within the Urban and Developed landscape unit as it is located within a parking lot adjacent to existing structures on the CSUMB campus. **Figure 2-18** shows the location of the proposed RUWAP Booster Pump Station and **Figure 4.2-1C, Site Photos of Product Water Conveyance Pump Stations** shows a photograph of the site.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the Seaside General Plan. The visual quality of the site is characterized by college buildings and parking lots within an institutional setting. The site lacks notable natural or cultural visual features. The visual quality is considered low due to the developed nature of the site.
- **Affected Viewers and Exposure Conditions.** The site is located in a parking lot, and roads to the site are closed to public access. The site is part of a distant view from Inter-Garrison Road and nearby classrooms and university, residential dormitories and lower in topography from the nearby features. Because the views of the site currently are predominated by the pavement and buildings of the City of Marina Corporation Yard and the views from nearby public areas are blocked by other buildings and trees, the visual exposure of the site is considered low.
- **Visual Sensitivity.** The overall visual sensitivity is considered low due to the developed nature of the site and the low visual quality and low exposure.

Coastal Pipeline Alignment Option

The Coastal Pipeline Alignment Option would begin at the Proposed Advanced Water Treatment Facility and continue south to the Injection Well Facilities Site. This Proposed Project component would follow in parallel with a portion of CalAm's proposed new Monterey Peninsula Water Supply Project desalination product water pipeline along the eastern side of the Transportation Agency of Monterey County railroad tracks. A segment of the northern portion of the Coastal Pipeline Alignment is located on the west side of Highway 1 adjacent to the Fort Ord Dunes State Park. The southern portion of the Coastal Alignment would be located in the former Fort Ord within the cities of Marina and Seaside.

The pipeline alignment primarily runs through the Urban and Developed landscape unit, with the exception of the northernmost portion which is within the Grass and Rangeland landscape unit, a central segment adjacent to Fort Ord Dunes State Park is within the Beaches and Coastal Dunes landscape unit, and the southeastern segment near the Injection Well Facilities site is within the Coastal Scrub landscape unit. **Figure 2-18** shows the location of the proposed Coastal Pipeline alignment option.

- **Visual Quality.** The majority of the pipeline alignment is not located within a designated scenic vista of a scenic corridor as defined by the Monterey County, Marina or Seaside General Plans. However, a segment of the alignment within the City of Marina is adjacent to Highway 1, which Caltrans has identified as being eligible for designation as a scenic highway between Highway 68 and the Santa Cruz County line. From north to south, the pipeline alignment passes through open rolling grasslands, developed residential neighborhoods in the City of Marina, a portion of the college campus at CSUMB, and developed and undeveloped areas in the City of Seaside. Except for the northern and central segment of the alignment, the visual character of the area is dominated by urban development with some intervening open areas with no notable visual or aesthetic features. However, the open grassland and dunes adjacent to Highway 1 maintain the aesthetic character of the area surrounding those areas. Therefore the visual quality of the component site is considered moderate.
- **Affected Viewers and Exposure Conditions.** There are no new above-ground permanent facilities proposed as part of the Coastal Pipeline Alignment Option. The areas that the pipelines would pass through are not located within a designated scenic vista or scenic corridor as defined by the Monterey County General Plan, City of Marina General Plan or City of Seaside General Plan. However, a segment of this Proposed Project component would be located adjacent to Highway 1, which is eligible for designation as a scenic highway and is also within the Highway 1 Design Corridor as defined by the Fort Ord Reuse Authority. The segment of the alignment adjacent to Fort Ord Dunes State Park would also be visible in some areas of Monterey Bay Coastal Recreational Trail on the west side of Highway 1. For these reasons, the visual exposure of this component is moderate.
- **Visual Sensitivity.** The overall visual sensitivity of this site is considered moderate because of the variable natural and urban conditions of the alignment. Although this component would be completely underground after construction is completed, the visual quality and visual exposure are both moderate.

Coastal Booster Pump Station Option

This Proposed Project component would be located in the City of Seaside on the southwest corner of the Divarty Street/2nd Avenue intersection at the edge of the CSUMB campus across the street from former military barracks. The site is within the Urban and Developed landscape unit. Former military housing that is dilapidated and unmaintained with broken windows and graffiti is located immediately to the north of the site. The areas immediately south and west of the site are currently vacant land, although the City of Seaside General Plan and CSUMB Master Plan both plan for development at this site in the future. The CSUMB campus is located to the east; however the sites immediately adjacent contain large sprawling parking lots that are not maintained and lack vegetation. Further to the east (i.e., approximately 1/4–mile away) are sports fields and recreational facilities, including the soccer/track stadium, baseball and softball fields, and swimming pool facility. These facilities are at a lower elevation than the site and thus do not have prominent views of the site. **Figure 2-18** shows the location of the proposed Coastal Booster Pump Station and **Figure 4.2-1C** shows a photograph of the site.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the City of Seaside General Plan; however it is part of the CSUMB transportation corridor buffer. The site is currently undeveloped and is bordered to the north by Divarty Street, which is lined with cypress, Monterey pine and other trees. The visual quality is considered moderate due to the presence of existing trees that are typical of tree cover in the area.
- **Affected Viewers and Exposure Conditions.** The site is visible along 2nd Avenue and Divarty Street and potentially from distant CSUMB campus buildings. It is not visible from Highway 1. The visual exposure of the site is considered low.
- **Visual Sensitivity.** The overall visual sensitivity is considered moderate due to the moderate visual quality, although the visual exposure is considered low.

Injection Well Facilities

The Injection Well Facilities site is located within the Coastal Scrub landscape unit. The southernmost portions of the site are near the low point of a moderately sloped hillside, covered with low scrub vegetation. Much of the hillside area of the Injection Well Facilities site has been disturbed by earth moving activities of various degrees, due to the ongoing expansion of General Jim Moore Boulevard, and former military training operations and environmental remediation activities associated with the former Fort Ord. **Figure 2-18** shows the location of the proposed Injection Well Facilities and **Figure 4.2-2, Photosimulation of Injection Well Facilities** shows a photograph of the site.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the City of Seaside General Plan. The site is generally characterized by open, gently rolling terrain. The topography and vegetation of the site provide moderately interesting and varied aesthetic features due to the primarily open space character of the area, although the visual context as viewed from General Jim Moore Boulevard also includes roads, power lines, dirt paths and other disturbed areas before shifting into a more suburban character with nearby homes to the west. The roadway and previous site disturbances somewhat diminish the aesthetic appeal of the scene, although the more distant view is generally open and undeveloped except for power transformers. There is also an existing small building and injection/extraction wells as part of the nearby Aquifer Storage and Recovery Project. Overall, the site is given a moderate rating for visual quality associated with the open, coastal scrub landscape that generally characterizes the area, although there is some low-profile development that is visible and past military munitions removal activities have denuded the vegetative cover.

- **Affected Viewers and Exposure Conditions.** The site is visible from several blocks of residences along the east side of Nadina Street and Lysette Court, and a portion of the site is briefly and intermittently visible from General Jim Moore Boulevard. Although the area is not within a scenic vista or view corridor, and is not valued for recreational uses, it is briefly visible from General Jim Moore Boulevard and some nearby residences. The property to the east is the Fort Ord National Monument; however, the area is currently not open to the public for recreational use due to the presence of military munitions and clean-up activities occurring on an ongoing basis. The visual exposure of the site is considered moderate. In the future, when the land is developed and open space becomes available to the public for recreational access, the visual exposures may increase due to the potential future construction of homes and business and use of the open space by the public. This is addressed under cumulative impacts in **Section 4.2.4.6**, below.

- **Visual Sensitivity.** Due to the open space, undeveloped nature of the site and input received from the City of Seaside, (City of Seaside, 2015) and the moderate visual quality and exposure, the overall visual sensitivity is considered moderate.

CalAm Distribution System Improvements

Transfer Pipeline

The proposed Transfer Pipeline alignment would begin at the intersection of Del Monte Boulevard/Auto Center Parkway and extend east along La Salle Avenue to Yosemite Street; it would then turn south and continue to Hilby Avenue, ending at General Jim Moore Boulevard. The pipeline would be contained within the public right of way of the roads listed above. This route would traverse a developed area within the Urban and Developed landscape unit, which contains residential and commercial developments. **Figure 2-18** shows the location of the proposed Transfer Pipeline alignment.

- **Visual Quality.** The site is not located within a designated scenic vista of a scenic corridor as defined by the City of Seaside General Plan. The proposed pipeline alignment is located within roadways of developed areas with views typical of suburban residential and commercial neighborhoods, and minimal vegetation or new development (i.e., most of the alignment was developed in the middle of the 20th century and has not been redeveloped since then with the exception of some residential lots and small commercial sites). Sources of light and glare in the surrounding area include nighttime lighting emanating from the surrounding Urban and Developed landscape and automobile headlights along nearby roadways. The visual quality of the site is considered low.

- **Affected Viewers and Exposure Sensitivity.** The Transfer Pipeline route is visible from nearby residences and businesses, as well as from automobiles traveling along the roads adjacent to the proposed route. However, the exposure sensitivity is rated low, as the route is not located within a scenic vista or view corridor and is not valued for recreational uses.

- **Visual Sensitivity.** Given that the majority of the route is within the Urban and Developed landscape unit, and considering the surrounding development, the visual quality is considered low. Based on the above-described factors, the overall visual sensitivity of the Transfer Pipeline route is low.

Monterey Pipeline

The proposed route for the Monterey Pipeline would begin at the intersection of Del Monte Boulevard/Auto Center Parkway, extending southwest between Del Monte Boulevard and California Avenue. The entire segment is situated within the Urban and Developed landscape unit. The pipeline would be installed within the Transportation Agency for Monterey County railroad right-of-way, roughly parallel to and alongside the Monterey Peninsula Recreational Trail (where present). The portion of the Monterey Pipeline alignment between Auto Center Parkway and Canyon Del Rey Boulevard would run within a densely developed commercial and light industrial corridor. Continuing west, the portion of the proposed alignment between Canyon Del Rey Boulevard and Figueroa Street would also traverse the Urban and Developed landscape unit; however, in some locations, the pipeline alignment could be adjacent to the Del Monte Dunes Environmental Reserve and Monterey State Beach, both of which are within the Beaches and Coastal Dunes landscape unit. From Figueroa Street, the proposed route would continue west through the Urban and Developed landscape unit, characterized by residential and commercial development of varying densities. Sources of light and glare include nighttime lighting emanating from the surrounding urban uses and automobile headlights along nearby roadways. **Figure 2-18** shows the location of the proposed Monterey Pipeline alignment.

- **Visual Quality.** The alignment is not located within a designated scenic vista of a scenic corridor as defined by the City of Monterey General Plan. However, a short segment along Del Monte Boulevard within the City of Seaside is identified in the City's Local Coastal Program as being within a scenic view. Given its location within a densely developed commercial and light industrial corridor, the portion of the proposed Monterey Pipeline alignment east of Canyon Del Rey is considered to be of low visual quality. The portion of the proposed pipeline west of Canyon Del Rey Boulevard is considered of moderate visual quality because of its proximity to the Monterey Peninsula Recreational Trail, the Coastal Dunes landscape unit, and residential areas.

- **Affected Viewers and Exposure Conditions.** The visual exposure of the proposed Monterey Pipeline alignment east of Canyon Del Rey is considered low, as existing development, trees, and fencing would screen views of the proposed route for motorists or pedestrians traveling along Del Monte Boulevard. The visual exposure of the proposed pipeline west of Canyon Del Rey Boulevard is moderate, as project activities along the alignment would be visible from residences as well as by motorists, pedestrians, and bicyclists traveling in the area.

- **Overall Visual Sensitivity.** Based on the above-described factors, the overall visual sensitivity of the Monterey Pipeline route east of Canyon Del Rey Boulevard is low, while the portion west of Canyon Del Rey Boulevard is moderate.

4.2.3 Regulatory Framework

4.2.3.1 Federal

No federal regulations relative to scenic or visual resources would be applicable to the Proposed Project.

4.2.3.2 State

California Scenic Highway Program

In 1963, the State of California established the Scenic Highway Program to develop a system of State roadways whose adjacent corridors contained scenic resources worthy of protection and enhancement. Sections 260 through 263 of the State Streets and Highways Code establish the Scenic Highways Program and require local government agencies to take the following actions to protect the scenic appearance of the scenic corridor:

- Regulate land use and density of development,
- Provide detailed land and site planning,
- Prohibit off-site outdoor advertising and control on-site outdoor advertising,
- Pay careful attention to and control earthmoving and landscaping, and
- Scrutinize the design and appearance of structures and equipment.

As previously indicated, designated state scenic highways in the project vicinity include Highway 1 between Highway 68 and the San Luis Obispo County line and Highway 68 between the City of Monterey and the Salinas River.

California Coastal Act

Portions of the Proposed Project study area (see below) are in the California Coastal Zone, as defined by the California Coastal Commission (CCC). The California Coastal Act requires that local government carry out its goals and policies through the Local Coastal Program (LCP) process. Each local jurisdiction within the Coastal Zone is required to prepare a LCP that contains a land use plan and implementation regulations that implement the provisions of the Coastal Act. Proposed developments located within the coastal zone are required to obtain a Coastal Development Permit from local agencies that have a certified LCP. If a coastal jurisdiction does not have a certified LCP, a coastal permit must be obtained from the CCC.

There are three components of the Proposed Project that would be located in the coastal zone and that would be subject to policies in local certified LCPs or would require coastal permits from the CCC where certified LCPs are not in place, as identified below:

- Tembladero Slough Diversion;
- Product Water Conveyance Pipeline (Coastal Alignment): a short segment within the unincorporated area of Monterey County and most of the alignment within the City of Marina;
- CalAm Distribution System, Monterey Pipeline: Segments in Sand City, City of Seaside and approximately half of the segment in the City of Monterey.

All the above local jurisdictions have certified LCPs, except for several areas within the City of Monterey. **Table 4.2-2** identifies local and Coastal Act policies related to scenic and aesthetic issues that may be applicable to the Proposed Project.

4.2.3.3 Regional and Local

Highway 1 Design Corridor Design Guidelines

This document provides a set of design guidelines for the creation of design standards and zoning ordinances by jurisdictions with authority along the three-mile Highway 1 segment within the former Fort Ord military base. Portions of the Coastal Alignment option of the Product Water Conveyance component of the Proposed Project, including the Coastal option of the booster pump station, would be located within this area. The Guidelines serve as the basis for future Fort Ord Reuse Authority (FORA) consistency determination review of legislative, land use, and project approvals submitted by affected jurisdictions, as required by state law. FORA, as obligated by the provisions of the 1997 adopted Fort Ord Base Reuse Plan ("Base Reuse Plan") and the accompanying Environmental Impact Report, prepared the Guidelines.

Local General Plans and Local Coastal Programs

In addition to the general requirements of CEQA and California laws and regulations, scenic and aesthetic concerns are addressed in General Plans, local coastal plans/programs, and municipal codes of local jurisdictions within the Proposed Project area.

Plans and Policies Consistency Analysis

Table 4.2-2 describes the state, regional, and local land use plans, policies, and regulations pertaining to aesthetics that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.2-2, Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Aesthetics and Scenic Resources** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.2.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

4.2.4 Impacts and Mitigation Measures

4.2.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, the project would have a significant impact on aesthetics if it would:

a. Have a substantial adverse effect on a scenic vista;
b. Substantially damage a scenic resource, including but not limited to trees, rock outcroppings, and historic buildings, within a state scenic highway corridor;

c. Substantially degrade the existing visual character or quality of the site and its surroundings; and/or

d. Create a substantial new source of light or glare that would adversely affect day or nighttime views in the area.

A change to a few private views in a project's immediate vicinity is not generally regarded as a significant environmental impact under CEQA.

No additional significance criteria are needed to comply with the CEQA-Plus[1] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

[1] To comply with applicable federal statutes and authorities, EPA established specific "CEQA-Plus" requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

Table 4.2-2
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Aesthetics and Scenic Resources

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy, or Program	Project Consistency with Policies and Programs
County of Monterey	Monterey County General Plan	Conservation and Open Space	Salinas Treatment Facility Reclamation Ditch Diversion Site Blanco Drain Pump and Pipeline Tembladero Slough Diversion Site Treatment Facilities (AWT Facility and SVRP Modifications) RUWAP Alignment Option Coastal Alignment Option	**Policy OS-1.2**: Development in designated visually sensitive areas shall be subordinate to the natural features of the area.	**Consistent**: The Proposed Project pipeline components would be located underground and would not be visible. The other Proposed Project components, including the facilities to be constructed at the Diversion and Storage sites (Salinas Treatment Facility, Salinas Pump Station, Reclamation Ditch, Tembladero Slough and Blanco Drain Pump Station and Pipeline) would be low profile in appearance, would not be visible from public viewpoints, and/or would not be located in designated visually sensitive areas.
County of Monterey	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities (AWT Facility and SVRP Modifications) RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Industrial Wastewater Treatment Facility and Pipeline Blanco Drain Pump and Pipeline Diversion Site	**Policy OS-1.9**: Development that protects and enhances the County's scenic qualities shall be encouraged. All Routine and Ongoing Agricultural Activities are exempt from the viewshed policies of this plan, except as noted in Policy OS-1.12.	**Consistent**: The Proposed Project would not eliminate, obstruct, or alter scenic views or affect scenic qualities within the unincorporated portion of the county.
County of Monterey	Monterey County General Plan	Public Services	Tembladero Slough Diversion Site Treatment Facilities (AWT Facility and SVRP Modifications) RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Industrial Wastewater Treatment Facility and Pipeline Blanco Drain Pump and Pipeline Diversion Site	**Policy PS-13.2**: All new utility lines shall be placed underground, unless determined not to be feasible by the Director of the Resource Management Agency.	**Consistent**: The Proposed Project pipelines would be located underground. Any needed utility lines would be underground.
County of Monterey	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Key Policy 2.2.1**: In order to protect the visual resources of North County, development should be prohibited to the fullest extent possible in beach, dune, estuary, and wetland areas. Only low-intensity development that can be itself screened or designed to minimize visual impacts shall be allowed in scenic hills, slopes, and ridgelines.	**Consistent**: The Proposed Project would not include development in beach, dune, estuary, and wetland areas, or on scenic hills, slopes and ridgelines.
County of Monterey	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Policy 2.2.2.1**: Views to and along the ocean shoreline from Highway 1, Molera Road, Struve Road, and public beaches, and to and along the shoreline of Elkhorn Slough from public vantage points shall be protected.	**Consistent**: The Proposed Project would not affect views to and along the ocean shoreline or Elkhorn Slough.
County of Monterey	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Policy 2.2.2.4**: The least visually obtrusive portion of a parcel should be considered the most desirable site for the location of new structures. Structures should be located where existing topography and vegetation provide natural screening.	**Consistent**: The Proposed Project improvements at Tembladero Slough would not be readily visible compared to existing infrastructure at the site.
County of Monterey	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Policy 2.2.2.5**: Structures should be located to minimize tree removal and grading for the building site and access road. Disturbed slopes should be returned to their previous visual quality. Landscape screening and restoration should consist of plant and tree species complementing the native growth of the area.	**Consistent**: Improvements at the Tembladero Slough Diversion site would not result in removal of trees or grading, and no new structures are proposed except for a small diversion device at the slough.
County of Monterey	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Policy 2.2.3.3**: Structures shall generally be sited so as not to block public views of the shoreline; development proposals shall be revised if necessary to accomplish this goal. Necessary structures in public view between the road and the shoreline (such as agricultural buildings) shall be functionally designed and sited as to protect the maximum possible open views. Other development in public view between the road and the shoreline (such as residential or commercial structures) shall be designed with materials, colors, landscaping, and fencing appropriate to the rural setting.	**Consistent**: The Proposed Project Tembladero Slough component would not be in the vicinity of shoreline or beaches and would not block views of the shoreline or any other scenic view.
County of Monterey	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Policy 2.2.3.5**: New overhead utility and high-voltage transmission lines that cannot be placed underground should be routed to minimize environmental and scenic impacts.	**Consistent**: If needed, any additional utility lines would be undergrounded.
County of Monterey	Greater Monterey Peninsula Area Plan	Area Development/ Transportation	Treatment Facilities (AWT Facility and SVRP Modifications) RUWAP Alignment Option Coastal Alignment Option Blanco Drain Pump and Pipeline Diversion Site	**Policy GMP-3.3**: The Greater Monterey Peninsula Scenic Highway Corridors and Visual Sensitivity Map (Figure 14) shall be used to designate visually "sensitive" and "highly sensitive" areas generally visible from designated Scenic Highways. The following policies shall apply to areas that have one of these designations: Part e: New development to be located in areas mapped as "sensitive" or "highly sensitive" and which would be visible from a designated scenic route shall maintain the visual character of the area. In order to adequately mitigate the visual impacts of development in such areas, the following shall be required: 1. Development shall be rendered compatible with the visual character of the area using appropriate siting, design, materials, and landscaping; 2. Development shall maintain no less than a 100-foot setback from the scenic route right-of-way; 3. The impact of any earth movement associated with the development shall be mitigated in such a manner that permanent scarring is not created; 4. Tree removal shall be minimized; 5. Landscape screening and restoration shall consist of locally native plant and tree species	**Consistent**: The only Proposed Project facilities that would be within visually sensitive areas as defined in the GMP Area Plan (west of Highway 1) would be underground pipelines that would not be visible after construction.

Table 4.2-2
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Aesthetics and Scenic Resources

				consistent with surrounding native vegetation; 6. Architectural review of projects shall be required to ensure visual compatibility of the development with the surrounding area; and 7. New development in open grassland areas shall minimize its impact on the uninterrupted viewshed.	
County of Monterey	Greater Monterey Peninsula Area Plan	Conservation/Open space	Treatment Facilities (AWT Facility and SVRP Modifications) RUWAP Alignment Option Coastal Alignment Option Blanco Drain Pump and Pipeline Diversion Site	**Policy GMP-3.4**: Plant materials shall be used to integrate manmade and natural environments, to screen or soften the visual impact of new development, and to provide diversity in developed areas.	**Consistent**: The project would not locate above-ground facilities near any natural environments within the Greater Monterey Peninsula Area Plan.
County of Monterey	Greater Salinas Area Plan	Conservation/Open Space	Reclamation Ditch Diversion Site Salinas Industrial Wastewater Treatment Facility and Pipeline Blanco Drain Pump and Pipeline Diversion Site	**Policy GS-3.2**: Native plant materials should be used to integrate the man-made environment with the natural environment and to screen or soften the visual impact of new development.	**Consistent**: The project would not locate above-ground facilities near any natural environments within the Greater Monterey Salinas Area Plan.
City of Marina	City of Marina General Plan	Community Land Use	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	**Policy 2.4.4**: Wherever possible, lands with significant agricultural, natural habitat, or scenic value shall be retained and protected from degradation.	**Consistent**: Proposed Project components in the City of Marina would not affect any areas identified as having scenic value and would consist of underground pipelines that would not be visible.
City of Marina	City of Marina General Plan	Scenic and Cultural Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	**4.126**: The following scenic and cultural resources are deemed to be particularly valuable, and the following policies should be pursued. …. 3. The visual character and scenic resources of the Marina Planning Area shall be protected for the enjoyment of current and future generations. To this end, ocean views from Highway 1 shall be maintained to the greatest possible extent; development on the primary ridgeline of the Marina dunes shall be avoided; new development proposed for the Armstrong Ranch should maintain an adequate setback from Highway 1; landscape screening and restoration shall be provided as appropriate; new development should be sited and designed to retain scenic views of inland hills from Highway 1, Reservation Road, and Blanco Road; and architectural review of projects shall continue to be required to ensure that building design and siting, materials, and landscaping are visually compatible with the surrounding areas.	**Consistent**: Construction of the pipeline segments would temporarily obstruct some views from Highway 1 (i.e., with trenching and pipe-laying equipment for no more than one week at any one location), but upon completion of construction, the underground pipeline would not have any effect on ocean views from Highway 1. Operations of the Proposed Project would not result in development on the ridgeline of the Marina dunes. Development at the Armstrong Ranch property would be underground segments of pipeline and would not be visible from Highway 1.
City of Marina	City of Marina Local Coastal Program Land Use Plan	Policies	Coastal Alignment Option	**Policy 33**: To protect scenic and visual qualities of the Coastal area including protection of natural landforms, views to and along the ocean, and restoration and enhancement of visually degraded areas.	**Consistent**: The Proposed Project component is an underground pipeline that would not impact views to and along the ocean.
City of Seaside	City of Seaside General Plan	Urban Design	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities Transfer Pipeline Monterey Pipeline	**Policy UD-3.1**: Protect private views of significant natural features, such as the Monterey Bay, Roberts Lake, the Pacific Ocean, the surrounding mountains and other important viewsheds.	**Consistent**: The new above-ground facilities included in the Proposed Project would not impact views of any significant natural features, including any open space, Monterey Bay, Roberts Lake, the Pacific Ocean, the surrounding mountains or other important viewsheds.
City of Seaside	City of Seaside General Plan	Urban Design	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities Transfer Pipeline Monterey Pipeline	**Policy UD-3.2**: Preserve the unique public views visible from the Highway 1 Corridor between Fremont Boulevard and the northern boundary of the city as identified in the Fort Ord Reuse Authority (FORA) Plan.	**Consistent**: The Proposed Project would involve no above-ground components between Fremont Boulevard and the northern boundary of the city that would be visible from the Highway 1 corridor. Therefore, no unique views would be affected.
City of Seaside	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Monterey Pipeline	**Policy NCR-CZ 2.1A**: Designation of Visual Resources. The scenic and visual qualities of lakes and coastal areas, including Roberts Lake, Laguna Grande, the coastal sand dunes, and Monterey Bay/Pacific Ocean, including from State Highway 1, shall be considered visual resources of public importance.	**Consistent**: The Monterey Pipeline construction would temporarily disrupt the scenic quality of a small portion of the City's coastal zone. This project component would be an underground pipeline that would have no long-term effect on the natural form and character of visual resources within Seaside's coastal zone.
City of Seaside	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Monterey Pipeline	**Policy NCR-CZ 2.1.B**: Protection of Visual Resources: 1. Visual resources shall be protected as a resource of public importance. 3. Development determined to have a significant adverse effect on a visual resource shall not be allowed. 5. New development shall be sited and designed to protect visual resources, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.	**Consistent**: The Monterey Pipeline construction would temporarily disrupt the scenic quality of a small portion of the City's coastal zone. This project component would be an underground pipeline that would have no long-term effect on the natural form and character of visual resources within Seaside's coastal zone.
Sand City	Sand City General Plan	Conservation and Open Space	Transfer Pipeline Monterey Pipeline	**Policy 5.5.1**: The City shall implement the policies for maintaining visual resources set forth in the City's LCP.	**Consistent**: The Monterey and Transfer Pipelines construction would temporarily disrupt the scenic quality of a small portion of the City's coastal zone. Both of these project components would be underground pipelines that would have no long-term effect on the natural form and character of visual resources within Sand City's coastal zone.
Sand City	Sand City Local Coastal Program Land Use Plan	Coastal Visual Resources	Transfer Pipeline Monterey Pipeline	**Policy 5.3.2**: Views of Sand City's coastal zone, Monterey Bay and Monterey Peninsula shall be protected through provisions of view corridors, vista points, development height limits, and dune restoration area. Major designated view corridors are:	**Consistent**: The Transfer and Monterey Pipelines would be buried below ground and would not obstruct public views, view corridors, or vista points.

Table 4.2-2
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Aesthetics and Scenic Resources

				a. Southbound view across the northern city boundary consistent with the public recreation designation; b. View over development at the former dump site; c. Three southbound views over development on properties between Tioga Avenue and the former dump site; d. Southbound and perpendicular views across the Sewage Treatment Plant property and adjacent properties to the ocean and Monterey Peninsula [building envelope areas within these view corridors shall not exceed 28-58 feet above sea level (depending on height of dunes)]; e. Two northbound and perpendicular view corridors identified "north view corridors A and B" (A extends westward from Ortiz Avenue in Seaside through private and public properties in Sand City, and B extends westward from the intersection of Bay Avenue and Sand Dunes Drive across the Monterey Peninsula Water Pollution Control Agency [MPWPCA] property); f. Southbound views beyond and above the existing dune line shall be preserved (the permitted building height shall be limited to 58 feet in elevation above sea level to accomplish this objective); and g. Northbound views between northbound view corridors A and B shall be limited in height from 28 to 58 feet above sea level, stepped up toward the highest dunes. Adjacent to northbound view corridor A, views of water shall remain and the view of the horizon shall be maintained. As the structure is stepped up to 48 feet and to 58 feet, it shall not dominate the view, and remain subordinate to the dune profile. Some ocean views shall also be maintained.	
City of Monterey	Del Monte Beach Land Use Plan	Land use and Development	Monterey Pipeline	**Policy 2**: The landform, eucalyptus row and remnant oaks on the back dune ridge and outer slopes paralleling Del Monte Avenue shall be protected to maintain the visual qualities of this important landscape element for the local entry view, the Recreation Trail/Transportation Corridor, and views from northbound State Route 1 (proposed scenic highway).	**Consistent**: All Proposed Project facilities in the coastal zone in Monterey (i.e., the Monterey Pipeline) would be installed beneath the Monterey Peninsula Recreational Trail; no impacts on the back dune ridge or associated vegetation would occur.
City of Monterey	Del Monte Beach Land Use Plan	Land use and Development	Monterey Pipeline	**Policy 4**: To enhance their aesthetic value, sand dunes throughout the LCP area shall be protected or restored where feasible, depending on their current condition including: a. cooperation with the U.S. Navy to protect stabilized dunes on the Naval Postgraduate School property, to the maximum extent feasible b. restoration and replanting of dunes within open space areas on the, the State Parks beach property, the City Beach property and the open space/habitat areas of the Del Monte Beach resubdivision (see Policy 1 in Environmentally Sensitive Habitat Areas section).	**Consistent**: The Monterey Pipeline would be installed beneath the Monterey Peninsula Recreational Trail; no impacts on sand dunes or associated vegetation would occur.
City of Monterey	Del Monte Beach Land Use Plan	Land use and Development	Monterey Pipeline	**Policy 7**: Viewpoints shall be protected and maintained on public streets and property from the City Beach and State Beach.	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct any viewpoints.
City of Monterey	Del Monte Beach Land Use Plan	Land use and Development	Monterey Pipeline	**Policy 8**: View corridors shall be protected from obstruction as shown in Figure 10 (i.e., Surf Way, Beach Way, local entry view along Del Monte Avenue).	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct any view corridors.
City of Monterey	Del Monte Beach Land Use Plan	Land use and Development	Monterey Pipeline	**Policy 10**: All new development within the viewshed of State Route 1 and the Recreation Trail/Transportation Corridor shall be evaluated in design review to minimize visual impact on these two scenic corridors	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct any viewsheds.
City of Monterey	Monterey Harbor Land Use Plan	Public Access	Monterey Pipeline	**Policy 3(e):** No intervening development shall block potential visual access or physical access to the beach.	**Consistent**: All Proposed Project facilities in the coastal zone in Monterey (i.e., the Monterey Pipeline) and adjacent to the coastal zone would be entirely underground upon completion of construction.
City of Monterey	Monterey Harbor Land Use Plan	Land use and Development	Monterey Pipeline	**Policy b**: Coastal views from the recreation trail shall be maintained and enhanced. On the west Catullus site the recreation trail shall be aligned as close as possible to coastal waters, consistent with public safety.	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct coastal views.
City of Monterey	Monterey Harbor Land Use Plan	Land use and Development	Monterey Pipeline	**Policy e**: To protect lateral views along Monterey beach, including city, state, park and privately-owned properties, no development shall be allowed on the sandy beach, except as specifically provided in this plan. Specifically, for the east Catullus parcel, new development shall improve the visual appearance of this area as an important gateway to the beach. Utilities shall be undergrounded, except for high voltage transmission lines.	**Consistent**: The Monterey Pipeline would not be constructed on the sandy beach and would be buried below ground. As such, it would not affect lateral views along Monterey Beach or beach gateways.
City of Monterey	CCC	Development	Monterey Pipeline	**Section 30251**: Scenic and Visual Qualities. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.	**Consistent**: The Monterey Pipeline construction would temporarily disrupt the scenic quality of a small portion of the City's coastal area. As discussed in Chapter 2, Project Description, following construction, the site would be restored to its approximate pre-construction condition. The Monterey Pipeline would be buried below ground and would have no long-term impact on scenic and visual qualities of coastal areas.
Fort Ord Dunes State Park	Fort Ord Dunes State Park General Plan	Aesthetic Resources	Coastal Alignment Option	**1**: Identify, preserve, and perpetuate the distinctive landscape qualities of the dunes.	**Consistent**: The Coastal Alignment Option would be underground and therefore would not change the visual character of the park's natural setting.
Fort Ord Dunes State Park	Fort Ord Dunes State Park General Plan	Aesthetic Resources	Coastal Alignment Option	**2**: Ensure manmade facilities complement and do not detract from the park's natural setting.	**Consistent**: The Coastal Alignment Option would be underground and therefore would not change the visual character of the park's natural setting.
Former Fort Ord	FORA Base Reuse Plan	Recreation/ Open Space Land Use	RUWAP Alignment Option RUWAP Booster Pump Station Option	**OSLU D-1 (FORA RP):** The City of Seaside shall protect the visual corridor along State Highway 1 to reinforce the character of the regional landscape at this primary gateway to the former Fort Ord and the Monterey Peninsula.	**Consistent**: No permanent, above-ground facilities are proposed within the visual corridor of State Highway 1.

Table 4.2-2
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Aesthetics and Scenic Resources

			Coastal Alignment Option Coastal Booster Pump Station Injection Well Facilities Transfer Pipeline		
Former Fort Ord	FORA Base Reuse Plan	Biological Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option Coastal Booster Pump Station Injection Well Facilities Transfer Pipeline	**B C-3 (FORA RP):** Lighting of outdoor areas shall be minimized and carefully controlled to maintain habitat quality for wildlife in undeveloped natural lands. Street lighting shall be as unobtrusive as practicable and shall be consistent in intensity throughout development areas adjacent to undeveloped natural lands.	**Consistent**: Lighting at the Booster Pump Station (either option) and the Injection Well facility site would be minimal for safety and security and would be comparable to existing lighting in the surrounding area.

4.2.4.2 Impact Analysis Overview

Approach to Analysis

The following impact analysis addresses the short-term (construction-related) and long-term (siting, operations and maintenance-related) impacts on scenic resources, scenic vistas, and the visual character of the project component sites and surroundings. Construction-related impacts on aesthetics could occur at construction sites and construction staging areas. Operational impacts on aesthetics could result from the permanent placement of above-ground facilities that are visible to the public.

The visual impact analysis is based on field observations of the project component sites and surrounding viewsheds conducted in December 2013, site and aerial photographs, a visual simulation, computer-aided street-view tours (Google Earth), and review of relevant planning documents. Based on their visual sensitivity, the Proposed Injection Well Facilities site at General Jim Moore Road Boulevard and San Pablo Road was selected to simulate proposed above-ground facilities and the resulting visual effects. :

Construction Impacts

The evaluation of temporary visual impacts during construction considers whether construction activities would substantially degrade the existing visual character or quality of the site or surrounding area and the duration over which this change would occur. Being temporary in nature, construction-related effects of this type of project on visual quality are generally considered to have a less-than-significant impact unless there are unusual construction features or duration.

Operational Impacts

Permanent visual impacts from facility siting and operation are assessed based on the Proposed Project's potential to have a substantial adverse effect on scenic vistas, substantially damage scenic resources, or substantially degrade the existing visual character or quality of the site and its surroundings. The analysis of permanent visual impacts focuses on those sites at which above-ground facilities would be erected. The evaluation of permanent visual impacts of the operation and maintenance of the Proposed Project relative to each relevant site's overall visual sensitivity is presented. **Table 4.2-3, Visual Impact Scale for Operational Analysis** presents a scale of three levels (High, Moderate, Low) using the concepts and terminology discussed in **Section 4.2.2, Environmental Setting**, for determining the level of impact for each of the above significance criteria for both construction-related and siting and operational impacts.

Table 4.2-3
Visual Impact Scale for Operational Impact Analysis

		Overall Visual Sensitivity		
		High	**Moderate**	**Low**
Visual Contrast /Change	**High**	Significant	Significant	Less than Significant
	Moderate	Significant	Less than Significant	Less than Significant
	Low	Less than Significant	Less than Significant	Less than Significant
	No Change/Effect	No Impact	No Impact	No Impact

Table 4.2-3 considers overall visual sensitivity of each site and its surroundings, as well as the visual change or contrast that would be caused by the Proposed Project. "Overall visual

sensitivity" brings together the factors discussed in **Section 4.2.1.1 (Concepts and Terminology)** into a single consolidated measure: visual quality; affected viewers and exposure conditions; and visual sensitivity as discussed for each Proposed Project site in **Section 4.2.2.1** and summarized on **Table 4.2-1**. "Visual change/contrast" refers to the transformation or modification of the appearance of the Proposed Project (i.e., at each component site) and/or its surroundings. As seen in the table, each of these measures are rated high, moderate and low, with the significance dependent on how the Proposed Project impact would compare with both measures.

Areas of No Impact

Many of the Proposed Project components would be underground; after construction is completed, these components would not be visible and would not result in permanent changes that affect scenic views (criterion "a"), scenic resources (criterion "b"), the visual quality of the surrounding area (criterion "c"), or introduction of light and glare (criterion "d"). Therefore, the visual impacts associated with the operations of the following Proposed Project components are not discussed further in this analysis:

- Improvements to the Salinas Pump Station,
- Lake El Estero Water Diversion site,
- Product Water Conveyance Pipelines (Coastal and RUWAP alignment options), and
- CalAm Distribution System Improvements: Monterey and Transfer Pipelines.

The Proposed Project would not result in a permanent impact related to scenic vistas (criterion "a") as discussed below. Impact analyses related to criteria "b" through "d" are addressed below under **subsections 4.2.4.4, Construction Impacts** and **4.2.4.5, Operational Impacts**.

(a) Scenic Vista. Upon completion of construction, permanent new above ground structures would be located at the following sites:

- Advanced Water Treatment Facility and Salinas Valley Reclamation Plant Modifications at the existing Regional Treatment Plant
- Product Water Booster Pump Station (Coastal option)
- Product Water Booster Pump Station (RUWAP option)
- Proposed Injection Well Facilities

Of the four components listed above, the facilities at the Regional Treatment Plant would not be visible from any public viewpoints. None of the other three Project components would be located within areas that are designated as having a scenic view or moderate to high visual sensitivity. Therefore, the Proposed Project would not eliminate, obstruct or alter and public views, including scenic vistas.

Summary of Impacts

Table 4.2-4, Summary of Impacts – Aesthetics provides a summary of potential impacts to the aesthetic environment and significance determinations at each Proposed Project component site.

Table 4.2-4
Summary of Impacts – Aesthetics

Impact Title	Source Water Diversion and Storage Sites: Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	Monterey Pipeline	Project Overall
AE-1: Construction Impacts on Scenic Views, Resources, and Visual Quality of Sites and Surrounding Area	LS	NI	LS	LS	NI	LS	NI	LS	LS	LS	LS	LS	LS
AE-2: Construction Impacts due to Temporary Light and Glare	LS	NI	NI	NI	LS	LS	LS	NI	NI	LSM	NI	LSM	LSM
AE-3: Operation Effects on Visual Quality of Sites and Surrounding Areas	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI	NI	LS*
AE-4: Operation Impacts due to Permanent Light and Glare	NI	NI	NI	NI	NI	NI	LS	LSM	LSM	LSM	NI	NI	LSM
Cumulative Impacts	LS: There would be no significant cumulative construction or operational aesthetic impacts.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

* Although this impact is LS, a mitigation measure is recommended to address the City of Seaside's comments on the Notice of Preparation.

4.2.4.3 Construction Impacts and Mitigation Measures

Impact AE-1: <u>Construction Impacts on Scenic Views, Scenic Resources and Visual Quality of the Surrounding Areas.</u> Proposed Project construction would not result in substantial effects on scenic views, scenic resources or the visual character of the areas surrounding Proposed Project facilities. (Criteria a, b and c) (Less than Significant)

Project construction activities could result in temporary changes to the visual character in the vicinity of construction sites due to presence of construction vehicles, equipment and materials, stockpiles, and exposed soils. Construction activities would be temporarily visible from multiple public vantage points to varying degrees at all construction sites, except for the Salinas Treatment Facility Storage and Recovery site and the Treatment Facilities at the Regional

Treatment as these sites are not visible from any public viewpoints. Thus, no further discussion is provided for these sites related to construction impacts.

Visual and aesthetic impacts during construction for all other sites are evaluated below. As previously indicated, the evaluation of temporary visual impacts during construction considers whether those construction activities would substantially degrade the existing visual character or quality of the site or surrounding area given the duration of the construction period and degree of visibility of the site.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion Site

The Salinas Pump Station site is not located adjacent to a scenic road or within a designated scenic corridor or scenic vista. The site is part of a distant view as seen by motorists from Davis and Blanco Roads and is approximately 1/3 mile away from the nearest road. Furthermore, the site is partially blocked by vegetation and the adjacent existing Salinas Animal Services building. Construction of project facilities at this site would take approximately five months. Given the limited site visibility, construction activities would result in a low visual change within an area with overall low visual sensitivity. Thus, the visual character of the surrounding area would not be substantially degraded during construction, resulting in a less-than-significant impact.

Reclamation Ditch Diversion Site

The Reclamation Ditch Diversion site is located near the intersection of Davis and Market Roads. This site is not adjacent to a scenic road or within a designated scenic corridor or scenic vista. Construction of project facilities at the Reclamation Ditch Diversion would take approximately five months. The construction site may be briefly visible to motorists along Davis Road crossing the bridge over the Reclamation Ditch channel. Construction would be of limited duration and construction activities would not contrast significantly with other disturbed areas and industrial uses that are predominant in the area. Given the low quality visual sensitivity, limited construction period and construction activities, and low visual change associated with construction, the visual character of the surrounding area would not be substantially degraded during construction, resulting in a less-than-significant impact.

Tembladero Slough Diversion Site

The Tembladero Slough Diversion site is located west of Castroville and Highway 1. This site is not adjacent to a scenic road or within a locally designated scenic corridor or scenic vista, but Highway 1 has been identified by Caltrans as being eligible for designation as a scenic highway between Highway 68 and the Santa Cruz County line. The construction site would be visible to motorists traveling on Highway 1. Construction of project facilities at the Tembladero Slough Diversion site would take approximately five months. Diversion facility and pipeline construction would have a low impact severity as the limited area of construction activity, equipment and exposed earth would not contrast with the surrounding environment that is characterized by agricultural equipment and exposed fields. Furthermore, construction activities would not dominate the landscape or have any permanent effect on coastal views. Given the limited construction period and construction activities, the visual character of the surrounding area would not be substantially degraded during construction and this component’s construction would have a less than significant effect on any scenic resources.

Blanco Drain Diversion Site

The Blanco Drain Diversion site is located along a private road, approximately two miles northwest of the intersection of Blanco and Nashua Roads. The site is not adjacent to a scenic road or within a designated scenic corridor or scenic vista, and the construction site would not be visible to the public. The associated pipeline would also not be visible to the public as it passes through private agricultural lands and then enters the Regional Treatment Plant. Given there are no public views of the construction sites for this Proposed Project component, construction would not result in impacts to the visual character of the surrounding area or scenic resources during construction.

Lake El Estero Diversion Site

Lake El Estero is identified as a significant visual resource in the City of Monterey General Plan. The construction of this component would take approximately three months to complete, and the construction site would be relatively small in size (less than 100 square feet). Construction activities would be temporarily visible along the adjacent Del Monte Boulevard, Camino Aguajito, and intermittently from the Monterey Peninsula Recreational Trail and pathways within El Estero Park. However, construction activities would not block views of the lake and would have the appearance of a typical public works improvement or maintenance project. Furthermore, views in the area are oriented toward the lake to the south, or toward the park and Monterey Bay north of and across Del Monte Boulevard; not toward the more urban northeast corner where the site is located. Given the limited construction period and construction activities, the visual character of the surrounding area would not be substantially degraded during construction and this component's construction would have a less than significant effect on any scenic resources.

Product Water Conveyance

RUWAP and Coastal Alignment Options

The pipeline alignment routes are not adjacent to a scenic road or within a designated scenic corridor or scenic vista, although a segment of the Coastal Alignment would be adjacent to Highway 1, which Caltrans has identified as being eligible for designation as a scenic highway. Construction of this project component would be temporarily visible from the adjacent streets and properties.

The Coastal Alignment option would be visible to pedestrians from a number of points on the Monterey Bay Coastal Trail. Motorists along Highway 1 would see construction activities on any given day along the Coastal Alignment Option for a few seconds as they drive by. Construction activities adjacent to the Fort Ord Dunes State Park would also be visible to cyclists and pedestrians traveling along the Monterey Bay Coastal Recreational Trail. Construction of this segment would occur against a backdrop of coastal sand dunes and intermittent views of Monterey Bay.

The construction of either option would take approximately 15 months to complete, and is estimated to proceed with installation of approximately 150 to 250 feet per day. Obstructions to visibility at any single location along the route would last less than one week, and construction would have the appearance of a typical public works pipeline installation/maintenance project. Although the overall visual sensitivity of a portion of the Coastal Alignment is moderate, the construction activities would result in a low visual change of a temporary nature. Given the limited visibility of the constructions sites and temporary construction period that would change daily, construction would not result in a substantial degradation of the visual quality of the surrounding area during construction, resulting in a less-than-significant impact.

RUWAP Booster Pump Station Option

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the RUWAP Booster Pump Station Option is considered low due to the low visual quality and low exposure conditions of the area. Given the limited construction period and construction activities, the lack of views from sensitive viewsheds, and the adjacent poor visual quality of the Marina Corporation Yard, the visual character of the site and surrounding area and the views of the site would not be substantially degraded during construction of this Proposed Project component.

Coastal Booster Pump Station Option

The Coastal Option booster pump station site is not adjacent to a scenic road or within a designated scenic corridor or scenic vista. Construction of the Coastal Booster Pump Station would be temporarily visible to motorists passing on the adjacent streets, Divarty Street and Second Avenue. Construction activities would also be visible from the adjacent bike path along Second Avenue and from a portion of the CSUMB campus that currently contains expansive parking lots and several recreational/sports facilities at a lower elevation than the Coastal Booster Pump Station site. The construction of this component would take approximately 12 months to complete and would only occur on a small area of a large open space/vegetated area. Immediately north of and adjacent to the site are dilapidated, abandoned former military buildings of very poor visual quality that create a degraded visual quality. Given the limited construction period and construction activities, the lack of views from sensitive viewsheds, and the adjacent poor visual quality of the expansive parking lots and dilapidated buildings, the visual character of the site and surrounding area and the views of the site would not be substantially degraded during construction of this Proposed Project component. The site of the Coastal Pump Station Option could result in removal of four to five mature cypress trees. The trees form a linear corridor along the roadway, and are typical of the tree cover found in the area. None of the trees are prominently distinctive or visible from a wide distance or from Highway 1, although the trees are visible in the area. Thus, construction would not substantially affect scenic resources. Construction of the Coastal Booster Pump Station would not result in a significant impact due to effects on scenic views, scenic resources or the visual character of the areas surrounding Proposed Project facilities.

Injection Well Facilities

The Injection Well Facilities site is not adjacent to a scenic road or within a designated scenic corridor or scenic vista. Construction activities at this site would be temporary with variable construction activities throughout the construction period. The existing visual character of areas surrounding the project component site would be restored after construction is complete. Only portions of the construction would be visible, and construction would have a low impact severity. Given the limited construction period and construction activities, the visual character of the surrounding area would not be substantially degraded during construction and this component's construction would have a less-than-significant effect on any scenic resources. Permanent, long-term changes to visual quality and other aesthetic impacts are addressed in **Section 4.2.4.4, Operational Impacts and Mitigation** (under Impact AE-3), below.

CalAm Distribution Pipelines

Transfer Pipeline

Construction of this component would be temporarily visible to the adjacent streets and along portions of the Transfer Pipeline in the City of Seaside. The construction of this component would take approximately 18 months to complete (total time for Transfer and Monterey

Pipelines); but would only occur along a short segment during any given day (i.e., construction would progress at a pipeline installation rate of 150 feet per day). Pipeline construction would have a low impact severity; construction equipment and exposed earth could contrast with the surrounding environment, but construction activities would not dominate the landscape or have any permanent effect on coastal views. Given the limited extent and temporary nature of pipeline construction impacts along these alignments, the visual impact severity would be moderate to low. Given the limited construction period and construction activities, the visual character of the surrounding area would not be substantially degraded during construction and this component's construction would have a less than significant effect on any scenic resources.

Monterey Pipeline

Construction of this component would be temporarily visible to the adjacent streets and along portions of the Monterey Pipeline, and would be visible from a number of points on the Monterey Peninsula Recreational Trail, including some areas identified as having important coastal views in the LCPs for the Cities of Seaside and Monterey. The construction of this component would take approximately 18 months to complete (total time for Transfer and Monterey Pipelines); but would only occur along a short segment during any given day (i.e., construction would progress at a pipeline installation rate of 150 feet per day). Construction of the Monterey Pipeline segment along Monterey State Beach would be highly visible from Del Monte Boulevard and the Monterey Peninsula Recreational Trail. Construction of this segment would occur against a backdrop of Monterey State Beach and Monterey Bay.

Pipeline construction would have a low impact severity; construction equipment and exposed earth could contrast with the surrounding environment, but construction activities would not dominate the landscape or have any permanent effect on coastal views. Given the limited extent and temporary nature of pipeline construction impacts along these alignments, the visual impact severity would be moderate to low. Given the limited construction period and construction activities, the visual character of the surrounding area would not be substantially degraded during construction and this component's construction would have a less than significant effect on any scenic resources.

Impact Conclusion

The Proposed Project construction would not result in impacts to a scenic view or scenic resource at any of the component sites. Construction activities would be temporarily visible from multiple public vantage points to varying degrees at all construction sites, except for the Salinas Treatment Facility Storage and Recovery, the Blanco Drain Diversion, and the Regional Treatment Plant sites as these sites are not visible from any public viewpoints. Construction at other Proposed Project component sites would include equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth. Although some areas would be intermittently visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents, these construction activities would be temporary and would not significantly change or disrupt the visual character of the surrounding areas, and therefore, construction-related impacts related to degradation of the visual character of surrounding areas would be less than significant. No mitigation measures are required.

Impact AE-2: Construction Impacts due to Temporary Light and Glare. Proposed Project construction could result in substantial, temporary sources of light or glare. (Criterion d) (Less than Significant with Mitigation)

Nighttime construction activities could introduce temporary, nighttime lighting at some project sites. As discussed in **Chapter 2, Project Description**, the majority of construction activities at most project sites would occur during the daytime (see **Table 2-20, Project Construction Assumptions**) and would not result in new or increased sources of light or glare. However, extended work hours into the night could be necessary during construction of certain project components each of which are discussed below.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion Site

The Salinas Pump Station Diversion site improvements would be constructed on a parcel that currently contains the existing Salinas Pump Station, which has an existing source of limited nighttime lighting for security and safety at the facility. There are no other significant sources of light or glare in the vicinity, as this component would be located within a predominantly agricultural area. Construction activities could result in increased glare from construction lighting and equipment, although the site is mostly shielded from view. Additionally, construction activity at this site is not expected to extend past 8 PM, although temporary construction connections would be monitored at night because the wastewater would continue to be diverted. Thus, construction lighting would be of limited duration and visibility. For these reasons, construction of the Salinas Pump Station Diversion would result in less-than-significant impacts due to new sources of light and glare.

Blanco Drain Diversion Site

The Blanco Drain Diversion site and pipeline to the Regional Treatment Plant would be constructed on parcels that currently contain an existing pump station, which has an existing source of limited nighttime lighting for security and safety at the facility. There are no other significant sources of light or glare in the vicinity, as the pump station and pipeline alignment would be located within a predominantly agricultural and industrial area. Construction activities could result in increased glare from construction lighting and equipment, although the site is entirely shielded from view. A portion of the new pipeline must be installed using trenchless methods. That work may require 24-hour operations during the drilling phase. Another portion of the pipeline would be installed within the existing Regional Treatment Plant site. That work may be performed at night to minimize impacts to plant operations. Although construction lighting will be present, the site is located down a private road and the nearest residence is approximately 0.5 miles away. Thus, construction lighting would be of limited visibility. For this reason, construction of the Blanco Drain Diversion would result in less-than-significant impacts due to new sources of light and glare.

Lake El Estero Diversion Site

This component would be constructed in an urbanized area that contains various sources of light and glare including street lights on Del Monte Boulevard and Camino Aguajito, lighting from within El Estero Park, lighting from surrounding businesses and residences, and lighting from the Monterey Coastal Trail. The limited area of construction activities would not result in a substantial increase in light as a result of construction lighting that may occur at night. Additionally, construction activity at this site is not expected to extend past 8 PM. Thus, construction lighting would be of limited duration and visibility. For these reasons, construction of the Lake El Estero Diversion site would result in a less-than-significant impact related to creation of new sources of light and glare.

Treatment Facilities at Regional Treatment Plant

This component would be constructed at the existing MRWPCA Regional Treatment Plant. This existing facility has exterior lighting of buildings and grounds that are typical of an industrial facility. Existing nighttime safety lighting is provided at the facility. The closest public road is approximately 0.5 miles away (Charles Benson Road, which is closed to the public at night), but the site is not visible from any public roads. Construction activities could result in increased glare from nighttime construction lighting and equipment. Construction of the Advanced Water Treatment Facility could occur over 24 hours over an 18 month construction period. Construction of the Salinas Valley Reclamation Plant modifications would occur during normal daytime hours, but work requiring a shutdown of the facility may require 24-hour construction activities to minimize impacts to plant operations. However, the site is located within an area characterized by agricultural uses with little nearby residential or other development. Construction lighting would not be visible from a wide area, and nighttime lighting would be temporary. For these reasons, construction of the Treatment Facilities at the Regional Treatment Plant would result in a less-than-significant impact due to new sources of light and glare.

Injection Well Facilities

Most of the construction activities associated with the Injection Well Facilities site would occur during daylight hours. However, nighttime construction could occur at this location at various times throughout the construction period, necessitating temporary lighting. There may be periods of nighttime lighting that would be visible to nearby residents west of General Jim Moore Boulevard in Seaside. For these reasons, construction of the Injection Well Facilities would result in a potentially significant temporary impact due to new sources of light and glare. Implementation of Mitigation Measure AE-2 would reduce the impact to a less-than-significant level.

CalAm Distribution System Pipelines

Most segments of the CalAm Distribution System would be constructed in the well-lit Urban and Developed landscape unit, but some segments would be constructed in or adjacent to areas within the Beaches and Coastal Dunes and Hillside Residential landscape units. Although nighttime lighting may be used in construction, the majority of pipeline construction would occur within the Urban and Developed landscape unit, and therefore would not make a significant contribution to the existing amount of light and glare, especially given the temporary nature of construction. For these reasons, construction of the Cal Distribution System Pipeline (Monterey) would result in a potentially significant temporary impact due to new sources of light and glare. Implementation of Mitigation Measure AE-2 would reduce the impact to a less-than-significant level.

Impact Conclusion

At most sites, the Proposed Project construction would not result in creation of substantial sources of light and glare as most construction activities would be conducted during daytime hours. For Proposed Project sites where nighttime construction could occur, nighttime lighting would result in less-than-significant impacts at the following sites: Salinas Pump Station Diversion, the Regional Treatment Plant, Lake El Estero, and the CalAm Distribution Facilities. Nighttime lighting could result in potentially significant light impacts at the Injection Well Facilities site and along the CalAm

Distribution System: Monterey Pipeline. However, with implementation of Mitigation Measure AE-2 (Minimize Construction Nighttime Lighting), this impact would be reduced to a less-than-significant level.

Mitigation Measure

Mitigation Measure AE-2: Minimize Construction Nighttime Lighting. (Applies to the Injection Well Facilities Site and CalAm Distribution System: Monterey Pipeline)

As part of its contract specifications, MRWPCA shall require its construction contractors to implement site-specific nighttime construction lighting measures for nighttime construction at the proposed Injection Well Facilities site. The measures shall, at a minimum, require that lighting be shielded, directed downward onto work areas to minimize light spillover, and specify that construction lighting use the minimum wattage necessary to provide safety at the construction sites. MRWPCA shall ensure these measures are implemented at all times during nighttime construction at the Injection Well Facilities site and for the duration of all required nighttime construction activity at this location.

4.2.4.4 Operational Impacts and Mitigation Measures

Impact AE-3: Degradation of Visual Quality of Sites and Surrounding Areas. Proposed Project components would not result in a substantial degradation of the visual character of the project area and its surroundings. (Criterion c) (Less than Significant)

Many of the Proposed Project components would be underground; after construction is completed, these components would not be visible and would not result in permanent changes that affect the visual quality of the surrounding area (criterion "c"). These sites include the Product Water Conveyance pipeline site and the CalAm Distribution System pipelines sites. However, all sites are reviewed below.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion

Permanent facilities at the Salinas Pump Station Diversion site would consist of a new underground junction structure that would be constructed over the existing 48-inch sanitary sewer line, to mix sanitary, agricultural wash water and stormwater flows. This structure would also receive agricultural wash water and stormwater return flow from the Salinas Treatment Facility's Pond 3. In addition, new facilities would include an underground stormwater diversion structure and an underground pipeline between this new structure and the existing 33-inch agricultural wash water line. Another underground stormwater diversion structure and pipeline would also be installed near the existing stormwater pump station to divert stormwater flow to the Salinas Pump Station through an existing 30-inch abandoned pipeline. Meters, valves, electrical and control systems, and fencing around the diversion structures would also be installed at the site. With the exception of the fencing and small control systems, all of the proposed changes to this site would be underground and not visible to the public. The fencing and control systems would likely not be visible to the public, as the closest public road to the Salinas Pump Station is approximatley 0.3 miles away. For these reasons, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3, Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Salinas Pump Station Diversion site is considered low due to the low visual quality and low exposure conditions of the area. Using the methodology explained above in **Table 4.2-3,** the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual sensitivity and low visual change/contrast.

Salinas Treatment Facility

Permanent facilities at the Salinas Treatment Facility would consist of a new 42-inch industrial wastewater pipeline to replace the existing 33-inch gravity main. Winter flows of agricultural wash water and Salinas urban stormwater runoff would be conveyed to the ponds using the new 42-inch pipeline. Seasonal storage of agricultural wash water and Salinas urban stormwater runoff at the Salinas Treatment Facility ponds would require construction of a new return pipeline and pump station to return the stored water to the Salinas Pump Station Diversion site. The proposed return pipeline would be an 18-inch pipeline, installed inside the existing, soon to be abandoned 33-inch pipeline. A new return pump station, and a new valve and meter vault would be located within the existing Salinas Treatment Facility site near the existing pump station. A new pipeline would be constructed from the lower end of the Pond 3 to the new return pump station. A second new pump station near the lower end of Pond 3 would be needed to lift stored agricultural wash water and stormwater into a pipeline returning to the return pump station. A new short pipeline would also be constructed to convey the treated wastewater from the aeration basin to the pipeline that returns water from Pond 3 or directly to the return pump station. Although the new pump stations would be above ground, they would be small in scale (approximately 10 feet tall, with a footprint of 15 by 30 feet) and would merge with the existing, industrial aesthetic of the site. For this reasons, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Salinas Treatment Facility is considered low due to the low visual quality and low exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual sensitivity and low visual change/contrast.

Reclamation Ditch Diversion Site

Permanent facilities at the Reclamation Ditch Diversion site would consist of a new intake structure on the channel bottom, connecting to a new wet well on the channel bank via a new gravity pipeline. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a cabinet near the wet well and above flood level. The new pump station would discharge through a new short force main (approximately 50-feet), discharging to an existing manhole on the City of Salinas 54-inch sanitary sewer main. Two new underground vaults would be installed along the force main. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring and facilitate the management of by-pass flows. The lining of the channel banks could potentially be visible, very briefly, to motorists traveling on Davis Road. With the exception of the small cabinet, all of the proposed changes at this site would be underground and therefore would not be visible to the public. For these reasons, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Reclamation Ditch Diversion site is considered low due to the low visual quality and low exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual sensitivity and moderate visual change/contrast.

Tembladero Slough Diversion Site

Permanent facilities at the Tembladero Slough Diversion site would consist of a new intake structure on the channel bottom, connecting to a new lift station wet well on the channel bank via a new gravity pipeline. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a cabinet near the wet well and above flood level. The new pump station would discharge through a new short force main (approximately 100-feet in length), discharging to the existing wet well at the MRWPCA Castroville Pump Station. A new underground valve vault would be installed along the force main to hold the check valves, isolation valves and flow meter. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring and facilitate the management of by-pass flows. The lift station and cabinet would be the only above ground changes. The existing site is surrounded by agricultural fields and the new lift station would not be visually prominent or distinctive when viewed by motorists traveling on Highway 1. For these reasons, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Tembladero Slough Diversion site is considered high due to the moderate visual quality and high exposure conditions of the area. However, using the methodology explained above in **Table 4.2-3**, the Proposed Project would have a low visual contrast/change, and the visual character of this project component area and its surroundings would not be substantially degraded. Therefore, the impact would be less than significant.

Blanco Drain Diversion Site

Permanent facilities at the Blanco Drain Diversion site would consist of a new pump station (approximately 10 feet tall, on a 50 by 20 foot footprint) that would be located adjacent to the existing seasonal pump station operated by Monterey County Water Resources Agency. The new pump station would consist of a new intake structure on the channel bottom, connecting to a new wet well on the channel bank via a new gravity pipeline. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a cabinet above the wet well and above flood level. The new pump station would discharge through a new 18-inch force main and 30-inch gravity main, running from the pump station to the headworks of the Regional Treatment Plant. A new underground valve vault would be installed adjacent to the pump station to hold the check and isolation valves, and a second vault would hold the flow meter. A new surge tank would also be installed at the new pump station. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring. When the new pump station is operating, the existing slide gate in the channel would be closed to facilitate diversion of all flows to the Regional Treatment Plant. The new pump station, cabinet, and surge tank would be above ground, but would not be located in areas that are visible. The existing site is surrounded by agricultural fields, but the visual change with the new equipment would not be prominently distinctive from surrounding areas. For these reasons, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Blanco Drain Diversion site is considered low due to the low visual quality and low exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual sensitivity and low visual change/contrast.

Lake El Estero Diversion Site

There are two options for the proposed permanent facilities at the Lake El Estero Diversion site. The first would consist of a new pumping system, including a new column pump installed in the wet well of the existing lake management pump station, upgrades to the existing electric panel, and a new 30-foot long, 12-inch diameter discharge pipe to the sanitary sewer. The second option would consist of a new gravity system, consisting of a new headwall and screened intake pipe on the lake bank, a new 40-foot long, 12-inch diameter discharge pipe to the sanitary sewer, and a new controlled and motorized isolation valve. Both systems would be entirely underground or within existing pump dry and wet well structures, and the connecting pipeline would include a flow meter and a check valve to prevent backflow of sewage into the lake. For these reasons, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Lake El Estero Diversion site is considered high due to the high visual quality and high exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area due to the low visual change/contrast.

Treatment Facilities at Regional Treatment Plant

Permanent facilities at the Regional Treatment Plant would consist of an Advanced Water Treatment Facility, an inlet source water diversion structure, an influent pump station, an approximately 360-foot long, 24-inch diameter pipeline to bring secondary effluent to the Advanced Water Treatment Facility, final product water storage and distribution pumping, brine mixing facilities, and modifications to the Salinas Valley Reclamation Plant. The proposed advanced treatment facilities would include several structures as tall as 31 feet and totaling approximately 60,000 square feet. The proposed brine mixing facility would be up to 16 feet tall and approximately 10,000 square feet. New pipes and pumps would be underground. Due to the height and size of the proposed above-ground structures, the visual contrast/change is considered high.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Facilities and the Regional Treatment Plant is considered low due to the low visual quality and low exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual sensitivity.

Product Water Conveyance

RUWAP Pipeline Alignment Option

The RUWAP Pipeline Alignment Option would generally follow what is commonly known as the RUWAP (Regional Urban Water Augmentation Project) recycled water pipeline route through the City of Marina, California State University Monterey Bay, and the City of Seaside. The entire pipeline would be underground after construction and therefore not visible to the public. For this reason, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the RUWAP Pipeline Alignment Option is considered moderate due to the moderate visual quality and moderate exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual change/contrast.

RUWAP Booster Pump Station Option

Permanent facilities at the RUWAP Booster Pump Station Option site would consist of a 2,100 square-foot building to be located on the east side of 5th Avenue, just south of 3rd Street in Marina that would be up to 25 feet tall. The building would be located in a parking lot with existing campus structures. The access road to this site (5th Avenue) is currently closed to the public at the entrance to the parking lot, where the RUWAP Booster Pump Station Option would be located. The site is lower in elevation than nearby residences and classrooms and trees surround the site; therefore, limited views of the site are available. The Proposed Project building would be of similar size and scale as existing buildings. For this reason, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the RUWAP Booster Pump Station Option is considered low due to the low visual quality and low exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual sensitivity and low visual change/contrast.

Coastal Pipeline Alignment Option

The Coastal Pipeline Alignment Option would follow in parallel with a portion of CalAm's proposed new Monterey Peninsula Water Supply Project desalination product water pipeline along the eastern side of the Transportation Agency of Monterey County railroad tracks. The southern portion of the Coastal Alignment would also be located in the former Fort Ord within the cities of Marina and Seaside. The entire pipeline would be underground and therefore not visible to the public. For this reason, the visual contrast/change is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Coastal Pipeline Alignment Option is considered moderate due to the low visual quality and moderate exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual change/contrast.

Coastal Booster Pump Station Option

This small-scale facility would be sited in the Urban and Developed landscape unit that currently contains existing tree cover. The land immediately north of this site contains abandoned and dilapidated former Fort Ord military housing barracks that are fenced off with chain link fencing. The sites to the west across 2nd Avenue contain large expanses of paved parking areas with minor small trees in the limited unpaved areas. No views of the site are afforded from sensitive viewsheds, except to vehicles, bicyclists, and pedestrians using Divarty Street and 2nd Avenue in the immediate vicinity. The proposed new facility is anticipated to be less than 25 feet in height within a building footprint of approximately 2,000 square feet. The building would be visible at the corner of Second and Divarty Streets, but would be of slightly less scale and massing than nearby buildings. The facility also would be partially screened by existing tree cover, although approximately five trees would be removed. The building appearance would be low-profile and typical of a public utility structure. The facility would not be out of scale with other nearby buildings on the CSUMB campus. For these reasons, the overall visual contrast/change at this site would be considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Coastal Booster Pump Station Option is considered moderate due to the moderate visual quality and moderate exposure conditions of the area. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the low visual change/contrast.

Injection Well Facilities

The proposed Injection Well Facilities would be located east of General Jim Moore Boulevard and south of Eucalyptus Road. An existing CalAm operations building is located near the site, which is utilized as part of CalAm's Monterey Peninsula Aquifer Storage and Recovery Project. The CalAm facility similarly is low-profile with some architectural articulation that minimizes its visual presence.

Permanent structures associated with the Injection Well Facilities site would include an access road, injection wells, four operations buildings, a back-flush basin, and pipes and electricity conduits. The access road, back-flush basin, and pipelines would not be visible to the public, as they would be at, or below grade. The above-ground features of each permanent injection well would include short segments of above-ground pipes, valves, and mechanical equipment that do not typically exceed six feet in height and do not extend beyond the immediate vicinity (i.e., 10 feet) from the insertion point of the well.

The four operations buildings are each expected to be approximately 1,200 square feet in size and less than 25 feet in height. A photosimulation of one well cluster of the Injection Well Facilities (i.e., the southernmost cluster numbered 4) is presented on **Figure 4.2-2**, showing the appearance of the southernmost injection well cluster. One of the four operations buildings would be located adjacent to General Jim Moore Boulevard, but would be generally screened from view from other vantage points due to existing topographical changes. In this location, a building of this size would be visible to passing motorists and pedestrians along General Jim Moore Boulevard. The remaining operations buildings would be located further northeast behind sloping topography and would not be visible from public view. The buildings would appear as low-profile structures of similar size, scale and mass as the existing nearby CalAm Aquifer Storage and Recovery operations building. For these reasons, the visual change/contrast associated with the Injection Well Facilities is considered low.

As discussed in **Section 4.2.2.3**, **Visual Character and Sensitivity of Project Sites**, the visual sensitivity of the Injection Well Facilities site is considered moderate. Using the methodology explained above in **Table 4.2-3**, the Proposed Project would result in a less-than-significant impact on the visual character of this project component area and its surroundings due to the moderate visual change/contrast.

CalAm Distribution System

All proposed pipelines would be installed below ground and would not be visible after construction. Therefore, no permanent impact to visual resources would result.

Impact Conclusion

Upon completion of construction, the proposed pipeline components of the Proposed Project would not be visible, and structural above-ground development at the other Proposed Project sites would not substantially degrade the visual character or quality of the surrounding area, resulting in a less-than-significant impact. No mitigation measures are required. The City of Seaside has expressed concern about the aesthetic quality of the proposed facilities for future land uses that are planned for the site. According to their comments on the Draft EIR (See Letter L, comment L-39), "the installation of injection wells within the undeveloped lands east of General Jim Moore could adversely affect the natural terrain and coastal scrub if the injection well facilities and back flush pit are not properly screened and/or graded to blend with the rolling terrain." See **Appendix A**, **Scoping Report** (see letter from City of Seaside dated February 2015 in Appendix F of the Scoping Report) and Letter L in the Final EIR. Based on this input, the following site design measures are included as mitigation measures to ensure they are implemented appropriately in accordance with the City of Seaside's concerns (City of Seaside, 2015):

Mitigation Measure

Mitigation Measure AE-3: Provide Aesthetic Screening for New Above-Ground Structures. (Applies to the following project components: Product Water Conveyance Coastal and RUWAP Booster Pump Station and Injection Well Facilities)

Proposed above-ground features at the ~~Coastal option of the~~ Booster Pump Station and Injection Well Facilities (at a minimum, at the well clusters and back-flush basin), shall be designed to minimize visual impacts by incorporating screening with vegetation, or other aesthetic design treatments, subject to review and approval of the City of Seaside, which has also requested that the buildings be designed with Monterey/Mission style architecture to match the design of the structures that have been built on the Santa Margarita ASR site and the Seaside Middle School ASR Site. All pipelines placed within the City of Seaside on General Jim Moore Boulevard shall be placed underground. MRWPCA shall coordinate with the City of Seaside on the location of injection wells and booster pumps in order to reduce conflicts with future commercial/residential development opportunities. Screening and aesthetic design treatments at the RUWAP Booster Pump Station component shall be subject to review and approval by the City of Marina. Use of standard, commercial-grade, chain link fencing and barbed wire should be discouraged.

Impact AE-4: Impacts due to Permanent Light and Glare during Operations. Operation of Proposed Project facilities may result in a substantial new source of light or glare that would adversely affect day or nighttime views in the area. (Criterion d) (Less than Significant with Mitigation)

Many of the Proposed Project components would be underground pipelines or pump facilities, as well as small diversion structures/pumps that would be located above ground, but would be low profile (i.e., less than four feet above ground). After construction is completed, these components would not be visible and would not have permanent lighting installed. Therefore, most Proposed Project facilities would not result in permanent changes that would result in creation of new sources of substantial light or glare. The only Proposed Project components that would result in development of new structures/facilities with exterior lighting are: the Treatment Facilities at the Regional Plant; the Product Water Conveyance Booster Pump Station (either RUWAP or Coastal option), and the Injection Well Facilities, which are discussed below. No impacts would occur at any of the other Proposed Project sites, and thus these sites are not discussed further.

Treatment Facilities at the Regional Treatment Plant

The permanent lighting at the Treatment Facilities at the Regional Treatment Plant would be only that which is necessary for safety and security and would be similar to existing light sources in the vicinity. There are no residential properties in the area that would be affected by nighttime lighting at the site and the nearest public road to the site is approximately 0.4 miles away (Charles Benson Road, which is closed to the public at night). As a result, increased nighttime lighting at the Treatment Facilities at the Regional Treatment Plant would not result in creation of a new source of light or glare that would adversely affect day or nighttime views in the area, and the impact would be less than significant.

Product Water Conveyance System

RUWAP Booster Pump Station Option

The RUWAP Booster Pump Station Option would be located off 5th Avenue in Marina. The site is currently a parking lot and serves as a storage yard. Permanent lighting associated with the new pump station would be minimal for safety and security and would be comparable to existing lighting in the parking lot. Existing street lighting along Inter-Garrison Road would be brighter and more prominent to nearby residences. Despite these considerations, the existing site is relatively dark and there may be residences that have a view of the new pump station. The RUWAP Booster Pump Station Option operation may create a new source of light or glare that could affect nighttime views in the area and the impact would be significant.

Coastal Booster Pump Station Option

The Coastal Booster Pump Station Option would be located on the corner of Divarty Street and 2nd Avenue in Seaside. The site is currently vacant and adjacent or nearby properties with views of the site include parking lots associated with the sports fields and recreational facilities of the university. These adjacent and nearby properties are at a lower elevation and also have nighttime security lighting. Permanent lighting associated with the new pump station would be minimal for safety and security and would be comparable to existing lighting in the parking lot. No other offsite properties have views of this site. Despite these considerations, the existing site is currently dark and some off-site properties may have a view of the new pump station where there is currently no lighting. The Coastal Booster Pump Station Option may create a new source of light or glare that could affect nighttime views in the area and the impact would be significant.

Injection Well Facilities Site

New sources of nighttime lighting would be installed at the proposed Injection Well Facilities site for safety and security, including one or two lights at each injection well cluster. Due to the distance to the nearest roadway (General Jim Moore Boulevard), lighting would not be visible off-site and would not obstruct motorists' ability to see the road. Existing street lighting along General Jim Moore Boulevard would be brighter and more prominent to nearby residences. Despite these considerations, the existing site is relatively dark and there may be residences that have a view of the new Injection Well Facilities and others that may be affected by changes to ambient lighting in the vicinity. The Injection Well Facilities operation may create a new source of light or glare that could affect nighttime views in the area and the impact would be significant.

Impact Conclusion

Upon completion of construction, the proposed pipeline components of the Proposed Project would be underground, and many other facilities would not have exterior permanent lighting. The only Proposed Project components that would result in development of new structures/facilities with exterior lighting are: the Treatment Facilities at the Regional Treatment Plant; the Product Water Conveyance Booster Pump Station (either RUWAP or Coastal option), and the Injection Well Facilities. Permanent exterior lighting for the Treatment Facilities at the Regional Treatment Plant would not result in a substantial new source of offsite lighting or glare. Impacts due to operational nighttime lighting at these facilities would be less than significant. The Booster Pump Stations (both options) and the Injection Well Facilities may create a new source of light or glare that could adversely affect nighttime views in the area and the impact would be considered significant. Implementation of Mitigation Measure AE-4 (Exterior Lighting Minimization) would be required to reduce the impact to a less-than-significant level.

Mitigation Measure

Mitigation Measure AE-4: Exterior Lighting Minimization. (Applies to the following project components: Product Water Conveyance Booster Pump Station - (both Options) and Injection Well Facilities)

To prevent exterior lighting from affecting nighttime views, the design and operation of lighting at the Product Water Conveyance Booster Pump Station - RUWAP and Coastal Options and Injection Well Facilities, shall adhere to the following requirements:

- Use of low-intensity street lighting and low-intensity exterior lighting shall be required. <u>No floodlights shall be allowed at night within the City of Marina.</u>
- Lighting fixtures shall be cast downward and shielded to prevent light from spilling onto adjacent offsite uses.
- Lighting fixtures shall be designed and placed to minimize glare that could affect users of adjacent properties, buildings, and roadways.
- Fixtures and standards shall conform to state and local safety and illumination requirements.

4.2.4.5 Cumulative Impacts

The geographic scope for cumulative impact analysis on aesthetic resources consists of all Proposed Project component sites and the immediate vicinity around each of these sites that is visible from the same public vantage points as Proposed Project sites. Based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis** (see **Section 4.1, Introduction**), no cumulative projects have been identified in the same viewshed of these sites, except for the Monterey Peninsula Water Supply Project (MPWSP), with the small, 6.4 mgd desalination plant.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects identified on **Table 4.1-2**:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[2] The CalAm Monterey Peninsula Water Supply Project includes: a subsurface seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water

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[2] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The overall estimated construction schedule is from June 2016 through March 2019 for the combined projects, during which time the construction schedules could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.

- Overall Cumulative Projects: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPWSP (with the 6.4 mgd Desalination Plant). The Desalinated Water Pipeline (or Transmission Main) component of the Variant would be in a similar location as the segments of the Proposed Project's Product Water Conveyance Coastal Alignment pipeline along the Transportation Agency's rail line corridor. In addition, the MPWSP proposes water supply storage facilities (called the Terminal Reservoirs) located to the south of the Proposed Project Injection Well Facilities site. However, these facilities are separated from the Injection Well Facilities by distance and intervening topography, and would not be visible from the same vantage points. Nor would they be within identified scenic views. Therefore, these components of the two projects would not contribute to cumulative aesthetics impacts due to construction or operation.

Segments of both the GWR Product Water Conveyance and the MPWSP Transmission Pipelines would partially coincide in location, and the construction schedules would overlap. If the Proposed Project, as approved, includes the Coastal alignment option for the Product Water Conveyance pipeline, construction of the two pipelines in parallel to each other could involve simultaneous construction within the same viewsheds and from the same public vantage points including scenic areas along the west side of Highway 1, a State-eligible Scenic Highway. However, construction of each pipeline would only occur for a brief duration in any one location within the viewshed. Thus, the aesthetic impacts would be confined to a period of construction of only several days to several weeks. This is not considered a significant cumulative impact of the combined projects because of the short duration of aesthetic changes to the environment even with both construction activities occurring simultaneously.

Once constructed, pipelines would be underground and have no impacts on aesthetics or scenic views and resources. The MPWSP proposes water supply storage facilities (called the Terminal Reservoirs) located to the south of the Proposed Project Injection Well Facilities site. However, these facilities would be separated from the Injection Well Facilities by distance and intervening topography, and would not be visible from the same vantage points. These components of the two projects would not contribute to cumulative aesthetics impacts due to operation. Therefore, there would not be a combined aesthetic impact after completion of construction.

Overall Cumulative Impacts. **Table 4.2-4,** provides a summary of potential impacts from the Proposed Project to the aesthetic environment and significance determinations at each Proposed Project component site by impact area for construction and operations. The Proposed Project construction impacts (AE-1) on scenic views, resources, and visual quality of sites and operational effects on visual quality of sites and surrounding areas. (AE-3) were found to be less than significant. Impacts from temporary light and glare from construction (AE-2) and due to permanent light and glare (AE-4) were less than significant with mitigation. Except as described above, the Proposed Project would not be within the same viewshed as any other known projects whose construction schedule might overlap with the Proposed Project. If an overlap would occur (due to changes in construction schedules for cumulative projects); the timing for the construction of specific segments of the pipeline components would be such that no construction on any one site would occur for a substantial period of time. Thus, there would be no significant construction-related cumulative impacts of the Proposed Project combined with all other projects.

Above-ground structures would be erected at four of the Proposed Project's component sites each having only safety lighting typical of water supply facilities in urban areas. At one of those sites -- the Treatment Facilities at the Regional Treatment Plant site -- project improvements would not be visible from any public viewing areas. A desalination project proposed by the Marina Coast Water District (#18) would be located in proximity to the Regional Treatment Plant. However, the Regional Treatment Plant is visually separated from this site by existing topography and tree cover, is not visible from public viewpoints and would not contribute to aesthetic impacts of other projects that may be constructed in the area.

The other sites with above-ground structural development would include either of the two Booster Pump Station options and the Injection Well Facilities. As summarized in **Table 4.1-2,** in **Section 4.1, Introduction**, there are no other probable future projects that would result in development within the vicinity of these Proposed Project facilities. Although there are no probable future projects proposed in the vicinity of the Injection Well Facilities site (i.e., within the City of Seaside land east of General Jim Moore Boulevard), the City has indicated that that area is a key development opportunity site on which the City has designated the land for commercial (including visitor-serving), residential, and mixed uses. Construction of the Injection Wells would not affect future development that may occur to the east. Due to intervening topographic changes, the Proposed Project would not contribute to aesthetics impacts that may result from development to the east. Thus, there no other projects that would contribute to cumulative aesthetics impacts on scenic views, resources or visual quality at these locations. The Proposed Project's significant permanent lighting impacts would be mitigated to a less than significant level with Mitigation Measure AE-4, above. The Proposed Project would result in project-specific aesthetic impacts, but would not contribute to any significant cumulative aesthetic impacts due to lack of impacts from any other cumulative projects.

Cumulative Impact Conclusion

The combined MPWSP and GWR projects ("Variant") would result in a less-than-significant cumulative impact to scenic views along a state highway that is eligible for designation as a scenic highway during construction of the MPWSP Transmission Pipeline and Proposed Project Product Water Conveyance Pipeline. Once constructed, pipelines would be underground, and other facilities of the Variant would not be located within the same areas of visibility. Thus, there would be no significant cumulative impacts on aesthetics or scenic views and resources from the combined projects. There would be no significant construction or operational cumulative impacts related to aesthetics as a result of all cumulative development.

4.2.5 References

California Public Utilities Commission (CPUC) 2012. Notice of Preparation of an Environmental Impact Report for the CalAm Monterey Peninsula Water Supply Project. October 2012.

CPUC, 2013. Settling Parties' Motion To Approve Settlement Agreement On Plant Size and Operation. July 2013.

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City of Seaside, 2004. *City of Seaside General Plan Final Environmental Impact Report*, January, 2004.

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Fort Ord Reuse Authority, 2005. *Highway 1 Design Corridor Design Guidelines*, March, 2005.

Monterey County, 1984. *Greater Salinas Area Plan*, adopted October 26, 2010.

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Monterey County, 2010a. *Monterey County General Plan Final Environmental Impact Report*, March, 2010.

Monterey County, 2010b. *Scenic Highway Corridors and Visual Sensitivity, Greater Monterey Peninsula*, January 2010.

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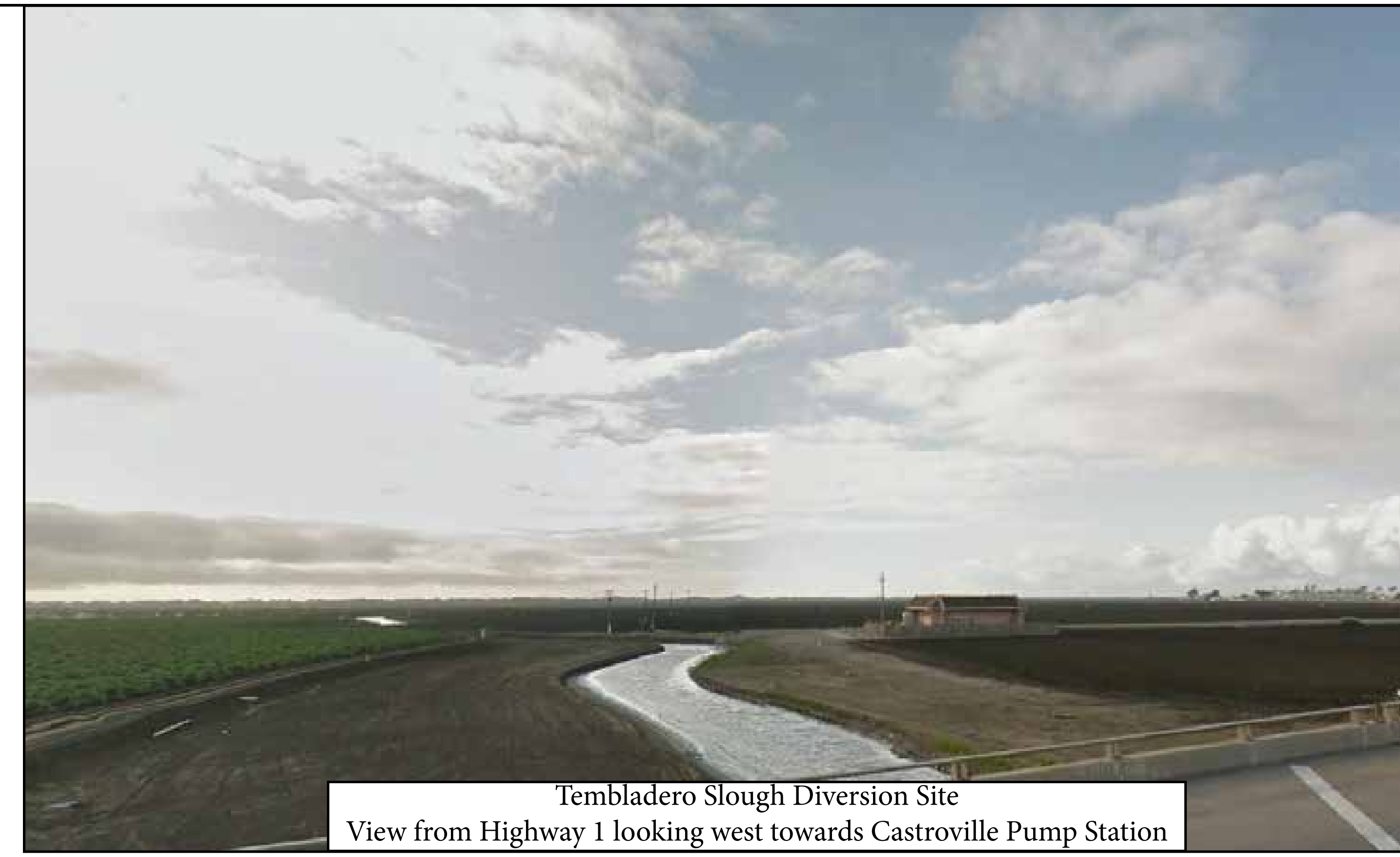
Salinas Treatment Facility
View from South Davis Road looking west towards Treatment Facility



Tembladero Slough Diversion Site
View from Highway 1 looking west towards Castroville Pump Station

El Estero Diversion Site
View from Del Monte Avenue looking south towards Lake El Estero

Source: DD&A, 2014

DD&A

Site Photos of Source Water Diversion Sites from Public Viewpoints

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.2-1A

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DD&A

Site Photo of Treatment Facilities at the Regional Treatment Plant

Figure
4.2-1B

April 2015

Pure Water Monterey GWR Project
Draft EIR

Coastal Booster Pump Station Option
View from Divarty Street looking south

RUWAP Booster Pump Station Option
View from Inter-Garrison Road looking north

DD&A

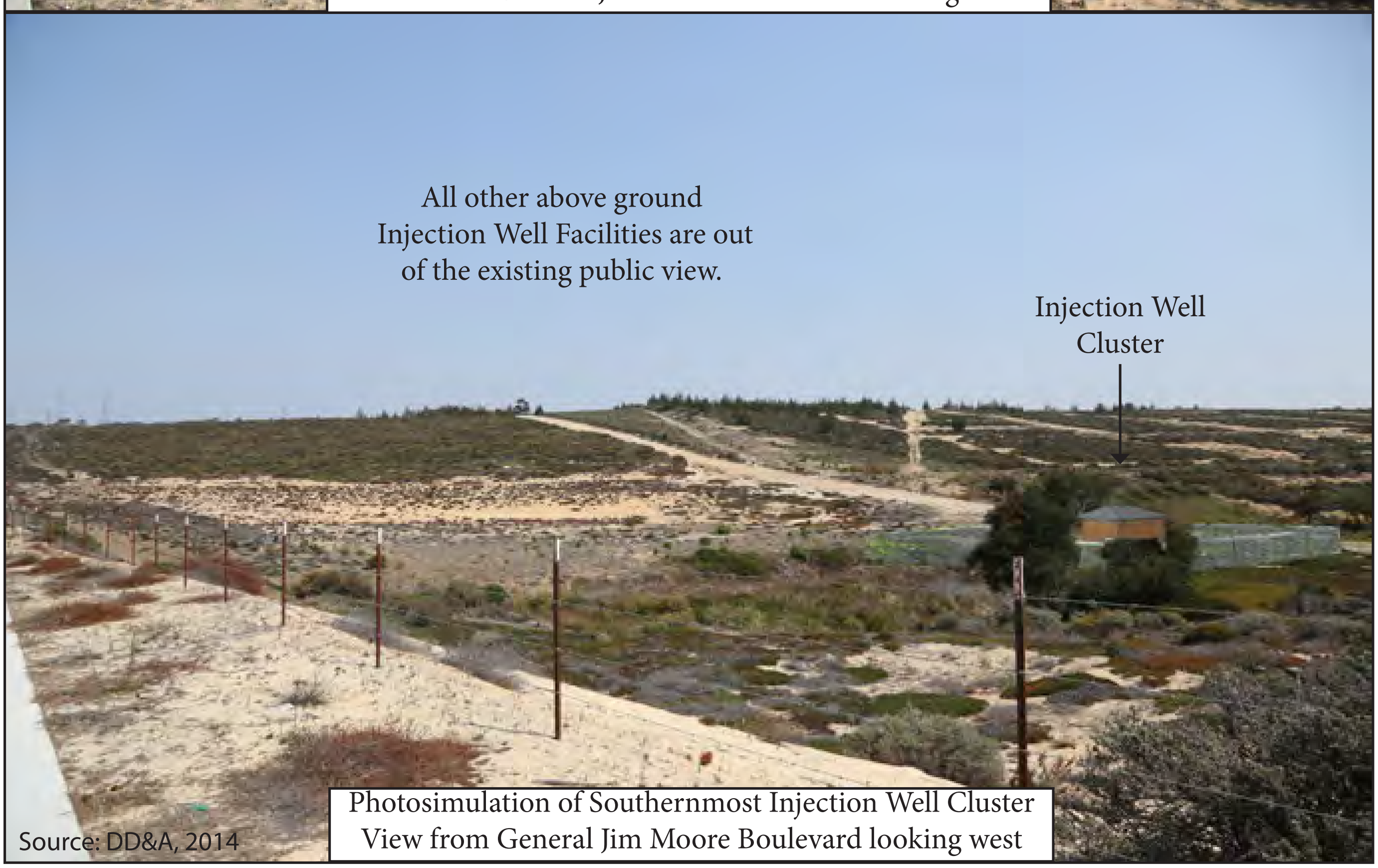
Site Photos of Product Water Conveyance Pump Stations

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.2-1C

Existing Conditions
View from General Jim Moore Boulevard looking west



Photosimulation of Southernmost Injection Well Cluster
View from General Jim Moore Boulevard looking west

Source: DD&A, 2014

DD&A

Photosimulation of Injection Well Facilities

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.2-2

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4.3 AIR QUALITY AND GREENHOUSE GAS

Sections	Tables
4.3.1 Introduction 4.3.2 Environmental Setting 4.3.3 Regulatory Framework 4.3.4 Impacts and Mitigation Measures 4.3.5 References	4.3-1 Ambient Air Quality Standards 4.3-2 Highest Measured Air Pollutant Concentrations in Salinas (Monitoring Station #3) 4.3-3 Applicable State, Regional, and Local Land Use Plans, and Policies – Air Quality and Greenhouse Gas 4.3-4 Air Quality Significance Thresholds 4.3-5 Impact Summary Table – Air Quality and Greenhouse Gas 4.3-6 Construction Emissions by Project Component and Total (in Tons) 4.3-7 Estimated Daily Construction Emissions 4.3-8 Nearest Sensitive Receptors and Approximate Distances 4.3-9 Estimated Annual Operational Criteria Pollutant Emissions 4.3-10 Annual GHG Emissions from Operation (metric tons/year CO2)

4.3.1 Introduction

This section presents background information on air quality, criteria air pollutants, and greenhouse gas (GHG) emissions, a summary of existing air quality and GHG conditions, and a summary of the regulatory framework that pertains to the project. The section then provides an assessment of potential air quality and GHG emissions and related impacts that may result from construction and operation of the Proposed Project. A discussion of cumulative impacts is provided at the end of the section. This section was prepared in close consultation with Illingworth & Rodkin who also conducted an air quality and greenhouse gas analysis of the Proposed Project that is provided in **Appendix E** (Illingworth & Rodkin Inc., 2014). The Monterey Bay Unified Air Pollution Control District (MBUAPCD or District) is the regional agency tasked with managing air quality in the region, which is overseen by the California Air Resources Board (CARB). The MBUAPCD has published CEQA Air Quality Guidelines that also are used in this assessment to evaluate air quality impacts of projects (Monterey Bay Unified Air Pollution Control District, 2008a).

Public and agency comments related to air quality and greenhouse gas emissions that were received during the public scoping period are summarized below.

The project must be in compliance with Federal Clean Air Act by providing air quality studies. If the project is in a non-attainment area, it must also provide a summary of estimated emissions for the project, and if the emissions are "above de minimis levels, but project is sized to meet the needs of the current population," calculations should show how this increase was calculated.

The EIR should include a GHG emissions analysis that identifies thresholds, calculates emissions, determines significance, and identifies mitigation.

The project must demonstrate compliance with the Federal Clean Air Act conformity requirements.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to CEQA and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report**.

The project partners intend to apply for a federal Clean Water Act State Revolving Fund loan; therefore, the Proposed Project must comply with the Federal Clean Air Act. The North Central Coast Air Basin is considered attainment or unclassified for all federally-regulated criteria pollutants and is not subject to a maintenance plan with conformity requirements. Therefore, the Proposed Project would not be subject to General Conformity compliance under the Federal Clean Air Act. Compliance with the Federal Clean Air Act is discussed further in **Section 4.3.3, Regulatory Framework.**

4.3.2 Environmental Setting

4.3.2.1 Local Climate and Air Quality

The air quality in a given area depends on the sources of air pollution in the area, the transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Topography and meteorology greatly influence air quality. Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants. Marine breezes from Monterey Bay dominate the climate within the Proposed Project portion of the air basin; westerly winds predominate in all seasons, but are strongest and most persistent during the spring and summer.

Air quality is typically described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of a pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards, which are described further below, represent the allowable pollutant concentrations designed to ensure that public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population.

The Proposed Project would be located in the North Central Coast Air Basin (Air Basin). The Air Basin covers an area of 5,159 square miles along the central coast of California and is generally bounded by the Monterey Bay to the west, the Santa Cruz Mountains to the northwest, the Diablo Range on the northeast, with the Santa Clara Valley between them. The southern part of the Santa Clara Valley extends into the northeastern tip of the Air Basin and transitions into the San Benito Valley, which runs northwest-southeast and is bounded on the west by the Gabilan Range. To the west of the Gabilan Range is the Salinas Valley, which extends from the City of Salinas at the northwest end to King City at the southeast end. The western edge of the Salinas Valley is formed by the Sierra de Salinas, which is also the eastern edge of the Carmel Valley. The Santa Lucia Range along the Pacific coast defines the western edge of the Carmel Valley.

The mountain ridges in the Air Basin restrict and channel summer onshore air currents. Hot temperatures in the inland valleys warm the ground and intensify onshore airflow during the afternoon and evening. In the fall, the surface winds weaken and the marine layer becomes shallow and eventually dissipates. The airflow is occasionally reversed, creating weak offshore winds.

A semi-permanent high-pressure cell in the eastern Pacific Ocean is the basic controlling factor in the climate of the Air Basin. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific high-pressure cell (Pacific High), forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft can inhibit vertical air movement.

The stationary air mass held in place by the Pacific High pressure cell can allow pollutants to build up over a period of days. These conditions also occur when north or east winds cause pollutant transport from the San Francisco Bay Area or the Central Valley into the Air Basin. In the winter, the Pacific High moves south and has a lesser influence on the Air Basin; wind flows southeasterly from the Salinas and San Benito Valleys, especially during the night and morning. Northwest winds are still dominant in winter, but easterly winds are more frequent in the winter than the summer. Air quality usually remains good in the winter and early spring due to the absence of deep, persistent regional subsidence inversions and the presence of occasional storms. Typically, year-round marine airflow allows coastal areas to maintain good air quality.

The Proposed Project area typically has average maximum and minimum winter (i.e., January) temperatures of 60 degrees Fahrenheit (ºF) and 43 ºF, respectively, while average summer (i.e., July) maximum and minimum temperatures are 68 ºF and 52 ºF, respectively. The warmest month is typically September, with an average maximum high of 72 ºF. Because of the moderating marine influence, which decreases with distance from the ocean, monthly and annual temperature variations are greatest inland and smallest at the coast. The Proposed Project area is mostly along the coast with temperature variations that are relatively moderate. Precipitation in the Proposed Project area averages approximately 20 inches per year (Western Regional Climate Center, 2014).

4.3.2.2 Criteria Air Pollutants and Ambient Air Quality Standards

Ambient air quality standards have been established at both the federal and state level. The Federal and California Clean Air Acts have established ambient air quality standards for common pollutants. The ambient air quality standards are intended to protect human health and welfare. National and state ambient air quality standards are shown in **Table 4.3-1, Ambient Air Quality Standards.**

The Federal Clean Air Act (FCAA) and its amendments establish the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for “criteria pollutants” that are regarded as the maximum levels of ambient (background) air pollutants considered to have an adequate margin of safety necessary to protect the public health and welfare. The criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur oxides (SO_2), respirable particulate matter with a diameter less than 10 microns (PM_{10}), fine particulate matter with a diameter less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), and lead. The U.S. Environmental Protection Agency (EPA) Region IX office oversees compliance with the FCAA.

The California Air Resources Control Board (CARB), a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California. Its responsibility lies with ensuring compliance with the California Clean Air Act (CCAA) and its amendments, as well as responding to the FCAA requirements and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions. CARB establishes the California Ambient Air Quality Standards – CAAQS, pursuant to the CCAA. These standards apply to the same criteria pollutants as the FCAA and also include sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. The California Ambient Air Quality Standards are generally more stringent than the NAAQS. National and state ambient air quality standards are shown in **Table 4.3-1.**

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NOx). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the MBUAPCD's attempt to reduce ozone levels. High ozone levels aggravate respiratory and cardiovascular diseases, reduce lung function, and increase coughing and chest discomfort. Particulate matter can be another problematic air pollutant. Elevated concentrations of PM_{10} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Table 4.3-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards (a)	
			Primary (b,c)	Secondary (b,d)
Ozone (O3)	8-hour	0.070 ppm (137 µg/m3)	0.075 ppm (147 µg/m3)	Same as primary
	1-hour	0.09 ppm (180 µg/m3)	—e	Same as primary
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m3)	9 ppm (10 mg/m3)	—
	1-hour	20 ppm (23 mg/m3)	35 ppm (40 mg/m3)	—
Nitrogen Dioxide (NO2)	Annual	0.030 ppm (57 µg/m3)	0.053 ppm (100 µg/m3)	Same as primary
	1-hour	0.18 ppm (339 µg/m3)	0.100 ppmf (188 µg/m3)	—
Sulfur Dioxide (SO2)	Annual	—	—g	—
	24-hour	0.04 ppm (105 µg/m3)	—g	—
	3-hour	—	—	0.5 ppm (1300 µg/m3)
	1-hour	0.25 ppm (655 µg/m3)	0.075 ppmg (196 µg/m3)	—
PM10	Annual	20 µg/m3	—	Same as primary
	24-hour	50 µg/m3	150 µg/m3	Same as primary
PM2.5	Annual	12 µg/m3	12 µg/m3h	
	24-hour	No Separate State Standard	35 µg/m3	
Lead	Calendar quarter	—	1.5 µg/m3	Same as primary
	30-day average	1.5 µg/m3	—	—

Notes: ppm = parts per million
µg/m3 = micrograms per cubic meter
mg/m3 = milligrams per cubic meter
(a) California standards for ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are not to be exceeded. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard.
Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.
Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation Plan is approved by the EPA.
Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
The national 1-hour ozone standard was revoked by EPA on June 15, 2005. A new 8-hour standard was established in May 2008.
The form of the 1-hour NO2 standard is the 3-year average of the 98th percentile of the daily maximum 1-hour average concentration.
On June 2, 2010, the EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of the 1-hour daily maximum. The EPA also revoked both the existing 24-hour and annual average SO2 standards.
On December 14, 2012, the EPA strengthened the annual NAAQS for PM2.5 to 12.0 µg/m3

4.3.2.3 Existing Air Quality and Basin Attainment Status

MBUAPCD operates a regional monitoring network that measures the ambient air quality in the Air Basin. Ambient air quality is monitored at nine stations within the Air Basin. Existing levels of air pollutants in the Proposed Project area can generally be inferred from ambient air quality measurements conducted by MBUAPCD at its closest station, the Salinas #3 monitoring station, located in the City of Salinas, east of East Laurel Drive and south of Constitution Boulevard. The Salinas #3 monitoring station measures concentrations of ozone, respirable particulate matter equal to or less than 10 microns (PM_{10}), fine particulate matter less than 2.5 microns ($PM_{2.5}$), carbon monoxide (CO), and nitrogen dioxide (NO). **Table 4.3-2,** shows a three-year (2010‑2012) summary of monitoring data collected at the Salinas #3 monitoring station.

The Air District's "Triennial Plan Revision" (Monterey Bay Unified Air Pollution Control District, 2013b) updates the District's adopted 2008 Air Quality Management Plan (Monterey Bay Unified Air Pollution Control District, 2008b). The primary elements from the 2008 AQMP that were updated in the 2013 revision include the air quality trends analysis, emission inventory, and mobile source programs. According to this report, data monitored in the most populated area of the Air Basin, Salinas, show that although the area currently does not meet state standards for ozone, the number of days per year in exceedance of ozone standards has been decreasing, and the region is on course to meet these standards in the future. The Triennial Plan Revision identifies a continued trend of declining ozone emissions in the Air Basin primarily related to lower vehicle miles traveled. Overall, based on monitoring data for 2009-2011, there were fewer exceedance days in the time period 2009-2011 compared to 2006-2008. Therefore, the control measures presented in the 2008 AQMP have not been implemented as the MBUAPCD determined progress was continuing to be made toward attaining the 8-hour ozone standard during the three-year period reviewed (2009-2011) (Monterey Bay Unified Air Pollution Control District, 2013b).

Table 4.3-2
Highest Measured Air Pollutant Concentrations in Salinas (Monitoring Station #3)

Pollutant	Average Time	Highest Measured Air Pollutant Levels		
		2010	2011	2012
Ozone (O_3)	1-Hour	0.07 ppm	0.07 ppm	0.07 ppm
	8-Hour	0.06 ppm	0.06 ppm	0.06 ppm
Carbon Monoxide (CO)	8-Hour	0.76 ppm	0.99 ppm	1.39 ppm
Nitrogen Dioxide (NO_2)	1-Hour	0.04 ppm	0.04 ppm	0.04 ppm
Respirable Particulate Matter (PM_{10})	24-Hour	39 µg/m3	19 µg/m3	ND
	Annual	14.8µg/m3	4.9 µg/m3	ND
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	9.8 µg/m3	15.1 µg/m3	9.1 µg/m3
	Annual	4.5 µg/m3	4.9 µg/m3	ND

Source: CARB, iADAM Air Quality Statistics, see http://www.arb.ca.gov/adam/.
Note: ppm = parts per million and µg/m3 = micrograms per cubic meter
ND = No Data available.

Areas with air quality that exceed federal or state air quality standards are designated as "nonattainment" areas for the relevant air pollutants. Designations are made for each criteria pollutant according to the categories listed below. Designations in relation to state standards are made by the CARB, while designations in relation to national standards are made by the EPA. State designations are updated annually, while the national designations are updated either when the standards change or when an area requests re-designation due to changes in air quality. Nonattainment designations are of most concern because they indicate that unhealthy levels of the pollutant exist in the area, which typically triggers a need to develop a plan to achieve the applicable standards (Monterey Bay Unified Air Pollution Control District, 2008b).

Attainment – Air quality in the area meets the standard.

Nonattainment – Air quality in the area fails to meet the applicable standard.

Unclassified – Insufficient data to designate area, or designations have yet to be made.

Attainment/Unclassified – An EPA designation which, in terms of planning implications, is essentially the same as Attainment.

The Air Basin as a whole is considered by the EPA as attainment or unclassified for all regulated criteria pollutants under the NAAQS. At the State level, the region is designated as nonattainment for ozone and PM_{10}. The region is attainment for all other pollutants regulated under the CAAQS.

4.3.2.4 Toxic Air Contaminants

In addition to "criteria" air pollutants, there is another group of substances found in ambient air referred to as Toxic Air Contaminants (TACs). These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse acute and chronic health effects including cancer. Sources of TACs include industrial processes such as petroleum refining and manufacturing, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. One of the TACs of greatest concern in California is diesel particulate matter, which is classified as a carcinogen (causes cancer). TACs are regulated at the local, state, and federal level.

4.3.2.5 Greenhouse Gases

Global temperatures are affected by naturally occurring and anthropogenic-generated (generated by humankind) atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide (Intergovernmental Panel on Climate Change, 2007). Gases that trap heat in the atmosphere are called greenhouse gases (GHG). Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. Greenhouse gases, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This is known as the greenhouse effect. The greenhouse effect helps maintain a habitable climate. Emissions of GHGs from human activities, such as electricity production, motor vehicle use, and agriculture, are elevating the concentration of GHGs in the atmosphere, and are reported to have led to a trend of unnatural warming of the earth's natural climate, known as global warming or global climate change. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred because it accurately includes other consequences to the global climate in addition to rising temperatures. Other than water vapor, the primary GHGs contributing to global climate change include the following gases:

Carbon dioxide (CO_2), primarily a byproduct of fuel combustion;

Nitrous oxide (N_2O), a byproduct of fuel combustion; also associated with agricultural operations such as the fertilization of crops;

Methane (CH_4), commonly created by off-gassing from agricultural practices (e.g. livestock), wastewater treatment and landfill operations;

Chlorofluorocarbons (CFCs) were used as refrigerants, propellants and cleaning solvents, but their production has been mostly prohibited by international treaty;

Hydrofluorocarbons (HFCs) are now widely used as a substitute for chlorofluorocarbons in refrigeration and cooling; and

Perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

More information about climate change and greenhouse gases can be found at the California Air Resources Board's Climate Change website: http://www.arb.ca.gov/cc/cc.htm.

4.3.3 Regulatory Framework

Federal, state, and regional agencies regulate air quality in the North Central Coast Air Basin. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the Federal Clean Air Act (FCAA). The California Air Resources Board (CARB) is the state agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California Clean Air Act. The primary agency that regulates air quality in the Proposed Project area is the MBUAPCD. The MBUAPCD has permit authority over stationary sources, acts as a reviewing agency for environmental documents, and develops regulations that must be consistent with or more stringent than, federal and state air quality laws and regulations.

4.3.3.1 Federal

The Federal CAA requires CARB, based on air quality monitoring data, to designate portions of the state where the national ambient air quality standards are not met as "nonattainment areas." Because of the differences between the national and state ambient air quality standards, the designation of nonattainment areas is different under the federal and state legislation. Areas that meet the air quality standards are considered to be in attainment of the standards.

The EPA requires states that have areas that are not in compliance with the national ambient air quality standards to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the State Implementation Plan. Federal action required to approve or fund a project triggers the Federal Clean Air Act conformity requirements. As part of the State Implementation Plan, California has incorporated the federal General Conformity Rule. The EPA's Conformity Rule, as promulgated in 40 CFR Part 93 Subpart B, and 40 CFR Part 51, Subpart W, implements the conformity requirements of Section 176(c) of the 1990 Amendments to the Federal Clean Air Act. Conformity to the State Implementation Plan is defined in the CAA as requiring all federal agencies to ensure that any federal agency activity conforms to an approved State Implementation Plan in nonattainment or maintenance areas. Compliance with the State Implementation Plan assists in eliminating or reducing the number of violations of the national ambient air quality standards, which expedites attainment of the standards. Because the Air Basin is considered attainment or unclassified for all federally-regulated criteria pollutants, the project would not be subject to General Conformity compliance. In addition, the area is not subject to a maintenance plan with conformity requirements.[1]

On April 17, 2009, the EPA Administrator signed Proposed Endangerment and Cause or Contribute Findings for GHGs under Section 202(a) of the Clean Air Act. EPA found that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse effect and, under Section 202(a) of the Clean Air Act, result in air pollution that endangers public health and welfare. The specific GHG regulations EPA has adopted to date are as follows:

Mandatory Reporting of Greenhouse Gases Rule (40 CFR Part 98). This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of carbon dioxide equivalent (CO_2e) emissions per year (EPA 2009). Additionally, the reporting of emissions is required for owners of SF6- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds.

Proposed Prevention of Significant Deterioration (PSD) and Title V Greenhouse Gas Tailoring Rule (40 CFR Part 52). EPA recently mandated that Prevention of Significant Deterioration requirements be applied to facilities that have stationary-source CO2e emissions exceeding 100,000 tons per year if they otherwise would not be subject to PSD requirements, and 75,000 tons per year if they otherwise would be subject to PSD requirements. On June 23, 2014, the United States Supreme Court struck down the requirement as to sources that would not otherwise be subject to PSD requirements. The Court upheld the EPA Greenhouse Gas Tailoring Rule as to sources otherwise subject to PSD requirements.

4.3.3.2 State

The California Clean Air Act outlines a program for areas in the state to attain the California ambient air quality standards by the earliest practical date. The CARB oversees regional air district activities and regulates air quality at the State level. If an area does not meet the California ambient air quality standards, the CARB designates the area as a nonattainment area. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans for pollutants, except for particulate matter, that are not in attainment with the state standards. These plans must provide for district-wide emission

[1] The Phase 1 final rule to implement the 8-hour ozone standard was published on April 30, 2004. The anti-backsliding provisions in that rule set forth specific requirements for areas that are designated attainment for the 8-hour ozone standard and that were at the time of the 8-hour designations (generally June 15, 2004) either attainment areas with maintenance plans for the 1-hour standard, such as the Air Basin; or nonattainment for the 1-hour standard. Specifically, 40 CFR part 51, section 51.905(a)(3) and (4) requires these areas to submit a maintenance plan under section 110(a)(1) of the Clean Air Act. That maintenance plan must demonstrate maintenance for 10 years post designation; however, this maintenance plan does not carry with it any conformity obligations (unlike maintenance plans required under section 175A of the Act).

reductions of 5% per year averaged over consecutive three-year periods or if not, provide for adoption of “all feasible measures on an expeditious schedule.”

CARB has numerous rules and regulations that would affect the Proposed Project. For example, Title 13, Section 2485 of the California Code of Regulations (CCR) limits idling time of diesel powered equipment to 5 minutes. CARB adopted a regulation, Title 13, Section 2449 of the CCR, to reduce diesel particulate matter NOx emissions from in-use (existing) off-road heavy-duty diesel vehicles in California, which includes construction equipment. This regulation requires operators of construction fleets to replace or retrofit equipment as necessary to meet overall fleet emission requirements.

The CARB is the lead agency for implementing climate change regulations in the state. Since its formation, the CARB has worked with the public, the business sector, and local governments to find solutions to California’s air pollution problems.

Assembly Bill (AB) 32 (2006), California Global Warming Solutions Act

California’s major initiative for reducing GHG emissions was passed by the California State legislature in 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. The CARB has established the level of GHG emissions in 1990 at 427 million metric tons (MMT) of carbon dioxide equivalent (CO2e). The CARB also projected future CO2e emissions in 2020 that would be expected to occur if no new regulations were adopted (business-as-usual 2020 emissions). The CARB determined that the AB 32 emissions target of 427 MMT requires the reduction of 169 MMT from the State’s projected business-as-usual 2020 emissions of 596 MMT. Following the law, CARB approved a Scoping Plan on December 11, 2008 that includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste (California Air Resources Board, 2008). The Scoping Plan must be updated every five years. CARB approved its Updated Scoping Plan in May 2014 (California Air Resources Board, 2014).

Senate Bill (SB) 375 (2008)

SB 375, signed into law on October 1, 2008, enhances the CARB’s ability to reach AB 32 goals by developing regional GHG emissions reduction targets for the automobile and light truck sectors. The CARB is working with California's 18 metropolitan planning organizations to align their regional transportation, housing, and land use plans and prepare a “Sustainable Communities Strategy” to reduce the number of vehicle miles and demonstrate the region’s ability to attain its greenhouse gas reduction targets.

Executive Order B-30-15

Governor Brown issued Executive Order B-30-15 on April 29, 2015, building on the targets in Executive Order S-03-05 to guide California’s efforts in reducing statewide GHG emissions. Executive Order B-30-15 sets an interim goal for California to reduce GHG emissions to 40% below 1990 levels by 2030 and directs state agencies to establish measures to achieve this target. Executive Order B-30-15 also directs ARB to incorporate the 2030 goal into the AB 32 Scoping Plan, requires state agencies to incorporate climate change into their planning and investment decisions, and requires the California Natural Resources Agency to update the state’s climate adaptation strategy every three years. This executive order, in and of itself, does not establish any new mandates for local governments and does not impose statutory, regulatory, or legal requirements.

4.3.3.3 Regional and Local

Monterey Bay Unified Air Pollution Control District

The MBUAPCD is the regional agency responsible for air quality regulation within the Air Basin. The MBUAPCD regulates air quality through its planning and review activities. The MBUAPCD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, impose emission limits, set fuel or material specifications, and establish operational limits to reduce air emissions. The MBUAPCD regulates new or expanding stationary sources of criteria pollutants and toxic air contaminants.

State law assigns local air districts the primary responsibility for control of air pollution from stationary sources, under CARB's oversight. The MBUAPCD is responsible for developing regulations governing emissions of air pollution, permitting and inspecting stationary sources of air pollution, monitoring of ambient air quality, and air quality planning activities, including implementation of transportation control measures.

The MBUAPCD does not regulate the emissions of dust and other construction emissions, except to require that each project's relevant CEQA document quantify the emissions of particulate matter and provide mitigation, if the relevant threshold of significance is exceeded.

Air Quality Management Plan for the Monterey Bay Region

In 1991, the MBUAPCD adopted the *Air Quality Management Plan* for the Monterey Bay Region in response to the California Clean Air Act of 1988, which established specific planning requirements to meet the ozone standards. The California Clean Air Act requires that air quality management plans be updated every 3 years. The MBUAPCD has updated the air quality management plan five times. The most recent update, the Triennial Plan Revision 2009-2011 was adopted in 2013. The Triennial Plan Revision relies on a multilevel partnership of federal, State, regional, and local governmental agencies. These agencies, including EPA, CARB, local governments, Association of Monterey Bay Area Governments [AMBAG] and the MBUAPCD, are the primary agencies that implement the air quality management plan programs. The Triennial Plan revision documents the MBUAPCD's progress toward attaining the state 8-hour ozone standard, which is more stringent than the state 1-hour ozone standard. The Triennial Plan Revision builds on information developed in past air quality management plans and includes a review and update to the 2008 Air Quality Management Plan. The primary elements from the 2008 Air Quality Management Plan that were updated in the Triennial Plan Revision include the air quality trends analysis, emission inventory, and mobile source programs.

Rules for Stationary Sources

The MBUAPCD regulates new and modified stationary sources through its Rule 207, which incorporates State and federal requirements for new and modified stationary sources as well as MBUAPCD-specific regulations. When net emissions from a new or modified facility exceed State offset thresholds, the increase must be offset by emissions reductions from an existing source, with certain exceptions. One type of source that is excepted from offset requirements is emergency internal combustion engines used during power outages or operated less than 60 hours per year for emergency pumping of water. The rule also requires application of Best Available Control Technology when a source would emit 25 pounds per day or more of reactive organic gases (ROG) or NOx emissions. Any proposed stationary diesel engines larger than 50 horsepower (hp) would be subject to the MBUAPCD's air toxic control measures, which require emission controls and limits on testing and maintenance. In addition, pursuant to Rule 1010, the MBUAPCD requires permits for all emergency standby engines. Rule 1010, Subsection 3.2.1.3.1, requires the following operating requirements and diesel particulate emission standards for new stationary emergency standby diesel engines over 50 hp (Monterey Bay Unified Air Pollution Control District, 2010):

Diesel particulate matter limit of less than 0.15 grams per brake horsepower-hour, or

Off-road Engine Certification Standard for an off-road engine of the same hp rating; and

Less than 50 hours per year for non-emergency operation.

Wastewater Treatment Facilities Permits

District Rule 216, Permit Requirements for Wastewater and Sewage Treatment Facilities, requires that new or modified wastewater treatment facilities be consistent with the adopted air quality management plan. Consistency of wastewater treatment facilities with the air quality management plan is determined by comparing projected forecasts for the proposed service area with the applicable air quality management plan forecasts. AMBAG maintains forecasts for geographic areas as small as Traffic Analysis Zones which enables it to forecast population for service areas that differ from city and county boundaries and cross jurisdictional boundaries. District Rule 216 requires that affected projects also remain consistent with the plan. This is accomplished by requiring establishment of a system to track and report hook-ups for new or modified wastewater treatment facilities. Because the Proposed Project would not accommodate any new population growth and would not expand the wastewater treatments system to accommodate any new population growth, it would be consistent with the requirements of this rule.

Plans and Polies Consistency Analysis

Table 4.3-3, Applicable State, Regional, and Local Land Use Plans, and Policies - Air Quality and Greenhouse Gas describes the state, regional, and local land use plans, policies, and regulations pertaining to air quality and greenhouse gas emissions that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.3-3** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.3.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

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Table 4.3-3
Applicable State, Regional, and Local Land Use Plans, and Policies - Air Quality and Greenhouse Gas

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific Policy or Program	Project Consistency with Policies and Programs
Cities of Marina and Monterey (coastal zone)	California Coastal Act	Article 6, Development	Product Water Conveyance: Coastal Alignment; Monterey Pipeline	**Section 30253**: Minimization of adverse impacts. New development shall do all of the following: (c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.	**Consistent with mitigation**: Proposed short-term construction activities in the cities of Marina and Monterey would result in emissions of fugitive dust that could exceed MBUAPCD's daily threshold for PM_{10}. This issue is addressed by requiring mitigation measure AQ-1 whose implementation would avoid this potential inconsistency. Proposed Project emissions of diesel particulate matter would not exceed health-based thresholds or standards. Ozone precursor and criteria pollutant emissions from non-typical construction equipment would not exceed the MBUAPCD threshold for preventing ambient air quality standard exceedances and adverse health effects.
Monterey County	Monterey County General Plan	Conservation and Open Space	Reclamation Ditch Diversion Tembladero Slough Diversion Salinas Treatment Facility Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy OS-10.6**: The Monterey Bay Unified Air Pollution Control District's air pollution control strategies, air quality monitoring, and enforcement activities shall be supported.	**Consistent with mitigation**: Proposed short-term construction activities in Monterey County would result in emissions of fugitive dust that could exceed MBUAPCD's daily threshold for PM_{10}. This issue is addressed by requiring mitigation measure AQ-1 whose implementation would avoid this potential inconsistency. Proposed Project emissions of diesel particulate matter would not exceed health-based thresholds or standards. Ozone precursor and criteria pollutant emissions from non-typical construction equipment would not exceed the MBUAPCD threshold for preventing ambient air quality standard exceedances and adverse health effects.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Treatment Facilities RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Salinas Treatment Facility Blanco Drain Diversion	**Policy OS-10.7**: Use of the best available technology for reducing air pollution emissions shall be encouraged.	**Consistent**: New pumps used at Proposed Project facilities would be designed to reduce energy use and associated emissions. See Impacts AQ-5, AQ-7, and AQ-10 for discussion on the Proposed Project's less-than significant impact due to air pollution emissions.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Treatment Facilities RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Salinas Treatment Facility Blanco Drain Diversion	**Policy OS-10.8**: Air quality shall be protected from naturally occurring asbestos by requiring mitigation measures to control dust and emissions during construction, grading, quarrying, or surface mining operations. This policy shall not apply to Routine and Ongoing Agricultural Activities except as required by state and federal law.	**Consistent**: Short-term construction activities associated with project components proposed for Monterey County would result in the generation of fugitive dust emissions that could include naturally occurring asbestos. See Impact AQ-2, Construction-Related Emissions of Criteria Pollutants for a discussion of less-than significant impacts.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Treatment Facilities RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Salinas Treatment Facility Storage and Recovery Blanco Drain Diversion	**Policy OS-10.9**: The County of Monterey shall require that future development implement applicable Monterey Bay Unified Air Pollution Control District control measures. Applicants for discretionary projects shall work with the Monterey Bay Unified Air Pollution Control District to incorporate feasible measures that assure that health-based standards for diesel particulate emissions are met. The County of Monterey will require that future construction operate and implement MBUAPCD PM10 control measures to ensure that construction-related PM10 emissions do not exceed the MBUAPCD's daily threshold for PM10. The County shall implement MBUAPCD measures to address off-road mobile source and heavy duty equipment emissions as conditions of approval for future development to ensure that construction-related NOx emissions from non-typical construction equipment do not exceed the MBUAPCD's daily threshold for NOx.	**Consistent with mitigation**: Short-term construction activities in Monterey County that would be associated with the Proposed Project would result in the generation of fugitive dust emissions that could exceed MBUAPCD's daily threshold for PM_{10}. This issue is addressed by requiring mitigation measure AQ-1 whose implementation would avoid this potential inconsistency. Proposed project-related emissions of diesel particulate matter would not exceed-health based standards and NO_x emissions from non-typical construction equipment would not exceed the MBUAPCD's daily threshold for NO_x.
City of Seaside	Seaside General Plan (and Municipal Code)	Safety Element	RUWAP Alignment Coastal Alignment Coastal Booster Pump Station Injection Well Facilities Transfer Pipeline Monterey Pipeline	**S-2.1**: Reduce the risks posed by air pollution. (See also implementing municipal code Section 8.40.030 Prohibited Discharges and 8.40.040 Nuisance Declared - Abatement)	**Consistent**: Construction and operations would result in emissions of criteria pollutants, but would not violate air quality standards, or contribute substantially to an air quality violation. See Impact AQ-1 and AQ-6.
City of Monterey	Monterey Harbor Land Use Plan	Development	Monterey Pipeline	**Section 30253**: Minimization of adverse impacts. New development shall do all of the following: (c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development. Minimization of Adverse Impacts.	**Consistent with mitigation**: Construction would result in emissions of criteria pollutants, and may contribute substantially to an air quality violation. PM_{10} emissions would be more than 82 pounds per average day, which would not exceed the MBUAPCD's threshold. Operations would result in criteria pollutants but would also not violate air quality standards, nor contribute substantially to an existing or projected air quality violation. Proposed project-related emissions of diesel particulate matter would not exceed-health based standards and NO_x emissions from non-typical construction equipment would not exceed the MBUAPCD's daily threshold for NO_x.

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4.3.4 Impacts and Mitigation Measures

4.3.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, the project would have a significant air quality impact if it would:

a. Conflict with or obstruct implementation of the applicable air quality plan;
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
d. Expose sensitive receptors to substantial pollutant concentrations;
e. Create objectionable odors affecting a substantial number of people;
f. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
g. Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gas emissions.

The MBUAPCD provides guidance in assessing air quality impacts related to proposed projects. In 2008, MBUAPCD adopted new CEQA Air Quality Guidelines that included thresholds of significance to assist in the review of projects under CEQA. The significance thresholds, all of which except GHG emissions are adopted thresholds of the MBUAPCD and used in this analysis, are summarized in **Table 4.3-4, Air Quality Significance Thresholds**.

As of March 2015, MBUAPCD has not adopted significance thresholds for GHG emissions. In February 2013, MBUAPCD staff presented threshold options to the MBUAPCD Board and an analysis of the options evaluated. In February 2014, MBUAPCD staff proposed the following options for operational significance thresholds for land use projects: (1) a bright-line threshold of 2,000 metric tons CO_2e per year, (2) incorporation of mitigation measures to reduce GHG emissions by 16%, or (3) compliance with an applicable adopted GHG reduction plan/climate action plan (Monterey Bay Unified Air Pollution Control District, 2014). There are no adopted GHG reduction plans or climate action plans that would apply to the Proposed Project; therefore the third option would not be applicable to the Proposed Project. A threshold of 10,000 metric tons Co2eq per year was recommended for stationary source projects that are subject to MBUAPCD permitting requirements; however, the Proposed Project is not considered a stationary source project so this threshold would not be applicable to this analysis.

The evidence supporting the MBUAPCD staff recommendations in February 2013 and February 2014 is considered by MRWPCA to constitute substantial evidence. Based on the evidence provided by the MBUAPCD staff recommendation, this EIR first considers whether the Proposed Project's GHG emissions would be below 2,000 MT of CO_2e per year including amortized construction emissions. If the Proposed Project's GHG emissions are determined to be above 2,000 MT of CO_2e per year, this EIR would then consider whether GHG emissions have been reduced at least 16% below business as usual emissions due to alternative energy use and energy efficiency measures. If project GHG emissions are below 2,000 MT of CO_2e per year, or if GHG emissions have been reduced at least 16% below business as usual emissions, the project would be considered to have less-than-significant GHG emissions. A less-than-significant impact would mean that the Proposed Project would not make a cumulatively considerable contribution to the environmental effects related to emitting GHGs (i.e., climate change and the associated adverse effects of climate change).

Table 4.3-4Revised
Air Quality Significance Thresholds

Criteria Pollutant	Construction Thresholds Maximum Daily Emissions (lbs/day)	Operational Thresholds Average Daily Emissions (lbs/day)
Criteria Air Pollutants		
Volatile organic compound (VOC) or Reactive Organic Gases (ROG)	Not applicable[1]	137
Nitrogen oxides (NOx)	Not applicable[1]	137
Carbon monoxide (CO)	Not applicable	550~~2~~[2]
Particulate matter with aerodynamic diameter < 10 micrometers (PM10)	82 (on-site)[2]	82 (on-site)[2]
Sulfur dioxide (SO2)	Not applicable	150
Greenhouse Gas Emissions		
Quantified GHG Annual Emissions	2,000 metric tons of Co2eq per year or failure to reduce GHG emissions by 16% using alternative energy, energy efficiency, or other GHG reduction measures [3]	
Toxic Air Contaminants		
Increased cancer risk due to exposure to toxic air contaminants	Greater than one incident per 100,000 population	

[1] MBUAPCD applies the emission threshold of 137 pounds per day of ROG or NOx to construction activities that involve non-typical equipment (i.e., grinders, and portable equipment). The District specifies examples of typical equipment as scrapers, tractors, dozers, graders, loaders, and rollers (MBUAPCD, 2008; see page 5-3 at: http://mbuapcd.org/pdf/CEQA_full%20%281%29.pdf). For this project, well construction was the only construction activity assumed to use non-typical equipment not normally used in the District (e.g., drilling rigs).
[2] Emissions exceeding these thresholds are considered significant if dispersion modeling shows that the ambient air quality standard for that pollutant would be exceeded. Since air pollutant dispersion modeling was not conducted for this project, the emissions thresholds are used to judge the significance. This threshold applies to stationary sources, not indirect sources.
[3] See discussion above in Section 4.3.4.1. Based on the substantial evidence developed and presented by the MBUAPCD staff in February 2013 and 2014, MRWPCA, as lead agency for this EIR, has elected to use these thresholds to determine if the Proposed Project would make a considerable contribution to significant cumulative global climate change impacts. The Proposed Project would not have any direct, stationary sources of greenhouse gas emissions during operations.

4.3.4.2 Impact Analysis Overview

Approach to Analysis

The primary source of air pollutant emissions associated with the Proposed Project would be construction activities for the various project components. The California Emissions Estimator Model, Version 2013.2.2 or CalEEMod (ENVIRON, 2013) is typically used to predict project construction, operational, and greenhouse gas emissions[2] for land use development projects.

[2] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for lead agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operation from a variety of land use projects.

Since the GWR Project is not a typical land use project, use of CalEEMod was found to be inappropriate, because the model does not predict fugitive emissions from trenching/pipeline construction and well drilling. Therefore, the analysis in this EIR used a spreadsheet analysis using project-specific construction assumptions and applying the most appropriate published emissions factors for the different types of emission-generating activities. The different emission factors used in the analysis were specific to the proposed construction equipment, vehicle emissions (worker and truck trips), and fugitive dust from ground disturbances. For the purposes of this assessment, ROG were assumed to be equivalent for VOC in accordance with MBUAPCD guidance. Due to the low ambient concentrations of CO, SO_2, and lead in the Air Basin and the low potential for these emissions from the Proposed Project, these emissions were considered to not have a significant impact during construction and operation of the project.

Construction Analysis

Construction of the Proposed Project would generate emissions of criteria pollutants (ROG, NO_X, CO, PM_{10}, $PM_{2.5}$) that would result in short-term effects on ambient air quality in the air quality study area and GHGs (primarily CO_2 and CH_4) that would add to the existing global GHG emissions that cause climate change. Emissions would originate from mobile and portable construction equipment exhaust, construction worker vehicle exhaust, dust from ground disturbances, and electrical transmission. Most of these emissions would be temporary (i.e., limited to the construction period) and would cease when construction activities are completed. The Proposed Project includes the construction of several project components at various locations lasting approximately 18 months, with some activities occurring concurrently. In addition, there would be three months at the end of the construction period for some painting, paving, testing and start-up activities, so the total construction period is assumed to take place over 21 months (including three months of testing and start-up). Assuming an average of 21 workdays per month, there would be 378 workdays of construction activity.

Construction equipment emissions were computed based on the quantity, types, size, and duration of equipment usage. A worksheet for each project construction component was developed that provided the type of equipment, quantity, size, load factor, number of days in use and average hours of usage. This inventory of construction activity was combined with the equipment emissions factors that are used in the CalEEMod Version 2013.2.2 model. These emissions factors are based on CARB's latest OFFROAD model that is used to develop statewide emissions inventories (by county) for various types of construction-type equipment. The emission factors were obtained from the CalEEMod technical appendix (see Appendix D of the CalEEMod User's Guide at www.caleemod.com). Unless specifically known, the horsepower and load factor for each type of equipment was based on the statewide average used in CalEEMod. Construction equipment exhaust emissions were computed for each construction phase of each project component.

Emissions from construction-related vehicle traffic were computed using emission factors produced by CalEEMod. The CalEEMod emission factors are based on CARB's EMFAC2011 mobile emissions model. These factors were modeled in the spreadsheet to represent annual conditions in Monterey County. Emission factors, which were generated in terms of grams per mile and vehicle trip end emissions, were applied to projected vehicle travel activity for each project component. In the case of ROG, emission factors also included running losses that account for emissions from evaporating fuel and oil while the vehicle is operating. PM_{10} and $PM_{2.5}$ emission factors also include those from brake and tire wear. Emission rates were developed for light-duty trucks (assumed to be worker trips), light-heavy heavy duty trucks (assumed to be vendor trips), and heavy-heavy duty truck trips assumed to be soil hauling, equipment delivery and cement truck trips. The average distances used by CalEEMod were applied to these trips to estimate vehicle miles traveled. The vehicle activity in terms of trips and miles traveled for each project component were used with the CalEEMod mobile emission factors to generate emissions.

Emissions associated with ground disturbance were developed for area disturbance (e.g., grading and vehicle activity), trenching for pipeline construction, and vehicle travel on unpaved surfaces. These emissions were computed for the maximum daily projected activity. This maximum day was estimated to occur the peak month of overlapping construction (specifically, when the greatest number of sites involving earth moving activities were anticipated to be occurring simultaneously).

Area disturbance emissions are those from general ground disturbance at construction sites. This factor was developed by Midwest Research Institute based on an emission factor of 0.11 tons of PM_{10} per acre of disturbance per day. (CARB, 2013) Since this emission factor assumed some level of construction area watering for dust management, the unmitigated emission factor was computed as twice that factor (i.e., watering was assumed to provide 50% control of emissions). This unmitigated area source emission factor was computed at 20 pounds of PM_{10} emitted per disturbed acre per day.

Emissions for pipeline trenching were based on EPA's AP 42, Fifth Edition Compilation of Air Pollutant Emission Factors (EPA, 2006a). The emission factor is based on the amount of material moved (i.e., excavated and then replaced) in cubic yards, mean wind speed, and material moisture content. The amount of material moved was computed based on the length of pipeline that would be constructed in one day times the assumed width of 6 feet and depth of 6 feet. This amount was then doubled to assume soil would be moved twice, once to excavate, and then to either backfill or load in a truck to export. The wind speed was based on that used by CalEEMod of 7.1 miles per hour. While CalEEMod uses a soil moisture content of 7.9%, a drier moisture content of 2.5% was used since the equation was developed for a range of soil conditions from 0.25% to 4.8%. This is a conservative assumption, since soil excavated for pipeline construction is anticipated to be moist (i.e., probably greater than 4.8%) and drier soil would be more likely to become airborne.

Unpaved roadway travel emissions were computed assuming worker and truck travel at all sites of 0.1 miles. The traffic projections for the maximum daily activity construction period were used to compute daily vehicles miles traveled for worker and truck trips. Emission factors were based on the EPA's Unpaved Roadway Emission Factor that is based on silt content and vehicle weight (EPA, 2006b). The silt content of 6.9% used by CalEEMod was applied. The average assumed vehicle weight was 16.4 tons for trucks (i.e., 80% weigh 20 tons and 20% weigh 2 tons).

The construction schedule and equipment usage assumptions were provided by MRWPCA for each component. For detailed information on the construction schedule, see **Figure 2-40**, **Proposed Project Construction Schedule** in **Chapter 2, Project Description**. Construction equipment, disturbed ground surface area, duration, proposed new building square footage, and soil and demolition hauling volumes for each project component are provided in **Appendix E**. The emission factors used for the analysis, along with the construction emission analysis results, are also included in **Appendix E**.

Operational Analysis

Operation of the Proposed Project would generate emissions of criteria pollutants (ROG, NO_X, CO, PM_{10}, $PM_{2.5}$) that would result in short-term effects on ambient air quality in the air quality study area and GHGs (CO_2, CH_4, and N_2O) that would add to the existing global GHG emissions that cause climate change. Operational emissions would include vehicle trips associated with commuting workers and truck deliveries and increased electrical demand of the Proposed Project facilities and changes to electricity demand due to modifications to existing facilities (such as the wastewater collection system pump stations and the existing Regional Treatment Plant facilities). There would be no new direct, stationary source emissions due to the Proposed Project; in the unlikely event that emergency back-up power supplies would be needed for the Advanced Water Treatment Facility or pump stations, the existing emergency generators owned by MRWPCA would be used and these are already tested by MRWPCA as part of treatment plant operations. Because the Proposed Project would not require continual (24 hour per day, 7 days per week) operation for environmental protection or public health and safety, new back-up power supplies are not proposed to be provided or used for the Proposed Project.

Mobile emission factors generated by CalEEMod for Monterey County in the year 2018 were applied to the projected operational vehicle activity. The Proposed Project is anticipated to generate, on average, 22 worker one-way trips per day. Worker trips are estimated to be 10 miles in length. There would be approximately 12 one-way heavy-duty truck trips per week, 52 weeks per year. These truck trips are estimated to be 25 miles in length.

GHG emissions from changes in electricity demand were computed based on electrical demand of the new and modified facilities and emission factors for electricity generation. Emissions rates associated with electricity consumption were based on Pacific Gas & Electric utilities (PG&E) projected 2018 CO_2 intensity rate (PG&E, 2013). These rates are based, in part, on the requirement of a renewable energy portfolio standard of 33% by the year 2020. The derived 2018 rate for PG&E was estimated at 328 pounds of CO_2 per megawatt of electricity delivered and is based on the California Public Utilities Commission (CPUC) GHG Calculator. Electricity demand for each component of the project was estimated. This included changes to electricity demand at each of the existing facilities whose use would be modified by the Proposed Project.

Areas of No Impact

Some of the significance criteria outlined above (a and g) are not applicable to the Proposed Project, or the Proposed Project would not result in impacts related to these criteria, as explained below. The impact analyses related to the other criteria (b, c, d, e, and f) are addressed below under **subsections 4.3.4.4** (**construction impacts**), **4.3.4.5** (**operational impacts**) and **4.3.4.5** (**cumulative impacts**).

(a) Conflict with or obstruct implementation of the applicable air quality plan. Emissions during construction and operation associated with the Proposed Project could conflict with or obstruct implementation of the most recent Air Quality Management Plan (called the Triennial Plan Revision that was adopted in 2013) if emissions are not accounted for in the air quality management plan based on the following information:

- Pursuant to MBUAPCD policy, construction projects that use typical construction equipment such as dump trucks, scrapers, bulldozers, and front-end loaders that temporarily emit precursors of ozone (i.e., ROG and NO_X), are already accounted for in the emission inventories of state- and federally-required air quality plans. In addition to typical construction equipment, the Proposed Project would also require some less common construction equipment such as ~~cranes~~, jack-and-bore rigs, and other various augers and drill rigs. However, emissions associated with these equipment types would be minimal (see the discussion under Impact AQ-1, below). Overall, emissions generated during construction of the Proposed Project would be consistent with the Triennial Plan Revisions to the Air Quality Management Plan.

- The Proposed Project would not create any new operational stationary sources of emissions and indirect emissions from the Proposed Project would not conflict with any applicable air quality management plan because these emissions are accounted for within the air quality management plan according to MBUAPCD staff (Clymo, 2014).
- The Proposed Project would not result in population growth through development of new residential or commercial uses, and would not induce population growth due to a substantial increase in demand for new permanent employees or extension of roads or public services to unserved locations. Although the Proposed Project would provide a new source of drinking water; the drinking water provided by the Proposed Project would replace other existing sources that must be curtailed. Implementation of the Proposed Project would provide replacement water for CalAm's withdrawals from the Carmel River system, but would not provide new water to serve population growth. The Proposed Project also would provide additional recycled water for crop irrigation; however this also would not serve population growth. Therefore, the project would not induce population growth. For these reasons, the Proposed Project would not conflict with or obstruct implementation of the 2012 AQMP (Clymo, 2014).
- It is also noted that projects that include federal action located in areas that do not meet the NAAQS or areas that are subject to a NAAQS maintenance plan must not conflict with the federal State Implementation Plan. General Conformity is a process followed to determine if a federal action would conflict with the State Implementation Plan. However, the Air Basin meets all federal standards and is not subject to a maintenance plan; therefore, the General Conformity Rule would not apply to the Proposed Project and no further evaluation of this impact is provided.

Summary of Impact Analysis

Table 4.3-5, **Summary of Impacts – Air Quality and Greenhouse Gas**, provides a summary of potential air quality and greenhouse gas impacts and significance determinations at each Proposed Project component site and the project overall.

Table 4.3-5
Impact Summary Table - Air Quality and Greenhouse Gas

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution Facilities		
Impact Title	**Salinas Pump Station Diversion**	**Salinas Treatment Facility Storage and Recovery**	**Reclamation Ditch**	**Tembladero Slough**	**Blanco Drain (Pump Station and Pipeline)**	**Lake El Estero**	**Treatment Facilities at Regional Treatment Plant**	**RUWAP Alignment Option**	**Coastal Alignment Option**	**Injection Well Facilities**	**Transfer Pipeline**	**Monterey Pipeline**	**Project Overall**
AQ-1: Construction Criteria Pollutant Emissions	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LSM*
AQ-2: Construction Exposure of Sensitive Receptors to Pollutants	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
AQ-3: Construction Odors	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
AQ-4C: Construction Greenhouse Gas Emissions (Cumulative Impact)	LS: The Proposed Project construction would not make a considerable contribution to significant cumulative impacts due to greenhouse gas emissions and the related global climate change impacts.												
AQ-5: Operational Air Quality Violation	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
AQ-6: Operational Criteria Pollutant Emissions	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
AQ-7: Operational Exposure of Sensitive Receptors to Pollutants	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
AQ-8: Operational Odors	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
AQ-9C: Operational Greenhouse Gas Emissions (Cumulative Impact)	LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts of greenhouse gas emissions and the related global climate change impacts.												
Cumulative Impact – Criteria Pollutant Emissions (PM_{10})	LSM: The Proposed Project would potentially make a considerable contribution to significant cumulative regional emissions of PM_{10}; however, with implementation of Mitigation Measure AQ-1, the impact would be reduced to less than significant.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

* The implementaio of each component when looked at individually would not a have a significant impact; it is only when all components are implemented together (with overlapping construction schedules) that a significant impact would occur triggering Mitigation Measures to reduce to LS.

4.3.4.3 Construction Impacts and Mitigation Measures

Impact AQ-1: Construction Criteria Pollutant Emissions. Construction of the Proposed Project would result in emissions of criteria pollutants, specifically PM_{10}, that may conflict with or obstruct implementation of the applicable air quality plan and may violate an air quality standard or contribute substantially to an existing or projected air quality violation in a region that is non-attainment under State ambient air quality standards. (Criteria a, b, and c) (Less-than-significant with Mitigation)

All Project Components

Carbon monoxide (CO) emissions from traffic generated by the Proposed Project would only be of concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) for years. As a result, the region has been designated as attainment/unclassified for the CO standards. There is an ambient air quality monitoring station in Salinas that measures carbon monoxide concentrations. The highest measured level over any 8-hour averaging period during the last 3 years is 1.4 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. During construction, the Proposed Project would generate traffic throughout the Proposed Project vicinity, but the quantity of traffic generated by the Proposed Project would not affect these carbon monoxide levels near any roadways or intersections such that an air quality violation would not occur. Nor would a sensitive receptor be adversely effected. Therefore, the Proposed Project does not have the potential to cause a CO violation at affected intersections and this impact would be less than significant.

The Air Basin is considered a non-attainment area for the State Ambient Air Quality standards for ground-level ozone and particulate matter with a diameter of less than 10 micrometers (PM_{10}). The area has attained both State and federal ambient air quality standards for carbon monoxide and federal standards for ozone and PM_{10}. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, MBUAPCD has established thresholds of significance for air pollutant emissions.

Total emissions for construction of each Proposed Project component were computed on an annual basis for the calendar year in which construction of that component is expected to occur. Daily emissions were then compared against MBUAPCD thresholds. **Table 4.3-6, Construction Emissions by Project Component and Total (in tons)** provides a summary of the total criteria pollutant emissions from construction activities by Proposed Project component.

Table 4.3-6
Construction Emissions by Project Component and Total (in tons)

Construction Component	Emissions (tons)			
	ROG	NOX	PM_{10}	$PM_{2.5}$
Source Water Diversion and Storage Sites				
Salinas Pump Station	0.17	1.27	0.09	0.08
Salinas Treatment Facility (on-site improvements)	0.10	0.73	0.05	0.05
Salinas Treatment Facility (slip-lining 33-inch pipeline)	0.39	3.06	0.21	0.20
Reclamation Ditch Diversion	0.09	0.67	0.05	0.05
Tembladero Slough Diversion	0.10	0.73	0.05	0.05
Blanco Drain Diversion Pump Station and Pipeline	0.18	1.42	0.09	0.09
Lake El Estero Diversion	0.01	0.07	<0.01	<0.01
Treatment Facilities at the Regional Treatment Plant				
AWT Facility/Salinas Valley Reclamation Plant modifications	0.76	6.31	0.38	0.35
Product Water Conveyance System				
Product Water Alignment: RUWAP and Booster Station	0.81	7.19	0.42	0.39
Product Water Alignment: Coastal and Booster Station	0.72	6.28	0.37	0.35
Injection Well Facilities				
Construction of Well Facilities	1.18	11.57	0.56	0.53
Total	**3.79**	**33.01**	**1.89**	**1.79**

A credible worst-case scenario was evaluated by modeling maximum emissions for the period with the highest construction emissions, when there would be the most earthmoving activities. These emissions would occur when concurrent activities include the following activities:

- Site Preparation for Reclamation Ditch Diversion
- Site Preparation for Tembladero Slough Diversion
- Trenching/Pipeline Construction for Blanco Drain Diversion and Pipeline
- Construction (grading, pipelines, building) for the Advanced Water Treatment Facility
- Building Construction for the Salinas Valley Reclamation Plant Modification
- Trenching/Pipeline Construction for Product Water Conveyance (RUWAP alignment)[3]
- Building/Facility Construction for the AWT and Booster Pump Stations
- Trenching/Pipeline and Building/Facility Construction for the Injection Well Facilities

[3] The Coastal alignment would result in less emissions on its worst-case day than the RUWAP alignment.

- Construction of the Vadose Wells
- Construction of the Monitoring Wells
- Trenching/Pipeline for the CalAm Distribution System: Monterey and Transfer Pipeline

The daily emissions associated with construction are reported in **Table 4.3-7, Estimated Daily Construction Emissions**, along with a comparison to the MBUAPCD significance thresholds. Emissions for PM_{10} and $PM_{2.5}$ were computed for on-site activities that include fugitive dust from ground disturbance and construction equipment exhaust. Maximum daily emissions of on-site PM_{10} were computed using a conservative estimate of construction activities for all sites (including the Monterey and Transfer Pipelines) that could be under construction at one time based on the Proposed Project construction schedule.

Table 4.3-7revised
Estimated Daily Construction Emissions

Scenario	Daily Emissions (lbs/day)			
	ROG	NOX	PM_{10}	PM2.5
Average Daily (lbs/day)				
Average Daily Emissions (based on 378 construction days)	24	225	12	11
Maximum Daily (lbs/day)				
Maximum Daily Emissions (with RUWAP alignment)	66	547	28	24
Maximum Daily Exhaust Emissions for Well Sites	10	104	5	5
Maximum Daily On-Site Particulate Matter Emissions	--	-	145	41
MBUAPCD Thresholds	137*	137*	82	-
Exceed Threshold?	No	No	Yes	No

* Applies to non-typical construction equipment (i.e., well drilling ~~site construction~~)

As shown in **Table 4.3-7,** maximum daily on-site construction PM_{10} emissions were estimated to be 145 pounds per day, which would exceed the MBUAPCD's threshold of 82 pounds per day, and thus, would result in a potentially significant impact. On-site emissions of PM_{10} would not exceed the thresholds at any individual site.

Estimated average and maximum daily emissions of other criteria pollutants (i.e., ROG, NOx, and $PM_{2.5}$) due to the Proposed Project are also shown in **Table 4.3-7**. The North Central Coast Air Basin is designated as attainment for CO and $PM_{2.5}$ standards, but non-attainment for the state standards for ozone; therefore, ozone precursor emissions (i.e., ROG and NOx) are the criteria pollutants that must be addressed in environmental documents in the Air Basin. MBUAPCD has not identified construction significance criteria for ozone precursors because the emission inventories of State and federally-required air plans account for ROG and NOx emissions associated with typical construction equipment, such as graders, bulldozers, and loaders. According to MBUAPCD, temporary operation of typical construction equipment would not have a significant impact on the attainment and maintenance of ozone standards and thus, there is no significance threshold specific to emissions of ozone precursors from typical construction equipment.

Construction of the Proposed Project would include the use of non-typical construction equipment (i.e., ~~cranes~~, jack-and-bore rigs, and other various augurs and drill rigs); therefore, maximum daily construction ROG and NOx emissions from these sources were compared to the MBUAPCD's ROG and NOx operational significance thresholds of 137 pounds per day. These non-typical types of equipment would be used only during construction of the proposed wells at the Injection Well Facilities. As shown in **Table 4.3-7,** daily ROG and NOx emissions from well construction activities at the Injection Well Facilities site, which would also involve typical construction equipment in addition to non-typical augers and drills, would be less than the maximum daily emissions scenario. Thus, these emissions would be less than the MBUAPCD significance thresholds; therefore, it can be concluded that short-term emissions associated with construction of the Proposed Project would not contribute to an exceedance of a state or federal standard for ozone. Construction impacts due to the proposed use of non-typical construction equipment would be less than significant.

Impact Conclusion

The Proposed Project construction would not result in a significant impact due to regional emissions of ozone precursors. Maximum daily on-site construction PM_{10} emissions were estimated to be 145 pounds per day, which would exceed the MBUAPCD's threshold of 82 pounds per day, and thus, would result in a potentially significant impact. On-site emissions of PM_{10} would not exceed the thresholds at any individual site. With implementation of Mitigation Measure AQ-1 (Construction Fugitive Dust Control Plan), this impact would be reduced to a less-than-significant level. Implementation of this mitigation measure is anticipated to reduce on-site fugitive dust emissions by 65%. As a result, emissions of PM_{10} would be reduced to 64 pounds per day. The mitigated emissions would be below the MBUAPCD emission thresholds for on-site PM_{10} emissions. As a result, this mitigation measure would reduce the impact to a less-than-significant level.

Mitigation Measure

Mitigation Measure AQ-1: Construction Fugitive Dust Control Plan. (Applies to all Project Component Sites where ground disturbance would occur.)

The following standard Dust Control Measures shall be implemented during construction to help prevent potential nuisances to nearby receptors due to fugitive dust and to reduce contributions to exceedances of the state ambient air quality standards for PM_{10}, in accordance with MBUAPCD's CEQA Guidelines.

a. Water all active construction areas ~~at least twice daily~~ <u>as required</u> with ~~water (preferably from~~ non-potable sources <u>to the extent feasible</u>~~)~~; frequency should be based on the type of operation, soil, and wind exposure <u>and minimized to prevent wasteful use of water</u>.

b. Prohibit grading activities during periods of high wind (over 15 mph).

c. Cover all trucks hauling soil, sand, and other loose materials and require trucks to maintain at least 2 feet of freeboard.

d. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.

e. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;

f. Enclose, cover, or water daily exposed stockpiles (dirt, sand, etc.);

g. Replant vegetation in disturbed areas as quickly as possible.

h. Wheel washers shall be installed and used by truck operators at the exits of the construction sites to the AWT Facility site, the Injection Well Facilities, and the Booster Pump Station.

i. Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the MBUAPCD shall also be visible to ensure compliance with MBUAPCD rules.

Indirect impacts of this mitigation may include increased use of MRWPCA's recycled water for construction dust control that could otherwise be used for irrigation of cropland. See **Section 4.18, Water and Wastewater** for a discussion of this issue.

Impact AQ-2. Construction Exposure of Sensitive Receptors to Pollutant Emissions. Construction of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. (Criterion d) (Less than Significant)

Sensitive receptors are locations where an identifiable subset of the general population (such as children, asthmatics, the elderly, and the chronically ill) that are at greater risk than the general population may be exposed to the effects of air pollutants. These locations include residences, schools, playgrounds, childcare centers, retirement homes, hospitals, and medical clinics. **Table 4.3-8, Nearest Sensitive Receptors and Approximate Distances** summarizes the nearest sensitive receptors and approximate distances to each of the Proposed Project component sites.

Table 4.3-8
Nearest Sensitive Receptors and Approximate Distances

Project Component	Type of Receptor	Distance from Project
Source Water Diversion and Storage Sites		
Salinas Pump Station	Farmhouse on Blanco Road	1,400 – 2,000 feet
Salinas Treatment Facility Storage and Recovery	Residences across Davis Road (southeast)	2,500 feet
Reclamation Ditch Diversion	Residences to the west and south	1,000 feet
Tembladero Slough Diversion	Residences to the north and east	740 feet and 850 feet, respectively
Blanco Drain Diversion	Residences northeast of the new pump station and southeast of the new pipeline	2,400 feet and 3,000 feet, respectively
Lake El Estero Diversion Facilities	Residences on Camino Aguajito	500 feet
Treatment Facilities at RTP	Farmhouse on Monte Road	One mile
Product Water Conveyance		
Booster Pump Station (RUWAP)	CSU Monterey housing	650 feet
	CSU Monterey classrooms	450 feet
	Residences (Non-CSU)	>1,000 feet
Booster Pump Station (Coastal)	Child development center	875 feet
	Residences (Non-CSU)	>1,000 feet
Product Water Conveyance Pipeline (RUWAP Alignment)	Residences (e.g., along Crescent Avenue, California Drive, General Jim Moore Boulevard)	≥25 feet
	Los Arboles Middle School	150 feet (playfields) 600 feet (school buildings)
	Seaside Middle School at the corner of General Jim Moore and Coe Ave	235 feet (playfields) 280 feet (school buildings
Product Water Conveyance Pipeline (Coastal Alignment)	Residences (e.g., Del Monte Boulevard and Marina Drive)	50-100 feet
	Seaside Middle School at the corner of General Jim Moore and Coe Ave	235 feet (playfields) 280 feet (school buildings
	Marina Del Mar Elementary School	100 feet (playfields) 350 (school buildings)
Injection Well Facilities	Residences to the west	500 feet or more
CalAm Distribution System	Residences (e.g., Del Monte Boulevard and Marina Drive) and Schools	50-100 feet

The Proposed Project would expose sensitive receptors to temporary emissions of toxic air contaminants while construction takes place in the vicinity of these receptors. The primary concern for nearby sensitive receptors would be exposure to diesel particulate matter emissions from diesel-powered construction equipment and diesel trucks associated with Project construction activities. Diesel particulate matter is classified as a toxic air contaminant by CARB for the cancer risk associated with long-term (i.e., 70 years) exposure. As shown in **Table 4.3-8**, the nearest receptors to non-pipeline work would be 450 feet or greater. While receptors would be located as close as approximately 25 feet from pipeline work, pipeline construction in residential areas would progress at a rate of about 150 to 250 feet per day, thus limiting nearby receptors' exposure to diesel particulate matter to several days. Construction at the Booster Pump Station (RUWAP Alignment) would be within approximately 450 feet of CSU Monterey Bay classrooms. However, heavy equipment work at this site is anticipated to occur for a relatively short period of 2-3 months. At other Proposed Project component sites, receptors would be located at distances of 500 feet or greater.

Localized exposure to diesel particulate matter would be minimal for the following reasons:

Pipeline construction would occur for a limited amount of time within the vicinity of any single sensitive receptor;

Construction activities would be spread out over a large geographic area; and

Facility improvements and new facility sites with intensive construction equipment use (including some with over one year of construction) would be 450 feet or farther from any sensitive receptors.

The Bay Area Air Quality Management District, the adjacent air district immediately north of the jurisdiction of the MBUAPCD, developed screening tables for evaluating TAC impacts from construction projects (Bay Area Air Quality Management District, 2010). These screening tables conservatively identified significant TAC exposures for intensive construction of industrial projects of 4.6 acres (or 100,000 square feet) at distances as close as 578 feet. For projects of 2.8 acres (or 60,000 square feet) or smaller, the screening distance was estimated at 330 feet. These screening distances are based on continuous exposures to the most sensitive populations (i.e., residential infants). Since sensitive receptors that would experience continuous exposures of more than several days would not be located within these screening distances, construction activities are not anticipated to result in significant exposures of TACs to sensitive receptors.

Therefore, a significant cancer risk based on lifetime exposure would not occur due to Proposed Project construction. Specifically, the cancer risk from the Proposed Project-associated diesel emissions over a 70-year lifetime would be small and below significance thresholds (10 in one million). Therefore, the impacts related to diesel particulate matter exposure and construction health risk would be less than significant and no mitigation measures would be required.

Impact AQ-3: Construction Odors. Construction of the Proposed Project would not create objectionable odors affecting a substantial number of people. (Criterion e) (Less than Significant)

There may be intermittent odors from construction associated with diesel exhaust that could be noticeable at times to residences in close proximity. However, given the distance of receptors from most construction sites and the limited construction duration at any one location for pipeline installation, potential odors from construction equipment are not anticipated to result in odor complaints and would not affect a substantial number of people. Odor impacts during construction would be less than significant and no mitigation measures would be required.

Impact AQ-4C: Construction Greenhouse Gas Emissions. Construction of the Proposed Project would generate greenhouse gas emissions, either directly or indirectly, but would not make a considerable constribution to significant cumulative impacts due to greenhouse gas emissions and the related global climate change impacts. (Criterion f) (Less than Significant)

Construction GHG emissions in units of metric tons (MT) of carbon dioxide equivalent (CO_2e) per year were estimated (see modeling worksheets included in **Appendix E**). Construction of the Proposed Project would result in a one-time emission total of up to 6,039 MT of CO_2e during the 18 month construction period. The MBUAPCD does not have adopted nor recommended quantified thresholds for assessing the significance of GHG emissions during construction. MBUAPCD staff recommended including construction emissions within operational totals based on the 30-year amortization to provide a full analysis of construction and operational GHG emissions (Clymo, 2014). Accordingly, the total construction period emissions from the Proposed Project were amortized over a 30-year life and the resulting average annual emissions were added to the annual operational emissions and compared to the GHG significance threshold. The annual amortized GHG emissions are 201 MT/year. The combined impacts are addressed under Impact AQ-9C. As explained under Impact AQ-9C, the Proposed Project would not make a cumulatively considerable contribution to significant cumulative impacts associated with GHG emissions and the effects of climate change.

4.3.4.4 Operation Impacts and Mitigation Measures

Impact AQ-5: Operational Air Quality Violation. Operation of the Proposed Project would result in criteria pollutant emissions, but would not violate air quality standards or contribute substantially to an existing or projected air quality violation. (Criterion b) (Less than Significant)

Operation of the Proposed Project would generate small amounts of vehicular and truck traffic. The project is anticipated to generate, on average, 22 worker one-way trips per day. Worker trips are estimated to be 10 miles in length. There would be approximately 12 one-way heavy-duty truck trips per week, 52 weeks per year. These truck trips are estimated to be 25 miles in length. The Proposed Project would not require emergency back-up generators because the new facilities can be shut down during temporary power outages. The Proposed Project would not result in any new stationary sources of air pollutant emissions. The Proposed Project's operational traffic would result in emissions of criteria pollutants that would be less than the significance thresholds adopted by MBUAPCD for evaluating impacts to ozone and particulate matter, as discussed further in Impact AQ-6 below and summarized in **Table 4.3-8**. Therefore, the Proposed Project would not contribute considerably to existing or projected violations of air quality standards pertaining to particulate matter and ozone.

Congested intersections with a large volume of traffic have the greatest potential to cause high localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) for years. As a result, the region is designated as attainment/unclassified for the standard. There is an ambient air quality monitoring station in Salinas that measures carbon monoxide concentrations. The highest measured level over any 8-hour averaging period during the last 3 years is 1.4 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. The small amount of project-related traffic would not substantially affect these carbon monoxide levels.

Therefore, the Proposed Project does not have the potential to cause a carbon monoxide violation at affected intersections.

The potential for air quality violations due to Proposed Project operations would be a less-than-significant impact and no mitigation measures would be required.

Impact AQ-6: Operational Criteria Pollutant Emissions. Operation of the Proposed Project would result in a net increase of criteria pollutants in a region that is non-attainment under State ambient air quality standards, but the increase would not be cumulatively considerable. (Criterion c) (Less than Significant)

The Proposed Project would not result in a new stationary source of emissions. Operational emissions due to maintenance truck trips and employee trips were calculated using CalEEMod. Future anticipated vehicle volumes provided by MRWPCA were used in the model. Default commute trip lengths were used. Emission calculations are included in **Appendix E**. **Table 4.3-9, Estimated Annual Operational Criteria Pollutant Emissions** summarizes estimated Proposed Project operational emissions. As shown in **Table 4.3-9**, operation of the Project would have a less-than-significant operational air emissions impact.

In the unlikely event of failure of all power supplies at the Regional Treatment Plant, there are provisions to hook up the existing primary and secondary treatment processes to mobile, stand-by diesel generators that are currently used at the RTP in emergencies and are permitted and tested regularly. However, these generators are not new generators and would be not be used for the new AWT Facility. The Proposed Project would not include any new fixed or stationary generators, nor increased testing of generators. No significant impact would occur due to emissions of criteria pollutants and therefore, no mitigation measures would be required.

Table 4.3-9
Estimated Annual Operational Criteria Pollutant Emissions

Project Emissions	Emissions (pounds per day)			
	ROG	NOX	PM10	PM2.5
Mobile (Truck and Employee)	<1	1.1	<1	<1
MBUAPCD Thresholds	137	137	82	-
Exceed Threshold?	No	No	No	No

Impact AQ-7: Operational Exposure of Sensitive Receptors to Pollutants. Operation of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. (Criterion d) (Less than Significant)

Table 4.3-7, (under AQ-3, above) summarizes the nearest sensitive receptors and approximate distances to each of the various Proposed Project components. Operation of the Proposed Project is not anticipated to result in emissions of TACs that could affect sensitive receptors. The Proposed Project would have no direct sources of operational TAC emissions, and vehicular and truck traffic generated by the project would be less than 30 new trips per day spread across the region. Health risks in terms of excess cancer risk or hazards would be less than significant and no mitigation measures would be required.

Impact AQ-8: Operational Odors. Operation of the Proposed Project would not create objectionable odors affecting a substantial number of people. (Criterion e) (Less than Significant)

The Proposed Project would include a new Advanced Water Treatment (AWT) Facility at the existing Regional Treatment Plant where treatment-related odors may already be produced.

However, the Proposed Project would add AWT Facility processes that are not anticipated to result in generation of any additional odors. The existing odors at the Regional Treatment Plant occur primarily in the head works and the initial part of the secondary treatment facilities. After trickling filter treatment, enough of the decomposable organic material has been removed to essentially eliminate the remaining odors. The AWT Facility process would begin after the full secondary treatment; accordingly, odors should not be present at the AWT Facility. One of the first treatment processes of the Proposed Project, ozone, would be expected to eliminate any remaining wastewater constituents with odors, if they should occur. The Proposed Project would not affect processes or control features at the Regional Treatment Plant that would affect odors generated by the plant. The Salinas Pump Station would divert new surface waters and wastewater to the Regional Treatment Plant. Currently, treatment chemicals are added to the wastewater stream at the Salinas Pump Station to reduce sulfides, thereby reducing the odor. The addition of this new supply of agricultural wash and surface waters would not result in strong odors. In addition, the closest receptors to the Salinas Pump Station are 1,400 feet or further. Frequent objectionable odors are not anticipated from the pump station and this is a less-than-significant impact. No significant odor impacts would be associated with the operation of the other Proposed Project facilities. No mitigation measures would be required for operational odor impacts.

Impact AQ-9C: Operational Greenhouse Gas Emissions. Operation of the Proposed Project would generate greenhouse gas emissions, either directly or indirectly. These emissions would not exceed significance thresholds such that they would result in a considerable contribution to significant cumulative impacts of greenhouse gas emissions and the related global climate change impacts. In addition, the Proposed Project would not conflict with applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions. (Criteria f and g) (Less than Significant)

Once installed, the Proposed Project facilities would require new maintenance and employee vehicle trips that would generate relatively small amounts of GHG emissions. The CalEEMod vehicle emission factors were used to estimate operational criteria pollutant emissions from vehicle trips associated with the Proposed Project. Mobile emissions from the Proposed Project would be associated with maintenance truck and employee vehicle trips. In addition, indirect GHG emissions from energy usage at the proposed facilities would occur. Anticipated electricity demand (mWh/year) was provided by the MRWPCA and used to calculate annual GHG emissions using emissions rates published for PG&E's projected 2018 (the first possible full year of Proposed Project operation) CO_2 intensity rate. This 2018 rate is based, in part, on the requirement of a renewable energy portfolio standard of 33% by the year 2020.

The Proposed Project is anticipated to generate, on average, 22 worker one-way trips per day. Worker trips are estimated to be 10 miles in length. There would be approximately 12 one-way heavy-duty truck trips per week, 52 weeks per year. These truck trips are estimated to be 25 miles in length. This vehicle activity was applied to emission factors produced by CalEEMod for Monterey County in 2018.

The increase in project electricity demand, without incorporation of new energy-saving features, was computed as 14,489 mega-watt hours per year (mWh/year). This was considered as the "Business as Usual" emissions. The Proposed Project facilities would include numerous energy saving features in the design and operation that would reduce energy demand, which in turn would reduce GHG emissions. These include electricity production from cogeneration at the

Regional Treatment Plant. The cogeneration plant receives biogas from the anaerobic digesters and produces power using internal combustion engines that run on the biogas. Power from the cogeneration plant is used at the treatment plant. The cogeneration plant produces enough power to operate the secondary treatment process and also produces heat which is used in the digestion process. This is expected to reduce electricity demand of the Proposed Project by 2,726 mWh/year. The use of variable flow drivers (VFD motors) on AWT and product water pumps are estimated to reduce electricity demand by an additional 811 mWh/year. There are other features indirectly associated with the project that would reduce overall electricity demand and facility operating costs that were not included in this analysis. For example, the Salinas Valley Reclamation Plant obtains about half of its electricity from on-site solar panels that were constructed after the AB32 greenhouse gas emission reduction requirements went into effect. With incorporation of the Proposed Project's energy saving features, the net increase in electricity demand for the Proposed Project is estimated to be 10,952 mWh/year. Additional discussion about electricity demand is provided in **Section 4.7, Energy and Minerals**.

As described above under Impact AQ-4C, construction emissions of GHG were also included in the assessment. Total project-related construction GHG emissions of 6,039 MT were amortized over 30 years and that annual amount was added to the annual Proposed Project operational emissions.

Table 4.3-10, Annual GHG Emissions from Operation (metric tons/year CO2) summarizes computed annual GHG emissions due to operation of the Proposed Project. As shown in **Table 4.3-10**, annual GHG emissions would be below the project-specific GHG significance threshold of 2,000 MT CO_2e per year (maximum of 1,900 MT/year). Therefore, the Proposed Project would not make a cumulatively considerable contribution to any significant global climate change impacts and, thus, would have a less-than-significant impact due to GHG emissions. No mitigation measures would be required to reduce GHG emissions; however, the Proposed Project would include energy efficient pumps and treatment processes, and would be required to comply with any applicable parts of the California Green Building Code that help to minimize GHG emissions.

Table 4.3-10
Annual GHG Emissions from Operation (metric tons/year CO2)

Project Component	Electricity Demand (mWh/year)	CO2e MT/yr
Total Construction Emissions (2016-2017) = 201 MT amortized over 30 years		
Total Net New Proposed Project Electricity Demand	10,952	1,642
Mobile Emissions	-	57
Total Net New Proposed Project GHG Emissions	-	1,900
Project-Specific Significance Threshold	2,000 MT/year or 16% below Business as Usual	
Exceed Threshold?	No	

There are no locally adopted Greenhouse Gas Emissions Reduction Plans applicable to the Proposed Project site or area (Gonzales is the nearest City that has adopted a climate action plan). The State's AB 32 Scoping Plan includes strategies for transportation, energy, water and other sectors that may be applicable to the Proposed Project. In particular, the following Scoping Plan action items are relevant to the Proposed Project (California Air Resources Board, 2008, at page 66).

- **W-2 Water Recycling.** This measure proposes a requirement for development and implementation of water recycling plans by wastewater management agencies working with water supply agencies. This requirement would apply where the recycling of treated effluent is not maximized at wastewater treatment plants located in areas of imported water supply and where water recycling could require less energy than current water sources. Implementation of water recycling plans would be prioritized for those plants that discharge to water bodies from which the wastewater cannot otherwise be easily recovered, such as the ocean and brackish water bodies.

- **W-3 Water System Energy Efficiency.** Consistent with the recommendations of the California Water Plan Update 2005 and the 2005 Integrated Energy Policy Report, this measure seeks to the magnitude and intensity of energy use in California's water systems through further implementation of energy efficiency measures such as more efficient pumps and wastewater treatment.
- **W-4 Reuse Urban Runoff.** GHG emission reductions can be achieved when any water supply or treatment process is replaced with an alternative supply or process that requires less energy. Capture or infiltration of urban stormwater to increase groundwater and/or stored supplies has the potential to achieve energy and emission reductions by reducing the need to obtain water from more energy intensive sources or processes

The Proposed Project would not conflict with provisions or implementation of the State Scoping Plan. In fact, the Proposed Project would increase the use of water recycling, thereby implementing Action Item W-2. The Proposed Project would also reuse urban runoff, thereby implementing Action Item W-4. The Proposed Project's use of new, efficient (variable frequency drive) pumps would result in compliance with Action Item W-3, because pumping of water to convey it from source, to treatment to injection to user would constitute the majority of electricity use of the Proposed Project. Therefore, the Proposed Project would not conflict with existing plans or regulations regarding reduction of greenhouse gas emissions.

4.3.4.5 Cumulative Impacts and Mitigation Measures

Geographic Scope

For localized air quality effects (such as exposure of nearby sensitive receptors to emissions from construction activities, such as diesel vehicle and equipment exhaust), the geographic scope is the vicinity of the Proposed Project component sites.

The geographic scope for cumulative analysis of regional criteria pollutant air quality impacts is the air basin in which the facilities would be constructed and operated, and any downwind air basins that may be affected by emissions from the Proposed Project. In this case, due to the locations of the Proposed Project component sites and the predominantly west-northwest winds in the project region, the Proposed Project would not affect other air basins; therefore, only projects and plans applicable to the jurisdiction of the MBUAPCD (i.e., the North Central Coast Air Basin) would apply. Projects throughout this region could have adverse effects on the regional air quality and the same sensitive receptors within the region.

Because greenhouse gas (GHG) emissions affect global climate change, the evaluation of GHG emissions is inherently a cumulative impact analysis. The geographic scope for cumulative impact analysis of GHG emissions includes the North Central Coast Air Basin, as well as the State of California.

Localized, Combined Exposures to Air Pollutants

Cumulative Projects Contributing to Localized Impacts

Localized air pollutant emissions from cumulative projects may potentially impact sensitive receptors if intense construction activities (i.e., those activities with high air pollutant emissions) from two or more construction projects would occur in close proximity to each other (i.e., within 1 mile). Certain projects listed in **Table 4.1-2, Project Considered for Cumulative Analysis** of the Draft EIR would be in close proximity to each other and to the Proposed Project, and some may be expected to be under construction during the same worst-case and overlapping construction periods. The exact sequence of other projects' construction are outside the control of the Proposed Project partners; but as currently envisioned, the construction periods would potentially overlap. Known overlapping construction projects are listed below:

- Monterey Peninsula Water Supply Project (MPWSP) with 6.4 mgd desalination plant (CalAm) (#1)
- The Dunes on Monterey Bay (Marina Community Partners) (#10)
- City of Salinas Solar Project (#34)

A figure showing the Proposed Project plus the MPWSP with 6.4 mgd Desalination Plant is provided in **Appendix Y.** Cumulative project locations are shown on **Figure 4.1-1 rev, Cumulative Projects Location Map**.

Proposed Project Localized Air Pollutants Impacts

Table 4.3-5, provides a summary of potential impacts related to air quality and greenhouse gas emissions and significance determinations at each GWR Proposed Project component site. As detailed in **Sections 4.3.4.3** and **4.3.4.4**, the following four impacts are relevant to the cumulative localized air pollutant analysis and the Proposed Project would have a less-than-significant impact related to all of them:

- AQ-2: Construction Exposure of Sensitive Receptors to Pollutants
- AQ-3: Construction Odors
- AQ-7: Operational Exposure of Sensitive Receptors to Pollutants
- AQ-8: Operational Odors

The discussion of localized cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP, with the 6.4 mgd desalination plant, and then to address the overall combined impacts of the Proposed Project and all relevant projects identified on **Table 4.1-2** for the cumulative analysis:

- *Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant)* (referred to as the MPWSP Variant):[4] The CalAm MPWSP includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities;

[4] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a small desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC 2013).

desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines to convey between the well. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The estimated construction schedule would be from June 2016 through March 2019 for the combined projects, during which the construction schedules could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a “Variant” project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The MPWSP with 6.4 mgd Desalination and the GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.

- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2,** (see **Section 4.1, Introduction)**
- The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). Construction of the MPSWP Transmission Main and the Proposed Project Product Water Conveyance (Coastal Aignment) could occur in close proximity, with overlapping schedules. However, construction of pipelines would not occur in any one location for a substantial period of time, and the combined construction activities would not be expected to result in significant cumulative impacts due to localized air pollutant exposures or odors. The MPWSP with 6.4 mgd desalination plant and the Proposed Project Treatment Facilities at the Regional Treatment Plant would not be located close enough to one another to result in significant combined impact from exposure of sensitive receptors to substantial pollutant emissions or odors from project operation. The combined impact of the MPSWP (with 6.4 mgd Desalination Plant) and the Proposed Project due to localized air pollutant exposures or odor impacts would be less than significant.

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1-1 rev.** The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**. The overall cumulative impact analysis considers impacts of the proposed project along with the potential impacts of “related projects” or other projects that are reasonably foreseeable to take place near the Proposed Project. The Proposed Project would have less-than-significant impacts due to emissions impacts on nearby sensitive receptors. Other than the MPSWP with a 6.4 mgd desalination plant, the only other cumulative projects with construction schedules known to overlap with the Proposed Project are the City of Salinas Solar Project and the Dunes on Monterey Bay. The City of Salinas Solar Project wold be constructed starting in 2015 and ending in 2016, which would not completely coincide with construction at the Salinas Pump Station Diversion site, which is planned to begin in the summer of 2016. Most of the construction using heavy equipment that would generate construction emissions would be completed at the Salinas Pump Station site before construction of the Proposed Project begins in this location; accordingly, the two projects would not result in significant cumulative impacts due to localized concentrations of pollutants or odors. The Dunes on Monterey Bay is being constructed adjacent to a segment of the Proposed Project’s Product Water Conveyance pipeline (RUWAP and Coastal Aignments). However, construction of pipelines would not occur in any one location for a substantial period of time (i.e., less than two weeks typically), and the combined construction activities would not be expected to result in significant cumulative impacts due to localized air pollutant exposures or odors. There would be no significant cumulative impacts due to localized air pollutant exposures or odors.

Cumulative Regional, Criteria Air Pollutant Emissions

Combined and Overall Contributions to Regional Air Pollutant Exceedances. For regional criteria air pollutants, the cumulative analysis is based on review of consistency with the Air District's Air Quality Management Plan (AQMP), as well as prediction of emissions. Consistency determinations with the AQMP are used by the District to address a project's contribution to regional air quality (i.e., ozone levels). The MBUAPCD prepares air quality plans which address attainment of the State ozone AAQS and maintenance of federal AAQS. These plans accommodate growth by projecting growth in emissions based on different indicators. For example, population forecasts adopted by AMBAG are used to forecast population-related emissions. Through the planning process, emission growth is offset by basinwide controls on stationary, area, and transportation sources of air pollution (Monterey Bay Unified Air Pollution Control District, 2008a). In developing emission-based thresholds, MBUAPCD also considered the levels for which a project's individual contribution would be cumulatively considerable to the region. Since the Proposed Project would be consistent with the AQMP and Proposed Project emissions are not predicted to exceed the Air District's significance thresholds, the Proposed Project's incremental increase in emissions would not result in a cumulatively considerable contribution to existing or future regional air quality violations. The Proposed Project would not make a considerable contribution to any significant cumulative regional air quality impacts.

The region is in non-attainment for the state ambient air quality standard for PM_{10}. Construction of one or more of these projects at one time could result in potentially significant PM_{10} emissions if compared to the significance threshold. Therefore, this analysis assumes that construction of multiple projects would result in a potentially significant cumulative impact. The significance thresholds used in the project-level analysis above measures whether the project would make a cumulatively considerable contribution to a cumulatively significant impact. The analysis above regarding whether the Proposed Project would exceed the MBUAPCD emissions thresholds provides a measure of whether the project would considerably contribute to significant air quality cumulative impacts, including exceedances/violations of air quality standards, exposure of sensitive receptors to substantial pollutants, or conflicts with air quality management plans. If the threshold is not exceeded, then one should conclude that the project would not contribute to any violation, regardless of what additional PM_{10} emissions these cumulative projects contribute.

Although the Proposed Project would exceed the PM_{10} significance thresholds for construction emissions, implementation of Mitigation Measure AQ-1 would reduce the project's contribution to this potentially significant cumulative impact to a level that would not be cumulatively considerable (i.e., less than the MBUAPCD's threshold).

Cumulative Greenhouse Gas Emissions

GHG emissions contribute to the environmental effect of global climate change. The impacts of cumulative projects worldwide have been acknowledged to result in significant cumulative impacts (rising sea levels, species extinction, increased hydrologic and climate changes resulting in greater numbers and more severe storms and droughts, increased and more severed human illnesses, etc.) The Proposed Project would not result in a cumulatively considerable contribution to GHG emissions and global climate change because the Proposed

Project greenhouse gas emissions would be below the significance threshold as discussed above in the Impact AQ-9C analysis.

Cumulative Impact Conclusions

As described under Impact AQ-4C (Construction Greenhouse Gas Emissions), the Proposed Project construction would not make a considerable contribution to significant cumulative impacts due to greenhouse gas emissions and the related global climate change impacts and this is a less than significant cumulative impact.

As described under Impact AQ-9C (Operational Greenhouse Gas Emissions), the Proposed Project (including operational plus amortized construction greenhouse gas emissions) would not make a considerable contribution to significant cumulative impacts of greenhouse gas emissions and the related global climate change impacts and this is a less than significant cumulative impact..

The Proposed Project would potentially make a considerable contribution to significant cumulative regional emissions of PM_{10}; however, with implementation of Mitigation Measure AQ-1, the impact would be reduced to less than significant.

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4.4 BIOLOGICAL RESOURCES: FISHERIES

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4.4.1 Introduction

This section addresses the freshwater and anadromous fishery biological resources located in the vicinity of the Proposed Project sites; identifies applicable federal, state and local regulations pertaining to fishery resources; and evaluates potential impacts from construction and operation of the Proposed Project facilities. Fishery biological resources refer to aquatic life present in the affected surface waterways utilized or potentially affected by the Proposed Project. **Section 4.5** of this EIR, **Biological Resources: Terrestrial**, addresses terrestrial vegetation, wildlife, and wetland resources.

This section is based on the fisheries analyses prepared as part of this EIR by HDR Engineering and Hagar Environmental Science, which are summarized in this section and included in **Appendices F rev and G.** The analyses in these reports rely upon hydrological flow conditions developed by Schaaf & Wheeler (See **Appendices O rev, P and Q rev**). Schaaf & Wheeler provided baseline and simulated river flows as a result of proposed diversions, which were used in the assessment of potential impacts to fish species in the Salinas River and Reclamation Ditch. The technical studies include:

- HDR Engineering, January 2015. *Salinas River Steelhead Habitat and Passage Effects Assessment Technical Memorandum*. Prepared for Denise Duffy & Associates. (See **Appendix F rev**).
- Hagar Environmental Science. February 28, 2015. Pure Groundwater Replenishment (GWR) Project – Reclamation Ditch and Tembladero Slough Source Water Diversion Fisheries Effects Analysis. Technical Memorandum, prepared for Denise Duffy & Associates." (See **Appendix G-1**).

- Hagar Environmental Science. February 27, 2015. *Estimation of Minimum Flows for Migration of Steelhead in the Reclamation Ditch*. Technical Memorandum, prepared for Denise Duffy & Associates. (See **Appendix G-2**).
- Schaaf & Wheeler studies regarding source water yields and impacts:
    - December 2014. "Blanco Drain Yield Study" (see **Appendix Q rev**).
    - December 2014. "Reclamation Ditch Yield Study" (see **Appendix P**).
    - February 2015. "Salinas River Inflow Impacts" (including the impacts of changes in percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River (see **Appendix O rev**).

Public and agency comments related to fishery resources were received during the public scoping period in response to the Notice of Preparation and are summarized in **Appendix A, Scoping Report.** Comments received with regard to fisheries impacts are summarized below:

- Consult with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) to determine whether the project will have any direct or indirect effects on federally listed threatened, endangered, or candidate species at project sites and surrounding areas and identity measures to reduce such effects. Consultation with the California Department of Fish and Wildlife (CDFW) also is recommended.
- Evaluate noise and vibration impacts on fish and include mitigation measures for these impacts.

4.4.2 Environmental Setting

The following Proposed Project component sites are located in proximity to aquatic resources that may support fishery resources:

- The Salinas Pump Station Source Water Diversion
- Salinas Treatment Facility Storage and Recovery
- Blanco Drain Diversion
- Reclamation Ditch Diversion
- Tembladero Slough Diversion
- Lake El Estero Source Water Diversion and Storage Site

The potential area affected by these sites includes the immediate vicinity of the site and upstream and downstream areas that could be influenced by diversion actions associated with the Proposed Project. The potentially affected water bodies are the Salinas River and the Salinas River Lagoon. Fish habitat areas upstream of the ~~immediate~~ project vicinity ~~that could be influenced by Proposed Project diversion actions~~ are the Arroyo Seco, San Antonio, and Nacimiento Rivers. In addition, this section considers the Reclamation Ditch Diversion, which connects to Tembladero Slough and ultimately the Old Salinas River, and upstream Reclamation Ditch tributaries including Gabilan Creek. This section also considers Lake El Estero in Monterey and upstream tributaries within the El Estero watershed.

4.4.2.1 Overview of Fish Species in Vicinity of Proposed Project Components

The following subsections describe the hydrological conditions of: the Salinas River Basin, including the Salinas River Lagoon; the Reclamation Ditch and Tembladero Slough; and the Lake El Estero watershed. The subsections provide information on the drainage/watershed basins associated with these water bodies and discuss existing fishery species and habitats in the vicinity of these areas. Pertinent information on channel conditions and flows also are summarized.

Salinas River Basin

Salinas River

The Salinas River flows approximately 172 miles north/northwest through the Salinas Valley from its headwaters in the Santa Lucia and La Panza Mountain Ranges in San Luis Obispo County, and reaches the Monterey Bay near Castroville. With a drainage area of approximately 4,240 square miles, the Salinas River watershed is the largest in the central California coast area. Major tributaries include the Nacimiento, San Antonio, and Arroyo Seco Rivers. See **Figure 2.5, Salinas River Basin** in **Section 2, Project Description**. **Figure 4.4-1, Salinas River Watershed In Project Vicinity** shows the Salinas River watershed in the vicinity of the Proposed Project sites.

The Salinas River is roughly divided into two reaches based on the channel morphology. The lower 21 miles of river generally has a narrower channel top width, typically about 500 to 1,000 feet than the 73 miles of river upstream. The Salinas River channel bed and banks are sand-dominated along both reaches; the bed-form is usually relatively flat with little vertical oscillation in the bed topography. Channel banks are usually well-vegetated, with widely varying amounts of vegetation growing on bars and the channel bottom.

The Salinas River is a managed river system, influenced by flow regulation from upstream dams, levees and adjacent land uses. Construction of Nacimiento and San Antonio dams in 1957 and 1965, respectively, altered the natural hydrology of the Salinas River to provide flood protection and aquifer recharge (and recreation, although this was not a primary purpose of the dams). Additionally, the upper 110 miles of the Salinas River are controlled by the Santa Margarita Dam, which was constructed in 1942 in San Luis Obispo County and impounds approximately 24,000 acre-feet that forms Santa Margarita Lake (Monterey County Water Resources Agency, May 2014). (Further description of Nacimiento and San Antonio Reservoirs is provided below.) The Santa Margarita Dam is operated so that a “live stream” is maintained in the lower river from the dam to the confluence with the Nacimiento River, which is about 46 miles downstream (FISHBIO, February 2013).

The Salinas River Diversion Facility (SRDF) is located at River Mile (RM) 4.8 on the Salinas River, approximately 5 river miles upstream of the mouth of the Salinas River near the City of Marina. The SRDF is part of the Salinas Valley Water Project (SVWP) completed by the Monterey County Water Resources Agency (MCWRA) in 2010. The Salinas Valley Water Project goals are to halt seawater intrusion, provide water for current and future needs, and improve the hydrologic balance of groundwater within the Salinas River Basin. Groundwater is the source for most urban and agricultural water needs in the Salinas River Valley (National Marine Fisheries Service, 2007), and a long-known and continual imbalance between groundwater withdrawal and recharge has caused overdraft conditions and seawater intrusion into the aquifer. The Salinas Valley Water Project is a combination of structural and operational changes to provide surface water deliveries and aquifer replenishment. The Salinas River Diversion Facility consists of a bladder dam to impound spring, summer and early-fall reservoir releases, and a pump station to deliver surface water and reduce the need for groundwater pumping. The Salinas Valley Water Project also includes re-operation of the San Antonio and Nacimiento dams, including releases that provide a source of surface water to the agricultural land uses in the area served by the Castroville Saltwater Intrusion Project (CSIP). The Salinas Valley Water Project does not provide new water sources for the basin, rather more water is released from the San Antonio and Nacimiento dams in the spring, summer, and early-fall for diversion by the Salinas River Diversion Facility to offset groundwater pumping (National Marine Fisheries Service, 2007).

The existing Salinas River Diversion Facility generally operates from April 1 to October 31 via operation of an existing bladder dam that spans the width of the Salinas River. When in operation, the dam maintains the upstream water surface elevation impoundment, and a total operational storage volume of the impoundment is 108 acre-feet (AF). The SRDF includes a fish passage system with intake screens and fish ladders that comply with National Marine Fisheries Service and California Department Fish and Wildlife (CDFW) criteria (National Marine Fisheries Service, 2007).

Fishery Habitat Overview

Table 4.4-1, Native Fish Species Known to Occur in the Salinas River Watershed summarizes native fish species known to occur in the Salinas River watershed. Species include steelhead (*Oncorhynchus mykiss*), Pacific lamprey (*Lampetra tridentata*), threespine stickleback (*Gasterosteus aculeatus*), hitch (*Lavinia exilicauda*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), and Monterey roach (*Lavinia symmetricus subditus*. This fish assemblage, Sucker-Stickleback-Pikeminnow Assemblage, occurs in the low-elevation reaches of the western and north Salinas River watershed, including the Salinas River main-stem, the lower reaches of the Arroyo Seco River and the lower Gabilan Creek (Monterey County Water Resources Agency, April 2013). The Roach assemblage is found in small tributary streams with low to moderate gradients and rocky substrate, and the Rainbow Trout-Speckled Dace Assemblage occurs in spring-fed, cool headwater streams. Common carp, hitch, Sacramento blackfish, starry flounder, and threespine stickleback were observed in the Salinas River during 2010 (Monterey County Water Resources Agency, 2011). The most abundant species captured in 2011 were Sacramento sucker, speckled dace, and threespine stickleback (FISHBIO, 2011).

Federally-listed species that occur or may occur within the Salinas River include the South-Central California Coastal (SCCC) steelhead Distinct Population Segment (DPS). Steelhead are an anadromous species with adults spawning in freshwater and juveniles rearing in freshwater before migrating to the ocean to grow and mature prior to returning as adults to reproduce in freshwater. See **Section 4.4.2.2** below for further description of steelhead characteristics and habitat. Habitat conditions in the lower Salinas River are generally not suitable for steelhead spawning or rearing. The substrate is primarily sand, and gravel is only a minor component, primarily upstream of King City. The lower 150 miles of the main-stem Salinas River is a low gradient sand-bedded stream with channel depths that rarely exceed 2.5 feet, and is primarily viewed as a steelhead migration corridor (Monterey County Water Resources Agency, May 2014).

Before Nacimiento and San Antonio Reservoirs were constructed, the Salinas River had little or no flow during most years (National Marine Fisheries Service, 2007). Even with present operations and release of water from the reservoirs throughout the summer, water temperature is reportedly too high for rearing juveniles (Monterey County Water Resources Agency, 2001). Steelhead populations spawning in the Arroyo Seco or in other tributaries to the Salinas River use the lower Salinas River as a migration corridor only. Low stream flow in the Salinas River may result in areas that are too shallow for fish to pass. An assessment of the Arroyo Seco River reported that it had the potential to support an estimated run of a few thousand steelhead (National Marine Fisheries Service, 2007). Further description of special status fish species is provided below.

It is also noted that non-native species have been spreading pervasively in the Salinas River Watershed. The watershed has an infestation of Arundo donax (Giant reed) which provides little shading in the stream, and can lead to increased water temperatures and reduced habitat quality for aquatic wildlife (Monterey County Water Resources Agency, March 2013).

Table 4.4-1
Native Fish Species Known to Occur in the Salinas River Watershed

Scientific Name	Common Name	Special Status	Main Occurrence
Lavinia exilicauda	Hitch	None	Mainstem Salinas Salinas River Lagoon
Lavinia symmetricus subditus	Monterey roach	California Species of Special Concern	Mainstem Salinas Tributaries
Clupea pallasi	Pacific herring	None	Salinas River Lagoon
Lampetra tridentata	Pacific lamprey	None	Mainstem Salinas, tributaries
Cottus asper	Prickly sculpin	None	Mainstem Salinas, Tributaries Salinas River Lagoon
Orthodon microlepidotus	Sacramento blackfish	None	Mainstem Salinas Salinas River Lagoon
Ptychocheilus grandis	Sacramento pikeminnow	None	Mainstem Salinas Salinas River Lagoon
Catostomus occidentalis	Sacramento sucker	None	Mainstem Salinas/Reservoir Salinas River Lagoon
Cymatogaster aggregata	Shiner surfperch	None	Salinas River Lagoon
Rhinichthys osculus	Speckled dace	None	Upper tributaries
Leptocottus armatus	Staghorn sculpin	None	Salinas River Lagoon
Platichthys stellatus	Starry flounder	None	Salinas River Lagoon
Oncorhynchus mykiss	South Central California Coast Steelhead	Federally-listed Threatened	Mainstem Salinas
Gasterosteus aculeatus	Threespine stickleback	None	Mainstem Salinas Tributaries Salinas River Lagoon
Eucyclogobius newberryi	Tidewater Goby	Federally Endangered	Salinas River Lagoon
Atherinops affinis	Topsmelt	None	Salinas River Lagoon
SOURCE: Monterey County Water Resources Agency, March 2013, Hagar Environmental Science, January 2014			

Flow Considerations

Within the Salinas River watershed, the wet season is considered to be November-May while the dry season is defined as June through October. The Monterey County Water Resources Agency (MCWRA) estimated fish passage flow requirements using field measurements of channel and flow characteristics, including water depth transects at critical passage sites, and the application of criteria for conditions suitable for upstream steelhead migration (Monterey County Water Resources Agency, 2001). The flow requirements were developed as part of the MCWRA's Salinas Valley Water Project.

The minimum flow identified by the Monterey County Water Resources Agency for steelhead migration occurs when, at the shallowest cross-sections, there is a depth of at least 0.6 feet across 25% of the channel width and there is a continuous section at this depth across at least 10% of the channel width. A flow of about 72 cubic feet per second (cfs) would meet the minimum migration needs for steelhead in the lower Salinas River downstream of Spreckels, and a flow of 154 cfs would meet the minimum migration criteria upstream of Spreckels. Less flow is required downstream of Spreckels since the channel is narrower and more confined in this reach (Monterey County Water Resources Agency, 2001). Under some situations, the 0.6 foot depth over 25% channel width criteria was considered to be overly restrictive, and using a less restrictive width criterion, MCWRA estimated that passage flows for adult steelhead in the Salinas River would be 94 cfs upstream of Spreckels and 60 cfs downstream of Spreckels (Monterey County Water Resources Agency, 2001). **Table 4.4-2, SCCC Steelhead Life Stage Flow Thresholds for Migratory Passage in the Salinas River** summarizes flows for maintenance of steelhead migration in Salinas River at different life stages identified in various studies.

Flow criteria for downstream migration of post-spawning adults and immature fish have not been widely developed. However, it was assumed by MCWRA that that post-spawning adult steelhead and emigrating juvenile steelhead can migrate downstream over riffle areas at shallower depths than those needed by adults migrating upstream (Monterey County Water Resources Agency, 2001). If a depth criterion of 0.4 feet is substituted in the analysis of passage transects in the Salinas River, the resulting minimum passage flow estimates for downstream migration of post-spawning adults and smolts would be 112 cfs upstream of Spreckels and 56 cfs downstream of Spreckels (Monterey County Water Resources Agency, 2001). If it is also assumed that the 0.4 foot depth criteria were achieved over a continuous 8-foot channel width rather than 10% of the channel width, the minimum passage flow estimate would be further reduced to 59 cfs upstream of Spreckels and 50 cfs downstream of Spreckels (Monterey County Water Resources Agency, 2001).

As part of the Salinas Valley Water Project goals to minimize impacts to federally threatened steelhead and its critical habitat, MCWRA developed flow prescriptions to facilitate and enhance adult steelhead upstream migration, downstream migration of juveniles, smolts, and kelts (post-spawn adult steelhead), and spawning and rearing habitat within the San Antonio and Nacimiento rivers below the dams (Monterey County Water Resources Agency, 2005). The MCWRA’s flow prescriptions and timing are tied to the SCCC steelhead life cycle within the Salinas River (Monterey County Water Resources Agency, 2005). The flow prescriptions rely on triggers based on a combination of reservoir flows and stream flows regarding steelhead upstream and downstream migration as permit conditions associated with operating the SRDF. The flow prescriptions were reviewed by the National Marine Fisheries Service (NMFS) and incorporated in NMFS’ Biological Opinion for the SRDF project (National Marine Fisheries Service, 2007). Additionally, MCWRA releases Salinas River Lagoon maintenance flows in conjunction with lagoon opening and closure, juvenile passage flows released from the San Antonio and Nacimiento dams, and passage conditions within the Arroyo Seco River (Monterey County Water Resources Agency, 2005). The flow prescriptions and timing are tied to the SCCC steelhead life cycle within the Salinas River (Monterey County Water Resources Agency, 2005).

Adult steelhead upstream migration triggers are in effect from February 1 through March 31. When flow triggers occur, flows of 260 cfs at the USGS gage near Chualar must be provided to facilitate upstream migration of adult steelhead. To insure this minimum flow and duration, MCWRA must provide reservoir releases when necessary to augment natural flows. The number of passage days targeted for dry-normal, normal-normal, and wet-normal years are 16, 47, and 73 days, respectively (National Marine Fisheries Service, 2007).

Table 4.4-2Revised
SCCC Steelhead Life Stage Flow Thresholds for Migratory Passage in the Salinas River

Life stage	Time Period*	Flow (in cfs) Required Downstream of Spreckels Gage for Migratory Passage	Source Document	Notes**
Smolt Outmigration	March through June	N/A	NMFS 2007, Page 23	In California, the outmigration of steelhead smolts typically begins in March and ends in late May or June (Titus et al. 2002).
	April through June	N/A	NMFS 2007, Page 23	Snider (1983) states that in the Carmel River, most juvenile steelhead migrate to the ocean between April and June.
	March through June	N/A	NMFS 2007, Page 74	We have assumed that properly functioning habitat conditions for this phase of the steelhead life history include substantial sustained flows for several weeks during the period of migration (late March through early June).
	March through June	150 cfs	NMFS 2007 Page 66	NMFS does not specify a smolt migration threshold flow, sp the adult threshold flor of 150 cfs is considered the smolt migration threshold using the passage criteria reported in the BO.
	Year-Round with peak emigration from April through June	56	MCWRA 2001, Section 5.6	If a depth criteria of 0.4 feet is substituted in the analysis of passage transects in the Salinas River the resulting minimum passage flow estimates for downstream migration of post-spawning adults and smolts would be 112 cfs upstream of Spreckels and 56 cfs downstream of Spreckels.
		50		If it is also assumed that the 0.4 foot depth criteria were achieved over a continuous 8 foot channel width rather than 10% of the channel width, the minimum passage flow estimate would be further reduced to 59 cfs upstream of Spreckels and 50 cfs downstream of Spreckels.
	March 15 through April	300 cfs	NMFS 2007 Page 23	Based on triggers as prescribed in BO
	January through June	N/A	MCWRA 2013b, Page 3-118	Steelhead smolts may immigrate to the ocean from January through June on the receding limb of the winter hydrograph.
	December 15 through March 31	N/A	MCWRA 2013b, Page 3-119	Seaward migration of juveniles may end earlier as compared to the other coastal drainages, because a greater amount of flow is required to provide safe passage conditions in the broad, sandy Salinas riverbed and the migration from rearing habitat in the tributaries is greater than 50 miles. NMFS (2003, p. 24) noted December 15 to March 31 as the juvenile steelhead migration season, which likely considers the above factors.
	March through June	N/A	MCWRA 2013b, Page 3-128-129	Steelhead smolt migration typically begins in March and ends in late-May or June, depending on flow and passage conditions.
	Jan 15 through May	N/A	MCWRA 2013b, Page 3-134	Downstream juvenile/kelt migration (mid-January through the end of May).
Adult Immigration	December 1 through April 15	72	MCWRA 2001, Section 5.6	Based on the Thompson criteria, a flow of about 72 cfs would meet the minimum migration needs for steelhead in the Lower Salinas downstream of Spreckels and a flow of 154 cfs would meet the minimum migration criteria upstream of Spreckels. Less flow is required downstream of Spreckels since the channel is narrower and more confined in this reach.
		60		Using the less restrictive width criterion of 8 feet instead of 25%, minimum passage flow estimates for adult steelhead in the Salinas River would be 94 cfs upstream of Spreckels and 60 cfs downstream of Spreckels.
	January through May	N/A	Moyle 2008, Page 80	Adult steelhead return from the ocean to enter watersheds to spawn in SCC stream between January and May (Boughton et al. 2006)
	December through April	N/A	MCWRA 2013b, Page 3-118	NMFS indicates that adult steelhead in this region migrate upstream primarily from December to April (NMFS 2007)
	November through June	N/A	NMFS 2007, Page 23	Adult steelhead migrate to fresh water between November and June, peaking in March.
	December through	N/A	NMFS 2007, Page 69 - 70	Although the exact timing of adult upstream migration in the Salinas River is not known, data from other Central

	April			California coastal streams indicate that adult steelhead in this area migrate upstream primarily from December through April (Figure 11)
	December through April	*150 cfs*	NMFS 2007 Page 66	As described in the environmental baseline (Section V.C.2), NMFS (2005c) examined the issue of adult passage flows and determined that at least 150 cfs is needed to facilitate safe and efficient upstream passage of steelhead at Spreckles.
	February to March 15	*260 cfs*	NMFS 2007 Page 10	Adult steelhead upstream migration triggers will be in effect from February 1 through March 31. When flow triggers occur, MCWRA intends to facilitate upstream migration of adult steelhead by insuring flows of 260 cfs at the Salinas River near Chualar USGS gage.
* Time periods provided represent the widest range indicated by the source document. For example, if a source document indicates a time period beginning sometime in March and ending in late May or June, the time period selected includes March through June				
** Time periods are selected based on source documents evaluated (e.g., NMFS 2007, MCWRA 2013b), although the source documents may cite additional sources.				

To facilitate the downstream migration of smolts and rearing juvenile steelhead in the Salinas River during normal category water years, MCWRA provides reservoir releases (referred to as “block flows”) beginning March 15th when the specified flow triggers are met. If block flows are triggered between March 15 and March 31, 700 cfs will be provided at the Salinas River near Soledad for 5 days, and then thereafter 300 cfs will be maintained in the Salinas River near Spreckels until April 20. If the block flow triggers occur in April, 700 cfs will be provided at the Salinas River near Soledad for 5 days, and then thereafter 300 cfs will be provided at Spreckels for an additional 15 days. After a block flow is completed, if outmigration of steelhead smolts from the Arroyo Seco to the Salinas River could occur, flow to the ocean will be maintained for 10 days after smolt outmigration flow at the Reliz Creek gage drops below 1 cfs (National Marine Fisheries Service, 2007). In some years, flow releases for smolt migration may not occur because triggers for those releases are not met. However, in those years National Marine Fisheries Service required MCWRA to provide reservoir releases and SRDF bypass flows to enhance migration opportunities for juvenile steelhead and post-spawn adult steelhead (kelts) as part of Salinas River Diversion Facility operations (National Marine Fisheries Service, 2007/MCWRA, 2015).

The MCWRA began operation of the Salinas River Diversion Facility in April 2010, which involves release of water from Nacimiento and San Antonio Reservoirs to the Salinas River throughout the irrigation season with impoundment and diversion at the SRDF located near the upper part of the Salinas River Lagoon. The Salinas River Diversion Facility operates seasonally between April 1 and October 31.

Beginning April 1, MCWRA provides bypass flows to the Salinas River Lagoon. For dry year-types, MCWRA provides 2 cfs to the lagoon when the Salinas River Diversion Facility is operating or during aquifer conservation releases. For non-dry year-types, and if the combined reservoir storage is 220,000 AF or more, MCWRA provides additional supplemental bypass flows (Monterey County Water Resources Agency, July 2011). If the lagoon is open to the ocean, then MCWRA provides 45 cfs to the lagoon for 10 days or until the lagoon closes to the ocean, whichever occurs first, then 15 cfs to the lagoon through June 30th, then 2 cfs as long as the Salinas River Diversion Facility is operating or during aquifer conservation releases (Monterey County Water Resources Agency, July 2011). If the lagoon is not open to the ocean, then MCWRA will provide 15 cfs to the lagoon through June 30th, then 2 cfs as long as the Salinas River Diversion Facility is operating or during aquifer conservation releases. These bypass flows influence water quality conditions in the lagoon during the dry season. Before implementation of the Salinas Valley Water Project there was no requirement for provision of flow to the lagoon and there was generally no flow to the lagoon after storm flows ceased in the spring. This was likely consistent with natural river flow patterns before development of the Salinas Valley for agriculture (Monterey County Water Resources Agency, July 2011).

Temperature Considerations

Water temperature is measured at two locations in the Salinas River: at the Blanco Road Bridge, three miles upstream of the Salinas River Diversion Facility, and at the Salinas River Diversion Facility. Data collected during 2011 show that the general trend within the monitoring period showed increasing water temperatures from spring to summer and decreasing temperatures from summer to fall. For the protection of steelhead, the maximum weekly average temperatures are 67.8ºF (19.6ºC). Temperatures recorded at the Spreckels gage range from 50ºF to 82ºF (10 ºC to 27.9ºC), with an average of 63ºF (17.4ºC) (California Regional Water Quality Control Board, 2008).

Water temperatures in this stream are highly variable and dependent on reservoir releases, air temperature, and reservoir storage. In general, water released through the reservoir outlet is at a relatively constant temperature of 52°F to 54°F (11.1°C to 12.2 ° C). The water warms rapidly as it moves downstream, generally in proportion to fluctuation in daily air temperature. At minimum release levels (25 to 30 cfs), water temperature can increase to as much as 73°F (22.8° C) within 5 miles of the Nacimiento dam, and 75°F (23.9° C) within 10 miles of the dam. During the summer conservation release period (with flows of 300 cfs or more), water temperature is generally maintained at less than 64°F (17.8°C) within 5 miles of the dam, and 68°F (20° C) or less within 10 miles of the dam (Monterey County Water Resources Agency, 2001). Current monitoring reports available from the MCWRA website identify temperature of water released below the dam typically ranges between 52 and 54°F in temperature, and generally remains cooler than 64°F within the first 5 miles below the dam, and below 68°F within the first 10 miles of the dam. However, under certain conditions (i.e. low summer flows during dry years) temperatures reach 73°F within 5 miles of the dam and 75°F within 10 miles below the dam (NMFS, 2007). (See Monterey County Water Resources website: http://www.mcwra.co.monterey.ca.us/fish_monitoring/documents/2014_2%20Salinas%20Basin%20Juvenile%20O.%20mykiss%20Downstream%20Migration%20Monitoring.pdf).

In addition, diurnal water temperature fluctuations are common. Data collected at the Chualar gage indicate an average difference of 4.5°F and a maximum difference of 8°F between maximum and minimum daily temperature in April (Monterey County Water Resources Agency, 2001). In May there is as much as a 22°F daily swing in temperature and the average change is 16°F (Monterey County Water Resources Agency, 2001).

Water Quality

The Central Coast Regional Water Quality Control Board (RWQCB) Water Quality Control Plan for the Central Coast Basin (Basin Plan) designates beneficial uses of the Salinas River below Spreckels as including municipal and domestic supply, agricultural supply, non-contact water recreation, wildlife habitat, warm and cold water fish habitat, freshwater replenishment (of the Salinas Lagoon) and commercial or sport fishing. The Salinas River is listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act for chlorides, pesticides, Escherichia coli (E. coli), fecal coliform, nitrate, total dissolved solids, turbidity and other factors.

City of Salinas Industrial Wastewater Facility and Urban Stormwater Runoff Discharges into Salinas River

The City of Salinas urban stormwater runoff from the southwest portion of the city is currently discharged into the Salinas River near Davis Road via a 66-inch outfall line.

Additionally, three miles southwest of the City of Salinas, the Salinas Industrial Wastewater Treatment Facility (Salinas Treatment Facility) is located on the bank of the Salinas River. The City of Salinas owns and operates the facility to treat and dispose of industrial water, most of which has been used to wash and prepare vegetable crops at 24 industrial food processing facilities in Salinas. The Salinas Treatment Facility consists of an aeration pond for treatment of incoming water and three large percolation ponds that dispose of water by percolation and evaporation. Additional disposal capacity is provided by drying beds north of the ponds and by temporary Rapid Infiltration Basins (RIBs) between the main ponds and the adjacent Salinas River channel.

Water that percolates from the ponds either flows a short distance through the subsurface and emerges as seepage into the Salinas River or accrues to the regionally extensive shallow aquifer. The shallow aquifer is not used directly as a source of water supply, but downward percolation from the shallow aquifer is a source of recharge to the 180-Foot aquifer, which is used for water supply in the agricultural area surrounding the Salinas Treatment Facility. (**See Section 4.4-10**: **Hydrology and Water Quality: Groundwater** for further discussion of groundwater aquifers.)

Salinas River Lagoon

The mouth of the Salinas River is a seasonal lagoon controlled by the presence of a sandbar that forms in response to changes in outflow and tidal cycles. Lagoons form in response to seasonal rainfall and water patterns, and tidal influences, with sandbar closure during dry periods (spring and summer) and breaching during wet periods (fall and winter). During wet months, high energy waves erode and breach sandbars, while high stream flows widen and deepen the estuary mouth (Monterey County Water Resources Agency, March 2013). In dry months, low energy waves deposit sand and build up sandbars. After sandbar formation, water surface elevation rises as the impounded lagoon fills with freshwater streamflow. The fresh water interacts with already present salt water, occasional surf wash, and salt water that has percolated through the sandbar to create a brackish environment or even a freshwater environment if inflow is sufficient (Monterey County Water Resources Agency, March 2013). Sandbars generally breach at the onset of fall and winter storms, converting the estuaries to freshwater during high river flows. A brackish estuary environment occurs during low river flows if there is still a substantial area of impounded water even if all or most of the sandbar is not present. In the Salinas River flooding of agricultural lands can precede the natural breaching (Monterey County Water Resources Agency, March 2013).

The Salinas River Lagoon is approximately two miles long and is located in low-lying, open agriculture setting. The banks are defined, leading to a stable surface area during the summer months. The northern bank is vegetated with riparian and phreatophytic vegetation with large woody debris scattered around the lagoon. The Salinas River Lagoon is utilized as a migration corridor by adult and juvenile steelhead (Monterey County Water Resources Agency, March 2013).

The lagoon is brackish in the fall due to the freshwater from the inflowing river and salt water from the high ocean waves (Casagrande et al. 2003). During major runoff events, water elevations in the lagoon rises and breaching events occur. During breaching events, both natural and artificial, anadromous fish such as steelhead and Pacific lamprey are able to migrate. The MCWRA intervenes in the Salinas Lagoon each year by using equipment to either cause or assist the breach, and also manages the lagoon water levels as part of flood control activities (Monterey County Water Resources Agency, 2011). The MCWRA Senior

Water Resources Hydrologist notes, however, that this does not occur during drought years (Monterey County Water Resources Agency, 2015).

Fishery Habitat Overview

In general, estuaries provide important habitat for juvenile steelhead and are used for rearing/feeding, freshwater to saltwater acclimation, and migration. Similarly, lagoons located at the interface of river mouths and the ocean may be a valuable habitat component for juvenile steelhead, providing abundant feeding opportunities for rearing fish and saltwater transition zones for outmigrating smolts. Preferred rearing conditions in lagoons exist when sandbars cut off ocean access which reduces salinity and promotes mixing of the lagoon water, which prevents water stratification and high temperatures, thus supporting food production and appropriate dissolved oxygen concentrations.

The Salinas River Lagoon supports a mixed assemblage of marine, freshwater, and estuarine species generally typical of lagoons along the Central California Coast. The mix of species in any year is influenced by freshwater inflows, opening and closing of the sandbar at the mouth of the Lagoon, and the resulting conditions of water quality and productivity (Hagar Environmental Science, February 2015).

The Salinas River Lagoon fishery has been sampled at intervals since the early 1900s and most recently in the early 1990s (Gilchrist et al. 1997) and in annual surveys by MCWRA from 2002 to 2014 (Hagar Environmental Science, February 2014). The lagoon supports a mixture of marine and freshwater fishes. Over 24 species were observed during lagoon fishery surveys conducted during the past 12 years (2002-2013) as summarized in **Table 4.4-3, Fish Species Observed in Salinas River Lagoon (2002-2013)**.

Table 4.4-3
Fish Species Observed in Salinas River Lagoon (2002-2013)

Species	Scientific name	Season observed		
		Spring	Summer	Fall
Arrow goby	Clevelandia ios	No	No	Yes
Carp	Cyprinus carpio	No	Yes	Yes
Chinook Salmon	Oncorhynchus tshawystcha	No	No	Yes
Hitch	Lavinia exilicauda	No	Yes	x
Largemouth bass	Micropterus salmoides	No	Yes	Yes
Mosquitofish	Gambusia affinis	No	Yes	Yes
Pacific herring	Clupea pallasii	No	Yes	Yes
Pacific lamprey	Lampetra tridentata	Yes	No	Yes
Pacific sardine	Sardinops sagax	No	Yes	No
Pacific staghorn sculpin	Leptocottus armatus	Yes	Yes	Yes
Prickly sculpin	Cottus asper	Yes	Yes	Yes
Rockfish	Sebastoides spps	No	Yes	No
Sacramento blackfish	Orthodon microlepidotus	Yes	Yes	Yes
Sacramento pikeminnow	Ptychocheilus grandis	Yes	Yes	Yes
Sacramento sucker	Catostomus occidentalis	Yes	Yes	Yes
Shiner surfperch	Cymatogaster aggregata	Yes	Yes	Yes
Starry flounder	Platichthys stellatus	Yes	Yes	Yes
Steelhead	Oncorhynchus mykiss	Yes	Yes	Yes
Striped bass	Morone saxatilis	Yes	Yes	Yes
Threadfin shad	Dorosoma patenense	Yes	No	Yes
Threespine stickleback	Gasterosteus aculeatus	Yes	Yes	Yes
Tidewater goby	Eucyclogobius newberryi	No	No	Yes
Topsmelt	Atherinops affinis	No	Yes	Yes
Yellowfin goby	Acanthogobius flavimanus	Yes	Yes	No

Species observed during lagoon fishery surveys conducted during spring, summer and fall (2002-2013).

Some species appear to occur in the lagoon year round while others are seasonally present (Hagar Environmental Science, February 2015, Monterey County Water Resources Agency, 2013a). Native freshwater species using the Salinas River Lagoon include Sacramento blackfish (*Orthodon microlepidotus*), hitch (*Lavinia exilicauda*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), prickly sculpin (Cottus asper), and threespine stickleback (*Gasterosteus aculeatus*). Several other freshwater species have been collected historically in the Lagoon but are no longer found there, including speckled dace (*Rhinichthys osculus*) and thicktail chub (*Gila crassicauda*), an extinct large minnow. Introduced freshwater species include carp and white bass. The single white bass taken in 1990 probably came from the population in Nacimiento Reservoir and is likely a transient species in the Lagoon. Other reservoir species, such as threadfin shad, may be expected to reach the Lagoon during wet years when large flood control releases are made. In years with low freshwater inflow and saline conditions in the Lagoon, freshwater species may be restricted to the upper reaches of the Lagoon or to freshwater areas upstream of the Lagoon (Gilchrist et al. 1997).

Steelhead and tidewater goby have been rarely observed in the lagoon surveys. Only three steelhead were observed: two in 2011 and one in 2013. Tidewater goby were observed for the first time during the 12 years of the lagoon survey and for the first time since 1951, when two gobies were observed during fall 2013 surveys. The tidewater goby was presumed lost from the lagoon due to levee construction and channelization (USFWS 2013 as cited in HDR Engineering, January 2015). It is likely that the gobies observed in 2013 had dispersed from nearby Bennett Slough or Moro Cojo Slough (MCWRA 2013b as cited in HDR Engineering, January 2015).

Several marine species use the Lagoon for reproduction or juvenile rearing. Starry flounders spawn in the ocean but juveniles enter the Lagoon and can rear there for two or more years. As they grow older they become less tolerant of fresh water and leave the Lagoon. Staghorn sculpin also enter the Lagoon as juveniles but usually only remain for a year. Other marine species found include Pacific herring, topsmelt, surf smelt, northern anchovy, jacksmelt, striped bass, and English sole. The green sturgeon reported by CDFW in 1975 is probably atypical since they usually use larger rivers further north (Hagar Environmental Science, February 2015).

The MCWRA intermittently evaluates water quality of the Lagoon and analyzes fish population and response to the changing conditions. In 2013, sampling for fish and habitat conditions were conducted in the spring, summer and fall. The great distance and intermittent flow conditions between the spawning/rearing areas and lagoon may severely limit the importance of the lagoon as a steelhead rearing habitat in the Salinas River Basin (Monterey County Water Resources Agency, April 2013).

Flow Considerations

Water levels in the lagoon are monitored at the Old Salinas River outlet gate, which is located in the northwestern corner of the Salinas Lagoon. During non-event periods, the majority of fresh or brackish water entering the lagoon comes from the Blanco Drain, located approximately five miles upstream from the lagoon, which is an agricultural runoff canal. There are also a number of small agricultural tile drainage systems discharging directly into the lagoon. The flow rate of the Salinas River upstream of the Lagoon at which the Salinas River Lagoon will remain open to the ocean is expected to generally range from 80 to 150 cfs (Monterey County Water Resources Agency, 2005).

Salinas River Major Tributary Rivers

The Arroyo Seco River drains a watershed area of 303 square miles, and it extends approximately 37 miles from its headwaters within forest and wilderness areas to its confluence with the Salinas River. The river is unregulated, with surface flow interrupted during dry summer months as it flows across the Salinas Valley en route to the Salinas River. The Arroyo Seco River contains a majority of the steelhead spawning habitat and half the steelhead rearing habitat within the Salinas River basin. It is the closest major tributary to the Pacific Ocean, which increases steelhead utilization over upstream tributaries (Monterey County Water Resources Agency, March 2013).

The San Antonio River drains 344 square miles, and flows 58 miles from its headwaters in the Los Padres National Forest to the Salinas River. The San Antonio River is regulated by the San Antonio Dam, which impounds ~~350,000~~ 335,000 acre-feet. The dam was constructed in 1965 and is used for flood protection, aquifer recharge, and recreation. Prior to construction of San Antonio Dam, the San Antonio River normally did not reach the Salinas River in late summer (Monterey County Water Resources Agency, 2001). Flow prescriptions are used to maintain steelhead rearing habitat on the San Antonio River below the dam. Aquatic habitat below the dam consists primarily of shallow-run habitat, and lesser amounts of pool and riffle habitat. The channel substrate is primarily composed of equal parts of sand and gravel with lesser amounts of cobble and silt.

The Nacimiento River drains 362 square miles and flows 53 miles from its headwaters in the Santa Lucia Mountains within the Los Padres National Forest to the confluence with the Salinas River. Under natural conditions, flow in the river is intermittent, drying during the summer months. The river is regulated by the Nacimiento Dam, located 10 miles upstream from the confluence with the Salinas River. The dam, constructed in 1957, impounds ~~350,000~~ 377,900 acre-feet, and provides flood protection and aquifer recharge to the Salinas Valley (Monterey County Water Resources Agency, 2001 and 2015). Before Nacimiento Reservoir was constructed, the Nacimiento River regularly experienced levels of little or no flow in the reach currently inundated by the reservoir and in the section of river downstream of the dam (Monterey County Water Resources Agency, 2001). The dam blocks passage of steelhead to the upper portion of the river basin. Dam operation and flow releases on the Nacimiento River are managed for the following purposes: (1) to facilitate and enhance passage for upstream migrating adult steelhead on the Salinas River; (2) to facilitate and enhance passage for downstream migrating steelhead smolts and juveniles on the Salinas River; (3) to maintain the Salinas River Lagoon; (4) to provide water for the Salinas River Diversion Facility; and (5) to maintain steelhead rearing habitat below the dam. Below the dam, the Nacimiento River is characterized by a low gradient and long, wide sections with sparse riparian vegetation. Typical substrate consists of gravel with lesser amounts of sand and cobble (Monterey County Water Resources Agency, March 2013). Dam operation and flow releases on the river are also managed for such as 1) flood control, 2) water conservation, 3) fish passage enhancement and 4) recreation".

Reclamation Ditch, Tembladero Slough and the Old Salinas River

The Reclamation Ditch was built between 1917 and 1920 to collect and drain surface runoff generated in its watershed, which is approximately 157 square miles with headwaters in the Gabilan Range above Salinas. The Gabilan watershed originates in the northern corner of the Gabilan Mountain Range northeast of the City of Salinas and discharges into Carr Lake, a seasonal lake in the center of Salinas which is drained by the Reclamation Ditch. The

Reclamation Ditch empties into the Tembladero Slough (an extended brackish, sub-tidal slough just south of Castroville) then to the Old Salinas River just upstream from Moss Landing Harbor. Downstream of the Highway 183 crossing, the Reclamation Ditch becomes known as Tembladero Slough. See **Figure 4.4-2, Reclamation Ditch Watershed.**

The Reclamation Ditch watershed has five main tributaries including Gabilan, Natividad, Alisal and Santa Rita Creeks (see **Figure 4.4-3, Reclamation Ditch Tributaries**) and the Merritt Lake drainage. Gabilan, Natividad, and Alisal Creeks converge at Carr Lake. ~~The outlet from Carr Lake forms the head of the Reclamation Ditch.~~ The majority of runoff in the Reclamation Ditch basin was historically generated in the Gabilan and Alisal Creek subwatersheds (Hagar Environmental Science, February 2015). The lower Reclamation Ditch watershed areas were formerly low-lying areas with seasonal lakes, swamps, and wetlands. Much of the middle and lower watershed channels have been altered for drainage and conveyance of flood flows. Much of the historic lakes, swamps and wetlands are now farmland and urban development.

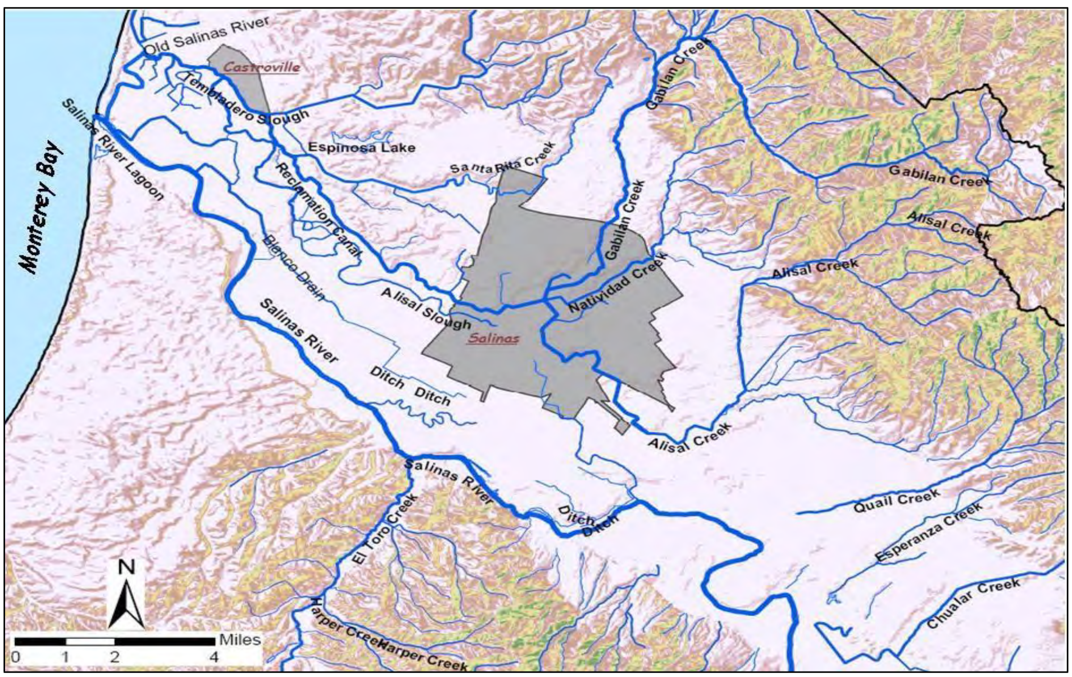

Figure 4.4-3: Reclamation Ditch Tributaries

The watershed area that drains into the Reclamation Ditch also contains the City of Salinas and portions of Castroville and Prunedale. Summer flows are predominantly agricultural tile drainage. Winter flows include storm runoff from throughout the basin (Schaaf & Wheeler, 2014). The drainage area includes the outlet of Carr Lake and a network of channels draining much of the City of Salinas as well as many of the former lakes and sloughs. Urban runoff from the City of Salinas drains into various channels of the Reclamation Ditch system via approximately 54 stormwater outfalls (Hagar Environmental Science, February 2015).

The Reclamation Ditch system drained an extensive system of interconnected sub-tidal lakes and swamps that formerly existed between Salinas and Castroville, including Merritt Lake, Espinosa Lake, Santa Rita Slough, Vierra Lake, Fontes Lake, Boronda Lake, Markley Swamp, and Mill Lake. The lakes naturally had poor drainage and were only connected during periods of high runoff. Under current conditions, the Carr Lake bed and most of the lakes are used for agricultural production during the growing season, but still flood regularly during winter storm events and are used for detention flood storage. Surface water pump stations have been installed and operated to allow continued agricultural use of these areas (Hagar Environmental Science, February 2015).

Channel conditions vary widely in the Reclamation Ditch watershed. The streams of the Gabilan subwatershed are non-perennial in the upper-most sections, perennial or near-perennial in certain reaches mid-way down the range, and then again non-perennial in the lowest parts of the subwatershed as the streams begin to flow over old alluvium at the foot of the range (Casagrande and Watson, 2006a). At the highest elevations in the Gabilan Range the streams are mostly ephemeral with narrow channels; channel substrate is predominantly gravel and cobble. The dominant streamside vegetation is primarily oak savanna with grazed riparian woodland with mixed oak, gray and coulter pines at the highest elevations. In the steep mountain canyons of the Gabilan Range, streams are typically narrow and of steep gradient; channel substrate is primarily cobble/boulder. In the mid to lower elevations of Gabilan Range, streams generally flow year-round, especially in the mid to lower elevations of this zone. Riparian vegetation is dense, usually consisting of big-leaf maples, tan oaks, white alder, and sycamore trees, which helps keep the water temperatures cold throughout the year (Hagar Environmental Science, February 2015). In the foothills and alluvial fans of the Gabilan Range, streams are usually ephemeral in some locations with moderate slopes and smaller average substrate sizes. Riparian vegetation is still commonly found throughout much of the foothill stream reaches, although some reaches have lost a substantial portion of their streamside vegetation (Hagar Environmental Science, February 2015).

Between the foothill zone and the City of Salinas, the stream channels are modified by human development to a greater degree. Some of these still support native riparian vegetation but have been channelized, thus eliminating the streams ability to fully access the adjacent floodplain during high runoff events. These stream reaches have a gentle slope, predominantly sand substrate, and in most areas lack summer flow. Some of these stream reaches support native warmwater fish and amphibians. Other stream reaches in this zone have steep banks that are either unvegetated or support only introduced annual weeds. Such conditions are generally of low habitat quality for riparian-associated organisms, due to the lack of overhead cover, in-channel complexity, and sources of or woody/plant debris. The steep unvegetated banks are also more susceptible to erosion, particularly during high flows. Such bank erosion is a source of sediment that later accumulates in stream channels further downstream (Hagar Environmental Science, February 2015).

Most of the stream channels of lower valley bottom have been converted into ditches or drainage canals that generally have steep side slopes without native riparian vegetation, a substrate of primarily fine-grained sediment (mostly silts and clays), and an undefined low-flow channel. The lack of pools and in-stream complexity limits the amount of shelter or overwintering habitat for fish and amphibian species. Sections of the ditch system are occasionally lined with riprap to protect against erosion (Hagar Environmental Science, February 2015). Their dry-season flow is artificially perennial from local urban and agricultural runoff sources (Casagrande and Watson, 2006a), and the channels are generally maintained without tree canopy.

Within the City of Salinas, the Reclamation Ditch is an urban watercourse with steep sides and numerous pipe culverts or bridges with lined inverts (Schaaf & Wheeler 2014). The Reclamation Ditch generally has low gradient though at some locations, particularly bridges, there is a local increase in gradient that presents potential issues for fish migration downstream (Hagar Environmental Science, February 2015).

Downstream of the Highway 183 crossing, the Reclamation Ditch becomes Tembladero Slough, which is a broad, gentle sloped channel with slow-moving, perennial flows and fresh water with salinity levels generally lower than 1.5 parts per thousand (ppt). Riparian vegetation, which is managed by use of herbicides, is sparse, occurring in clusters. Where vegetation is present, it is usually annual weeds along with an occasional clump of willows, tules and/or watercress (Casagrande and Watson, 2006a).

Tembladero Slough is tidally influenced from the Old Salinas River up to Highway 183 in Castroville (Schaaf & Wheeler, 2014). Tembladero Slough joins with the Old Salinas River, which carries the controlled outflow from the Salinas River Lagoon, and together they form a back-beach swale that runs behind the dunes toward Moss Landing Harbor. This reach has a gentle slope and meandering channel but is tidally influenced and has brackish water and salt concentration fluctuations due to the tidal cycle (Casagrande and Watson, 2006a). The banks support vegetation tolerant of saltwater, such as pickleweed and/or salt grass. Channel substrate is fine silts and clays.

The Potrero Road tide gates are installed on the Old Salinas River just upstream of Moss Landing Harbor. The tide gates consist of ten box culverts each with a flap gate on the downstream side. During periods of high stream flow and low tide, the gates are opened by the differential water pressure. When the tide is high, the gates close, impeding the flow of the tide up the Old Salinas River. Under conditions of simultaneous high outflows and high spring tides, the gates can impede outflows and increase water level stage in Tembladero Slough.

Fishery Habitat Overview

There are no known fish surveys of the Reclamation Ditch watershed, although anecdotal information (Casagrande and Watson, 2006a) and surveys in nearby water bodies are indicative of species that are likely to be found there, which are summarized in **Table 4.4-4, Fish Species Occurring in the Reclamation Ditch Watershed and Vicinity** and depicted on **Figure 4.4-4, Photos of Reclamation Ditch**. Based on habitat characteristics, it is likely that the headwater perennial streams in the Reclamation Ditch watershed support riffle sculpin (*Cottus gulosus*), speckled dace (*Rhinichthys osculus*), trout (*Oncorhynchus mykiss*), and possibly Sacramento sucker (*Catostomus occidentalis*). Two occurrences of trout have been observed in Gabilan Creek, including one young trout along the downstream side of the Old Stage Road Crossing in June 2004 and an adult female steelhead found dead in Gabilan Creek along Little River Drive in March 2004 (CCoWS, 2006). The exact cause of death was not determined but was possibly the lack of suitable flow combined with a possible migration barrier (CCoWS, 2006).

The Reclamation Ditch watershed has the potential to support steelhead trout (*Oncorhynchus mykiss*). Potential salmonid habitat exists upstream of the project site, although the extent and quality of such habitat has not been well quantified. Although trout historically have been stocked by landowners in the watershed (CCoWS, 2006), the presence of suitable habitat in Gabilan Creek that is occupied by *O. mykiss* (likely resident form) and the adult steelhead found in 2004 indicate that the Reclamation Ditch watershed can be considered as potential steelhead habitat. Suitable habitat conditions for rainbow trout/steelhead are also likely to exist in the upper reaches of Alisal, Towne, and Mud Creeks (CCoWS, 2006).

Table 4.4-4
Fish Species Occurring in the Reclamation Ditch Watershed and Vicinity

Common Name	Scientific Name	**Rec Ditch Watershed** (Casagrande and Watson, 2006a)[1]	**Old Salinas River** HES 2001	**Salinas Lagoon** HES 2014	**Snyder** (1913), **Hubbs** (1947) [2]
NATIVE FRESHWATER SPECIES					
Pacific lamprey	*Lampetra tridentata*	X		X	X
California roach	*Hesperoleucus symmetricus*	X			X
Hitch	*Lavinia exilicauda*	X	X	X	X
Sacramento blackfish	*Orthodon microlepidotus*	X		X	X
Sacramento pikeminnow	*Ptychocheilus grandis*	X	X	X	X
Speckled dace	*Rhinichthys osculus*				X
Sacramento sucker	*Catostomus occidentalis*	X	X	X	X
Steelhead/rainbow trout	*Oncorhynchus mykiss*			X	
Chinook salmon	*Oncorhynchus tshawytscha*			X	
Threespine stickleback	*Gasterosteus aculeatus*	X	X	X	X
Prickly sculpin	*Cottus asper*	X		X	X
Coastrange sculpin	*Cottus aleuticus*				X
Riffle sculpin	*Cottus gulosus*				X
Sacramento perch	*Archoplites interruptus*				X
Tule perch	*Hysterocarpus traski*				X
ESTAURINE SPECIES					
Pacific herring	*Clupea pallasii*		X	X	X
Topsmelt	*Atherinops affinis*			X	
Pacific staghorn sculpin	*Leptocottus armatus*		X	X	X
Striped bass	*Morone saxatilis*			X	
Shiner surfperch	*Cymatogaster aggregata*			X	X
Yellowfin goby	*Acanthogobius flavimanus*			X	
Arrow goby	*Clevelandia ios*			X	
Tidewater goby	*Eucyclogobius newberryi*			X	X
Starry flounder	*Platichthys stellatus*			X	X
INTRODUCED WARMWATER SPECIES					
Threadfin shad	*Dorosoma patenense*			X	
Goldfish	*Carassius auratus*	X			
Carp	*Cyprinus carpio*	X	X	X	X
Golden shiner	*Notemigonus chrysoleucas*	X			
Fathead minnow	*Pimephales promelas*	X			
Bullhead	*Ameiurus sp.*	X			
Mosquitofish	*Gambusia affinis*	X	X	X	
Sunfish	*Lepomis sp.*	X			
Bluegill	*Lepomis macrochirus*	X			
Largemouth bass	*Micropterus salmoides*	X			
Black crappie	*Pomoxis nigromaculatus*		X		

[1]Fish kill in Tembladero Slough reported by CDFW (2002) and various observations by J. Casagrande and J. Hagar.
[2]Snyder collections near Salinas, Spreckels, and "Blanco"; Hubbs collections in Salinas River Lagoon.

Spawning habitat is only found within the upper foothill and mountainous reaches of the Gabilan Range where suitable substrate (gravel/cobble) is dominant and stream flow is still abundant (CCoWS, 2006). The duration of adequate flow in the middle reaches of the Reclamation Ditch Watershed is brief in average years, and the migration window is very short (Casagrande and Watson, 2006a). Although the duration of adequate flow in the middle reaches of the Reclamation Ditch watershed is brief in most years, the distance between Moss Landing Harbor and the upper reaches of Gabilan Creek is not excessive for migrating steelhead (Hagar Environmental Science, February 2015). The middle reaches of the Reclamation Ditch also are characterized by degraded water quality and maintained drainage channels devoid of vegetation that do not provide cover for fish. Water quality and wildlife habitat are impaired in the lower watershed (Casagrande and Watson, 2006a).

In order to reach the spawning habitat upstream, steelhead would have to navigate through a series of man-made obstructions that hinder fish passage. Most are passable during periods of prolonged stream flow to achieve suitable flow depth and duration for passage (CCoWS, 2006). However, there are passage obstacles at the San Jon stream gage site, which has a trapezoidal channel section and gaging weir. (See photo on **Figure 4.4-5, Photos of Reclamation Ditch and Tembladero Slough ~~Gabilan Creek Fish Passage Obstacles~~**.) The concrete lip at the lower edge of the apron presents a jumping obstacle at low flows without a pool at the base. The apron also creates uniformly very shallow flow. The concrete lip is likely not a problem for upstream migrating adults when there is sufficient flow for passage over the apron. The lip is also not considered problematic for downstream migrating smolts or adults. The Boronda Road gage site has rock rip-rap fill in the channel downstream of the road bridge creating a critical passage riffle (Hagar, February 27, 2015).

The middle reaches of the watershed (between the Gabilan Mountains and the City of Salinas) are ephemeral and thus do not support fish. Some intermittent reaches support California roach (*Hesperoleucus symmetricus*) and threespine stickleback (*Gasterosteus aculeatus*), which are both tolerant of high temperature and low dissolved oxygen (Casagrande and Watson, 2006a). Some fish passage obstacles on Gabilan Creek are shown on photos on **Figure 4.4-~~5~~6a**; location of the photos are shown on **Figure 4.4-~~5~~6b**.

The downstream habitats of the watershed support warmwater fish communities (i.e., minnows, suckers, and introduced fishes). The slow, warmwater habitats of lower Natividad Creek/Laurel Pond, the lower Santa Rita Creek drainage, the Reclamation Ditch, Tembladero Slough, and the Old Salinas River support most of the original native warmwater fish species as well as introduced warmwater species. Species include the native Sacramento sucker, Sacramento blackfish, Sacramento pikeminnow, hitch, California roach, threespine stickleback and a variety of introduced fish like carp, fathead minnow and mosquito fish.

Flow Considerations

The flow regime varies significantly in different parts of the watershed. The middle to lower sections of the watershed have less standing water in the dry season, and more runoff in the wet season. The entire system is highly episodic, with little or no flow for most of the time, interrupted occasionally by large runoff events during the wet season (Casagrande and Watson, 2006a). Sources contributing to the stream flow vary seasonally, and include urban runoff, agricultural tile drain water, and permitted discharge in the dry season and stormwater/urban runoff in the wet season (CCOWS, December 2014).

The Reclamation Ditch is perennial downstream of agricultural and urban development. The USGS streamflow gage at San Jon Road (Station 11152650, Reclamation Ditch near

Salinas) is located just downstream of the proposed Reclamation Ditch diversion site at Davis Road. The period of record is 28 years and is split into October 1970 to February 1986 and June 2002 to the present. Measured daily mean discharge at the San Jon Road location ranges from 0 cfs to over 500 cfs and is highest in December through April (Hagar Environmental Science, February 2015).

According to USGS records, flow west of Salinas at the San Jon Road gage only ceased on three days between 1971 and 1985, and on those days, standing water was probably still present throughout most of the Reclamation Ditch. The presence of standing water is reflective of historical conditions, since the area was a system of lakes, while the presence of dry-season flow is a consequence of dry-season urban and agricultural discharges. Average annual runoff at the San Jon Road gage has declined by almost a third in recent years as water conservation practices have reduced the amount of agricultural irrigation water used (Schaaf & Wheeler, 2014).

There are no instream flow requirements for fisheries or aquatic life in the Reclamation Ditch watershed. There are no known studies that have methodically documented passage obstacles or barriers in the watershed, and no studies of instream flow needs for fish species, including steelhead, have been conducted (Hagar Environmental Science, February 2015). An assessment was conducted by Hagar Environmental Science for this EIR to identify fish passage obstacles between the proposed Reclamation Ditch Diversion site at Davis Road and the Tembladero Slough Diversion site to determine the minimum amount of flow necessary for steelhead migration through the reach, which is further described in **Section 4.4.4.1** below. Fish passage in Tembladero Slough is not expected to be influenced by a diversion near Castroville since Tembladero Slough is tidally influenced up to this area and backwatering of the channel prevents formation of critical riffles or other shallow locations.

Water Quality

The water quality in the Reclamation Ditch is generally poor, containing high levels of nitrates and pesticides and low levels of dissolved oxygen. The Reclamation Ditch (also known as Salinas Reclamation Canal) and all of its tributary streams are on the California Listing of Water Quality Limited Stream Segments, as reported under Section 303(d) of the Federal Clean Water Act (California Regional Water Quality Control Board [RWQCB], 2011). The RWQCB's *Water Quality Control Plan for the Central Coast Basin* (Basin Plan) designates beneficial uses of the Reclamation Ditch as warm water fish habitat and commercial or sport fishing. Tembladero Slough is designated as having additional beneficial uses of estuarine habitat, rare/threatened/endangered species, and spawning/reproduction/early development habitat.

Reclamation Ditch and Tembladero Slough are both listed as impaired water bodies pursuant to Section 303(d) of the Clean Water Act for ammonia, fecal coliform, pesticides, nitrate, toxicity, dissolved oxygen, and other parameters. Water quality has been sampled and monitored for the past 15 years under various programs, and many of these parameters can be at levels that result in toxicity to aquatic life (CCRWQCB Order No. R3-2012-0011 Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands).

Lake El Estero Watershed

Lake El Estero is one of four major watersheds within the City of Monterey. Under natural conditions, Lake El Estero was seasonally either a marine estuary or a brackish water lake. Lake El Estero was dammed in 1872 when tracks for the Southern Pacific Railroad were built along with a sand ridge separating it from the bay. The lake was further modified over time, including enlarging it and turning it into a fresh water lake.

The watershed tributary to Lake El Estero covers over 2,400 acres and has a range of land uses. The majority of the watershed area, 2014 acres, is pervious, and 404 acres are covered with non-pervious surfaces. The surface area of Lake El Estero is 18.6 acres. The surface flow from Aguajito and Iris Canyons is less than the water used for irrigation at the Lake El Estero Park Complex grounds, which have an estimated average demand of 40 acre-feet per year. The groundwater contribution to Lake El Estero has been estimated at 0.335 acre-feet per day, or 122 acre-feet per year. Water is pumped directly from the lake into the El Estero complex irrigation system, treated only with chlorine. Stormwater detention is provided by the lake, before being drained and pumped to the Monterey Bay, prior to and during large storm events to prevent flooding.

Fishery resources of the Lake El Estero watershed are limited to the modified estuary systems. Due to insufficient flows and both natural and human caused barriers, no anadromous salmonids or tidewater gobies are known to currently exist in the Lake El Estero watershed. Lake El Estero is currently stocked with various species of freshwater fish for recreational purposes (City of Monterey, 2004).

4.4.2.2 Special Status Species

Table 4.4-5, Special Status Species with the Potential to Occur in the Salinas River and Salinas Lagoon lists the special status species with the potential to occur in the Salinas River and Salinas Lagoon. These include the South-Central California Coast (SCCC) steelhead Distinct Population Segment (DPS) and its critical habitat and tidewater goby. As previously indicated, the Reclamation Ditch and Tembladero Slough also have potential to be steelhead habitat. Monterey roach is a special status species identified by CDFW as a Species of Special Concern. These listed species are described below.

Table 4.4-5
Special Status Species with the Potential to Occur in the Salinas River and Salinas Lagoon

Scientific Name	Common Name	Listing Status
Eucyclogobius newberryi	Tidewater Goby	Federally Endangered
Oncorhynchus mykiss	South-Central California steelhead	Federally Threatened
Lavinia symmetricus subditus	Monterey roach	California Species of Special Concern

In 2011, pink salmon (*O. gorbuscha*) was reported in the Salinas River. Although pink salmon were historically distributed in coastal streams, the Puget Sound region is regarded as the southernmost extent of recent spawning habitat. Pink salmon have been known to occur within California and have even been reported south of the San Francisco Bay in the San Lorenzo River; the pink salmon observations do not suggest a population within Salinas River (HDR Engineering, January 2015). Therefore, the species is not considered further in this analysis.

The SCCC steelhead species is federally listed as a threatened species. The SCCC steelhead includes all naturally spawned anadromous populations of *O. mykiss* in coastal river basins from the Pajaro River in Monterey County southward to but not including the Santa Maria River in San Luis Obispo County. Although *O. mykiss* exhibits both resident and anadromous life history characteristics, the SCCC steelhead includes only the anadromous life form of *O. mykiss*.

The Federal Endangered Species Act (ESA) requires that the National Marine Fisheries Service review the status of listed species under its authority at least every five years and determine whether any species should be removed from the list or have its listing status changed. In September 2012, NMFS completed a 5-year status review of the SCCC steelhead. Based upon a review of available information, NMFS recommended that the SCCC steelhead DPS remain classified as a threatened species.

Tidewater goby (*Eucyclogobius newberryi*), a federally listed endangered species, is known to inhabit coastal brackish water ranging from Tillas Slough near the Oregon border south to San Diego County (Monterey County Water Resources Agency, March 2013). The species is adapted to live in lagoon habitat and is generally not found in the freshwater portions of streams flowing into lagoons. Tidewater gobies were observed only once from the Salinas River Lagoon in 1946; monitoring efforts in the lagoon conducted from 2002 to 2013 indicated that no tidewater gobies were collected (Monterey County Water Resources Agency, March 2013). However, two tidewater gobies (*Eucyclogobius newberryi*) were captured during monitoring conducted in 2013 (Hagar Environmental Science, February 2014). In 2014, the tidewater goby was proposed to be reclassified as threatened as discussed further below.

Monterey Roach (*Lavinia symmetricus subditus*) is designated as a California Species of Special Concern, which is a designation conferred by the CDFW for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. Species of special concern are not necessarily afforded protection under the Fish and Game Code unless they are also identified in the code as California Fully Protected Species; the Monterey roach is not a California Fully Protected Species. The Species of Special Concern designation is intended by the CDFW for use as a management tool to take these species into special consideration when decisions are made concerning the development of natural lands.

South-Central California Coastal Steelhead Distinct Population Segment

Critical Habitat Designation

Critical Habitat for SCCC steelhead was designated in February 2000 and was reaffirmed in 2005. Section 3 of the ESA defines critical habitat as (i) the specific areas within the geographical area occupied by the species, at the time it is listed on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed." The freshwater primary constituent elements of critical habitat include: 1) spawning habitat, including spawning substrate, and adequate water quantity and quality; 2) freshwater rearing habitat including floodplain connectivity, and natural escape and velocity cover; and 3) freshwater migration corridors free of obstructions, with water quantity and quality conditions that allow movement (Monterey County Water Resources Agency, March 2013).

Critical Habitat within the Salinas River watershed is designated along the Salinas River from the Salinas River mouth upstream to 7.5 miles below the Santa Margarita Lake, Arroyo Seco River, Nacimiento River (below the dam), San Antonio River (below the dam), and the upper Salinas River tributaries (NMFS, 2007, Monterey County Water Resources Agency, March 2013). The Critical Habitat designation includes also Gabilan Creek, the Reclamation Ditch, Tembladero Slough, the Old Salinas River and Salinas River Lagoon, and Lower Salinas River.

Taxonomy and Population Trends

Based on genetic and distributional information, 41 historically independent populations of SCCC steelhead have been recognized in the DPS, including three populations in the Salinas River (Moyle et al, 2008). Three populations are recognized in the Salinas River due to its large size, which likely allows sufficient geographic isolation to maintain multiple populations. These 41 populations are divided into four biogeographical regions including (from north to south): Interior coast range, Carmel Basin, Big Sur Coast, and San Luis Obispo Terrace (Moyle et al, 2008). The Salinas River occurs within the Interior Coast Range Biogeographic Population Group (Monterey County Water Resources Agency, 2013).

The limited documentation on current abundance suggests the overall population in the SCCC steelhead is extremely small (HDR Engineering, January 2015). Estimating the magnitude of the departure of the population from historical conditions is hampered because the run size for most watersheds continues to be poorly characterized and major impacts leading to subsequent declines occurred prior to most modern fish investigations in the SCCC steelhead DPS. The sporadic presence of steelhead in many watersheds in the SCCC steelhead DPS further confounds assessment efforts. Nonetheless, investigations conducted since 1996 indicate that of the 39 watersheds that historically supported anadromous runs, virtually all continue to be occupied by native *O. mykiss*, though most of the populations are at historically low levels (National Marine Fisheries Service, December 2013.

Life History Overview

Steelhead are a form of rainbow trout that migrate to the ocean as juveniles and return to inland waters as adults to spawn. All steelhead within the SCCC steelhead DPS are considered “winter steelhead” based on their migratory timing and behavior; ascending streams during the winter when winter rainfall results in suitable flow and temperature (Moyle, 2002). SCCC steelhead require pools with low velocities in association with instream and near stream cover such as large woody debris, undercut banks, or submerged or overhanging vegetation, can provide desirable resting areas for migrating adult steelhead. The migration of adult SCCC steelhead is strongly associated with high winter and spring flows that provide a continuous hydrological connection between the ocean and upstream habitat (National Marine Fisheries Service, 2013). Adult upstream migration times vary according to life history type (e.g., winter run versus spring-run) and climatic conditions (i.e., the timing of higher winter and spring flows) (Monterey County Water Resources Agency, March 2013).

Winter steelhead fish are reported to enter freshwater to spawn between November 1 and April 30, with peak numbers occurring in January and February (Moyle, 2002). NMFS states that SCCC steelhead primarily migrate December through April in the Salinas Region (National Marine Fisheries Service, 2007). Steelhead spawn in cool, clear, well-oxygenated streams with suitable depth, current velocity, and gravel size, and typically select spawning areas at the downstream end of pools, in gravels ranging from approximately 0.5 to 4.5 inches in diameter. Eggs incubate for 25–30 days, depending on water temperatures, then hatch into alevins (larval stage). The alevins remain in the gravel for an additional 2–5 weeks after hatching, depending on temperature, before emerging in spring or early summer as steelhead juveniles (fry). Following emergence, fry feed in shallow, low-velocity areas such as stream margins and low-gradient riffles, and then move to faster, deeper water as they increase in size. In the summer and late-fall, as flows lessen and riffle area decreases, juvenile steelhead may move into pools. During winter as water temperatures decrease and flows increase, juveniles seek hydraulic refuge within pools, interstitial spaces in cobble and boulder substrates, or near large woody debris (Monterey County Water Resources Agency, March 2013).

As fry grow they develop marks on their sides and become known as “parr,” which is the juvenile life stage (Moyle, 2002). After 1 to 3 years of rearing in freshwater, most juvenile steelhead begin the process of smoltification and proceed to migrate downstream toward the ocean. Young steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles (National Marine Fisheries Service, 2007). Steelhead smolts may immigrate to the ocean from January through June. NMFS (2013) states that outmigration usually occurs in the late winter and spring. These fish may reside in the ocean for between 2 and 4 years (Moyle, 2002) prior to returning to spawn.

Habitat needs in the Salinas River, Reclamation Ditch, and Tembladero Slough for emigrating steelhead (smolts) likely are similar to those for rearing juvenile steelhead. Migrating smolts are particularly vulnerable to predation, and physical structure and cover (refugia) are important for survival of this life stage. Similar to rearing juveniles, outmigrants rely on the presence of adequate food and suitable resting pools. Lagoons and estuaries at the river mouth are often very important for the rearing of larger juveniles and may provide essential feeding opportunities for smolts prior to entering the ocean (Monterey County Water Resources Agency, March 2013).

Steelhead Habitat in the Salinas River

The mainstem Salinas River is a migration corridor for adult steelhead migrating from the ocean to spawn in tributaries (National Marine Fisheries Service, 2007). Kelts, smolts, and juveniles use the river to migrate downstream to the ocean or lagoon. The lower Salinas River has a sandy substrate with a broad channel with no spawning or rearing habitat present. Most spawning and rearing that does occur in the Salinas River Basin occurs in tributary streams (National Marine Fisheries Service, 2007). The Salinas River between the confluence with the Pacific Ocean and below the upstream dams is characteristic of a depositional environment. Specifically, the substrate is primarily sand throughout, and coarser gravel is only a minor component, primarily upstream of King City. Before Nacimiento and San Antonio Reservoirs were constructed, the Salinas River had little or no summertime flow in most years due to groundwater pumping. Even with present operations and release of cooler water from the reservoirs throughout the summer, water temperatures are too high for rearing juveniles. As such, steelhead use of upper Salinas River tributaries depends upon maintaining a migration corridor in the mainstem Salinas River. The current migration corridor of the lower Salinas River is limited by the availability of adequate flows to provide passage over long distances to suitable spawning and rearing habitat (National Marine Fisheries Service, 2007). Adequate migration flows are annually highly variable. Groundwater pumping has also affected these flows, and levees, channel maintenance, road crossings, and removal of riparian vegetation have reduced the availability and quality, of migration habitat for steelhead (National Marine Fisheries Service, 2007, Monterey County Water Resources Agency, 2013b).

Steelhead Habitat in the Salinas River Lagoon

Habitat conditions in the Salinas River Lagoon are generally not suitable for steelhead spawning or egg incubation, but could potentially support rearing. When the river mouth is open, the lagoon is tidally influenced and sustains saltwater conditions. When the river mouth is closed, the lagoon is typically fresh with good water quality conditions, specifically when Salinas River inflow is adequate and no saltwater intrusions occur. The transition period between saltwater and freshwater conditions may result in salinity stratification that can contribute to elevated temperatures and low dissolved oxygen levels, conditions not suitable for rearing juveniles. Thus, the lagoon is believed to be utilized primarily as a migration corridor by adult and juvenile steelhead.

Steelhead Habitat in the Reclamation Ditch

As indicated above, the Reclamation Ditch watershed has the potential to support steelhead trout (*Oncorhynchus mykiss*). Potential salmonid habitat exists upstream of the Reclamation Ditch, although the extent and quality of such habitat has not been well quantified. However, the presence of suitable habitat in Gabilan Creek along with past observations of one individual steelhead trout in Gabilan Creek indicate that the Reclamation Ditch watershed should be considered as potential steelhead habitat (Hagar Environmental Science, February 2015). Spawning habitat is only found within the upper foothill and mountainous reaches of the Gabilan Range where suitable substrate (gravel/cobble) is dominant and stream flow is still abundant (CCoWS, 2006). As previously indicated, channel and flow conditions vary widely in the Reclamation Ditch watershed. The streams of the Gabilan subwatershed are non-perennial in the uppermost sections, perennial or near-perennial in certain reaches mid-way down the range, and non-perennial in the lowest parts of the subwatershed. Additionally, the middle reaches of the Reclamation Ditch are characterized by degraded water quality and maintained drainage channels devoid of vegetation that do not provide cover for fish. In order to reach the spawning habitat upstream, steelhead would have to navigate through a series of man-made obstacles. Suitable habitat conditions for rainbow trout/steelhead are also likely to exist in the upper reaches of Alisal, Towne, and Mud Creeks (Casagrande and Watson, 2006a).

Channel conditions vary widely in the Reclamation Ditch watershed. The streams of the Gabilan subwatershed are non-perennial in the upper-most sections, perennial or near-perennial in certain reaches mid-way down the range, and then again non-perennial in the lowest parts of the subwatershed as the streams begin to flow over old alluvium at the foot of the range (Casagrande and Watson, 2006a).

The flow regime varies significantly in different parts of the watershed. The middle to lower sections of the watershed have less standing water in the dry season, and more runoff in the wet season. The entire system is highly episodic, with little or no flow for most of the time, interrupted occasionally by large runoff events during the wet season (Casagrande and Watson, 2006a).

Results of Fishery Studies in the Salinas River Watershed

MCWRA has conducted fisheries studies on the Salinas River Watershed in the Nacimiento, Arroyo Seco, and Salinas Rivers and the Salinas River Lagoon. These studies focused primarily on the tributaries to the Salinas River because the tributaries historically provided the best spawning and rearing habitats in the watershed. Additionally, MCWRA measured conductivity, dissolved oxygen, and water temperature on the Salinas River and Lagoon and conducted an impoundment survey at the SRDF.

In 2010 MCWRA developed and implemented a Juvenile Outmigration Monitoring Program to: (1) determine the abundance of downstream migrating steelhead smolts in the Salinas River Basin; (2) determine the relative contribution of the tributaries on smolt abundances to the overall Salinas River Basin abundance; (3) characterize the migration timing of steelhead smolts; and (4) evaluate potential relationships to environmental factors. Sampling was conducted from March 12 through May 28 during 2010 at three locations: Salinas River, Arroyo Seco River and Nacimiento River (Monterey County Water Resources Agency, April 2011) and during the same time period in 2011 (Monterey County Water Resources Agency, April 2012).

During the November 2010 impoundment survey, no *O. mykiss* were observed (Monterey County Water Resources Agency, April 2011). However, electrofishing and seining surveys conducted on the Nacimiento and Arroyo Seco Rivers during 2010 resulted in capture of *O. mykiss* on the Arroyo Seco River (Monterey County Water Resources Agency, April 2011). During the 2010 juvenile outmigration survey period, a total of 140 *O. mykiss* were captured in the Arroyo Seco River, which led to an abundance estimate of 480 juvenile *O. mykiss*. No *O. mykiss* were captured in the Nacimiento River and only two *O. mykiss* were captured on the Salinas River, so no abundance estimates could be generated (Monterey County Water Resources Agency, April 2011).

The impoundment survey was also conducted during 2011, but was not completed due to unforeseen environmental conditions not allowing efficient sampling to occur. Electrofishing and seining was also conducted during 2011 in the Nacimiento and Arroyo Seco rivers. Twenty eight *O. mykiss* were captured in the Arroyo Seco River and no *O. mykiss* were captured in the Nacimiento River. The Salinas Basin Juvenile *O. mykiss* Outmigration Monitoring report published in September 2011 documented the second year of outmigration monitoring in the Salinas River watershed. A total of 64 *O. mykiss* were captured in the Arroyo Seco River, resulting in an abundance estimate of 332 *O. mykiss* for the sampling season (Monterey County Water Resources Agency, April2012). No *O. mykiss* were captured in the Nacimiento River and only two *O. mykiss* were captured on the Salinas River, so no abundance estimates could be generated (Monterey County Water Resources Agency, April 2012). Non-salmonid species captured during the 2010 and 2011 surveys conducted by MCWRA (2011, 2012) are presented in those reports.

The 2011 study concluded that similar to 2010 there were no apparent overall relationships between downstream migration timing, water temperature and dissolved oxygen (MCWRA, 2012). The report further suggested that that migration timing may be affected by turbidity, with small peaks in migration occurring during small changes in turbidity. However, because turbidity and flow vary in correlation to each other, it is difficult to identify the influences of turbidity and flow independently (Monterey County Water Resources Agency, 2012).

The Monterey County Water Resources Agency conducts sandbar management at the mouth of the Salinas River as part of its flood control activity. The Lagoon Monitoring Program, conducted by MCWRA since 2002, was altered in 2010 to be consistent with the

NMFS 2009 Biological Opinion for sandbar management at the mouth of the Salinas River. The Biological Opinion calls for fish population sampling in the Salinas River Lagoon during spring (April and May), summer (June through August), and fall (October or early November). Sampling is focused on capturing rearing juvenile steelhead that may be present in the lagoon with the objective to determine whether steelhead are present, and evaluate steelhead distribution, relative abundance (catch per unit effort), and condition (Monterey County Water Resources Agency as cited in HDR Engineering, January 2015).

The 2011 lagoon monitoring began in April of that year with high flows from the Salinas River and an open lagoon. The lagoon was closed for the October sampling. For the first time since 2002, juvenile steelhead were captured during each of the three sampling periods. However, only one individual was captured during each of the three surveys. The winter conditions of 2010-2011 led to good migration conditions and the flow at Spreckels remaining high through late-May, led to conditions at Arroyo Seco that would support adult steelhead migration, which is in agreement with the smolt trapping conducted during 2011 that documented migration of juvenile steelhead from the Arroyo Seco River, with the majority of migrating juveniles being smolts and silvery parr. Smolts would pass quickly through the estuary while parr and young-of-year may spend time rearing in the estuary. The low number of parr and young-of-year migrating from the Arroyo Seco River is consistent with the lack of observed steelhead rearing in the Salinas River lagoon (Monterey County Water Resources Agency as cited in HDR Engineering, January 2015).

The water conditions in 2012 were dry and resulted in low flows during migration periods for adult steelhead in the Salinas River system, but adequate flows for migrating smolts. The late season rain in March and April led to high flows likely beneficial for smolts. With a full impoundment behind the inflatable dam, a minimum of 2 cfs was bypassed to the Salinas River Lagoon for 27 days (October 20th thru November 15th). During the irrigation season flows were bypassed through the fish ladder and the regulating weir at the Salinas River Diversion Facility and averaged 10-22 cfs throughout the season (Monterey County Water Resources Agency as cited in HDR Engineering, January 2015).

The 2007 NMFS Biological Opinion stated that one of the terms and conditions of the Biological Opinion requested that adult steelhead escapement monitoring be conducted for a minimum of 10 years, unless NMFS and MCWRA agree to an alternative timeframe. In 2011 an adult steelhead escapement monitoring program was set up, but subsequently the weir system became inoperable. Due to multiple factors (per MCWRA Senior Water Resources Hydrologist, a DIDSON camera was installed on February 24 and removed on March 20 and not reinstalled due to flood conditions), monitoring was not conducted during the entire timeframe outlined in the Biological Opinion (December 1 to March 31). Between January 19, 2011 and February 17, 2011, 23 steelhead passage events were detected by the system at the Salinas River Weir, 18 upstream passages, and 5 downstream passages, with a total of 13 adult steelhead documented. Although steelhead cannot be distinguishable from salmon with silhouettes alone, based on passage timings and the fact that the Salinas River is not known to support any salmon species, the assumption was made that silhouettes observed were steelhead (Monterey County Water Resources Agency as cited in HDR Engineering, January 2015).

During the 2012 period, monitoring protocols were amended regarding the weir and flow events From November 30, 2011 through April 2, 2012, the system recorded a net upstream passage of 17 adult steelhead (19 recorded passing upstream and 2 recorded passing downstream), which was an increase of four adult steelhead upstream passages over the previous monitoring season. No apparent relationships between migration timing, flow, water temperature, turbidity, and dissolved oxygen were identified during the 2012 migratory period for steelhead. However, failure to detect such trends and relationship is (at least partially) attributable to a very small population size of steelhead in the Salinas River basin (Monterey County Water Resources Agency as cited in HDR Engineering, January 2015). Furthermore, the 2011/2012 winter was relatively "dry" that resulted in only two very small peaks in flow. Future monitoring efforts may yield additional information and elucidate relationships between upstream migration of steelhead and environmental variables.

Tidewater Goby

Status and Distribution

The tidewater goby (*Eucyclogobius newberryi*) are a small, short-lived California endemic species that inhabits coastal brackish water habitats entirely within California, ranging from Tillas Slough (mouth of the Smith River, Del Norte County) near the Oregon border south to Agua Hedionda Lagoon (northern San Diego County). This species was federally listed as endangered in 1994, and is considered to be a species with moderate threats and a high potential for recovery (U.S. Fish and Wildlife Service, 2005). Tidewater goby has had fully protected status from the State of California since 1987.

The 2013 final rule on the Designation of Critical Habitat for Tidewater Goby revised the 2000 (65 FR 69693) and 2008 (73 FR 5920) critical habitat ruling. Salinas Lagoon is not designated as Critical Habitat for the species.

The USFWS 5-year review conducted in 2007 recommended down-listing to threatened status (U.S. Fish and Wildlife Service, 2007). The USFWS has determined that north of Orange County, there are more populations than were known at the time of the listing, that the threats to those populations are less severe than previously believed, and that the tidewater goby has a greater ability than was known in 1994 to re-colonize habitats from which it is temporarily absent. The USFWS has determined that reclassifying the tidewater goby as threatened is warranted, and, proposed reclassification in 2014 (Federal Register: March 13, 2014; Volume 79, Number 49).

Tidewater goby were reported in low to moderate abundance at three locations in the Salinas River Lagoon in August 1946, and as indicated above, tidewater gobies were recently collected again there in 2013 (Hagar Environmental Science, February 2015). Tidewater goby have also been found in Bennett Slough (northern end of Elkhorn Slough) (USFWS 2005). The critical habitat designation for tidewater goby includes Bennett Slough (north of the project area) and the Salinas River (U.S. Fish and Wildlife Service, 2013 as cited in Hagar Environmental Science, February 2015).

The USFWS characterizes tidewater goby populations (i.e., localities) along the California coast as metapopulations (a group of distinct populations that are genetically interconnected through occasional exchange of animals) (U.S. Fish and Wildlife Service, 2007). While individual populations may be periodically extirpated under natural conditions, a metapopulation is likely to persist through colonization or re-colonization events that establish new populations (USFWS 2007). Local populations of tidewater gobies occupy coastal lagoons and estuaries that in most cases are separated from each other by the open ocean. Some tidewater goby populations persist on a consistent basis (potential sources of individuals for re-colonization), while other tidewater goby populations appear to experience intermittent extirpations. Some localities where tidewater gobies have been extirpated apparently have been re-colonized when extant populations were present within a relatively short distance of the extirpated population (i.e., less than 6 miles (10 kilometers)). More recently, another tidewater goby researcher has suggested that re-colonizations have typically been between populations separated by no more than 10 miles (Swift 2007 cited in USFWS 2007). Flooding during winter rains can contribute to re-colonization of estuarine habitats where tidewater goby populations have previously been extirpated. The closest known populations that could recolonize the Salinas River Lagoon are in the Pajaro River and Elkhorn Slough (USFWS 2005, Kukowski 1972, Swift et al. 1989 as cited in Hagar Environmental Science, February 2015). The mouth of Elkhorn Slough is connected to the Salinas River Lagoon through the Old Salinas River. The mouth of the Pajaro River is about 3 miles north of the mouth of Elkhorn Slough and about 7 miles north of the Salinas River Lagoon.

Life History

Tidewater goby are uniquely adapted to coastal lagoons and the uppermost brackish zone of larger estuaries, rarely invading marine or freshwater habitats (U.S. Fish and Wildlife Service, 2005). Tidewater gobies are small fish (rarely exceeding two inches in length) that generally live for only 1 year, with few individuals living longer than a year. Reproduction occurs at all times of the year; the peak of spawning activity occurs during the spring and then again in the late-summer. Fluctuations in reproduction are probably due to death of breeding adults in early summer and colder temperatures or hydrological disruptions in winter. Reproduction takes place in water between 48°F and 77°F (9°C and 25°C) and at salinities of 2 to 27 parts per thousand (USFWS, 2005).

Male tidewater gobies begin digging breeding burrows in relatively unconsolidated, clean, coarse sand (averaging 0.5 millimeter [0.02 inch] in diameter), in April or May after lagoons close to the ocean (USFWS 2005). After hatching, the larval tidewater gobies emerge from the burrow and swim upward to join the plankton. Tidewater gobies are known to be preyed upon by native species such as small steelhead, prickly sculpin, and staghorn sculpin (USFWS, 2005).

Tidewater goby abundance fluctuates spatially and seasonally, due in part to their predominantly annual life cycle (Swenson 1999 as cited in Hagar Environmental Science, February 2015). Tidewater goby populations also vary greatly with the varying environmental conditions (e.g., drought, El Niño) among years (USFWS, 2007). Their short life span and restricted habitat make individual populations vulnerable to unique catastrophic events (floods, toxic events, introduction of predator species, drought, or habitat alteration). Nevertheless, available information indicates that *Eucyclobius* is tolerant of a very wide range of salinity, temperature, and other water quality conditions.

Habitat Characteristics

The tidewater goby favors the calm conditions that prevail when the lagoons are cut off from the ocean by beach sandbars. They are bottom dwellers and are typically found at water depths of less than three feet. Tidewater gobies typically inhabit areas of slow-moving water, avoiding strong wave action or currents. Particularly important to the persistence of the species in lagoons is the presence of backwater, marshy habitats, which provide refuge habitat during winter flood flows. Optimal lagoon habitats are shallow, sandy-bottomed areas, surrounded by beds of emergent vegetation. Open areas are critical for breeding, while vegetation is critical for overwintering survival (providing refuge from high flows) and probably for feeding as well (Moyle 2002 as cited in Hagar Environmental Science, February 2015).

All sizes of *E. newberryi* usually occur at the upper end of lagoons at salinities of 10 ppt or less. Of 60 collections, 65% were at 0-10 ppt, 20% were at 10-20 ppt, 17% at 20-30 ppt, and 2% at 42 ppt (Swift, 1989 as cited in Hagar Environmental Science, February 2015). The collection at 42 ppt was made at Bennett Slough, a tributary of Elkhorn Slough in Monterey County. In lab tests conducted by the CDFW, tidewater gobies were maintained in freshwater at 10-15 ppt, 20 ppt, and normal seawater (33 ppt) with reproduction taking place under all four conditions (Worcester and Lea 1996 as cited in Hagar Environmental Science, February 2015). Differences in reproductive success, if any, were not reported. Worcester and Lea also held tidewater gobies in hypersaline water (45-54 ppt) for 6 months with no mortality. In salinity tolerance tests reported by Swift et al. (1989), tidewater gobies in salinities above 41 ppt experienced high mortality. In an experiment where salinity increased slowly due to evaporation, over half the gobies survived hypersaline conditions up to 1.75 times that of seawater.

Criteria for lagoon conditions that favor tidewater gobies include: little or no channelization; allowing closure to the ocean for much of the year so that tidal fluctuation is absent or minimal; fresh unconsolidated sand is optimal for reproduction; high quality of inflowing water to increase habitable area of a lagoon in summer. Nutrient enrichment can stimulate algal blooms, deplete oxygen, and lead to hydrogen sulfide formation. Most fish species are intolerant of low dissolved oxygen and high hydrogen sulfide concentrations. Non-native predatory fish should be excluded. Centrarchid fish (sunfish and bass) and tidewater gobies are not usually found together and may not be able to coexist (Swift et al. 1989 as cited in Hagar Environmental Science, February 2015).

Gobies may move upstream during winter rains and high flows of inlet streams (Swift et al. 1989) as well as during the summer when algal blooms and hydrogen sulfide forms in the substrate and enters the water column. During this period most fish are at the upper end of lagoons where freshwater inflow occurs or at the seaward end where occasional waves wash into the Lagoon (Swift et al. 1989 as cited in Hagar Environmental Science, February 2015).

Currently, the majority of the most stable and largest tidewater goby populations consist of lagoons and estuaries of intermediate sizes (5 to 125 acres) that have remained relatively unaffected by human activities (USFWS, 2005). Many of the localities where tidewater gobies are regularly present may be “source” populations for localities that intermittently lose their tidewater goby populations. Large wetlands are likely to have lower rates of extirpation than small wetlands. In addition, populations at small sites were sensitive to drought, presumably because droughts can eliminate suitable habitat at small wetlands (USFWS, 2007).

Monterey Roach

Monterey Roach (*Lavinia symmetricus subditus*) is designated as a California Species of Special Concern (CSC) as explained above. The Monterey form of California Roach formerly were widely distributed throughout streams in the Monterey Bay drainage, however, they are currently less widely distributed due to habitat loss and interspecific competition (Monterey County Water Resources Agency, March 2013). They tend to be most abundant when found by themselves or with just one or two other species. In the absence of fish predators, roach will utilize the open waters of pools; otherwise they often stay within pool margins and amongst shallow water areas. Roach are omnivorous, mainly feeding on the bottom, but they can also feed on drift organisms such as terrestrial insects (Monterey County Water Resources Agency, March 2013.

Little is known regarding the current status and distribution of Monterey roach in the Salinas River and nearby watersheds. Monterey roach were collected on the Salinas River at River Mile 109 during recent rotary screw trap surveys (Monterey County Water Resources

Agency as cited in HDR Engineering, January 2015). However, roach have not been reported to occur in the lower Salinas River, downstream of the Proposed Project. Monterey roach have been reported to occur in the warmwater reaches of neighboring watersheds, including lower Natividad Creek/Laurel Pond, the lower Santa Rita Creek drainage, the Reclamation Ditch, Tembladero Slough, and the Old Salinas River (HDR Engineering, January 2015).

4.4.3 Regulatory Framework

4.4.3.1 Federal

Federal Endangered Species Act (ESA)

Provisions of the ESA of 1973 (16 USC 1532 et seq., as amended) protect federally listed threatened or endangered species and their habitats from unlawful take. Listed species include those for which proposed and final rules have been published in the Federal Register. The ESA is administered by the Service or National Oceanic and Atmospheric Administration Marine Fisheries Service (NOAA Fisheries). In general, NOAA Fisheries is responsible for the protection of ESA-listed marine species and anadromous fish, whereas other listed species are under Service jurisdiction.

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered or threatened. Take, as defined by ESA, is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the fish or wildlife…including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." In addition, Section 9 prohibits removing, digging up, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. Section 9 does not prohibit take of federally listed plants on sites not under federal jurisdiction. If there is the potential for incidental take of a federally listed fish or wildlife species, take of listed species can be authorized through either the Section 7 consultation process for federal actions or a Section 10 incidental take permit process for non-federal actions. Federal agency actions include activities that are on federal land, conducted by a federal agency, funded by a federal agency, or authorized by a federal agency (including issuance of federal permits).

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 651 Et Seq.) requires all federal agencies to consult with and give strong consideration to the views of the USFWS, NOAA Fisheries, and state wildlife agencies regarding the fish and wildlife impacts of projects that propose to impound, divert, channel, or otherwise alter a body of water.

The Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) establishes a management system for national marine and estuarine fishery resources. This legislation requires all federal agencies to consult with NMFS regarding all actions or proposed actions permitted, funded, or undertaken that might adversely affect essential fish habitat (EFH). EFH is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The legislation states that migratory routes to and from anadromous fish spawning grounds should also be considered EFH. The phrase "adversely affect" refers to the creation of any impact that reduces the quality or quantity of essential fish habitat. The Magnuson-Stevens Act states that consultation regarding EFH should be consolidated, where appropriate, with the interagency consultation, coordination, and environmental review procedures required by other federal statutes, such as NEPA, the Fish and Wildlife Coordination Act, the federal Clean Water Act, and ESA. In most cases, the environmental compliance required for federal activities will satisfy consultation requirements under the Magnuson-Stevens Act.

Clean Water Act 404 Permit

The U.S. Army Corps of Engineers administers compliance with Section 404 of the Clean Water Act. Section 404 regulates activities that involve dredging and/or filling of waters deemed under federal jurisdiction, or as "Waters of the United States." The two types of permits issued by the Corps under Section 404 are Nationwide Permits and Individual Permits. If impacts to wetlands are relatively small and a project falls into a specific category of uses already permitted, project proponents may apply for a Nationwide Permit, which is easier to obtain than an Individual Permit.

4.4.3.2 State

California Endangered Species Act (CESA)

The CESA was enacted in 1984. The California Code of Regulations (Title 14, §670.5) lists animal species considered endangered or threatened by the state. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. Section 2080 of the Fish and Game Code prohibits "take" of any species that the commission determines to be an endangered species or a threatened species. A Section 2081 Incidental Take Permit from the CDFW may be obtained to authorize "take" of state listed species.

California Fish and Game Code Sections 1600-1616

Sections 1600-1607 of the DFG Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the CDFW before beginning construction. If the CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. The CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider.

California Department of Fish and Wildlife Authority

CDFW is a Trustee Agency with responsibility under CEQA for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used under CEQA (Division 13 (commencing with Section 21000) of the Public Resources Code).

The Department also has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered. If the Project could result in the "take" of any species listed as threatened or endangered under the California Endangered Species Act (CESA), an Incidental Take Permit may need to be obtained for the Proposed Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (Public Resources Code Sections 21001(c), 21083, CEQA Guidelines Sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports a Statement of Overriding Consideration (SOC). The CEQA Lead Agency's SOC does not eliminate the project proponent's obligation to comply with Fish and Game Code Section 2080.

Central Coast Regional Water Quality Control Board and State Water Resources Control Board

The State Water Resources Control Board (SWRCB) and the Central Coast Regional Water Quality Control Board (RWQCB) establish policies and procedures that are designed to ensure the protection of surface water and groundwater from degradation. The Central Coast RWQCB establishes beneficial uses of surface and groundwater resources, as contained in its Water Quality Control Plan for the Central Coast Central Coast RWQCB. The RWQCB administers the National Pollutant Discharge Elimination System permitting and Section 401 water quality certification processes.

Under the authority of CWA Section 303(d), the RWQCB and SWRCB list water bodies as impaired when not in compliance with designated water quality objectives and standards. Section 303(d) also requires preparation of a management program for waters identified by the state as impaired. As stated above, the Salinas River, Reclamation Ditch, Blanco Drain, and Tembladero Slough are listed as impaired waterbodies under section 303(d) of the Clean Water Act.

4.4.3.3 Local Plans and Regulations

In addition to the general requirements of CEQA and California laws and regulations, fishery resource issues may be addressed in local General Plans and municipal codes of local jurisdictions within the Proposed Project area. Fishery resources potentially affected by the Proposed Project are all located within the unincorporated area of Monterey County. As indicated above in **Section 4.4.2.1**, there are no anadromous salmonids or tidewater gobies in Lake El Estero in the City of Monterey. **Table 4.4-6, Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Biological Resources: Fisheries** summarizes County plans, policies and regulations pertaining to fish biological resources that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. **Table 4.4-6** provides a review of project consistency and/or conflicts with such plans, policies, and regulations. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulation, the finding and rationale is noted. In some cases, a potential inconsistency or conflict would be avoided with implementation of mitigation measures included in this EIR, which is explained.

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Table 4.4-6
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Biological Resources: Fisheries

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific Policy, or Program	Project Consistency with Policies, and Programs
Monterey County	Monterey County General Plan	Safety	Salinas Pump Station Diversion Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion	**OS-4.1**: Federal and State listed native marine and fresh water species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant shall be protected. Species designated in Area Plans shall also be protected.	**Consistent with Mitigation**: Construction and operation of the Proposed Project would protect federal and state-listed fish species. (See Impacts BF-1 and BF-2.)
Monterey County	Monterey County General Plan	Safety	Salinas Pump Station Diversion Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion	**OS-5.16**: A biological study shall be required for any development project requiring a discretionary permit and having the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.	**Consistent**: Biological reports have been prepared regarding fish resources, and construction and operation of the Proposed Project would not reduce habitat of a fish species, cause a fish population to drop below self-sustaining levels, threaten to eliminate a fish community, or substantially reduce the number or restrict the range of an endangered or threatened fish species. (See Impact BF-3.)
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion	**Policy 2.3.3.B2:** All development, including dredging, filling, and grading within stream corridors, shall be limited to activities necessary for flood control purposes, water supply projects, improvement of fish and wildlife habitat, or laying of pipelines when no alternative route is feasible, and continued and future use of utility lines and appurtenant facilities. These activities shall be carried out in such a manner as to minimize impacts from increased runoff, sedimentation, biochemical degradation, or thermal pollution. When such activities require removal of riparian plant species, re-vegetation with native plants shall be required.	**Consistent with mitigation**: Construction of the proposed diversion would be for a water supply project and impacts would be minimized. There would be no removal of riparian or other vegetation (See Impacts BF-1 and BF-2.)
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion	**Policy 2.3.3.B6:** Dredging or other major construction activities shall be conducted so as to avoid breeding seasons and other critical phases in the life cycles of commercial species of fish and shellfish and other rare, endangered, and threatened indigenous species.	**Consistent with mitigation**: In-water construction activities would be scheduled to avoid steelhead migration periods. (See Impacts BF-1.)
Monterey County	North County Land Use Plan	Water Resour-ces	Tembladero Slough	**Policy 2.5.2.4** Adequate quantities of water should be maintained instream or supplied to support natural aquatic and riparian vegetation and wildlife during the driest expected year.	**Consistent with Mitigation**: Operation of the Proposed Project with Mitigation Measures BF-2 would ensure adequate quantities of water are maintained to support federal and state-listed fish species during the driest expected year (See Impact BF-2.)

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4.4.4 Impacts and Mitigation Measures

4.4.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, a project would result in significant impacts related to fishery resources if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
b. Interfere substantially with the movement of any native resident or migratory fish species or impede the use of native wildlife nursery sites;
c. Substantially reduce the habitat of a fish species, cause a fish population to drop below self-sustaining levels, threaten to eliminate a fishery community, or reduce the number or restrict the range of a rare or endangered species;
d. Conflict with any local policies or ordinances protecting fishery resources; or
e. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

No additional significance criteria are needed to comply with the CEQA-Plus[1] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

In order to apply the significance criteria, specific, measurable indicators have been identified to compare baseline (without project) conditions with conditions with the Proposed Project operations. The Proposed Project operations would potentially alter fish habitat conditions by changing flow patterns, as flows would be diverted at certain locations and times of the year in varying amounts in the Salinas River and Reclamation Ditch. Therefore, impact indicators for this assessment are primarily related to changes in flow and resulting potential effects that a reduction of flows would have on steelhead migration and passage, including adult immigration (upstream) and juvenile and smolt outmigration (downstream). Relative changes in modeled flow and predicted changes in frequency of the occurrence of migratory conditions based on flow-based passage criteria, were used as quantitative indicators of potential effects to steelhead as a result of the Proposed Project. The Proposed Project includes construction of facilities to divert flows that may result in construction-related impacts.

Based on review of relevant flow indicators by the EIR consultants (HDR Engineering and Hagar Environmental Science), the following would be indicators of potential significant impacts:

- *Stream Flow Changes* – 10% or greater. A 10% decrease in flow relative to existing conditions was defined as an impact indicator based on previous studies conducted by the U.S. Fish and Wildlife Service, in which reductions in flow of 10% or greater were identified as changes that could be sufficient to reduce habitat quantity or quality to an extent that could significantly affect fish (Trinity River Mainstem Fishery

[1] To comply with applicable federal statutes and authorities, EPA established specific "CEQA-Plus" requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

Restoration Draft EIS/EIR, USFWS et al. 1999 as cited in HDR Engineering, January 2015). The Trinity River EIS/EIR further states, "…[t]his assumption [is] very conservative…[i]t is likely that reductions in streamflows much greater than 10% would be necessary to significantly (and quantifiably) reduce habitat quality and quantity to an extent detrimental to fishery resources." In addition, the San Joaquin River Agreement EIS/EIR (USDOI et al., 1999 as cited in HDR Engineering, January 2015) also used these criteria thresholds that were derived based on the ability to accurately measure stream flow discharges to ±10%. The San Joaquin River Agreement EIS/EIR considered flow changes of less than ±10% to be insignificant. As indicated in the Freeport Regional Water Project Draft EIS/EIR (JSA, 2003 as cited in HDR Engineering, January 2015):

> "Relative to the base case, a meaningful change in habitat is assumed to occur when the change in flow equals or exceeds approximately 10%. The 10% criterion is based on the assumption that changes in flow less than 10% are generally not within the accuracy of flow measurements, and will not result in measurable changes to fish habitat area."

The impact assessment for this EIR relies on previously established information and, therefore, evaluates changes in monthly flow based on differences in frequency of daily flow changes of 10% or greater. Specifically, a change of 10% or greater in long-term flow, as expressed by flow exceedance probabilities, is considered an indicator of potential impact on SCCC steelhead.

It is noted that using an analysis of flow exceedance is complicated by the runoff patterns in coastal streams like the Salinas River. Coastal, rain-dominated streams display substantial variation in flows during most months, as further explained in **Appendix F rev**. Therefore, substantial flow reductions, as indicated by reductions of 10% or more, occur more frequently at lower flows because small reductions in flow represent a large percentage of the total flow. As such, evaluating only the percentage of time when flow reductions of 10% or more occur may be misleading when considered as an indicator of impacts on biological resources and their habitats because a 10% reduction in flow would not necessarily result in a substantial loss of migratory habitat or a substantial reduction in passage potential, as further discussed below. In such cases, best professional judgment is used to determine whether impacts associated with these reductions would be considered significant.

- *Temporal Considerations* – A change in flow that occurs 10% of the time. Duration and timing are important components of a flow regime, and therefore, evaluating quantitative changes in flow magnitude during an analytical period (i.e., migration periods) could artificially overstate or understate impacts. However, a paucity of information exists regarding site-specific effects of changes in flow over specific durations. Thus, utilizing a change in flow that occurs 10% of the time during an analytical evaluation period was used as an indicator of a duration and timing of flow change that could result in an impact on migrating steelhead.

- *Passage Thresholds* – Changes in minimum flow thresholds needed for steelhead migration. The potential for changes in flows resulting from implementation of the Proposed Project to impact SCCC steelhead in the Salinas River, Reclamation Ditch, and Tembladero Slough is dependent on the ability of the species to use the affected reaches as a migratory corridor. Flow levels that provide suitable conditions for upstream and downstream passage in the Salinas River were established based on available literature and onsite evaluation at potential passage impediments. Migration flows for the Reclamation Ditch were estimated as part the studies conducted for this EIR. These flow values are treated as thresholds, below which passage is impaired, and serve as indicators of potential impact to passage for upstream migrating adults and downstream migrating juveniles and smolts.

Salinas River. Comparisons of modeled flows for the Proposed Project, relative to the baseline scenario (the Existing Condition scenario), were conducted for the life stages and life history periods for steelhead that are listed below. These time periods were selected to evaluate the bulk of the upstream migration and downstream emigration periods and are intended to encompass the majority of steelhead migration in the affected water bodies, including the peak migration periods, without overestimating impacts.

a. Adult Immigration (December through April)
b. Juvenile and Smolt Emigration (March through June)

For the Salinas River, passage flow indicator values were evaluated based on past studies, including thresholds developed by the Monterey County Water Resources as part of the Salinas Valley Water Project Master EIR and the biological opinion of the effects of the Monterey County Water Resources Agency, Salinas Valley Water Project in Monterey County, on California South-Central California Coast Steelhead DPS and its critical habitat (NMFS 2007), discussed above in **Section 4.4.2.1**. Identified flows for different life stages are summarized on **Table 4.4-2**. Based on this review, **Table 4.4-7, Threshold Flows for Maintenance of Steelhead Migration the Lower Salinas River, Downstream of Spreckels** summarizes the passage flow indicator values considered in evaluating impact significance for maintenance of steelhead migration in Salinas River.

Although the conditions assessed by MCWRA (2001) were addressed differently in the Biological Opinion for the Salinas Valley Water Project (NMFS 2007 SVWP BO), MRWPCA and its biologists determined that effects on migration conditions as described in MCWRA (2001) would provide an accurate assessment of potential Proposed Project effects on steelhead within the Salinas River due to the Proposed Project. The study reach addressed in the NMFS 2007 SVWP BO (NMFS, 2007; NMFS, 2005; MCWRA, 2005) to assess channel conditions and relevant passage criteria did not include the reach downstream of Spreckels and therefore did not directly address channel conditions in the Salinas River that would be affected by the GWR Project. Channel conditions downstream of Spreckels differ from those evaluated for fish passage upstream of the Proposed Project due to variation in channel geometry (width), vegetation, flood facilities and flow (MCWRA 2013). MRWPCA and its consultants considered these variations as sufficient reason to address fish passage within this reach using standard passage criteria as provided in Table 4.4-7Rev of the Draft EIR.

Because the maximum potential diversion rate from the Salinas River resulting from the Proposed Project is 6 cfs, based on an evaluation threshold of 10 percent, MRWPCA and its consultants determined that significant impacts could occur when baseline flows are 65 cfs or less. Because the Biological Opinion prescriptions are several fold greater than the flows potentially affected by the Proposed Project, the Draft EIR focused on conditions within the Proposed Project area that might be affected by the Proposed Project's maximum diversion rate at a more refined level of detail and specific to the affected reach below the diversions points.

Nevertheless, to address requests in comments on the Draft EIR, the analysis was expanded in this Final EIR to further evaluate potential project-related effects to fish passage based on the NMFS 2007 SVWP BO requirements. Using the NMFS 2007 SVWP BO flows of 150 cfs and 300 cfs for January through mid-March, and mid-March through May, respectively, the expanded analysis shows that the Proposed Project would not change the frequency or duration of suitable fish passage conditions, further supporting the less-than-significant impact conclusions of the Draft EIR.

Table 4.4-7Revised
Threshold Flows for Maintenance of Steelhead Migration in the Lower Salinas River, Downstream of Spreckels

Life stage	Required Flow Depth	Channel Width	Threshold Flow
NMFS (2007)			
Adult Immigration	1.0 feet	10 ft across riffle crest	150cfs
Adult Immigration	NA	NA	260cfs
Juvenile and Smolt Emigration	1.0 feet	10 ft across riffle crest	<150cfs
Juvenile and Smolt emigration	NA	NA	300cfs
Adult Immigration	0.6 feet	25% of channel	72 cfs
Adult immigration	0.6 feet	8 feet (min)	60 cfs
Juvenile and Smolt Emigration	0.4 feet	25% of channel	56 cfs
Juvenile and Smolt Emigration	0.4 feet	8 feet (min)	50 cfs

Reclamation Ditch. The Reclamation Ditch stream channel conditions were found to be primarily ditches or drainage canals that generally have steep side slopes without native riparian vegetation (**Appendix G-1**). Minimum flows for migration of both adult steelhead moving upstream to spawn and smolts moving downstream to the ocean were estimated by Hagar Environmental Science (February 27, 2015, Passage Memo). The estimates were developed based on using channel geometry measurements and the Manning equation to make an approximation of minimum passage flow needs. This method gives an "order-of-magnitude" approximation, but there is a potential for error of +/-30%. The methodology and results are explained in **Appendix G-2**.

Minimum passage flow thresholds were estimated at two critical passage sites: the USGS stream gage weir at San Jon Road and at a site near Boronda Road, both of which are downstream from the proposed Reclamation Ditch Diversion site. For the Reclamation Ditch, migration seasons were defined to encompass the major period for each life stage typical of the Salinas River basin: December through April for adults and March through May for smolts. Passage in Tembladero Slough is not expected to be influenced by a diversion near Castroville since Tembladero Slough is tidal up to this area and backwatering of the channel prevents formation of critical riffles or other shallow locations. **Table 4.4-8, Minimum Passage Flow Estimates (in cfs) for Steelhead Migration in Reclamation Ditch Downstream of Davis Road** summarizes the passage flow indicator values considered in evaluating impact significance and estimates minimum flows for potential steelhead migration in the Reclamation Ditch.

Table 4.4-8
Minimum Passage Flow Estimates (in cfs) for Steelhead Migration in Reclamation Ditch Downstream of Davis Road

Location	Adult	Smolt
San Jon Road (USGS gage weir)	78 cfs	31 cfs
Boronda Road critical riffle	32 cfs	11 cfs
Source: Hagar Environmental Science, Passage Memo (February 27, 2015)		

In summary, a change in stream flow of 10% or more may be considered significant depending on the species and life stages likely to be present, habitat requirements and behavior of those species or life stages, and potential for the given flow change to influence key habitat features. For the purposes of this analysis, the effect of the project would be considered less than significant if it would result in: a change in flow of less than 10%, relative to specific flow thresholds during steelhead adult or smolt migration periods; or changes in flow that occur less than 10% of the time during the analytical period. Furthermore, for an impact to be considered less than significant, implementation of the project must not cause creation of an obstacle or hazard to migrating steelhead (adults or smolts).

The following impact analyses also include qualitative assessment of unquantified components of the flow regime that can be used to characterize the entire range of flows and specific hydrologic phenomena (e.g., floods and low flows) that are vital to the integrity of river ecosystems, thus fish species. These components of the flow regime include: (1) magnitude; (2) frequency; (3) duration; (4) timing; and (5) rate of change of hydrologic conditions. Therefore, while modeled flows are evaluated using specific values as impact indicators (changes in flow of 10% or more, specific flow thresholds), other flow conditions are considered qualitatively in conjunction with quantitative evaluations.

Additionally, the Salinas River, Reclamation Ditch and Tembladero Slough are listed as impaired water bodies pursuant to Section 303(d) of the Clean Water Act for chlorides, pesticides, E. coli, fecal coliform, nitrate, total dissolved solids, turbidity and other factors. Diversion related impacts that could further degrade water quality conditions and impair associated beneficial uses also would be considered an impact indicator.

4.4.4.2 Impact Analysis Overview

Approach to Analysis

The impact assessment addresses impacts on SCCC steelhead, tidewater goby and Monterey roach in the Salinas River, Reclamation Ditch and Tembladero Slough and other water bodies affected by the Proposed Project where these species may be found. The quantitative assessment of potential flow-related impacts included evaluation of: (1) changes in monthly long-term flows (exceedance probability distributions based on hydrologic record of 82 years) using occurrence (>10% of the time) of a 10% or more reduction in simulated diversion scenario flow conditions, relative to a baseline condition as indicators of impact; and (2) differences in occurrence of suitable fish passage conditions using percent reduction in current daily flows from suitable to unsuitable relative to meeting specified SCCC steelhead passage thresholds as summarized on **Table 4.4-7**. Qualitative interpretation of flow changes, relative to general habitat conditions and water quality is also considered in the analysis.

As discussed in **Section 2.7.1.2, Source Water Operation: Diversion, Treatment and Use**, water rights permits from the SWRCB would be required for surface water diversions from the Reclamation Ditch, Blanco Drain, and Tembladero Slough. It is anticipated that the water rights permits for the proposed diversions would be as follows: diversion rate for the Tembladero Slough of up to 3 cfs and diversion rates for the Reclamation Ditch and Blanco Drain of up to 6 cfs.

Three diversion scenarios (A, B and C-Salinas River) were modeled to assess impacts within the Salinas River (HDR Engineering, January 2015), and four diversion scenarios (Cases 1, 2, 3 and 4-Reclamation Ditch) were analyzed for the Reclamation Ditch in addition to the base flow condition (Hagar Environmental Science, February 2015). Diversion scenarios C and Case 2 correspond to the potential worst case conditions that could occur under the Proposed Project;

therefore, the modeling results for those scenarios are presented below. Diversion scenarios A and B and Cases 1, 3 and 4 correspond to reduced project alternatives; therefore, the modeling results for those scenarios are presented in the Alternatives chapter of this EIR. The proposed diversions are summarized below. Detailed assumptions associated with each of these scenarios are provided by Schaaf and Wheeler (2014).

- *Salinas River.* The Proposed Project includes: diverting Salinas stormwater prior to discharge into the Salinas River and diverting Salinas Treatment Facility outflow, in addition to up to 6 cfs (but typically only up to 4.6 cfs) from Blanco Drain. The Proposed Project is evaluated relative to the Baseline (Existing) Conditions, which is defined as historic flow in the Salinas River near Spreckels plus the Salinas Industrial Wastewater Treatment Facility (Salinas Treatment Facility) outflow plus Salinas stormwater outfall.
- *Reclamation Ditch*. The Proposed Project includes: diversion of up to 6.0 cfs of available flow from Reclamation Ditch at Davis Road with an in-stream (by-pass) flow requirement of 0.69 cfs in the months of June to November, and 2.0 cfs during the months of December to May for fish migration, and diversion of up to 3.0 cfs of available flow from Tembladero Slough at Castroville with an in-stream (by-pass) flow requirement of 1.0 cfs year-round in Tembladero Slough.

Baseline conditions are based on historic flow data that was obtained from the USGS Spreckels gage (Station 11152500) and from data collected at the Salinas Industrial Wastewater Treatment Facility outflow to the percolation ponds and at the Salinas stormwater outfall. Baseline conditions used in the analysis of the Reclamation Ditch and Tembladero Slough are based on historic flow data obtained at the USGS San Jon Road gage (Station 11152650).

Analytical Methods

The SCCC steelhead impact assessment for the Salinas River relies on historic hydrologic data obtained from the Spreckels gage with assumptions regarding stormwater outfall and Salinas Treatment Facility outflow. By adjusting the data based on these assumptions, the historical data effectively became a baseline hydrologic modeling output against which potential alterations in flow associated with implementation the Proposed Project could be compared. Specifically, the diversion assumptions are applied to the estimated (modeled) baseline flows to obtain a specific set of estimated (modeled) flows associated with each of the diversion scenarios. These “modeled flows” provide a quantitative basis from which to assess the potential impacts of the Proposed Project on SCCC steelhead passage in the Salinas River at the Spreckels gage. Detailed discussion of development of the modeled flows is presented in Schaaf and Wheeler (2014).

Raw model output included estimated daily flow for an 82-year period of record, which were conditioned to aggregate data in meaningful ways for the SCCC steelhead evaluation. Daily estimated flow data were used to develop exceedance probability distributions (exceedance curves) by month. These exceedance probability distributions were developed from ranked and sorted data, and show the percentage of time (probability) that a given value is exceeded. These curves show the general long-term differences in flow between an evaluated diversion associated with the Proposed Project and the baseline conditions.

The assessment for the Reclamation Ditch and Tembladero Slough relies on historic hydrologic data from the San Jon Road gage and modeled flow results. All of the assumptions (e.g., hydrologic conditions, climatic conditions, upstream storage conditions, etc.) are the same for both the with-project and without-project flow estimates, except assumptions associated with each modeled diversion scenario. The period of record is 28 years and is split into October 1970 to February 1986 and June 2002 to the present. Average annual runoff at the San Jon Road gage has declined by almost a third in recent years as water conservation practices have reduced the amount of agricultural irrigation (Schaaf & Wheeler 2014), and therefore, only the 2002-2013 data were used in this analysis.

Areas of No Impact

Construction and operation of the following Proposed Project components would not be located adjacent to water bodies and would have no effect on fish resources: the Product Water Conveyance pipelines and Booster Stations, Injection Well Facilities and CalAm Distribution System pipelines. While construction and operation of the Lake El Estero Diversion is adjacent to Lake El Estero, there are no special status or native species known to occur in the lake. The Treatment Facilities at the Regional Treatment Plant would result in reverse osmosis concentrate discharge; potential impacts to anadromous fish in the marine environment due to reverse osmosis concentrate discharge are discussed in the **Section 4.14**, **Marine Resources**. The Treatment Facilities would not result in impacts to fish resources evaluated in this **Section 4.4**.

The Proposed Project would not result in impacts related to the some of the significance criteria, as explained below.

(d) Conflict with Local Policies Protecting Fishery Resources. (No impact during construction or operations). As shown in **Table 4.4-6,** construction and operations of the Proposed Project would not result in conflicts with local policies addressing protection of fishery resources.

I Conflict with Habitat Conservation Plan or Natural Conservation Community Plan. There are no adopted Habitat Conservation Plans or Natural Conservation Community Plans within the area of the Proposed Project components that address fishery resources. The “Installation-Wide Multispecies Habitat Conservation Plan at Former Fort Ord” does not include fishery resources and does not include the geographic area of potential impact of the Proposed Project.

Summary of Impacts

Table 4.4-9, Summary of Impacts – Biological Resources: Fisheries provides a summary of potential impacts to terrestrial fishery resources and significance determinations at each Proposed Project component site.

Table 4.4-9
Summary of Impacts – Biological Resources: Fisheries

Impact Title	Source Water Diversion and Storage Site: Salinas Pump Station	Source Water Diversion and Storage Site: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Site: Reclamation Ditch	Source Water Diversion and Storage Site: Tembladero Slough	Source Water Diversion and Storage Site: Blanco Drain (Pump Station and Pipeline)	Source Water Diversion and Storage Site: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall
BF-1: Habitat Modification Due to Construction of Diversion Facilities	NI	NI	LSM	LSM	LS	NI	NI	NI	NI	NI	NI	NI	LSM
BF-2: Interference with Fish Migration Due to Project Operations	LS	LS	LSM	LS	LS	NI	NI	NI	NI	NI	NI	NI	LSM
BF-3: Reduction in Fish Habitat or Fish Populations Due to Project Operations	LS	LS	LS	LS	LS	NI	NI	NI	NI	NI	NI	NI	LS
Cumulative Impacts	LS: There would be no significant construction or operational cumulative impacts to biological resources: fisheries.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.4.4.3 Construction Impacts and Mitigation Measures

Impact BF-1: <u>Habitat Modification Due to Construction of Diversion Facilities</u>. Construction of the proposed Reclamation Ditch and Tembladero Slough diversions could indirectly result in habitat modifications for endangered or threatened fish species as a result of construction activities and dewatering the construction sites. (Criterion a) (Less than Significant with Mitigation)

Construction of diversion structures at the following sites could result in indirect temporary modifications to potential steelhead fish habitat in the Reclamation Ditch/Tembladero Slough, as discussed below. As previously indicated, the Reclamation Ditch watershed has the potential to support steelhead trout as potential salmonid habitat exists upstream of the proposed diversion sites. Tidewater goby are not expected to be present in the Reclamation Ditch at the Davis Road site due to its degraded condition and distance upstream from estuarine habitat. However, there is a potential for tidewater goby to be present at the Tembladero Slough diversion site.

Construction at the Blanco Drain Diversion site is addressed below. Construction at the Lake El Estero Diversion site would not be within the water body, and no native or special status fish species have been identified at this location. There would be no construction impacts at the other Proposed Project sites as none are located adjacent to water bodies, and there would be no improvements constructed within an aquatic habitat at those sites.

Source Water Diversion and Storage Sites

Reclamation Ditch

Construction of the Reclamation Ditch Diversion site would include minor grading, installation of a wet well/diversion structure, modification of an existing sanitary sewer manhole and a short pipeline from the existing manhole to the new pump station. The work would disturb approximately 0.15 acres of land, including the Reclamation Ditch banks and channel bottom. The channel carries flows year-round, so a temporary coffer dam would be required above and below the site, with a small diversion pump to convey existing channel flows past the project construction area. The temporary coffer dams would consist of waterproof tarps or membranes wrapped around gravel fill material, which would be removed when the work is completed.

The new pump station wet well, intake structure and pipelines would be constructed using open-trench excavation. The construction excavation may be as large as 40-feet long by 10-feet wide. The below-grade components may use pre-cast concrete structures, so that the underground work could take less than a week to complete. Once the excavations are closed, the channel protection (concrete or riprap) would be installed and the temporary cofferdams and by-pass pumping system removed.

Dewatering the channel by the coffer dam would represent a short-term temporary impact to aquatic habitat and aquatic species within the construction area, including potential steelhead migration habitat. This would be a potentially significant impact if dewatering occurred during steelhead migration periods. Tidewater goby are not expected to be present at the Davis Road construction site due to the degraded condition of the Reclamation Ditch in this location and distance upstream from estuarine habitat. Potential construction-related impacts would be avoided and reduced to less-than-significant levels by implementation of Mitigation Measures BF-1a and BF-1b that would limit construction to periods when migratory steelhead would not be present and implement best management practices (BMPs).

Tembladero Slough

Construction of the Tembladero Slough diversion would include minor grading, installation of a new wet well/diversion structure, modification of the existing wet well at the Castroville Pump Station and construction of a short pipeline from the wet well to the new pump station. The work would disturb approximately 0.25 acres of land, including the Tembladero Slough banks and channel bottom. The channel carries flow year-round, so a temporary coffer dam would be required around the site, with a small channel left open to allow flows past the project construction site. The temporary coffer dams may consist of geomembrane tubes filled with water or driven sheet piles, depending upon the site conditions. Any cofferdam installed would be removed when the work is completed.

The new pump station wet well, intake structure and pipelines would be constructed using open-trench excavation. The construction excavation may be as large as 100-feet long by 10-feet wide. The below-grade components may use pre-cast concrete structures, so that the underground work could take less than a week to complete. Once the excavations are closed, the channel protection (concrete or riprap) would be installed and the temporary cofferdams and dewatering pumping system removed. Modification of the existing pump station wet well may require by-pass pumping of the existing wastewater flows within the pump station. The new pipeline connecting the new pump station to the existing wet well would be installed using open trench methods.

Dewatering the channel to complete construction of the in-channel structures would represent a short-term temporary impact to aquatic habitat and aquatic species within the construction area. This would be a potentially significant impact if dewatering occurred during steelhead migration periods. In addition to potential steelhead migration habitat, there is a potential for tidewater goby to be present at the Tembladero Slough diversion site. Effects could be avoided and minimized to less than significant levels by implementation of Mitigation Measures BF-1a and BF1-b.

Blanco Drain

Construction of the Blanco Drain Diversion would include minor grading, installation of a new wet well/diversion structure, installation of a new force main and gravity pipelines by open trench and by trenchless methods. The work would temporarily disturb approximately 0.15 acres of land at the existing pump station site, including the Blanco Drain banks and channel bottom. The channel carries flow year-round, so a temporary coffer dam would be required above the site, with a small diversion pump to convey existing channel flows past the project construction site and the existing slide gate downstream of the adjacent Monterey County Water Resources Agency pump station.

The new pump station wet well, intake structure and on-site pipelines would be constructed using open-trench excavation. Once the excavations are closed, the channel protection (concrete or riprap) would be installed and the temporary cofferdam and by-pass pumping system removed. Pipeline construction would not occur in an aquatic environment, and no dewatering would be required.

No special status fish species have been identified in Blanco Drain. Therefore, no impact on aquatic habitat and aquatic species, including special status species, would result from the construction of the Blanco Drain Diversion site improvements.

Impact Conclusion

The Proposed Project construction would result in a potentially significant impact to potential aquatic habitat for the federally threatened SCCC steelhead DPS species, if present, in the Reclamation Ditch and Tembladero Slough due to channel dewatering and construction of the proposed diversion structures at these sites. Additionally, the federally endangered tidewater goby may be present at the Tembladero Slough Diversion site. No special status species have been identified in Blanco Drain.

Generally, dewatering the channel to complete construction of the in-channel structures would represent a short-term temporary modification to aquatic habitat through alteration of the channel and/or flows during construction, with potential harm to individual fish that may be present within the construction area. Construction activities may also result in temporary degradation of water quality due to erosion or other materials entering the water course, which is addressed in **Section 4.11, Hydrology/Water Quality: Surface Water**. With implementation of Mitigation Measure BF-1a: Construction during Low Flow Season**,** potential impacts to migrating steelhead would be avoided. Implementation of

Mitigation Measure BF-1b: Removal of Aquatic Species during Construction, would reduce impacts to a less-than-significant level for other aquatic fish species that may be present at any of the sites, including conducting pre-construction surveys for tidewater goby at the Tembladero Slough Diversion site. If present, appropriate measures would be implemented in consultation with the regulatory agencies, and the impact would be reduced to a less-than-significant level. Mitigation Measure BT-1a, as modified in this Final EIR (see changes to pages 4.5-75 to 4.5-76 of the Draft EIR in **Chapter 5, Changes to the Draft EIR**) also applies because it requires BMPs during construction.

Mitigation Measures

Implement Mitigation Measure BT-1a: Implement Construction Best Management Practices. (Applies to All Proposed Project Components). See page 4.5-75 to 4.5-76 of the Draft EIR (as amended in this Final EIR in **Chapter 5, Changes to the Draft EIR**) for details.

Mitigation Measure BF-1a: Construction during Low Flow Season. (Applies to Reclamation Ditch and Tembladero Slough Diversions)

Implement Mitiation Measure BT-1a. Conduct construction of diversion facilities, including the directional drilling under the Salinas River, during periods of low flow outside of the SCCC steelhead migration periods, i.e. between June and November, which would be outside of the adult migration period from December through April and outside of the smolt migration period from March through May.

Mitigation Measure BF-1b: Relocation of Aquatic Species during Construction. (Applies to Reclamation Ditch and Tembladero Slough Diversions)

Conduct pre-construction surveys to determine whether tidewater gobies or other fish species are present, and if so, implement appropriate measures in consultation with applicable regulatory agencies, which may include a program for capture and relocation of tidewater gobies to suitable habitat outside of work area during construction. Pre-construction surveys shall be consistent with requirements and approved protocols of the applicable resource agencies and performed by a qualified fisheries biologist.

Mitigation Measure BF-1c Tidewater Goby and Steelhead Impact Avoidance and Minimization. (Applies to Reclamation Ditch and Tembladero Slough Diversions)

To ensure compliance with the federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), consultation with NFMS/NOAA, USFWS, and CDFW shall be conducted as required, and any necessary take permits or authorizations would be obtained. If suitable habitat for tidewater goby (Tembladero Slough) and steelhead cannot be avoided, any in-stream portions of each project component (where the Proposed Project improvements require in-stream work) shall be dewatered/ diverted. A dewatering/diversion plan shall be prepared and submitted to NMFS, USFWS, and CDFW for review and approval. Specific plan elements are noted below and will be refined through consultation with USFWS, NMFS and CDFW:

- Required Pre-Construction surveys identified in Mitigation Measure BF-1b shall be consistent with requirements and approved protocols of the applicable resource agencies and performed by a qualified fisheries biologist.
- All dewatering/diversion activities shall be monitored by a qualified fisheries biologist. The fisheries biologist shall be responsible for capture and relocation of fish species out of the work area during dewatering/diversion installation.

- The project proponents shall designate a qualified representative to monitor on-site compliance of all avoidance and minimization measures. The fisheries biologist shall have the authority to halt any action which may result in take of listed species.
- Only USFWS/NMFS/CDFW-approved biologists shall participate in the capture and handling of listed species subject to the conditions in the Incidental Take Permits as noted above.
- No equipment shall be permitted to enter wetted portions of any affected drainage channel. All equipment operating within streams shall be in good conditions and free of leaks.
- Spill containment shall be installed under all equipment staged within stream areas and extra spill containment and clean up materials shall be located in close proximity for easy access.
- Work within and adjacent to streams shall not occur between November 1 and June 1 unless otherwise approved by NMFS and the CDFW.
- If project activities could degrade water quality, water quality sampling shall be implemented to identify the pre-project baseline, and to monitor during construction for comparison to the baseline. If water is to be pumped around work sites, intakes shall be completely screen with wire mesh not larger than five millimeters to prevent animals from entering the pump system.
- If any tidewater goby or steelhead are harmed during implementation of the project, the project biologist shall document the circumstances that led to harm and shall determine if project activities should cease or be altered in an effort to avoid further harm to the species.
- Water turbidity shall be monitored by a qualified biologist or water quality specialist during all instream work. Water turbidity shall be tested daily at both an upstream location for baseline measurement and downstream to determine if project activities are altering water turbidity. Turbidity measures shall be taken within 50 feet of construction activities to rule out other outside influences. Additional turbidity testing shall occur if visual monitoring indicates an increased in turbidity downstream of the work area. If turbidity levels immediately downstream of the project rise to more than 20 NTUs (Nephelometric Turbidity Units) above the upstream (baseline) turbidity levels, all construction shall be halted and all erosion and sediment control devices shall be thoroughly inspected for proper function, or shall be replaced with new devices to prevent additional sediment discharge into streams.

4.4.4.4 Operational Impacts and Mitigation Measures

Impact BF-2: Interference with Fish Migration. Operation of the Proposed Project would result in changes in stream flows that may interfere with fish migration in the Salinas River and Reclamation Ditch. (Criterion b) (Less than Significant with Mitigation)

The following Proposed Project components would affect flows in the Salinas River by changing existing flows and/or adding new diversions: Salinas Pump Station, Salinas Treatment Facility, and Blanco Drain Diversion. The proposed Reclamation Ditch Diversion would affect flows in the Reclamation Ditch. Impacts are addressed below by watershed. None of the other Proposed Project facilities would result in operations that would affect stream flows.

Salinas River

The Salinas Pump Station and Blanco Drain Diversions, as well as changes to flows at the Salinas Treatment Facility site would affect the amount of flow in the Salinas River. While flows in the Salinas River would change under the Proposed Project, the change would not result in significant impacts to fish migration flows as explained below. See **Appendix F <u>rev</u>** (Scenario C) for a full discussion.

Operation of the Proposed Project would reduce flow in the Salinas River by diverting City of Salinas stormwater (at River Mile 11.2), Salinas Treatment Facility inflow (RM 9.2-10.7) and 6.0 cfs from Blanco Drain (RM 5.1). Overall, operation of the Proposed Project would divert less than 2% of the baseline mean annual flow in the Salinas River (Schaaf and Wheeler 2014). Due to the flashy nature of runoff in the Salinas River, the majority of flow occurs during a very brief period. During the rest of the time, flows in the Salinas River are relatively low. Because flows in the River are below 90 cfs much of the time, reductions in flow of 10% or more would occur during all months of the SCCC steelhead adult immigration and juvenile outmigration periods under the Proposed Project.

Given that a reduction in 10% of river flows would occur for more than 10% of the time, additional analysis was needed to determine whether a significant impact would occur. Reduction in suitable fish passage conditions under the Proposed Project was evaluated based on the identified passage flow indicator values as shown on **Table 4.4-7**. The number and percentage of days in each month (over the entire 82-year period of record) were identified when the Proposed Project would result in flows below a migratory flow threshold. The model results show that under the Proposed Project, suitable adult migration flows would be reduced below each of the passage flow indicator values less than 2.0% of the time and juvenile migration flows would be reduced below each of the passage flow indicator values less than 3.0% of the time, both relative to existing conditions, as summarized on **Table 4.4-10, Predicted Changes to Steelhead Passage Flow Thresholds in the Salinas River**. Although the percent of flow reductions would vary by month for all indicator flows, changes within any month all would be less than 6.7% with the highest change in December. Thus, the change in flows under the Proposed Project would not result in significant impacts to steelhead migration in the Salinas River.

Reclamation Ditch and Tembladero Slough

The Reclamation Ditch flows west into the Tembladero Slough; therefore the aquatic habitat and species of these waterbodies are interconnected. The Reclamation Ditch Diversion and the Tembladero Slough Diversion have been analyzed together because of this relationship. The analysis evaluates impacts to adult and smolt migration resulting from the alteration of flows due to these two diversions, consisting of diversion of up to 6.0 cfs of available flow from Reclamation Ditch at Davis Road with an in-stream (by-pass) flow requirement of 0.69 cfs in the months of June to November and 2.0 cfs during the months of December to May for fish migration, and diversion of up to 3.0 cfs of available flow from Tembladero Slough at Castroville with an in-stream (by-pass) flow requirement of 1.0 cfs year-round in Tembladero Slough. The most difficult passage (migration) conditions would be at the San Jon Road stream gage located downstream of the Reclamation Ditch Diversion site.

The Tembladero Slough diversion would result in flow reductions in Tembladero Slough downstream of the diversion site. However, migration flows for both adult and smolt steelhead would be more of an issue in the Reclamation Ditch upstream of Tembladero Slough; the diversion at Tembladero Slough would have less effect on steelhead migration than the diversion at the Reclamation Ditch site since Tembladero Slough has a very low gradient downstream of the Tembladero Slough Diversion and there are no critical passage sections such as the riprap and gaging weir at San Jon Road upstream. Additionally, Tembladero Slough is tidally influenced from the Old Salinas River up to Highway 183 in Castroville, and the backwater condition caused by the tide gates would prevent measurable reductions in water levels throughout that reach (Schaaf & Wheeler 2014). Therefore, diversion at Tembladero Slough would not adversely affect downstream areas with regards to steelhead migration.

During the smolt migration period, flows at the Reclamation Ditch Diversion site are generally lower than during the adult migration period and a proportional reduction in flow from the diversion would be greater. Although smolts need less flow to migrate in the Reclamation Ditch than adults, the channel is severely lacking in cover and smolts are exposed to potential predation from birds. Minimum migration flow for smolts is estimated at between 11 cfs and 31 cfs, depending on location as shown on **Table 4.4-8,** with the most difficult passage at the San Jon Road stream gage. Proportional reductions in flow can be quite large in this range.

Table 4.4-10 Revised

Predicted Changes to Steelhead Passage Flow Thresholds in the Salinas River (Scenario C)

Life stage/ Period	Number of days meeting threshold		Percent of potential migration period meeting threshold		Change in percentage of potential migration period meeting threshold (%)	Reduction in number of days meeting threshold relative to baseline	Reduction in threshold occurrence relative to baseline (%)
	Baseline	Scenario C	Baseline	Scenario C			
Adult Upstream Migration							
60 cfs threshold							
Dec	508	474	19.7	18.4	1.3	34	6.7
Jan	1,160	1,130	45.6	44.5	1.2	30	2.6
Feb	1,430	1,402	61.7	60.5	1.2	28	2
Mar	1,524	1,511	60	59.4	0.5	13	0.9
Apr	1,151	1,137	46.8	46.2	0.6	14	1.2
All	5,773	5,654	46.4	45.5	1	119	2.1
72 cfs threshold							
Dec	467	441	18.2	17.1	1	26	5.6
Jan	1,111	1,083	43.7	42.6	1.1	28	2.5
Feb	1,397	1,373	60.3	59.3	1	24	1.7
Mar	1,498	1,484	58.9	58.4	0.6	14	0.9
Apr	1,125	1,107	45.7	45	0.7	18	1.6
All	5,598	5,488	45	44.1	0.9	110	2
260 cfs threshold							
Dec	342	265	13.3	10.3	3	77	3
Jan	758	753	29.8	29.6	0.2	18	0.7

Table 4.4-10 Revised
Predicted Changes to Steelhead Passage Flow Thresholds in the Salinas River (Scenario C)

Life stage/ Period	Number of days meeting threshold		Percent of potential migration period meeting threshold		Change in percentage of potential migration period meeting threshold (%)	Reduction in number of days meeting threshold relative to baseline	Reduction in threshold occurrence relative to baseline (%)
	Baseline	Scenario C	Baseline	Scenario C			
Feb	1,074	1,064	46.4	45.9	0.4	10	0.4
Mar	1,203	1,196	47.3	47	0.3	9	0.4
Apr	846	838	34.4	34.1	0.3	3	0.1
All	4,223	4,116	34	33.1	0.9	58	0.5
150 cfs threshold							
Dec	342	337	13.3	13.1	0.2	5	0.2
Jan	919	903	36.2	35.5	0.6	16	0.6
Feb	1,220	1,202	52.7	51.9	0.8	18	0.8
Mar	1,363	1,353	53.6	53.2	0.4	10	0.4
Apr	997	987	40.5	40.1	0.4	10	0.4
All	4,841	4,782	190.4	188.1	2.3	59	0.5
Juvenile Downstream Migration							
50 cfs threshold							
Mar	1,555	1,530	61.2	60.2	1	25	1.6
Apr	1,179	1,158	47.9	47	0.9	21	1.8
May	762	716	30	28.2	1.8	46	6
Jun	284	272	11.5	11	0.5	12	4.2
All	3,780	3,676	37.8	36.8	1	104	2.8
56 cfs threshold							
Mar	1,539	1,515	60.5	59.6	0.9	24	1.6
Apr	1,166	1,145	47.4	46.5	0.9	21	1.8
May	720	687	28.3	27	1.3	33	4.6
Jun	275	257	11.2	10.5	0.7	18	6.5
All	3,700	3,604	37	36	1	96	2.6
150 cfs threshold							
Mar	1,363	1,353	53.6	53.2	0.4	10	0.4
Apr	997	987	40.5	40.1	0.4	10	0.4

Table 4.4-10 Revised
Predicted Changes to Steelhead Passage Flow Thresholds in the Salinas River (Scenario C)

Life stage/ Period	Number of days meeting threshold		Percent of potential migration period meeting threshold		Change in percentage of potential migration period meeting threshold (%)	Reduction in number of days meeting threshold relative to baseline	Reduction in threshold occurrence relative to baseline (%)
	Baseline	Scenario C	Baseline	Scenario C			
May	455	444	17.9	17.5	0.4	11	0.4
June	154	148	6.3	6.0	0.2	6	0.2
All	2,969	2,932	29.7	29.3	0.4	37	0.4
300 cfs threshold							
Mar	1,156	1,144	45.5	45.0	0.5	12	0.5
Apr	797	786	32.4	32.0	0.4	11	0.4
All	1,953	1,930	39.0	38.6	0.5	23	0.5

Project-related flow reductions during the dry season (June-September) would exceed 10% of flows simulated at the Reclamation Ditch and Tembladero Slough Diversion sites. However, special status species are not expected to be present in the Reclamation Ditch downstream of the Reclamation Ditch Diversion site during the dry season. Steelhead use these reaches only for migration during the winter and spring, and potential dry season rearing habitat exists only in headwater reaches. There is a limited potential for tidewater goby near or downstream of the Tembladero Slough Diversion site. Since goby prefer quiescent conditions, and since the channel is tidally backwatered in this reach, flow reductions in the range simulated would not be expected to have a detrimental effect on them, should they be present. Native and introduced warmwater species likely to be present are not migrating during this period. The proposed 1 cfs minimum flow would maintain base habitat conditions for species likely to be present. Therefore, flow changes as a result of operation of the Proposed Project during the dry season would result in a less than significant impact on fish migration in this area.

The largest proportional flow reductions during adult migration would occur in the range of 1 to 60 cfs. Flow reductions for the existing condition of 60 cfs or less would be 10% or more for the Reclamation Ditch. The combined Reclamation Ditch Diversion and diversion at Tembladero Slough would result in larger flow reductions in Tembladero Slough and downstream reaches to Monterey Bay with flow reductions of 10%.

Assuming a minimum passage flow of 78 cfs at the San Jon Road stream gage site, it is estimated that there would be reductions of 0% to 22% (average 13%) in the number of days annually meeting the minimum migration threshold for adult steelhead as shown on **Table 4.4-11, Stimulated Number of Days Reclamation Ditch Flows Meet Steelhead Migration Criteria at San Jon Road**. The number of potential migration days would be reduced in 10 years out of the 11 modeled and in 8 years the reduction would be 10% or more. Although the actual number of days involved generally would be small (1 to 4 fewer days meeting migration criteria), the migration windows are also relatively short. Given the species status as threatened, a change in flow of this magnitude (10% or more reduction in migration periods in 73% of years) is potentially significant for migrating adult steelhead.

Based on a minimum passage flow for smolts of 31 cfs at the San Jon Road site, the number of days with flows meeting minimum smolt passage criteria is reduced by 0% to 15% annually or 9% on average as shown on **Table 4.4-11**. The reduction is 10% or more in 2 of the 11 years simulated. Flow alterations of this magnitude during the smolt migration period, particularly given the sensitivity of smolts migrating through this degraded habitat, would be potentially significant downstream of the Reclamation Ditch Diversion site.

Table 4.4-11
Stimulated Number of Days Reclamation Ditch Flows Meet Steelhead Migration Criteria at San Jon Road

Year	Number of Days Meeting Adult Migration Criteria (78 cfs) (And percent reduction from Existing Conditions) Migration Period: Dec. 1st through Apr. 30th		Number of Days Meeting Smolt Migration Criteria (31 cfs) (And percent reduction from Existing Conditions) Migration Period: Mar. 1st through May 3lst	
	Existing Conditions	Proposed Project	Existing Conditions	Proposed Project
2003	8	7 (-13%)	4	4 (0%)
2004	11	10 (-9%)	2	2 (0%)
2005	31	28 (-10%)	19	18 (-5%)
2006	22	18 (-18%)	41	35 (-15%)
2007	1	1 (0%)	0	0 (0%)
2008	10	9 (-10%)	0	0 (0%)
2009	8	7 (-13%)	5	5 (0%)
2010	17	16 (-6%)	17	16 (-6%)
2011	22	19 (-14%)	15	13 (-13%)
2012	5	4 (-20%)	9	9 (0%)
2013	9	7 (-22%)	0	0 (0%)
Total	144	126 (-13%)	112	102 (-9%)

Impact Conclusion

The Proposed Project diversions would result in a reduction of flows in the Salinas River and Reclamation Ditch. Reduction of flows in the Salinas River due to diversions of City of Salinas stormwater and Salinas Treatment Facility flows with diversions at Blanco Drain would result in reduction of flows during the SCCC steelhead adult immigration period by 1.0 to 2.8% and during the juvenile outmigration period by about 1.3 to 2.8%, relative to existing conditions, which is below the significance criteria for flow reduction related to migration flows. Therefore, in consideration of the timing, frequency, magnitude, and duration of flow changes, these changes would not result in substantial impacts on SCCC steelhead within the Salinas River, and would not result in a significant impact on fish migration.

However, flow reductions in the Reclamation Ditch would result in potentially significant impacts to both adult and juvenile steelhead migration due to flow reductions that exceed 10% and significant reductions in the days in which fish passage could occur. Implementation of Mitigation Measure BF-2a: Maintain Migration Flows or Mitigation Measure Alternate BF-2a~~b~~: ~~Redesign~~ Modify San Jon Weir ~~to Improve Fish Passage~~ would reduce impacts to steelhead migration in the Reclamation Ditch to a less-than-significant level.

The Proposed Project diversions, including all proposed surface water, urban runoff, and wastewater diversions, were found to not have a significant adverse impact on brackish tidal and wetland habitat in the downstream portions of the watershed including Old Salinas River channel, Tembladero Slough, Elkhorn Slough, and Moro Cojo Slough during project operations as documented on pages 4.5-97 through 4.5-105 and 4.11-71 through 4.11-73 of the Draft EIR, as modified in this Final EIR. The final facility design and flows will incorporate passage acceptable to NMFS. Tembladero Slough at the diversion site and downstream is tidally influenced. Existing tide gates just upstream of Moss Landing Harbor influence water levels up to the Highway 183 crossing upstream of the point of diversion at Tembladero Slough. Based on the technical analysis and mitigation measures prepared by HDR and Hager Environmental Science (HES) fisheries biologists, the Draft EIR found that project impacts to fisheries from diversions at this location would be less than significant. Combined diversions from both Salinas River and Tembladero Slough/Reclamation Ditch from project reduction in flows to the downstream coastal sloughs in the area (e.g., Elkhorn Slough (a National Estuarine Reserve), and Moro Cojo Slough downstream of the diversion will also have a less-than-significant impact on fisheries and aquatic habitat.

Mitigation Measures

Mitigation Measure BF-2a: Maintain Migration Flows. (Applies to the Reclamation Ditch Diversion)

Implement BF-1a, BF-1b, and BF-1c. Operate diversions to maintain steelhead migration flows in the Reclamation Ditch based on two criteria – one for upstream adult passage in Jan-Feb-Mar and one for downstream juvenile passage in Apr-May. For juvenile passage, the downstream passage shall have a flow trigger in both Gabilan Creek and at the Reclamation Ditch, so that if there is flow in Gabilan Creek that would allow outmigration, then the bypass flow requirements, as measured at the San Jon Gage of the Reclamation Ditch, shall be applied (Hagar Environmental Science. February 27, 2015, Technical Memorandum: *Estimation of Minimum Flows for Migration of Steelhead in the Reclamation Ditch* (in Appendix G-2 of this Draft EIR and Schaaf & Wheeler, Fish Passage Analysis: Reclamation Ditch at San Jon Rd. and Gabilan Creek at Laurel Rd. July 15, 2015 in Appendix CC of this Final EIR). If there is no flow in Gabilan Creek, then only the low flow (minimum bypass flow requirement as proposed in the project description) shall be applied, and these flows for the dry season at Reclamation Ditch as measured at the San Jon USGS gage shall be met. Note: If there is no flow gage in Gabilan Creek, then downstream passage flow trigger shall be managed based on San Jon Road gage and flows.

Alternately, as the San Jon weir located at the USGS gage is considered a barrier to steelhead migration and the bypass flow requirements have been developed to allow adult and smolt steelhead migration to have adequate flow to travel past this obstacle, if the weir were to be modified to allow steelhead passage, the mitigation above would not have to be met. Therefore, alternate Mitigation Measure BF-2a has been developed, as follows:

Mitigation Measure Alternate BF-2a: Modify San Jon Weir. (Applies to the Reclamation Ditch Diversion)

Construct modifications to the existing San Jon weir to provide for steelhead passage. Modifications could include downstream pool, modifications to the structural configuration of the weir to allow passage or other construction, and improvements to remove the impediment to steelhead passage defined above.

The above mitigation is subject to compliance with CESA and FESA and appropriate approving agencies may modify the above mitigation to further reduce, avoid, or minimize impacts to species.

The construction impacts of Mitigation Measure Alternate BF-2a, if chosen, could result in a potentially significant impact to potential aquatic habitat for the federally threatened SCCC steelhead DPS species, if present, in the Reclamation Ditch due to channel dewatering and construction of the modifications to the existing San Jon weir to provide for steelhead passage. Application of Mitigation Measure BF-1a: Construction during Low Flow Season and Mitigation Measure BF-1b: Removal of Aquatic Species during Construction, would be applicable and the impacts would be reduced to a less-than-significant level.

It is also noted that the primary objective of the project is to produce replacement water to California American Water Company (CalAm) thereby enabling CalAm to reduce its diversions from the Carmel River system by this same amount. Reduction of diversions in the Carmel River would have a beneficial impact on river flows and fishery habitat. The Proposed Project would have net beneficial effects on special-status species in the Carmel River system and a less than significant impact on the special-status fisheries species in the Salinas River system.

Impact BF-3: Reduction in Fish Habitat or Fish Populations Due to Project Operations. Operation of the Proposed Project diversions would not reduce the habitat of a fish species or substantially affect fish populations. (Criterion c) (Less than Significant)

Project operation would not result in reduction of fish habitat. As discussed above under Impact BF-2, the Proposed Project would result in changes to flows in the Salinas River and Reclamation Ditch with operation of the following project components: Salinas Pump Station, Salinas Treatment Plant, and Reclamation Ditch, Blanco Drain and Tembladero Slough Diversions. However, this reduction would not reduce fish habitat, and changes to steelhead migration flows would be less than significant in the Salinas River and less than significant with implementation of recommended mitigation measures in the Reclamation Ditch.

For each of the analyzed scenarios for the Salinas River, there is a limited potential for tidewater goby and Monterey roach to occur in the Salinas River downstream of the project component sites. Since these species prefer quiescent conditions, flow reductions would not be expected to have a detrimental effect on them, should they be present (HDR Engineering, January 2015).

There is a limited potential for tidewater goby near or downstream of the Tembladero Slough Diversion site. Since goby prefer quiescent conditions, and since the channel is tidally backwatered in this reach, flow reductions in the range simulated would not be expected to have a detrimental effect on them, should they be present. Native and introduced warmwater species likely to be present are not migrating during this period. The minimum flows that will be provided will maintain base habitat conditions for species likely to be present.

Additionally, diversion of stormwater and industrial water would not result in a significant impact on water quality in the Salinas River under any of the scenarios analyzed. Schaaf and Wheeler (2014) reported that the stormwater runoff is generally of equal or better quality than the Salinas River, and that stormwater runoff meets the Central Coast RWQCB Basin Plan objectives in most categories. In the categories of turbidity and orthophosphate, it exceeds the Basin Plan objectives but is below the average concentration in the receiving stream. Although the stormwater runoff may slightly improve the quality of the water in the river during storm events, the Salinas River basin is so large and the flows during storm events are so high (100 to ten thousand cubic feet per second) diverting urban stormwater runoff to the Proposed Project would not have an adverse impact on water quality within the Salinas River (Schaaf & Wheeler, 2015a). Diverting stormwater runoff to the Proposed Project would also not adversely degrade fish or aquatic habitat within the Salinas River (HDR Engineering, January 2015).

Effluent from the industrial treatment facility is also generally of equal or better quality than the Salinas River. The exception in this case is Total Dissolved Solids (TDS), which exceeds both the Basin Plan objective and the existing quality of the Salinas River. Diversion of industrial wastewater to the Proposed Project may result in reduced TDS levels in the river, particularly in summer months during low flow periods and outside the steelhead migration periods. Under the current condition described in detail in **Section 4.11.2** with increased flows released from the reservoirs to the Salinas River Diversion Facility during the summer months, the industrial facility inflows represent a smaller percentage of the total streamflow and the water quality changes due to their elimination as influent to the river would be less than if flow were not managed (Schaaf & Wheeler, 2015a). Thus, removing stormwater runoff and effluent from the industrial treatment facility should have no appreciable effect on water quality within the Salinas River (HDR Engineering, January 2015).

The diversion inlet at the Reclamation Ditch, Tembladero Slough and Blanco Drain Diversion sites would be screened to minimize entrainment of fish (Schaaf & Wheeler 2014). The screening system would be in compliance with Statewide Fish Screening Policy and Fish Screening Criteria developed by CDFW for structure placement, approach velocity, sweeping velocity, screen openings, and screen construction. The Statewide Fish Screening Policy is structured to comply with existing fish screening statutes, the Federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), and court decisions in place at the time of its adoption. Compliance with these policies and criteria would reduce potential effects of the diversion structure to less than significant levels. Due to the possibility of migrating steelhead in the Reclamation Ditch, this diversion facility would also be in compliance with NMFS Anadromous Salmonid Passage Facility Design criteria and specifications (NMFS 2008). Compliance with these policies and criteria would insure that potential effects of the Reclamation Ditch Diversion structure will be less than significant.

As a result, the Proposed Project would not reduce fish habitat or cause fish populations to drop below self-sustaining levels, or threaten to eliminate a fish community or reduce or restrict the range of a fish species. Therefore, this is a less-than-significant impact, and no mitigation measures are required.

4.4.4.5 Cumulative Impacts

The geographic scope for cumulative impact analysis on fishery biological resources consists of those projects that may affect steelhead, tidewater goby or other fishery species in the Salinas River or Reclamation Ditch. Based on the list of cumulative projects provided in **Table 4.1-2, Project Considered for Cumulative Analysis** (see **section 4.1, Introduction**), the only cumulative project that would result in diversions and/or construction adjacent to these water bodies is the Salinas Valley Water Project Phase 2 (**#2** as identified on **Table 4.1-2**). Cumulative project locations are shown on **Figure 4.1.1 rev, Cumulative Projects Location Map**. The Proposed Project construction currently is estimated to be from mid-summer 2016 through 2017. None of the identified cumulative projects are known to have overlapping construction schedules, except for the Monterey Peninsula Water Supply Project (MPWSP), the City of Salinas Solar Project, and the Dunes on Monterey Bay.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant projects identified on **Table 4.1-2** for the cumulative analysis:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[2] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, and a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines to convey between the well. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPWSP that includes a 6.4 mgd desalination plant. Similarly, the MPWSP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPWSP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2,** (see **Section 4.1, Introduction**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPWSP with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant). Both the MPWSP Desalination Plant and the Proposed Project Treatment Facilities at the Regional Treatment Plant would be located in the unincorporated area of Monterey County within a distance of approximately 0.5 miles. The Transmission Pipeline component of the MPWSP would be in the similar location as a segment of the Proposed Project Product Water Conveyance Coastal Alignment pipeline along the Transportation Agency's rail line corridor. Both the MPWSP and GWR projects include installation of new wells in the Seaside area. However, the well locations would be located approximately 0.5 miles from each other. The estimated construction schedules for the two projects could overlap for approximately 18 months, from mid-summer 2016 to the end of 2017.

Table 4.4-9 provides a summary of potential impacts to terrestrial fishery resources and significance determinations at each GWR Proposed Project component site.

The proposed Monterey Peninsula Water Supply Project (desalination facility) would not result in the placement of structures within creeks, rivers, or other waterways, nor would it affect inland fish or migration. Therefore, the proposed MPWSP Desalination Plant would not impact fisheries resources.

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1.1 <u>rev</u> Cumulative Projects Location Map.** The cumulative projects are cross-referenced (in parentheses) to the project number on

[2] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

Table 4.1-2. The overall cumulative impact analysis considers impacts of the proposed project along with the potential impacts of “related projects” or other projects that are reasonably foreseeable to take place near the Proposed Project. As indicated above, the only cumulative project that would result in diversions and/or construction adjacent to the Salinas River or Reclamation Ditch is the Salinas Valley Water Project Phase 2. The Salinas Valley Water Project, Phase II proposes to use the water right of Monterey County Water Resources Agency (assigned in Water Right Permit 11043) by further developing surface water resources that will be used to offset groundwater pumping. This project, which is expected to be operational in the year 2026, would allow MCWRA to facilitate further offsets of groundwater pumping by delivering additional surface water to the Pressure and East Side subareas. The project would divert up to 135,000 acre-feet per year of water from the Salinas River for municipal, industrial, and/or agricultural uses in the Pressure and East Side subareas. Continued alleviation of groundwater pumping through use of the diverted surface water would help combat seawater intrusion in Monterey County. The project proposes two surface water diversion points and their appurtenant facilities for capture, conveyance, and delivery of the water. The capture and diversion facilities would consist of either a surface water diversion facility, similar to the existing Salinas River Diversion Facility, or subsurface collectors, such as radial arm wells, which has not been determined (MCWRA, 2015).

The environmental review process for the Salinas Valley Water Project Phase 2 has been initiated, but a public review Draft EIR has not been released. It is not known at this time what impacts the Salinas Valley Water Project Phase may have on fishery resources. As part of the Salinas Valley Water Project goals to minimize impacts to federally threatened steelhead and its critical habitat, MCWRA developed flow prescriptions to facilitate and enhance steelhead migration (Monterey County Water Resources Agency, 2005). The flow prescriptions were reviewed by the National Marine Fisheries Service (NMFS) and incorporated in NMFS' Biological Opinion for the Salinas River Diversion Facility Project (National Marine Fisheries Service, 2007).

The flow prescriptions rely on triggers based on a combination of reservoir flows and stream flows regarding steelhead upstream and downstream migration as permit conditions associated with operating the Salinas River Diversion Facility. Prior to permit and operation, the Salinas Valley Water Project Phase 2 would be required to consult with the U. S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) to determine whether the project will have any direct or indirect effects on federally listed threatened, endangered, or candidate species at project sites and surrounding areas and identity measures to reduce such effects. Due to requirements of the federal and state Endangered Species Acts, prescriptions and requirements will be imposed on the Salinas Valley Water Project Phase 2 and MCWRA to maintain river flows to support steelhead migration habitat, similar to the MCWRA's current flow prescriptions and timing which are tied to the steelhead life cycle within the Salinas River (Monterey County Water Resources Agency, 2005).

None of the other cumulative projects listed in **Table 4.1-2** involve increases in surface water diversions. The Proposed GWR Project would not result in significant adverse effects to fishery resources in the Salinas River and, as explained above, the MCWRA would be required to maintain flows protective of special status fish species in connection with implementation of the Salinas Valley Water Project Phase 2, if that project is approved. Therefore, no significant cumulative impacts to fishery resources in the Salinas River are anticipated.

Cumulative Impact Conclusion

The Proposed Project and one of the cumulative projects listed in **Table 4.1-2** could result in combined impacts on Salinas River flows. The Proposed Project and the Salinas Valley Water

Project Phase 2 both would involve changes to surface flows that would occur in the Salinas River. As discussed above under **Impact BF-2**, the Proposed Project would result in minor changes to flows in the Salinas River. However, this reduction would not reduce fish habitat, and changes to steelhead migration flows would be less than significant in the Salinas River.

New projects involving diversions from the Salinas River will be subject to obtaining water rights and appropriate permits from the State Water Resources Control Board as well as environmental restrictions to maintain adequate flow for steelhead passage tied to the steelhead life cycle. New projects would be required to maintain and monitor river flows to support steelhead migration habitat, similar to the MCWRA's flow prescriptions and MCWRA's existing monitoring program. Flow prescriptions will be carefully reviewed and adjusted as necessary based on project–level environmental mitigation and permit conditions. This may include additional monitoring and/or metering of surface water diversions as well as effects on flows in downstream water bodies. Permit conditions imposed and required by SWRCB water rights permits and consultation under the Endangered Species Act will also prescribe surface water management measures that would reduce impacts. With the requirements for mitigation and maintenance of adequate flows for fish migration, the Proposed Project and the Salinas Valley Water Project Phase 2 would not be expected to result in a significant cumulative impact to fish species and fish habitat.

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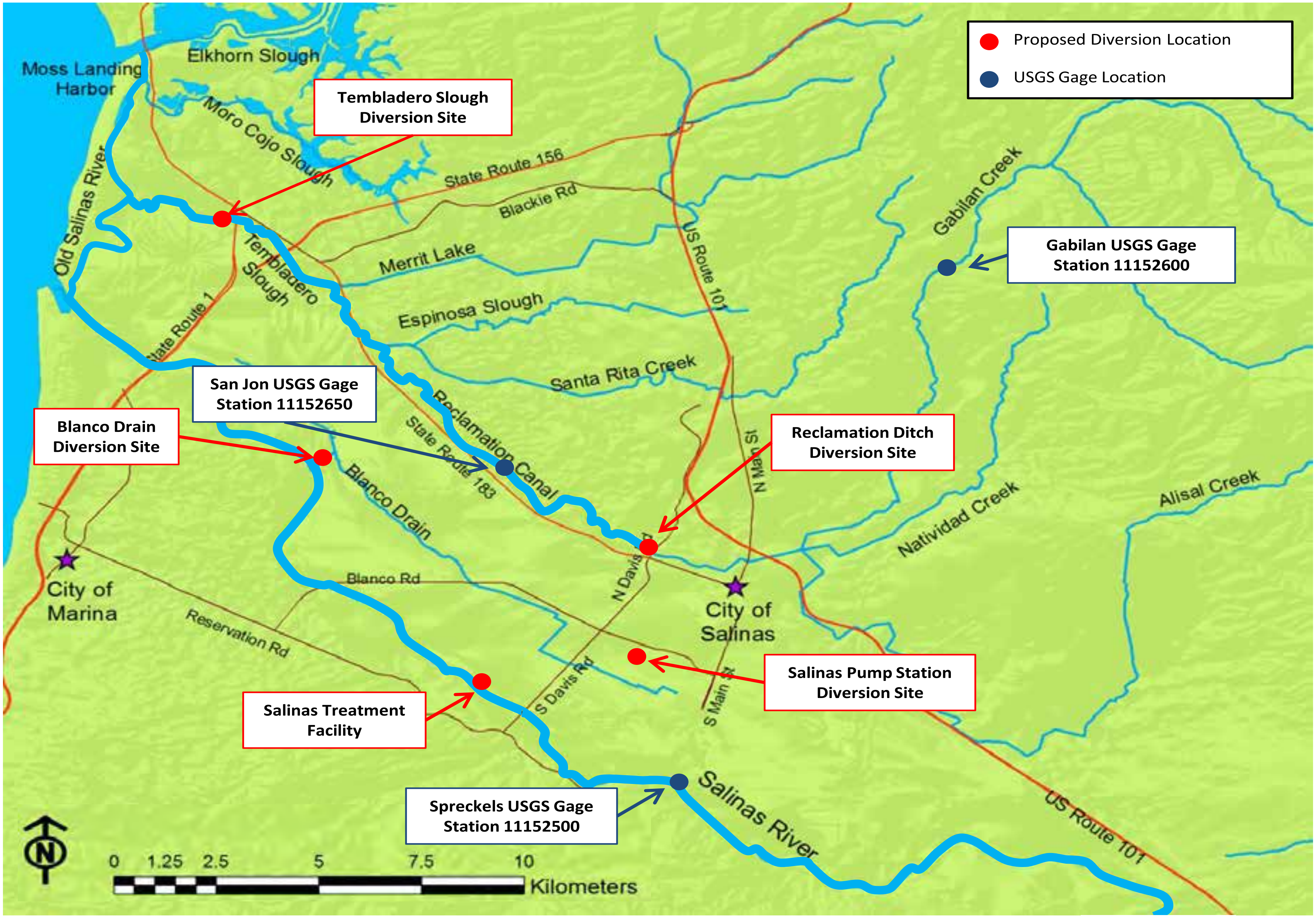


Central Coast Watershed Studies, 2011

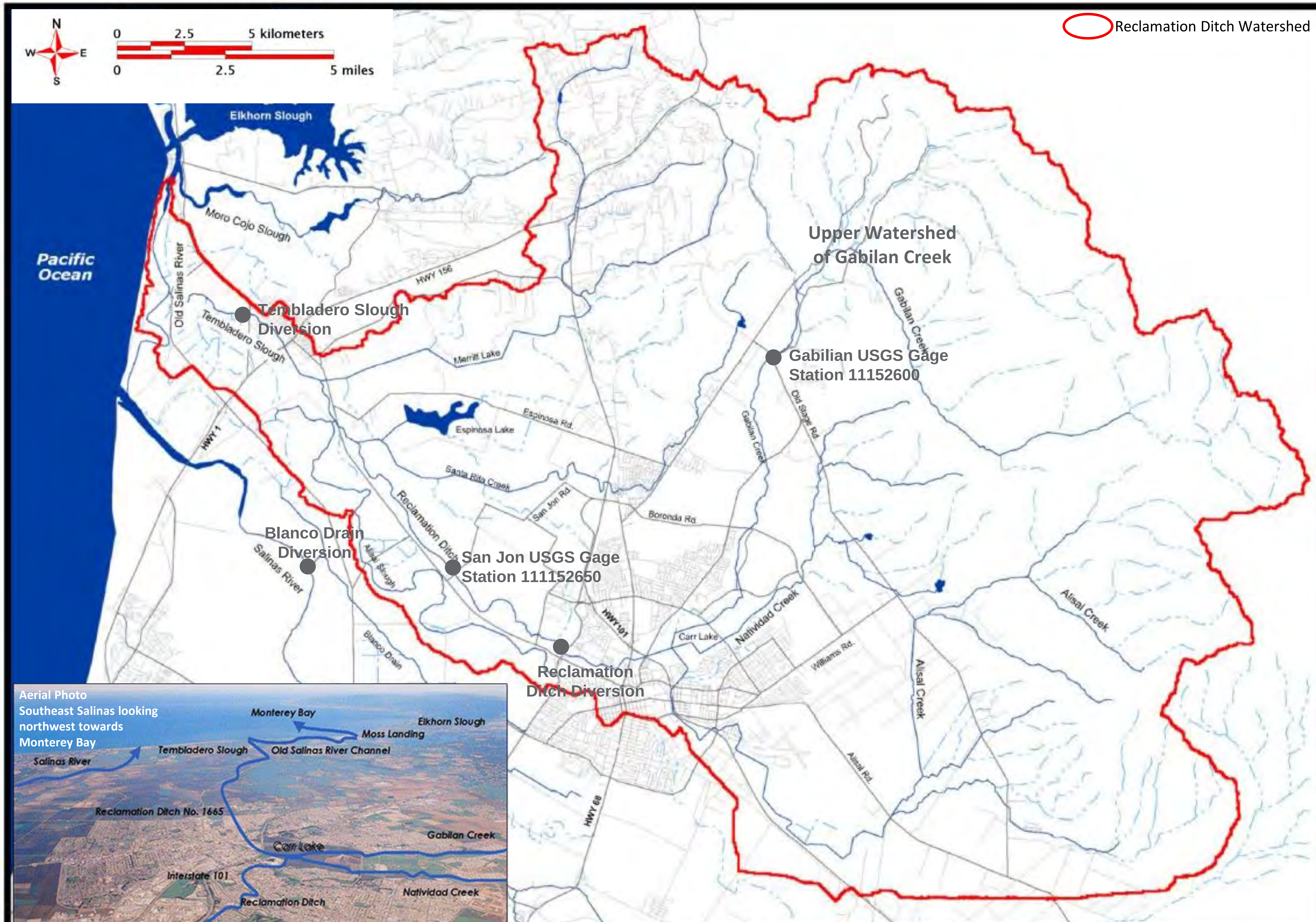
Salinas River Watershed In Project Vicinity

DD&A

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.4-1



Source: CCoWS, 2014

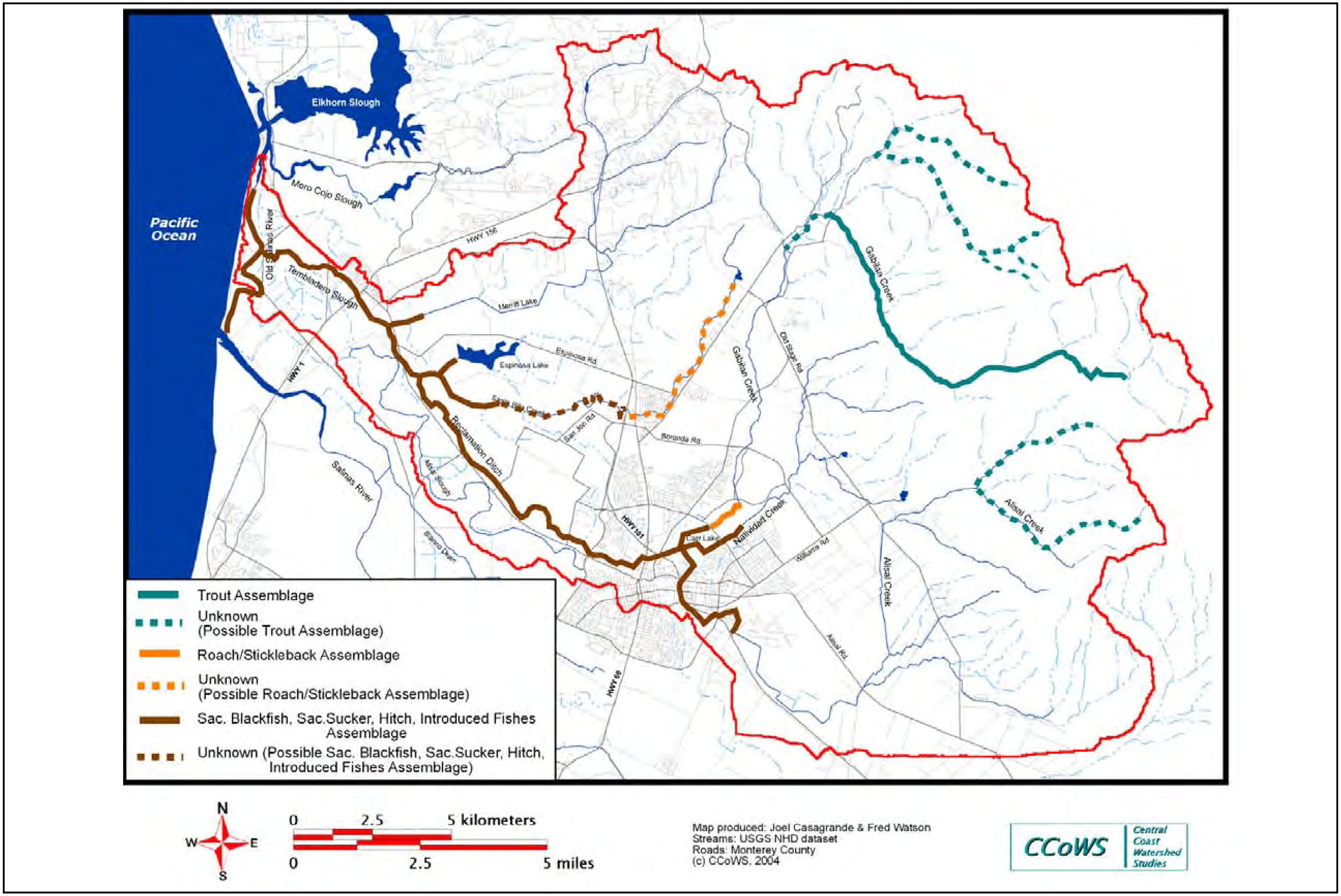
DD&A

Reclamation Ditch Watershed

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 4.4-2



DD&A

Reclamation Ditch Fish Assemblages

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.4-4

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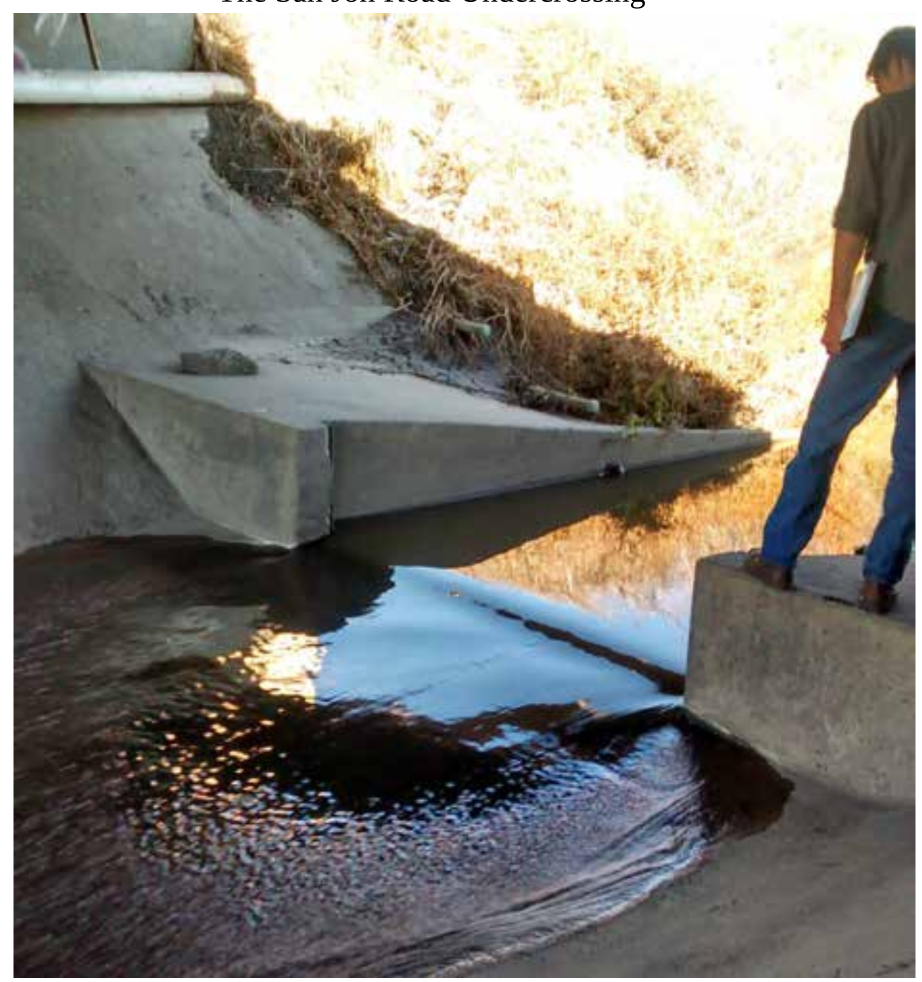
Molera Road Bridge

Near Tembladero Slough Intake Site

Boronda Street Crossing

Haro Road Bridge

The San Jon Road Undercrossing



Near Reclamation Ditch Intake Site

See Figure 4.4-5b for location of photos

Source: Inman J, Malik A, Missaghian J, Neill C, Noble S, Duffy D, 2014

DD&A

Photos of Reclamation Ditch and Tembladero Slough

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.4-5a

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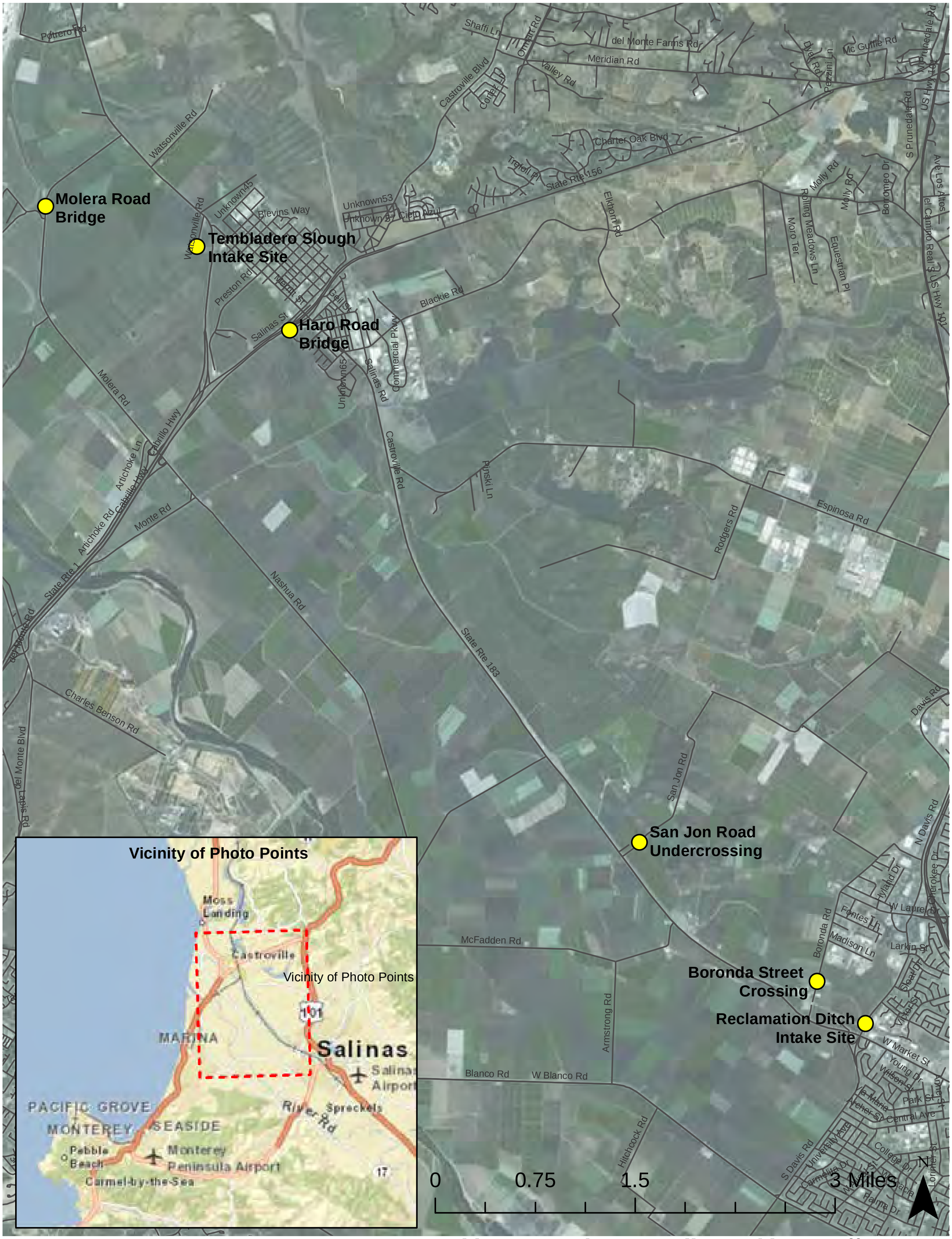

Source: Inman J, Malik A, Missaghian J, Neill C, Noble S, Duffy D, 2014

DD&A

Photos of Reclamation Ditch and Tembladero Slough

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.4-5b

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Gabilan Creek at Laurel Road

Gabilan Creek between Constitution and Lexington

Boronda Road Bridge

Gabilan Creek between Constitution and Lexington

Gabilan Creek upstream of Lexington

Stilling basin US of Boronda Road bridge

See Figure 4.4-6b for location of photos

Source: Schaaf and Wheeler, 2015

DD&A

Photos of Gabilan Creek Passage Obstacles

April 2015

Figure 4.4-6a

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Source: Schaaf and Wheeler, 2015

DD&A

Photos of Gabilan Creek Passage Obstacles

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.4-6b

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4.5 BIOLOGICAL RESOURCES: TERRESTRIAL

Sections	Tables	Figures
4.5.1 Introduction 4.5.2 Environmental Setting 4.5.3 Regulatory Framework 4.5.4 Impacts and Mitigation Measures 4.5.5 References	4.5-1 Habitat Classifications by Data Source 4.5-2 Habitat Types Identified within the Project Study Area during Biological Surveys in 2014 4.5-3 Special-Status Plant Species Identified within the Project Study Area during Focused Botanical Surveys in Spring 2014 4.5-4 Special-Status Terrestrial Wildlife Species Known or With the Potential to Occur Within the Project Study Area 4.5-5 Sensitive Habitats within the Project Study Area 4.5-6 Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial 4.5-7 HMP Species and Habitats Identified within the Project Study Area on the former Fort Ord 4.5-8 Summary of Impacts 4.5-9 Summary of Impacts to Affected Reaches below the Reclamation Ditch Diversion 4.5-10 Summary of Impacts to Affected Reaches below the Tembladero Slough Diversion 4.5-11 Summary of Operational Impacts to the Affected Reaches below the Reclamation Ditch Diversion	4.5-1 CTS Occurrences within the Vicinity of the Project Study Area 4.5-2 CRLF Occurrences within the Vicinity of the Project Study Area 4.5-3 new Surface Water Features in Northern Salinas Valley Tributary to Lower Elkhorn Slough

4.5.1 Introduction

This section describes the terrestrial biological resources present in the vicinity of the Proposed Project and evaluates the potential effects of construction and operation of the Proposed Project on these resources. These resources include plant communities, wildlife habitats, potentially occurring special-status plant and wildlife species, and natural communities at each of the Proposed Project component sites. Fisheries are addressed in **Section 4.4, Biological Resources: Fisheries** of this EIR and marine biological resources are addressed in **Section 4.3, Air Quality and Greenhouse Gas** of this EIR.

Public and agency comments related to terrestrial biological resources were received during the public scoping period, and are summarized below:

- Potential need for federal agency consultation under the Endangered Species Act;
- Analyze all potentially significant effects on sensitive species and habitats and identify mitigation measures;
- Evaluate if any project components would benefit non-native species;
- Evaluate potential impacts of noise and vibration; and
- Evaluate potential impacts to biological resources associated with “frac-out.”

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A**, **Scoping Report.**

4.5.2 Environmental Setting

The Proposed Project is located within Monterey County and traverses the Monterey Peninsula, which encompasses a broad range of biological resources. Most Proposed Project components would be located primarily within urbanized, developed areas and existing agricultural lands. However, some proposed components would occur within native and non-native habitats. The region within which the project would be located lies near the confluence of the San Francisco Bay, Central Coast, and South Coast Range floristic provinces; the flora of Monterey County is thus among the most diverse in California. The Monterey Bay region represents the population range limits of many rare plant species endemic to northern and southern portions of the state. In general, the Proposed Project would be situated in level to gently sloped topography within eight miles of the ocean, with elevations ranging from sea level to approximately 425 feet above sea level at the proposed Injection Well Facility Site. The average annual precipitation in this portion of Monterey County ranges from 12 to 20 inches; annual temperatures average 59 degrees Fahrenheit.

4.5.2.1 *Biological Project Study Area*[1]

A separate biological Project Study Area[2] was created for the Proposed Project to include all areas where permanent and temporary impacts may occur to biological resources as a result of project construction and operation. The Project Study Area for the Proposed Project was defined using input from the project technical team, preliminary project plans, and assessor parcel information. Relevant information from these sources was combined using Geographic Information Systems (GIS) software to create the final Project Study Area.

The Project Study Area includes the following surface water bodies: Lake El Estero, Roberts Lake, Locke Paddon Lake, Old Salinas River Channel, Reclamation Ditch, Tembladero Slough, Blanco Drain, and Salinas River. This analysis further defines “Affected Reaches” as portions of the Reclamation Ditch, Tembladero Slough, and the Old Salinas River Channel, which have the potential to be affected by the operation of the project as a result of changes in hydrology due to the proposed diversions. These changes have the potential to affect terrestrial biological resources.

4.5.2.2 *Data Sources*

The primary literature and data sources reviewed in order to determine the occurrence or potential for occurrence of special-status species within the Project Study Area are as follows: current agency status information from the U.S. Fish and Wildlife Service (USFWS or Service) and California Department of Fish and Wildlife (CDFW) for species listed, proposed for listing, or candidates for listing as threatened or endangered under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA), and those considered CDFW “species of special concern;” the California Native Plant Society

[1] There have been revisions to the Project Study Area at the Reclamation Ditch and Blanco Drain Diversion sites. The revisions were evaluated and no new impacts were identified (please refer to Attachment 1 of Appendix H rev).

[2] The Project Study Area includes areas of direct effects and indirect effects to surface waters associated with Source Water Diversions.

(CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2010); and the California Natural Diversity Database (CNDDB) RareFind occurrence reports (CDFW, 2015b). The CNDDB RareFind occurrence reports were reviewed from the Moss Landing, Marina, Monterey, Seaside, and Salinas quadrangles and the surrounding quadrangles (Soquel, Watsonville East, Watsonville West, Mt. Carmel, Prunedale, San Juan Bautista, Natividad, Soberanes Point, Spreckels, Chualar, and Carmel Valley) (**Attachment 2 of Appendix H rev**).

From these resources, a list of special-status plant and wildlife species known or with the potential to occur in the vicinity of the Project Study Area was developed (refer to **Attachment 3 of Appendix H rev** of this EIR for more information). The list identifies these species along with their regulatory status, habitat requirements, and a brief statement regarding the likelihood for the species to occur.

Botany

The generalized vegetation classification schemes for California described by Holland (1986) and Sawyer et al. (2009) were consulted in classifying the vegetation within the Project Study Area. The final classification and characterization of the vegetation within the Project Study Area is based on field observations and the List of Vegetation Alliances and Associations (or Natural Communities List) (Sawyer et al. 2009). Although this list replaces all other lists of terrestrial natural communities and vegetation types developed for the CNDDB, the more commonly used terrestrial communities derived from Holland are used in this EIR for ease of reference. **Table 4.5-1**, **Habitat Classifications by Data Source**, includes both the Natural Communities List classification and Holland classification for each habitat type for cross-reference purposes.

Information regarding the distribution and habitats of local and state vascular plants was also reviewed (Howitt and Howell, 1964 and 1973; Munz and Keck, 1973; Hickman, 1993; Baldwin, et al., 2012; Matthews, 2006; Jepson Flora Project, 2014). All plants observed within the Project Study Area were identified using keys and descriptions in Hickman (1993) and Matthews (2006). Scientific nomenclature for plants in this report follows Baldwin, et al., (2012) and common names follow Matthews (2006). A full botanical inventory was not recorded for the Project Study Area; however, the dominant species within each habitat were recorded and all plant species encountered were identified to eliminate them as being special-status species.

The entire Project Study Area, with the exception of a portion of the Product Water Conveyance Coastal Alignment from the existing Regional Treatment Plant through Armstrong Ranch to Del Monte Boulevard, a portion of the Injection Well Facilities site, Old Salinas River Channel Affected Reach, and the Reclamation Ditch and Tembladero Slough Affected Reaches past the top of bank, was surveyed for botanical resources following the applicable guidelines outlined in: *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (USFWS, 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2009), and *CNPS Botanical Survey Guidelines* (CNPS, 2001). No surveys were conducted along the portion of the Product Water Conveyance Coastal Alignment through Armstrong Ranch to Del Monte Boulevard as authorization to survey this area was not received.

Wildlife

The following literature and data sources were reviewed: CDFW reports on special-status wildlife (Remsen, 1978; Williams, 1986; Jennings and Hayes, 1994; Thelander, 1994); California Wildlife Habitat Relationships life history accounts and range maps (CDFW, 2014); and general wildlife references (Stebbins, 2003). A list of all wildlife species observed within the Project Study Area during field surveys is presented in **Attachment 4 of Appendix H rev**.

Based on the identification of special-status wildlife species with the potential to occur within or in the vicinity of the Project Study Area, it was determined that protocol-level surveys to determine presence or absence were not necessary. There are three protocol-level surveys that could be applicable to the Proposed Project – surveys for the California red-legged frog (CRLF), California tiger salamander (CTS), and burrowing owl. Due to known occurrences of the CRLF within the Project Study Area near the Salinas River (the Salinas Treatment Facility and the Blanco Drain Diversion sites) and burrowing owl along the Product Water Conveyance: RUWAP and Coastal Pipeline options within Armstrong Ranch, the analysis assumes presence of these species at these locations. None of the Proposed Project components are located within 2 km of a known CTS breeding location; therefore, protocol-level surveys for CTS were not conducted. Please see **Section 4.5.2.3** for more details on the analysis of CTS data.

In addition, this analysis assumes that Smith's blue butterfly is present in areas containing the obligate host plants (i.e., areas containing dune or coast buckwheat).

Wetland Delineation

The entire Project Study Area, including the Affected Reaches, was evaluated to identify areas potentially supporting coastal wetlands, state waters, and/or federal jurisdictional wetlands and other waters. A wetland delineation is provided in **Appendix I**. The Reclamation Ditch Diversion site, Tembladero Slough Diversion site, Blanco Drain Diversion site, Lake El Estero, Coastal conveyance pipeline alignment option (Locke Paddon Lake), CalAm Monterey Pipeline (Roberts Lake), and all of the affected reaches were identified as potentially containing wetlands under the jurisdiction of the United States Army Corp of Engineers (USACOE), the State Water Resources Control Board (SWRCB)/Central Coast Regional Water Quality Control Board (RWQCB), and/or the California Coastal Commission (CCC). A wetland delineation was conducted in accordance with the requirements set forth by the USACOE in *The Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual* (Wetland Manual) (Wetland Training Institute, 2002). The Wetland Manual defines wetlands and the three environmental diagnostics (or parameters). The 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Supplement) (USACOE, 2008) was used in conjunction with the Wetland Manual as it provides indicators for each parameter that are specific to the Arid West region. Prior to conducting field surveys, available reference materials were reviewed, including the National Wetlands Inventory Wetland Mapper (USFWS, 2014), the Web Soil Survey for Monterey County (USDA, 1978), the list of Hydric Soils of the United States (USDA-NRCS, 2014), the Soil Survey Geographic Database (USDA-NRCS, 2003), and aerial photographs of the site.

Table 4.5-1
Habitat Classifications by Data Source

Data Source	Habitat Type											
	Ruderal /Developed/ Active Agriculture	Non-Native Grassland	Central Maritime Chaparral	Central Coastal Scrub	Central Dune Scrub	Coast Live Oak Woodland	Wastewater Ponds	Riparian	Emergent Wetland	Salt Marsh Wetland	Aquatic	Eucalyptus Grove
A Manual of California Vegetation classifications	none	annual brome grasslands (*Bromus diandrus-Avena* spp. Association)	brittle leaf–wooly leaf manzanita chaparral (*Arctostaphylos* [*crustacea, tomentosa*] shrubland alliance) and sandmat manzanita chaparral (*Arctostaphylos pumila* provisional shrubland alliance)	coyote brush scrub (*Baccharis pilularis* shrubland alliance) and black sage scrub (*Salvia mellifera* shrubland alliance)	silver dune lupine-mock heather scrub (*Lupinus chamissonis-Ericameria ericoides* shrubland alliance)	coast live oak woodland (*Quercus agrifolia/Toxicodendron diversilobum/* grass association)	none	arroyo willow thickets (*Salix lasiolepis* shrubland alliance)	California bulrush marsh (*Schoenoplectus californicus* herbaceous alliance)	Pickleweed mats (*Salicornia depressa* herbaceous alliance)	none	eucalyptus groves (*Eucalyptus* [*globulus, camaldulensis*] semi-natural woodland stands)
Holland classification	none	non-native grassland	central maritime chaparral	central coastal scrub	central dune scrub	coast live oak woodland	none	central coast arroyo willow riparian forest	coastal and valley freshwater marsh	coastal salt marsh	none	none
CNDDB list of high priority and rare natural communities	not listed	not sensitive	sensitive	not sensitive	sensitive	not sensitive	not listed	sensitive	sensitive	sensitive	not listed	not sensitive

4.5.2.3 *Habitats within the Project Study Area*

Numerous field surveys have been conducted within the Project Study Area over previous years; most recently field surveys were conducted by DD&A in February 2015. These surveys resulted in the mapping and quantification of 11 habitat types within the Project Study Area. **Table 4.5-2, Habitat Types Identified within the Project Study Area** provides the acreages of these habitats within the Project Study Area for each Proposed Project component. A brief description of each of these habitats follows the table, along with a statement regarding the presence or potential presence of special-status species within each habitat type. In addition, each habitat type description begins with listing both the Natural Communities List and Holland vegetation types for cross-reference purposes and identifies whether the habitat type is considered sensitive by CDFW.

Table 4.5-2
Habitat Types Identified within the Project Study Area

Habitat Type (in acres)	Component Name														
	Source Water Diversion and Storage Sites						Treatment Facilities at the Regional Treatment Plant	Product Water Conveyance****		Injection Well Facilities	CalAm Distribution System		Affected Reaches		
	Salinas Pump Station	Salinas Treatment Facility	Reclamation Ditch	Tembladero Slough	Blanco Drain	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	Reclamation Ditch	Tembladero Slough***	Old Salinas River Channel
Ruderal/Developed/ Active Agriculture	35.9 ac	6.4 ac	0.4 ac	1.2 ac	6.7 ac	0.08 ac	50.6 ac	58.5 ac	50.8 ac	19.9 ac	15.3 ac	38.0 ac	19.8 ac	13.3 ac	4.7 ac
Non-Native Grassland	--	--	--	--	1.0 ac	--	18.9 ac	16.6 ac	23.7 ac	--	--	--	--	0.1 ac	--
Central Maritime Chaparral	--	--	--	--	--	--	--	1.9 ac	--	62.5 ac	--	--	--	--	--
Central Coastal Scrub	--	--	--	--	--	--	--	--	12.9 ac	--	--	--	1.1 ac	--	0.8 ac
Central Dune Scrub	--	--	--	--	--	--	--	--	--	--	--	2.7 ac	--	--	0.5 ac
Coast Live Oak Woodland	--	--	--	--	--	--	--	1.1 ac	--	3.6 ac	–	--	--	--	--
Wastewater Ponds	--	244.1 ac	--	--	--	--	33.1 ac	--	--	--	--	--	--	--	--
Riparian	--	34.7 ac	--	**	0.7 ac	*	--	--	0.6 ac	--	--	0.6 ac	2.5 ac	1.8 ac	0.02 ac
Emergent Wetland	--	--	--	--	--	0.7 ac	--	--	--	--	--	--	--	2.5 ac	2.8 ac
Salt Marsh Wetland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.0 ac
Aquatic	--	--	0.05 ac	0.2 ac	0.3 ac	17.3 ac	--	--	--	--	--	0.2 ac	12.3 ac	16.4 ac	22.5 ac
Eucalyptus Grove	--	--	--	--	--	--	--	--	--	--	--	2.2 ac	--	--	--

* While riparian habitat is present adjacent to the Project Study Area at Lake El Estero, it is not within the Project Study Area and is, therefore, not quantified.
**Potential CCC jurisdictional wetlands occur within the Tembladero Slough Diversion site (0.01 acre) please refer to the Wetlands and Other Waters discussion in the Sensitive Habitat section for discussion.
*** Habitat associated with a man-made wetland at the confluence of the Old Salinas River Channel and the Tembladero Slough was included in the habitat area attributed to the Tembladero Slough.
**** Habitat and resources associated with the Product Water Conveyance Alignment Options within the Project Study Area from just south of Lightfighter Drive to the Injection Well Facilities is accounted for under the RUWAP Alignment option; however, this portion of the Project Study Area is part of both the RUWAP and Coastal Product Water Conveyance Alignment Options.

Ruderal/Developed/Active Agriculture

Approximately 322 acres of ruderal/developed/active agriculture habitat occur within the Project Study Area, and this habitat type is associated with all Proposed Project components. Ruderal/developed/active agriculture habitat areas are those areas which have been disturbed by human activities and are vegetated by non-native annual grasses and other “weedy” species, or do not contain any vegetation other than row crops. This habitat type includes areas ranging from regularly disturbed areas dominated by non-native herbaceous species adapted to disturbance, to areas with buildings, roads, and pavement.

Most of the ruderal/developed/active agriculture habitat areas within the Project Study Area are nearly or completely devoid of vegetation. Other ruderal/developed/active agriculture areas include row crops or vegetation dominated by ripgut grass (*Bromus diandrus*), slender oat (*Avena barbata*), cut-leaved plantain (*Plantago coronopus*), English plantain (*P. lanceolata*), hottentot fig (*Carpobrotus edulis*), sand mat (*Cardionema ramosissimum*), long-beaked filaree (*Erodium botrys*), and telegraphweed (*Heterotheca grandiflora*).

Common wildlife species that do well in urbanized and disturbed areas can utilize this habitat, such as the American crow (*Corvus brachyrhynchos*), California ground squirrel (*Otospermophilus beecheyi*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), western scrub jay (*Aphelocoma californica*), European starling (*Sturnus vulgaris*), Coast Range fence lizard (*Sceloporus occidentalis bocourtii*), and rock pigeon (*Columba livia*). This habitat type is considered to have low biological value, as it is generally dominated by non-native plant species and consists of relatively low quality habitat from a wildlife perspective.

Special-status wildlife species that may occur in the ruderal/developed/active agricultural habitat areas include the California legless lizard (*Anniella pulchra*) and coast horned lizard (*Phrynosoma blainvillii*), specifically in the open, sandy areas within the Project Study Area of the Product Water Conveyance: Coastal and RUWAP alignment options, Injection Well Facilities, and the CalAm Distribution System: Monterey Pipeline. Raptors, including the white-tailed kite (*Elanus leucurus*), may forage and nest within trees that occur within and adjacent to ruderal areas within all Proposed Project components. Obligate host plants for the Smith’s blue butterfly (*Euphilotes enoptes smithi*), coast buckwheat (*Eriogonum latifolium*) and dune buckwheat (*Eriogonum parvifolium*), were identified within this habitat type during the 2014 surveys within the Project Study Areas of the Product Water Conveyance: Coastal alignment option and Cal Am Distribution System: Monterey Pipeline.

Special-status plant species identified during the 2014 botanical surveys within the ruderal/developed areas of the Project Study Area include: Monterey spineflower (*Chorizanthe pungens* var. *pungens*), Kellogg’s horkelia (*Horkelia cuneata* ssp. *sericea*), Monterey ceanothus (*Ceanothus rigidus*), Eastwood’s goldenbush (*Ericameria fasciculata*), and sandmat manzanita (*Arctostaphylos pumila*) (**Table 4.5-3, Special-Status Plant Species Identified within the Project Study Area during Focused Botanical Surveys in Spring 2014**).

Non-Native Grassland

Non-native grasslands typically occur throughout California in open areas of valleys and foothills, usually on fine-textured clay or loam soils that are somewhat poorly drained (Holland, 1986). Non-native grasslands are often dominated by non-native annual grasses and forbs along with scattered native grasses and wildflowers. Within the Project Study Area, this habitat type occurs within approximately 60 acres at the Blanco Drain Diversion site, Treatment Facilities at the Regional Treatment Plant, within the Product Water Conveyance: RUWAP and Coastal alignment options, and along the Tembladero Slough Affected Reach. The non-native grasslands at the Treatment Facilities at the Regional Treatment Plant, Blanco Drain Diversion site, and Tembladero Slough Affected Reach are highly disturbed. Although non-native grassland is present within these Proposed Project component sites, due to on-going disturbance activities at these sites, the habitat does not provide suitable habitat for special-status plant or wildlife species.

The non-native grassland habitat is disturbed and includes many of the same species as the ruderal habitat described above. However, instead of herbaceous species, annual grasses are dominant, such as ripgut brome, soft chess (*Bromus hordeaceus*), rattail fescue (*Vulpia myuros*), slender oat, barnyard foxtail (*Hordeum murinum* spp. *leporinum*), and perennial ryegrass (*Lolium perenne*). Non-native grasslands provide habitat to a number of wildlife species, including rodents and reptiles, such as the Botta's pocket gopher (*Thomomys bottae*), California ground squirrel, northern pacific rattlesnake (*Crotalus oreganus* ssp. *oreganus*), gopher snake (*Pituophis catenifer catenifer*), coast garter snake (*Thamnophis elegans terrestris*), and western fence lizard. Raptors are also known to forage in this habitat. Additional avian species that may be found within non-native grassland habitat are presented in **Attachment 5 of Appendix H rev.**

Special-status wildlife species that have the potential to occur within the non-native grasslands within the Product Water Conveyance: RUWAP and Coastal alignment options include the American badger (*Taxidea taxus*), Monterey ornate shrew (*Sorex ornatus salarius*), western burrowing owl (*Athene cunicularia*), California horned lark (*Eremophila alpestris actia*), California legless lizard, and coast horned lizard. Special-status avian and bat species may also forage and nest within this habitat type, including the white-tailed kite and pallid bat. Three special-status plant species were identified within this habitat type during the 2014 surveys: Monterey spineflower, Kellogg's horkelia, and sandmat manzanita.

Central Maritime Chaparral

Central maritime chaparral is a plant community found within the coastal fog zone on sandy to rocky soils. Many of the plants in the chaparral community require fire in order to propagate. This habitat type is dominated by sclerophyllous (having hard, thick, leathery leaves) shrubs that may be drought-deciduous or evergreen, and are often spiny. Within the Project Study Area, central maritime chaparral occurs within approximately 64 acres of the Product Water Conveyance: RUWAP Pipeline option and the Injection Well Facilities site.

Dominant plant species include shaggy-bark manzanita (*Arctostaphylos tomentosa* ssp. *tomentosa*), sandmat manzanita, coyote bush (*Baccharis pilularis*), deerweed (*Acmispon glaber*), chamise (*Adenostoma fasciculatum*), and sticky monkey flower (*Mimulus aurantiacus*). Additional species include California coffeeberry (*Frangula californica*), poison oak (*Toxicodendron diversilobum*), black sage (*Salvia mellifera*), mock heather (*Ericameria ericoides*), Eastwood's goldenbush (*E. fasciculata*), Monterey ceanothus, coast live oak (*Quercus agrifolia*), rush rose (*Crocanthemum scoparium*), golden yarrow (*Eriophyllum confertiflorum*), sticky cinquefoil (*Drymocallis glandulosa*), Monterey spineflower, Michael's rein orchid (*Piperia michaelii*), globe lily (*Calochortus albus*), and checker lily (*Fritillaria affinis*).

Common wildlife species that occur within central maritime chaparral habitat include California quail (*Callipepla californica*), California towhee (*Melozone crissalis*), California thrasher (*Toxostoma redivivum*), common poorwill (*Phalaenoptilus nuttallii*), Anna's hummingbird (*Calypte anna*), wrentit (*Chamaea fasciata*), western scrub jay, northern pacific rattlesnake, Coast Range fence lizard, gopher snake, coast garter snake, and brush rabbit (*Sylvilagus bachmani*). Additional avian species that may be found within central maritime chaparral habitat are presented in **Attachment 5 of Appendix H rev**.

Maritime chaparral is identified as a sensitive habitat on the CNDDB's list of high priority and rare natural communities (CDFW, 2010). Special-status plant species identified within this habitat type during the 2014 surveys are Monterey spineflower, sandmat manzanita, Monterey ceanothus, and Eastwood's goldenbush.[3] Special-status wildlife that may occur within this habitat are California legless lizard, Monterey ornate shrew, and Monterey dusky-footed woodrat (*Neotoma macrotis luciana*). Special-status avian and bat species may also forage and nest within this habitat type.

Central Coastal Scrub

Holland (1986) describes central coastal scrub habitat as an area with dense shrubs, approximately one to two meters tall, which lacks grassy openings and is often integrated with other habitat types. Central coastal scrub occurs in river mouths, stream sides, terraces, stabilized dunes of coastal bars, spits along the coastline, coastal bluffs, open slopes, and ridges. Soils are variable, typically sandy to relatively heavy clay (Sawyer et al., 2009). Central coastal scrub habitats provide cover and food for a number of wildlife species, including songbirds, snakes, lizards, rodents, and other small mammals. Central coastal scrub habitat within the Project Study Area occurs within approximately 15 acres along the Product Water Conveyance: Coastal Pipeline option, Reclamation Ditch Affected Reach, and Old Salinas River Channel Affected Reach. However, these areas also include several of the same herbaceous understory species as the ruderal areas, such as hottentot fig. Dominant shrub species in the coastal scrub habitat include coyote bush, California coffeeberry, Monterey ceanothus, poison oak, coast sagebrush (*Artemisia californica*), black sage, mock heather, and sticky monkey flower.

Central coastal scrub habitats provide cover and food for a number of wildlife species, including songbirds, snakes, lizards, rodents, and other small mammals. Common species that may occur within the central coastal scrub habitat include California quail, blue-gray gnatcatcher (*Polioptila caerulea*), Anna's hummingbird, Coast Range fence lizard, northern pacific rattlesnake, gopher snake, brush rabbit, and California ground squirrel. Additional avian species that may be found within the central coastal scrub habitat are presented in **Attachment 5 of Appendix H rev.**

The following special-status plant species were identified within this habitat type: Monterey spineflower, Monterey ceanothus, and sandmat manzanita.[4] No special-status wildlife species were observed within this habitat type; however, California legless lizard, coast horned lizard, Monterey dusky-footed woodrat, and Monterey ornate shrew may occur throughout the central coastal scrub within the Project Study Area. Special-status avian and bat species may also nest and forage within this habitat type. Smith's blue butterfly may also occur within this habitat type where coast and dune buckwheat are present.

Central Dune Scrub

Silver dune lupine-mock heather scrub, or central dune scrub, occurs in the stabilized dunes of coastal bars, river mouths, spits along the coastline, coastal bluff, and terraces (Sawyer et al.,

[3] Please note that focused botanical surveys were conducted in a portion of the Injection Well Facilities site as additional area was added to the component after the appropriate identification period; therefore, the remainder of the component site would require focused botanical surveys to determine presence of special-status plant species if construction is proposed in this area.

[4] Please note that focused botanical surveys were not conducted within the coastal dune scrub habitat along the Reclamation Ditch Affected Reach and Old Salinas River Channel Affected Reach as these areas would not be directly impacted by construction activities.

2009). Holland (1986) describes central dune scrub as a dense coastal scrub community of scattered shrubs, subshrubs, and herbs, generally less than one meter tall and often developing considerable cover. Within the Project Study Area, this habitat type occurs within approximately three acres along the CalAm Distribution System: Monterey Pipeline alignment and along the Old Salinas River Channel Affected Reach. Dominant plant species within the central dune scrub habitat include silver dune lupine (*Lupinus chamissonis*), mock heather, beach sagewort (*Artemisia pycnocephala*), coast buckwheat, deerweed, and hottentot fig.

Central dune scrub is identified as a sensitive habitat on the CNDDB's list of high priority and rare natural communities (CDFW, 2010). Special-status coast wallflower is observed within this habitat type within the Project Study Area. Special-status wildlife species with the potential to occur within this habitat type include coast horned lizard, California legless lizard, western burrowing owl, and Smith's blue butterfly (where coast and/or dune buckwheat is present).

Coast Live Oak Woodland

Approximately five acres of coast live oak woodland (*Quercus agrifolia*/*Toxicodendron diversilobum*/grass Association) are present within the Project Study Area along the Product Water Conveyance: RUWAP Pipeline option and the Injection Well Facilities site. The canopy is quite dense in many areas with an understory dominated by poison oak. Other plant species present within the coast live oak woodland include hedge-nettle (*Stachys* sp.), slender oat, shaggy-bark manzanita, sheep sorrel (*Rumex acetosella*), fiesta flower (*Pholistoma auritum*), and scattered shrubs such as fuchsia-flowered gooseberry (*Ribes speciosum*), California coffeeberry, and sticky monkey flower.

Coast live oak woodland is an important habitat to many wildlife species. Oaks provide nesting sites for many avian species and cover for a variety of mammals, including mourning dove (*Zenaida macroura*), American kestrel (*Falco sparverius*), California ground squirrel, and California pocket mouse (*Chaetodipus californicus*). Acorns provide an important food source for acorn woodpecker (*Melanerpes formicivorus*), western scrub jay, and black-tailed deer (*Odocoileus hemionus columbianus*). Other common wildlife species found in the coast live oak woodland are raccoon, Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), bobcat (*Lynx rufus*), and coyote (*Canis latrans*). Generally, red-tailed hawks (*Buteo jamaicensis*) and great-horned owls (*Bubo virginianus*) nest and roost in the coast live oaks. Additional avian species that may be found within the oak woodland habitat are presented in **Attachment 5 of Appendix H rev**.

Monterey spineflower was identified at the edges of the coast live oak woodland habitat within the Project Study Area. Special-status wildlife species with the potential to occur within this habitat type include Monterey dusky-footed woodrat, Monterey ornate shrew, California legless lizard, coast horned lizard, special-status bat species, nesting raptors, including white-tailed kite, and other migratory bird species.

Oak woodlands are considered important natural communities because they provide a variety of ecological, aesthetic, and economic values. The extent of oak woodland in California has declined due to agricultural conversion, urban development, fuel wood harvesting, and grazing activities. Coast live oak woodland is not considered a sensitive habitat by CDFW (CDFW, 2010); however, coast live oak trees and woodland are typically protected under local tree removal ordinances.

Wastewater Ponds

Wastewater ponds are present at the Salinas Treatment Facility and Treatment Facilities at the Regional Treatment Plant component sites of the Project Study Area, totaling approximately 277 acres.

Residential, commercial, and industrial wastewater is conveyed to the MRWPCA Regional Treatment Plant. Secondary treated effluent from the Regional Treatment Plant is also recycled at the co-located Salinas Valley Reclamation Plant for irrigation of 12,000 acres of farmland in the northern Salinas Valley. The existing facilities at the Regional Treatment Plant, including the Reclamation Plant, are designed and permitted to produce up to 29.6 MGD of recycled water. The Salinas Valley Reclamation Plant includes an 80 acre-foot storage pond that holds tertiary-treated and Salinas River water before it is distributed to farmland by a distribution system called the Castroville Seawater Intrusion Project. The use of recycled wastewater for irrigation reduces regional dependence on and use of local groundwater, which, in turn reduces groundwater pumping-related seawater intrusion into the Salinas Valley aquifers. The pond at the Treatment Facilities at the Regional Treatment Plant is lined with plastic and contains no vegetation. It does not provide any suitable habitat for special-status plant species. This recycled water storage pond may provide habitat for waterfowl and other migratory bird species; however, it does not provide any suitable habitat for other special-status wildlife species.

The City of Salinas operates an industrial wastewater conveyance and treatment system that serves approximately 25 agricultural processing and related businesses located east of Sanborn Road and south of U.S. Highway 101. This wastewater collection system is completely separate from the Salinas municipal sewage collection system and includes 14-inch to 33-inch diameter gravity pipelines that flow to the Salinas Pump Station, and then flow into a 42-inch gravity pipeline to the Salinas Treatment Facility. Over 80% of the wastewater flows in this system are from fresh vegetable packers (typically, wash water used on harvested row crops). The Salinas Treatment Facility consists of an influent pump station, an aeration lagoon, percolation ponds, and rapid infiltration beds to treat, percolate, and evaporate the water. Disturbed and developed areas associated with the wastewater ponds at the Salinas Treatment Facility, including access roads and berms surrounding the ponds, were included in this habitat type.

Roads and berms surrounding the wastewater ponds and ponds that are not currently functioning are denuded or support ruderal vegetation species, such as cheeseweed (*Malva parviflora*), poison hemlock (*Conium maculatum*), ripgut brome, slender oat, cut-leaved plantain, long-beaked filaree, and bur clover (*Medicago polymorpha*). These areas are regularly disturbed and the vegetation maintained by methods such as mowing and/or plowing, or herbicide. Some of the infiltration beds also support a limited amount of emergent vegetation, such as brass buttons (*Cotula coronopifolia*) and bulrush (*Scirpus* sp.).

Common wildlife species which do well in urbanized and disturbed areas can utilize these areas, such as the California ground squirrel, raccoon, striped skunk, and Coast Range fence lizard. However, these areas also provide suitable habitat for avian species, including waterfowl, such as mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), American coot (*Fulica americana*), gadwall (*Anas strepera*), ruddy duck (*Oxyura jamaicensis*), great blue heron (*Ardea herodias*), American avocet (*Recurvirostra americana*), and dowitcher (*Limnodromus* sp.).

Special-status wildlife species that may occur within the wastewater ponds at the Salinas Treatment Facility site include tricolored blackbird (*Agelaius tricolor*) and other migratory avian species. The pond at the Treatment Facilities at the Regional Treatment Plant may provide habitat for protected waterfowl and other migratory bird species. No special-status plant species were identified within these areas.

Riparian

Riparian habitats are those plant communities supporting woody vegetation found along rivers, creeks, streams, canyon bottom drainages, and seeps. Riparian habitat, or Arroyo willow thickets, occurs within stream banks and benches, slope seeps, and stringers along drainages (Sawyer et al., 2009). Holland (1986) describes this habitat type as a dense, low, closed-canopy, broadleaved, winter-deciduous riparian forest dominated by Arroyo willow (*Salix lasiolepis*) that occurs on moist to saturated sandy or gravelly soil, especially on bottomlands. Wetlands may occur within this habitat type. Riparian habitat is present within four components of the Project Study Area and along the affected reaches, totaling approximately 41 acres. Riparian habitat is present at the Salinas Treatment Facility site (34.7 acres), Blanco Drain Diversion site (0.7 acre), along the Product Water Conveyance: Coastal Pipeline option (0.6 acres at Locke Paddon Lake), and CalAm Distribution System: Monterey Pipeline (0.6 acres at Roberts Lake). Additionally, there are areas of riparian habitat that occur along the Reclamation Ditch Affected Reach (2.5 acres), Tembladero Slough Affected Reach (1.8 acres), and the Old Salinas River Channel Affected Reach (0.02 acres).

Riparian areas provide habitat for many wildlife species, particularly birds and herpetofauna (the reptiles and amphibians of a particular region or habitat). Common species that may be found within the riparian habitat in the Project Study Area includes Sierran treefrog (*Pseudacris sierra*), Monterey ensatina (*Ensatina eschscholtzii eschscholtzii*), tree swallow (*Tachycineta bicolor*), song sparrow (*Melospiza melodia*), and Pacific-slope flycatcher (*Empidonax difficilis*). Additional avian species that may be found within the riparian habitat are presented in **Attachment 5 of Appendix H rev**.

The riparian habitat at Roberts Lake is highly disturbed; however, it may provide suitable habitat for the western pond turtle (*Actinemys marmorata*) and Salinas harvest mouse (*Reithrodontomys megalotis distichlis*). Riparian habitat at Locke Paddon Lake may also provide suitable habitat for these two species as well as the Monterey dusky-footed woodrat, Monterey ornate shrew, tricolored blackbird, Coast Range newt (*Taricha torosa torosa*), and two-striped garter snake (*Thamnophis hammondii*). The riparian habitat at the Salinas Treatment Facility site and the Blanco Drain Diversion site along the Salinas River may provide habitat for all these species, as well as nesting raptors and other migratory bird species. Additionally, the California red-legged frog (*Rana draytonii*) (CRLF) is assumed present within the riparian habitat at the Salinas Treatment Facility site, as this species is known to occur and breed within and adjacent to the Salinas River. The riparian habitat within the three Affected Reaches may support western pond turtle, Coast Range newt, two-striped garter snake, Monterey dusky-footed woodrat, and Monterey ornate shrew. Special-status bat species and protected avian species may also utilize riparian habitat at all Proposed Project component sites. Due to the salinity and lack of suitable breeding habitat, CRLF is not expected to occur within the three Affected Reaches. No special-status plant species were identified within this habitat type. Riparian habitat is considered by the CDFW to be a sensitive habitat.

Emergent Wetlands

Emergent wetland habitats are those plant communities of herbaceous vegetation found in brackish to freshwater marshes, as well as along banks, bars, and channels of estuaries. This habitat is typically found within the elevation range of 0 to 200 meters above sea level (Sawyer et al., 2009). California bulrush (*Schoenoplectus californicus*) is the dominant species present in this habitat. Other species present may include pacific silver-weed (*Potentilla anserina* ssp. *pacifica*), saltbush (*Atriplex* sp.), fleshy jaumea (*Jaumea carnosa*), and mule fat (*Baccharis salicifolia*). Within the Project Study Area, this habitat occurs in areas near the coastline. Approximately six acres of emergent wetland habitat is present within the Project Study Area. Emergent wetlands are present at Lake El Estero (0.7 acre), along the Tembladero Slough Affected Reach (2.5 acres), and along the Old Salinas River Channel Affected Reach (2.8 acres).

Emergent wetland areas may be used by common wildlife species including waterfowl such as the Canada goose, mallards, American coot, and great egret (*Ardea alba*). This habitat may also be used by amphibians including the sierra treefrog (*Pseudacris sierra*).

No special-status plant species were identified within the emergent wetland habitat, and none are expected to occur. The emergent wetland habitat may support the following special-status wildlife species: western pond turtle, Coast Range newt, two-striped garter snake, Salinas harvest mouse, tricolored blackbird, and nesting raptors, migratory birds, and other protected avian species.

Salt Marsh Wetlands

Salt marsh wetland habitat, or pickleweed mats, occurs along the downstream portions of the Old Salinas River Channel Affected Reach (13 acres). This habitat is composed of salt tolerant plant communities supporting herbaceous cover that are typically found along inland margins of lagoons, bays, and estuaries. This habitat experiences regular inundation by salt water for at least part of the year (Holland, 1986). This habitat is typically found within the limited elevation range of 0.15 meters to 2.5 meters above sea level. Species diversity within this habitat tends to vary with the age of the stand, with younger stands having a lower diversity (Sawyer et al. 2009). The dominant plant species present in this habitat is pickleweed (*Salicornia pacifica*). Other species present may include fleshy jaumea, alkali heath (*Frankenia salina*), gum-plant (*Grindelia stricta*) and salt grass (*Distichlis spicata*). This alliance has been identified as sensitive (CDFW, 2010).

Common wildlife using this salt marsh wetland habitat includes various species of waterfowl.

No special-status plant species were identified within the salt marsh habitat, and none are expected to occur. The salt marsh habitat may support the following special-status wildlife species: western pond turtle, Coast Range newt, two-striped garter snake, Salinas harvest mouse, tricolored blackbird, and nesting raptors, migratory birds, and other protected avian species.

Aquatic

Aquatic habitat within the Project Study Area is present within five component sites and the three Affected Reaches, totaling approximately 69 acres. Aquatic habitat occurs at four source water diversion component sites (Reclamation Ditch, Tembladero Slough, Blanco Drain, and Lake El Estero), Roberts Lake along the CalAm Distribution System: Monterey Pipeline, and within the Affected Reaches (Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel). Additionally, Locke Paddon Lake and the Salinas River are adjacent to the Project Study Area along the Product Water Conveyance: Coastal Pipeline option and Salinas Treatment Facility site.

The Reclamation Ditch is a maintained, channelized ditch surrounded along almost its entire length by development and agriculture. The Tembladero Slough is downstream of, and connected to, the Reclamation Ditch. Like the Reclamation Ditch, the Tembladero Slough is almost completely barren of vegetation and surrounded by agriculture. Downstream and connected to the Tembladero Slough, the Old Salinas River Channel extends to the Potrero Tide Gates and is tidally influenced and brackish. There are diversion facilities proposed on the Tembladero Slough and Reclamation Ditch. As described above, the Affected Reaches of the Proposed Project include the Old Salinas River Channel, as well as portions of the Reclamation Ditch and Tembladero Slough.

A proposed diversion site is located on the Blanco Drain and the proposed pipeline to convey water diverted from Blanco Drain would cross the Salinas River. The Blanco Drain system, commonly referred to as Blanco Drain, drains the surrounding agriculture surface run-off and tile drainage. The Blanco Drain is tributary to the Salinas River. A 50-foot long reach of the Salinas River was included in the Blanco Drain Diversion site and is bordered by willows adjacent to agricultural fields.

Lake El Estero is a small lake, surrounded by a multi-use recreation area in the City of Monterey. The lake is fed by four tributary streams and functions as part of the City of Monterey storm water collection system. Small areas of bulrush are present around the edges of the lake.

The CalAm Distribution System: Monterey Pipeline alignment runs along the southeastern border of Roberts Lake, which is located within the City of Seaside. Roberts Lake is a perennial lagoon surrounded by a narrow band of wetlands that empties directly into the Monterey Bay. Roberts Lake is a brackish-water resource that is influenced by both tidal and freshwater inputs.

The Product Water Conveyance: Coastal Pipeline alignment option runs along the eastern border of Locke Paddon Lake, which is located within the City of Marina. Locke Paddon Lake is a vernal pond surrounded by a wide margin of emergent and forested/shrub wetlands.

Common wildlife using these aquatic habitats include waterfowl such as Canada goose, mallard, American coot, great egret, and cormorants (*Phalacrocorax* sp.).

No special-status plant species were identified or anticipated to occur within the aquatic habitat areas. The aquatic habitat may support the following special-status wildlife species: western pond turtle, California red-legged frog, Coast Range newt, and two-striped garter snake.

Eucalyptus Grove

A grove of eucalyptus trees (*Eucalyptus globulus*) is present within the Project Study Area (approximately two acres), located across from the Naval Postgraduate School in the City of Monterey along the CalAm Distribution System: Monterey Pipeline. This small grove extends along an existing recreation trail and has a maintained understory. An occurrence of monarch butterfly (*Danaus plexippus*) is identified by the CNDDB within the eucalyptus grove. Additionally, raptors may nest within these trees. No other special-status wildlife species are expected to occur within this habitat type. No special-status plant species were identified within this habitat type during the 2014 surveys.

4.5.2.4 *Special-Status Species*

The Project Study Area was surveyed for the presence or potential presence of a number of special-status species. The special-status species in the following section are discussed due to their potential or known presence within the Project Study Area and potential to be impacted by the Proposed Project. In addition, some special-status wildlife species that are unlikely or have a low potential to occur are included in the discussion below due to their local or regional importance.

Special-status species are those plants and animals that have been formally listed or proposed for listing as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). Listed species are afforded legal protection under the ESA and CESA. Species that meet the definition of rare or endangered under CEQA Guidelines Section 15380 are also considered special-status species. Animals on the CDFW's list of "species of special concern" (most of which are species whose breeding populations in California may face extirpation if current population trends continue) meet this definition and are typically provided management consideration through the CEQA process, although they are not legally protected under the ESA or CESA. Additionally, the CDFW also includes some animal species that are not assigned any of the other status designations in the CNDDB "Special Animals" list. The CDFW considers the taxa on this list to be those of greatest conservation need, regardless of their legal or protection status.

Plants listed as rare under the California Native Plant Protection Act (CNPPA) or included listed in California Native Plant Society (CNPS) California Rare Plant Ranks (CRPR, formerly known as CNPS Lists) 1A, 1B, 2A, and 2B are also treated as special-status species as they meet the definitions of Sections 2062 and 2067 of the CESA and in accordance with CEQA Guidelines Section 15380.[5] In general, the CDFW requires that plant species on CRPR 1A (Plants presumed extirpated in California and Either Rare or Extinct Elsewhere), CRPR 1B (Plants rare, threatened, or endangered in California and elsewhere), CRPR 2A (Plants presumed extirpated in California, but more common elsewhere); and CRPR 2B (Plants rare, threatened, or endangered in California, but more common elsewhere) of the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2010) be fully considered during the preparation of environmental documents relating to CEQA.[6] In addition, species of vascular plants, bryophytes, and lichens listed as having special-status by CDFW are considered special-status plant species (CDFW, 2015a).

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under both federal and state laws and regulations. The federal Migratory Bird Treaty Act (MBTA) of 1918 and California Fish and Game Code Section 3513 prohibit killing, possessing, or trading migratory birds except in accordance with regulation prescribed by the Secretary of the Interior. Birds of prey are protected in California under Fish and Game Code Section 3503.5. This section states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except otherwise provided by this code or any regulation adopted pursuant thereto." In addition, fully protected species under the Fish and Game Code Section 3511 (birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians) are also considered special-status animal species. Species with no formal special-status designation but thought by experts to be rare or in serious decline are also considered special-status animal species (CDFW, 2015b).

[5] CNPS initially created five CRPR in an effort to categorize degrees of concern; however, in order to better define and categorize rarity in California's flora, the CNPS Rare Plant Program and Rare Plant Program Committee have developed the new CRPR 2A and CRPR 2B.

[6] Species on CRPR 3 (Plants about which we need more information - a review list) and CRPR 4 (Plants of limited distribution - a watch list) may, but generally do not, meet the definitions of Sections 2062 and 2067 of CESA, and are not typically considered in environmental documents relating to CEQA. However, this analysis considers species on CRPR 3 or 4 as special-status species when the species is also a Fort Ord Habitat Management Plan (HMP) species. Please refer to **Section 4.5.3.3**, **Regional and Local**, for a discussion about the HMP.

After careful consideration, the CDFW has removed the USFWS's federal "species of concern" designation from the CNDDB. The federal species of concern list was an internal Service list maintained by some of the field offices comprised of taxa that were formerly designated as Candidate categories C1 and C2 plus some other miscellaneous taxa. This list is no longer updated within the Service's Ventura Office, which includes Monterey County as part of its area of responsibility. As a result, the federal species of concern designation is not considered an indicator of special-status species status in this analysis.

Tables 4.5-3 and 4.5-4, Special-Status Terrestrial Wildlife Species Known or With Moderate to High Potential to Occur Within the Project Study Area on the following pages outline the presence or potential presence of special-status plant and wildlife species within each of the Proposed Project component areas. **Table 4.5-3,** also identifies the area occupied by each observed special-status plant species within each of the surveyed Proposed Project component areas. All other special-status plant species presented in **Attachment 3 of Appendix H <u>rev</u>** are assumed "not present" based on the results of the focused special-status plant surveys and, for those Proposed Project component areas not surveyed, the likelihood to occur is described. All other special-status wildlife species presented in **Attachment 3 of Appendix H <u>rev</u>** are assumed "unlikely to occur" and/or "unlikely to be impacted" for the species-specific reasons presented. Only those special-status species that are known or have a moderate and high potential to occur within the Project Study Area are discussed in the impacts and mitigation section.

Table 4.5-3
Special-Status Plant Species Identified within the Project Study Area during Focused Botanical Surveys in 2014

Species Name	Component Name														
	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance***		Injection Well Facilities*	CalAm Distribution System		Affected Reaches		
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option*		Transfer Pipeline	Monterey Pipeline	Reclamation Ditch*	Tembladero Slough*	Old Salinas River Channel*
Sandmat manzanita (*Arctostaphylos pumila*)	--	--	--	--	--	--	--	0.5 ac	0.5 ac	8.9 ac**	--	--	--	--	--
Monterey ceanothus (*Ceanothus rigidus*)	--	--	--	--	--	--	--	1,341 sq. ft.	0.3 ac	17.8 ac**	--	38 sq. ft.	--	--	--
Monterey spineflower (*Chorizanthe pungens* var. *pungens*)	--	--	--	--	--	--	--	0.1 ac	0.3 ac	0.1 ac**	--	--	--	--	--
Eastwood's goldenbush (*Ericameria fasciculata*)	--	--	--	--	--	--	--	198 sq. ft.	--	2.8 ac**	--	--	--	--	--
Coast wallflower (*Erysimum ammophilum*)	--	--	--	--	--	--	--	--	--	--**	--	337 sq. ft.	--	--	--
Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*)	--	--	--	--	--	--	--	2 sq. ft.	0.1 ac	2 sq. ft.**	--	--	--	--	--

*Focused botanical surveys were not conducted in portions of these component sites.
**Additional areas were added to the Injection Well Facilities (approximately 39 acres) and Salinas Treatment Facility (approximately 6 acres) following the 2014 Focused Botanical Survey after the appropriate identification period. Other areas of special-status plant species may be present in the additional area.
***Habitat and resources associated with the Product Water Conveyance Alignment Options within the Project Study Area from just south of Lightfighter Drive to the Injection Well Facilities is accounted for under the RUWAP Alignment option; however, this portion of the Project Study Area is part of both the RUWAP and Coastal Product Water Conveyance Alignment Options

Table 4.5-4
Special-Status Terrestrial Wildlife Species Known or With Moderate to High Potential to Occur Within the Project Study Area

Species Name	Component Name														
	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System		Affected Reaches		
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain	Lake El Estero	Treatment Facilities at Regional Treatment Plant	RUWAP Alignment Option	Coastal Alignment Option	Injection Well Facilities	Transfer Pipeline	Monterey Pipeline	Reclamation Ditch	Tembladero Slough	Old Salinas River Channel
Invertebrates															
Monarch butterfly (*Danaus plexippus*)	--	--	--	--	--	--	--	--	--	--	--	H/O	--	--	--
Smith's blue butterfly (obligate host plant acreages) (*Euphilotes enoptes smithi*)	--	--	--	--	--	--	--	--	H (0.4 acre)	--	--	H/O (1.0 acre)	H	--	H
Amphibians and Reptiles															
Western pond turtle (*Actinemys marmorata*)	--	H	--	--	H	H	--	--	H/O	--	--	H	H	H	H
California legless lizard (*Anniella pulchra*)	--	--	--	--	--	--	--	H/O	H/O	H	--	H	H	--	H
Coast horned lizard (*Phrynosoma blainvillii*)	--	--	--	--	--	--	--	H/O	H/O	H	--	H	H	--	H
California red-legged frog (*Rana draytonii*)	--	H/O	--	--	H/O	--	--	--	--	--	--	--	--	--	--
Coast Range newt (*Taricha torosa*)	--	H	--	--	H	H	--	--	H	--	--	H	H	H	H
Two-striped garter snake (*Thamnophis hammondii*)	--	H	--	--	H	H	--	--	H	--	--	H	H	H	H
Mammals															
Monterey dusky-footed woodrat (*Neotoma macrotis luciana*)	--	H	--	--	H	--	--	H	H	K	--	--	H	H	H
Salinas harvest mouse (*Reithrodontomys megalotis distichlis*)		H	--	--	H	H	--	O	H/O	--	O	H/O	H	H	H/O
Monterey ornate shrew (*Sorex ornatus salarius*)	--	H	--	--	H	--	--	H	H	H	--	H	H	H	H

Table 4.5-4
Special-Status Terrestrial Wildlife Species Known or With Moderate to High Potential to Occur Within the Project Study Area

Species Name	Component Name														
	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Affected Reaches		
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	Reclamation Ditch	Tembladero Slough	Old Salinas River Channel
American badger (*Taxidea taxus*)	--	--	--	--	--	--	--	H	H	--	O	O	--	--	--
Hoary bat (*Lasiurus cinereus*)	H	H	--	--	H	--	--	H	H	H	--	H	H	H	H
Pallid bat (*Antrozous pallidus*)	H	H	--	--	H	--	--	H	H	H	--	H	H	H	H
Birds															
Tricolored blackbird (*Agelaius tricolor*)	--	H	--	--	H	H	--	--	H/O	--	--	H	H	H	H
Western burrowing owl (*Athene cunicularia*)	--	--	--	--	--	--	--	H/O	H/O	--	--	H/O	--	--	--
California horned lark (*Eremophila alpestris actia*)	--	H	--	--	--	--	--	H/O	H/O	--	--	--	--	--	--
White-tailed kite (*Elanus leucurus*)	--	--	--	--	--	--	--	K/O	H/O	--	--	--	--	--	--
Nesting Raptors, Migratory Birds, and Other Protected Avian Species	H	H	--	--	H	H	H	H	H	H	H	H	H	H	H

H = Habitat Present within Project Study Area; O = Occurrence (from CNDDB or other resource) within Project Study Area; K = Known (Observed) within Project Study Area

Special-Status Plant Species

Sandmat Manzanita

Sandmat manzanita is a CNPS Rank 1B and Fort Ord Habitat Management Plan (HMP) species. This evergreen shrub in the Ericaceae family blooms from February to May. Sandmat manzanita is associated with openings in chaparral, coastal scrub, closed cone coniferous forest, coastal dunes, and cismontane woodland habitats on sandy soils at elevations between 3-205 meters.

The CNDDB reports 12 occurrences of this species in the 16 quadrangles reviewed, two of which include portions of the Project Study Area. This species was identified during the 2014 botanical surveys at the Injection Well Facilities site, throughout Fort Ord Dunes State Park (Product Water Conveyance: Coastal alignment option), and near California State University at Monterey Bay (CSUMB) (Product Water Conveyance: RUWAP alignment option). Please refer to **Table 4.5-3** and **Attachment 6 of Appendix H rev** for the area occupied by sandmat manzanita within the Project Study Area by Proposed Project component.

Monterey Ceanothus

Monterey ceanothus is a CNPS Rank 4 and Fort Ord HMP species. This evergreen shrub in the Rhamnaceae family blooms from February to April (sometimes through June). This species is associated with closed-cone coniferous forests, chaparral, and coastal scrub on sandy soils at elevations between 3-550 meters.

The CNDDB does not report any occurrences of this species within the 16 quadrangles reviewed; however, it is known to occur throughout the former Fort Ord. Monterey ceanothus was identified during the 2014 botanical surveys at the Injection Well Facilities site, throughout Fort Ord Dunes State Park (Product Water Conveyance: Coastal alignment option), within Sand City (CalAm Distribution System: Monterey Pipeline), and near CSUMB (Product Water Conveyance: RUWAP alignment option). Please refer to **Table 4.5-3** and **Attachment 6 of Appendix H rev** for the area occupied by Monterey ceanothus within the Project Study Area by Proposed Project component.

Monterey Spineflower

Monterey spineflower is a federally threatened, CNPS Rank 1B, and Fort Ord HMP species. There is designated critical habitat adjacent to the Project Study Area west of the Product Water Conveyance: Coastal Pipeline alignment option as it runs along Fort Ord Dunes State Park, and a recovery plan has been approved for this species. It is a small, prostrate annual herb in the Polygonaceae family that blooms from April to June. The white to rose floral tube of Monterey spineflower distinguishes it from the more common, but closely related, diffuse spineflower (*Chorizanthe diffusa*), which has a lemon-yellow floral tube. Monterey spineflower typically occurs on open sandy or gravelly soils on relic dunes in coastal dune, coastal scrub, and maritime chaparral habitats, though it can also be associated with cismontane woodlands and valley and foothill grasslands, within a range of 3-450 meters in elevation.

The CNDDB reports 27 occurrences of this species in the 16 quadrangles reviewed, four of which include portions of the Project Study Area. This species was identified during the 2014 botanical surveys in the City of Marina and Fort Ord Dunes State Park (Product Water Conveyance: Coastal alignment option), Armstrong Ranch (Product Water Conveyance: RUWAP alignment option), and Injection Well Facilities site. Please refer to **Table 4.5-3** and **Attachment 6 of Appendix H rev** for the area occupied by Monterey spineflower within the Project Study Area by Proposed Project component.

Eastwood's Goldenbush

Eastwood's goldenbush is a CNPS Rank 1B and Fort Ord HMP species. This evergreen shrub in the Asteraceae family blooms from July to October. Eastwood's goldenbush is associated with openings in maritime chaparral, coastal scrub, closed cone coniferous forest, and coastal dune habitats on sandy soils at elevations between 30-275 meters.

The CNDDB reports 17 occurrences of this species in the 16 quadrangles reviewed, five of which include portions of the Project Study Area. This species was identified during the 2014 botanical surveys at the Injection Well Facilities site and near CSUMB (Product Water Conveyance: RUWAP alignment option). Please refer to **Table 4.5-3** and **Attachment 6 of Appendix H rev** for the area occupied by Eastwood's goldenbush within the Project Study Area at the Injection Well Facilities site and Product Water Conveyance: RUWAP alignment option.

Coast Wallflower

Coast wallflower is a CNPS Rank 1B and Fort Ord HMP species. This perennial herb in the Brassicaceae family blooms from February to June. Coast wallflower is associated with sandy openings in maritime chaparral, coastal dune, and coastal scrub habitats, within a range of 0-60 meters in elevation.

The CNDDB reports 16 occurrences of this species in the 16 quadrangles reviewed, three of which include portions of the Project Study Area. This species was identified during the 2014 botanical surveys near the Naval Postgraduate School (CalAm Distribution System: Monterey Pipeline). Please refer to **Table 4.5-3** and **Attachment 6 of Appendix H rev** for the area occupied by coast wallflower within the Project Study Area by Proposed Project component.

Kellogg's Horkelia

Kellogg's horkelia is a CNPS Rank 1B species. It is a perennial herb in the Rosaceae family and blooms April through June. Kellogg's horkelia is typically associated with openings in closed cone coniferous forest, maritime chaparral, and coastal scrub in sandy or gravelly soils on relic dunes, within a range of 10-200 meters in elevation.

The CNDDB reports 18 occurrences of Kellogg's horkelia in the 16 quadrangles reviewed, three of which include portions of the Project Study Area. This species was identified during the 2014 botanical surveys in the City of Marina (Product Water Conveyance: Coastal alignment option), Armstrong Ranch (Product Water Conveyance: RUWAP alignment option), and at the Injection Well Facilities site. Please refer to **Table 4.5-3** and **Attachment 6 of Appendix H rev** for the area occupied by Kellogg's horkelia within the Project Study Area by Proposed Project component.

Special-Status Terrestrial Wildlife Species

Special-Status Bat Species

Special-status bat species that have the potential to occur in the vicinity of non-native grassland, coast live oak woodland, central coastal scrub, and central maritime chaparral habitats as either maternity, migratory, or foraging roosts include the pallid bat and hoary bat. These species are discussed in more detail below.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a CDFW species of special concern, and is a year round resident in California. This species of bat occurs in a wide variety of habitats including grasslands, shrublands, arid desert areas, oak savanna, coastal forested areas, and coniferous forests of the mountain regions of California and forests ranging from sea level up through mixed conifer forests. Pallid bats are most common in open, dry habitats with rocky areas for roosting. Day roosts of this species include caves, crevices, mines, and occasionally hollow trees and buildings. This species seems to prefer rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Pallid bats make use of similar structures for night roosting and will use more open sites such as eaves, awnings, and open areas under bridges for feeding roosts. Pallid bats feed on large insects (20 to 70 mm in length). Foraging takes place over open ground, at heights generally not greater than 7.5 feet, although prey is most often caught on the ground. Jerusalem crickets, scorpions and beetles make up most of the diet of pallid bats in Central California. Copulation occurs in the fall, October through December. Females store the sperm and ovulation occurs in the following spring. Parturition timing, which is determined by local climate and embryonic development, usually takes about 9 weeks with birth occurring in May or June. Twins are the norm in northern California but in other areas they are known to have triplets. Maternity colonies range from 20 to 200 individual adult bats. Males roost in much smaller groupings (Hermanson and O'Shea, 1983).

The CNDDB reports two occurrences of pallid bat within the 16 quadrangles reviewed, located approximately 13 miles from the Project Study Area. The pallid bat may roost in trees within the Project Study Area, most likely coast live oak trees and riparian forest, and may forage over non-native grasslands, central coastal scrub, and central maritime chaparral habitats. Therefore, it may occur at the Salinas Treatment Facility site, Blanco Drain site, Product Water Conveyance: RUWAP and Coastal alignment options, Injection Well Facilities site, CalAm Distribution System: Monterey Pipeline, and the three Affected Reaches. There is a moderate potential for the pallid bat to forage and roost within these habitat types. Please refer to **Table 4.5-4** for a list of potential to occurrences of the pallid bat within the Project Study Area by Proposed Project component.

Hoary Bat

The hoary bat (*Lasiurus cinereus*) is included on the CDFW's CNDDB "Special Animals" list. They may be found at any location in California, although distribution may be patchy in southeastern deserts. This common, solitary species winters along the coast and in southern California, breeding inland and north during the winter range. There is evidence that the sexes separate during the warm months, females being more abundant in the northeastern U.S. and males in the west. Hoary bats generally roost in dense foliage of medium to large trees, preferring sites that are hidden from above with few branches below and have ground cover of low reflectivity. It prefers open habitats or habitat mosaics with access to trees for cover and open areas or edge for feeding. Numerous studies have shown that hoary bats feed primarily on moths, and various flying insects are taken. These nocturnal animals emerge late in the evening, with peak activity usually occurring three to five hours after sunset. Copulation occurs in autumn during migration or on the wintering grounds. Mating is followed by delayed fertilization. The young are born from mid-May through early July, most often in litters of two, but one to four may be born. Based on the distribution of female hoary bats during this time, it is unlikely that birth and rearing occur in California (Cryan, 2003).

The CNDDB reports three occurrences of hoary bat within the 16 quadrangles reviewed, one of which includes portions of the Project Study Area. The hoary bat may roost within the Project Study Area, most likely coast live oak trees and riparian forest, and may forage over non-native grasslands, central coastal scrub, and central maritime chaparral habitats. Therefore, it may occur at the Salinas Pump Station site, Salinas Treatment Facility site, Blanco Drain site, Product Water Conveyance: RUWAP and Coastal alignment options, Product Water

Conveyance: Booster Pump Station RUWAP and Coastal alignment options, Injection Well Facilities site, CalAm Distribution System: Monterey Pipeline, and the three Affected Reaches. However, while this species may use suitable roosting and foraging habitat within the Project Study Area as winter grounds, the hoary bat is unlikely to occur during the summer months and it is unlikely that birth and rearing occur within the Project Study Area (Cryan, 2003). Therefore, there is a high potential for hoary bat to forage and roost within these habitats, but maternity roosts are unlikely to occur. Please refer to **Table 4.5-4** for a list of potential to occurrences of the hoary bat within the Project Study Area by Proposed Project component.

Monterey Dusky-Footed Woodrat

The Monterey dusky-footed woodrat is a CDFW species of special concern. This is a subspecies of the dusky-footed woodrat *(Neotoma macrotis)*, which is common to oak woodlands throughout California. Dusky-footed woodrats are frequently found in forest habitats with moderate canopy cover and a moderate to dense understory, including riparian forests; however, they may also be found in chaparral communities. Relatively large nests are constructed of grass, leaves, sticks, and feathers and are built in protected spots, such as rocky outcrops or dense brambles of blackberry and/or poison oak. Typical food sources for this species include leaves, flowers, nuts, berries, and truffles. Dusky-footed woodrats may be a significant food source for small- to medium-sized predators. Populations of this species may be limited by the availability of nest material. Within suitable habitat, nests are often found in close proximity to each other.

The CNDDB reports no occurrence of Monterey dusky-footed woodrat within the 16 quadrangles reviewed. However, this species is known to occur throughout Monterey County. Woodrat nests were observed within the Injection Well Facilities site. Although no nests were observed, suitable habitat (i.e., coast live oak woodland, central maritime chaparral, central coastal scrub, and riparian habitats) occurs within the Salinas Treatment Facility site, Blanco Drain Diversion site, along the Product Water Conveyance: RUWAP and Coastal alignment options, Injection Well Facilities site, CalAm Distribution System: Monterey Pipeline, and the three Affected Reaches; therefore, this species has a high potential to occur at these locations. The riparian habitat at Roberts Lake (Monterey Pipeline) and Locke Paddon Lake (Product Water Conveyance: Coastal alignment option) is likely not dense enough to provide woodrat habitat and the species is unlikely to occur in these areas. Please refer to **Table 4.5-4** for a list of potential to occurrences of the Monterey dusky-footed woodrat within the Project Study Area by Proposed Project component.

Salinas Harvest Mouse

The Salinas harvest mouse is included on the CDFW's CNDDB "Special Animals" list. This subspecies of the western harvest mouse is known only to occur in the Monterey Bay region in fresh and brackish water wetlands, and probably in the adjacent uplands around the mouth of the Salinas River. Nests of woven dried vegetation are constructed in thick grass at the base of shrubs or amidst debris, litter, or slash[7]. The Salinas harvest mouse is nocturnal and active year round. Breeding occurs year-round in lower elevations and in late spring to early fall at higher elevations. Litter sizes average from 2-4 young and females can have up to 14 litters in a year.

The CNDDB reports seven occurrences of Salinas harvest mouse with the 16 quadrangles reviewed, three of which include portions of the Project Study Area. Suitable habitat for this species within the Project Study Area is present at the Salinas Treatment Facility site, Blanco

[7] Slash is vegetation material that has been cut down.

Drain Diversion site, Lake El Estero, Locke Paddon Lake (Product Water Conveyance: Coastal alignment option) (included in CNDDB occurrence), Roberts Lake (adjacent to CNDDB occurrence) (CalAm Distribution System: Monterey Pipeline), and the three Affected Reaches. The Salinas harvest mouse has a moderate potential to occur within these areas. Please refer to **Table 4.5-4** for a list of potential occurrences of the Salinas harvest mouse within the Project Study Area by Proposed Project component.

Monterey Ornate Shrew

The Monterey ornate shrew, also known as the Salinas ornate shrew, is a CDFW species of special concern and Fort Ord HMP species. In general, this shrew is common in the southern two-thirds of California west of the Sierra Nevada, from Mendocino to Butte counties, south to the Mexican border. It occupies a variety of mostly moist or riparian woodland habitats and also occurs within chaparral, grassland, and emergent wetland habitats where there is thick duff or downed logs. The breeding season is long; while most pregnancies occur in March and April, they may occur anytime from February through October. The litter size is about six and females may have more than one litter per year. Most individuals do not live to breed a second year. Foraging occurs under logs, rocks, and leaf litter, and prey items are mostly insects and some other invertebrates.

The CNDDB does not report any occurrences of the Monterey ornate shrew within the 16 quadrangles reviewed. As with most shrews, little is known about their ecology since they are hard to locate and do not survive well in traps due to very high metabolic rates. However, recent field surveys on the UC Fort Ord Natural Reserve found that habitats within the Project Study Area (e.g., non-native grassland, coast live oak woodland, central coastal scrub, central maritime chaparral, and riparian) are likely considered suitable habitat for the shrew. Therefore, suitable habitat is present within the Project Study Area along the Salinas River within the Salinas Treatment Facility and the Blanco Drain Diversion sites, Product Water Conveyance: RUWAP and Coastal alignment options, Injection Well Facilities site, CalAm Distribution System: Monterey Pipeline, and the three Affected Reaches. Therefore, the Monterey ornate shrew has a moderate potential to occur within suitable habitat within these portions of the Project Study Area. Please refer to **Table 4.5-4** for a list of potential occurrences of the Monterey ornate shrew within the Project Study Area by Proposed Project component.

American Badger

The American badger is a CDFW species of special concern. Badgers occupy a diversity of habitats within California. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated grounds. Grasslands, savannas, and mountain meadows near timberline are preferred. Badgers feed primarily on burrowing rodents, such as gophers, squirrels, mice, and kangaroo rats, as well as some insects and reptiles. Badgers also break open bee hives to eat both the brood and honey. They are active all year long and are nocturnal and diurnal. Mating occurs in summer and early fall and two to five young are born in burrows that are dug in relatively dry, often sandy soil, usually with sparse over story cover.

The CNDDB reports 12 occurrences of American badger within the 16 quadrangles reviewed, one of which includes a portion of the Project Study Area. However, this is a historic occurrence and the area has since been developed. Suitable habitat for this species within the Project Study Area is present within the non-native grassland habitat within the Product Water Conveyance: RUWAP and Coastal alignment options. As a result, the American badger has a high potential to occur within suitable habitat within these portions of the Project Study Area. Please refer to **Table 4.5-4** for a list of potential occurrences of the American badger within the Project Study Area by Proposed Project component.

Tricolored Blackbird

The tricolored blackbird ~~is a CDFW species of special concern~~ was listed as endangered in 2015 by CDFW on an emergency basis. This species is common locally and in coastal districts from Sonoma County south. These birds are summer residents in northeastern California, occurring regularly only at Tule Lake, but found as far south as Honey Lake in some years. In winter, this species becomes more widespread along the Central Coast and San Francisco Bay area (Grinnell and Miller, 1944). Tricolored blackbirds breed near fresh water, preferably in emergent wetlands with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, and tall herbs, which also serve as their preferred nesting habitat. Nests are built of mud and plant materials, and this species is highly colonial; the minimum nesting colony size is about 50 pairs (Grinnell and Miller, 1944). Drinking water is probably required, at least when seeds and grains are the major foods.

The CNDDB reports 10 occurrences of tricolored blackbird within the 16 quadrangles reviewed, the nearest of which is located at Locke Paddon Lake, immediately adjacent to the Project Study Area along the Product Water Conveyance: Coastal alignment option. Suitable habitat is also present at the Salinas Treatment Facility site, Blanco Drain Diversion site, Lake El Estero, and the three Affected Reaches. These areas are the only appropriate habitat for this species in the immediate vicinity of the Project Study Area and the species has a high potential to occur in these areas. Please refer to **Table 4.5-4** for a list of potential occurrences of the tricolored blackbird within the Project Study Area by Proposed Project component.

Western Burrowing Owl

Western burrowing owls are a CDFW species of special concern. Burrowing owls are a year-round resident of open, dry grassland and desert habitats, and grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. In general, burrowing owls frequent open grasslands and shrublands with perches and burrows. Burrowing owls use rodent burrows (often California ground squirrel) for roosting and nesting cover. These burrows are lined with excrement, pellets, debris, grass, and feathers (occasionally are unlined). Pipes, culverts, and nest boxes may be substituted for burrows in areas where burrows are not available. Breeding occurs from March through August, with the peak occurring in April and May. This species lives in large groups or colonies. Burrowing owls eat mostly insects, but small mammals, reptiles, birds, and carrion are also taken. This species usually hunts from a perch and hovers, hawks, dives, and hops after prey on the ground. Conversion of grassland to agriculture, poisoning of ground squirrels, and other forms of habitat management have led to the reduction in their numbers in recent decades.

The CNDDB reports 11 occurrences of western burrowing owl within the 16 quadrangles reviewed, three of which include portions of the Project Study Area. Suitable habitat for this species is present within the non-native grassland habitat along the Product Water Conveyance: RUWAP and Coastal alignment options. Additionally, this species may be present within the coastal dune scrub areas within the CalAm Distribution System: Monterey Pipeline, based on CNDDB observations within the area and despite the lack of typical habitat for the species. Therefore, the western burrowing owl has a high potential to occur within these Proposed Project components. Please refer to **Table 4.5-4** for a list of potential occurrences of the Western burrowing owl within the Project Study Area by Proposed Project component.

California Horned Lark

California horned lark is included on the CDFW's CNDDB "Special Animals" list. California horned larks are a common to abundant resident in a variety of open habitats and are frequently found in grasslands with low, sparse vegetation. This species builds a grass-lined cup nest in a depression on the ground, generally in the open. Breeding occurs between March and July, with peak activity occurring in May. California horned larks often form large flocks which forage and roost after breeding. This species eats mainly insects, snails, and spiders during the breeding season, and adds grass and forb seeds (as well as other plant material) to their diet seasonally.

The CNDDB reports three occurrences of California horned lark within the 16 quadrangles reviewed, one of which includes the portion of the Project Study Area near the Armstrong Ranch (Product Water Conveyance: RUWAP and Coastal alignment options). Suitable habitat for this species is present within the non-native grassland habitat at these components and, therefore, the California horned lark has a high potential to occur. Please refer to **Table 4.5-4** for a list of potential occurrences of the California horned lark within the Project Study Area by Proposed Project component.

White-tailed Kite

The white-tailed kite is a CDFW Fully Protected species. This raptor species is a fairly common to uncommon, year-long resident in coastal and valley lowlands. This species generally utilizes herbaceous lowlands with variable tree growth and an associated high population density of voles. Nests are made of loosely piled sticks and twigs and lined with grass, straw, or rootlets. Nests are generally placed near the top of a dense oak, willow, or other tree stands (usually 6-20 meters [20-100 feet] above ground), and are often located near an open foraging area. Breeding occurs from February to October with peak activity occurring from May to August. This species preys mainly on voles and other small mammals, but also takes birds, insects, reptiles, and amphibians. Foraging occurs in undisturbed open grasslands, meadows, farmlands, and emergent wetlands.

The CNDDB reports two occurrences of white-tailed kite within the 16 quadrangles reviewed, the nearest of which is located approximately 4.6 miles from the Project Study Area. Suitable nesting habitat for this species is present within the trees and shrubs adjacent to the non-native grasslands along the Product Water Conveyance: RUWAP and Coastal alignment options. A white-tailed kite was observed during surveys of the non-native grassland within the proposed Product Water Conveyance: RUWAP alignment option. Therefore, white-tailed kite has a high potential to occur within suitable habitat within these Proposed Project components. Please refer to **Table 4.5-4** for a list of potential occurrences of the White-tailed kite within the Project Study Area by Proposed Project component.

California Tiger Salamander (CTS)

The CTS was listed as a federally threatened species on August 4, 2004 (69 FR 47211-47248). Critical Habitat was designated for CTS on August 23, 2005 (70 FR 49379-49458), and went into effect on September 22, 2005. Additionally, CTS is a state threatened species and HMP species.

The CTS is a large, stocky salamander most commonly found in annual grassland habitat, but also occurring in the grassy understory of valley-foothill hardwood and chaparral habitats (USFWS, 2004), and uncommonly along stream courses in valley-foothill riparian habitats. Adults spend most of their lives underground, typically in burrows of ground squirrels and other animals (USFWS, 2004). The CTS has been eliminated from an estimated 55 percent of its documented historic breeding sites. Currently, about 150 known populations of California tiger salamanders remain. The CTS persists in disjoint remnant vernal pool complexes in Sonoma County and Santa Barbara County, in vernal pool complexes and isolated stockponds scattered along a narrow strip of rangeland on the fringes of the Central Valley from southern Colusa

County south to northern Kern County, and in sag ponds and human-maintained stockponds in the Coast Ranges from the San Francisco Bay Area south to the Temblor Range.

Adults spend most of the year over-summering in subterranean refugia, especially burrows of California ground squirrels and occasionally man-made structures (Stebbins, 2003; Stebbins and McGinnis, 2012). Sub-adults may develop to sexual maturity (up to five years) in subterranean refugia before surfacing to disperse to a breeding location (Trenham, et al., 2000). During breeding migrations, individuals are sometimes found under surface objects such as rocks and logs. Above-ground migratory and breeding activity may occur under suitable environmental conditions from mid-October through May. Adults may travel long distances between upland and breeding sites; adults have been found more than two kilometers (1.24 miles) from breeding sites (USFWS, 2004). Breeding occurs from November to February, following relatively warm rains (Stebbins, 2003). The CTS breeds and lays eggs primarily in vernal pools and other temporary rainwater ponds. Permanent human-made ponds are sometimes utilized if predatory fishes are absent; streams are rarely used for reproduction. Individual females may lay more than 1,000 eggs. Eggs are laid singly or in clumps on both submerged and emergent vegetation and on submerged debris in shallow water (Stebbins and McGinnis, 2012; Jennings and Hayes, 1994). Males typically spend 6-8 weeks at breeding ponds, while females typically spend only 1-2 weeks (Loredo, et al., 1996). In years of below average rainfall, or when rains occur late in the season, females may forego breeding (Trehnam, et al., 2000). Eggs hatch within 10-14 days (USFWS, 2004) and aquatic larvae seek cover in turbid water, clumps of vegetation, and other submerged debris. A minimum of 10 weeks is required to complete development through metamorphosis (Jennings and Hayes, 1994), although the larval stage may last up to six months and some larvae in Contra Costa and Alameda Counties may remain in their breeding sites over the summer (USFWS, 2004).

The CNDDB reports 63 occurrences of CTS within the 16 quadrangles reviewed. The nearest occurrence is 0.18 miles from the Reclamation Ditch Diversion site; however, this is a historic occurrence from 1952 and the area has since been developed. The nearest modern occurrences are several known breeding locations within the former Fort Ord. However, none of the Proposed Project components are located within 2 km of a known breeding location (**Figure 4.5-1, CTS Occurrences within the Vicinity of the Project Study Area**). There was a potential breeding site located within Armstrong Ranch; however, it was determined through genetic testing that the tiger salamander population was non-native (USFWS, 2007), and the site has since been graded and is under active agricultural use. No other portions of the Project Study Area lie within 2 km of a potential or known breeding location and no potential breeding habitat is present within the Project Study Area. Therefore, no impacts to this species would occur as a result of the Proposed Project. Please refer to **Table 4.5-4** for a list of potential occurrences of CTS within the Project Study Area by Proposed Project component.

Western Pond Turtle

The western pond turtle is a CDFW species of special concern. Western pond turtles are uncommon to common in permanent or nearly permanent aquatic resources in a wide variety of habitats throughout California, west of the Sierra-Cascade crest and are absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Elevation range extends from near sea level to 1,430 meters (4,690 feet). Western pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. The home range of western pond turtles is typically quite restricted; however, ongoing research indicates that in many areas, turtles may leave the watercourse in late fall and move into upland habitats where they burrow into duff and/or soil and overwinter (Holland, 1994). However, western pond turtles remain active year-round and may move several times during the course of overwintering. The time spent in the terrestrial habitat appears highly variable; in Southern California, western pond turtles may remain in these sites for only a month or two. In pond and lake habitats, however, some turtles remain in the pond during the winter (Holland, 1994). Additionally, during the spring or early summer, females move overland for up to 325 feet (100 meters) to find suitable sites for egg-laying. Nests are typically excavated in compact, dry soils in areas characterized by sparse vegetation, usually short grasses or forbs (Holland, 1994). Three to 11 eggs are laid from March to August depending on local conditions (Ernst et al., 1994). The western pond turtle is not known to be territorial, but aggressive encounters, including gesturing and physical combat (Bury and Wolfheim, 1973), are common and may function to maintain spacing on basking sites and to settle disputes over preferred spots. This species is considered omnivorous and food sources include aquatic plant material, beetles, and a wide variety of aquatic invertebrates. Fishes, frogs, and carrion have also been reported among their food (Stebbins and McGinnis, 2012).

The CNDDB reports 27 occurrences of western pond turtle within the 16 quadrangles reviewed, the nearest of which is located approximately 100 feet from the Project Study Area near Locke Paddon Lake (Product Water Conveyance: Coastal alignment option) within the City of Marina. Suitable habitat for this species is present within the Project Study Area along the Salinas River at the Salinas Treatment Facility and Blanco Drain Diversion sites, Lake El Estero, Product Water Conveyance: Coastal alignment option (Locke Paddon Lake), Roberts Lake (CalAm Distribution System: Monterey Pipeline), and the three Affected Reaches. Therefore, western pond turtle has a high potential to occur within suitable habitat within these areas of the Project Study Area. Please refer to **Table 4.5-4** for a list of potential to occur for the western pond turtle within the Project Study Area by Proposed Project component.

California Legless Lizard

The CDFW has recognized two subspecies of the California legless lizard as species of special concern, the black legless lizard (*Anniella pulchra* ssp. *nigra*) and silvery legless lizard (*A. p.* ssp. *pulchra*). (The black legless lizard is listed as a Fort Ord HMP species, and the silvery legless lizard is not.) These subspecies are based primarily on phenotypic differences (black legless lizards being much darker, having fewer scales on the back, and a relatively shorter tail) and very limited genetic work. Further, the range of the black legless lizard has historically been classified as "restricted to coastal and interior dune sand other areas of sandy soils in the vicinity of Monterey Bay and the Monterey Peninsula" (USFWS, 1998), while the range of silvery legless lizard has been classified as widespread throughout central California (Parham and Papenfuss, 2008). However, recent genetic studies have revealed five lineages of this species which correspond with different geographic areas of California (Parham and Papenfuss, 2008). These studies do not, however, identify the legless lizards occurring on the coast of Monterey Bay (i.e. the currently designated black-legless lizard) as a separate lineage. As such, for the purposes of this report, the California legless lizard is discussed on a species level and not at the CDFW-recognized subspecies level. Additionally, both subspecies and all lineages are considered CDFW species of special concern, as well as Fort Ord HMP species.

The California legless lizard is a fossorial (burrowing) species that typically inhabits sandy or loose (friable) soils. Habitats known to support this species include (but are not limited to) coastal dunes, valley and foothill grasslands, chaparral, and coastal scrub at elevations from near sea level to approximately 1,800 meters (6000 feet). The California legless lizard forages on invertebrates beneath the leaf litter or duff layer at the base of bushes and trees or under wood, rocks, and slash in appropriate habitats. Little is known about the specific habitat requirements for courtship and breeding; however, the mating season for this species is believed to begin late spring or early summer, with one to four live young born between

September and November. The diet of this species likely overlaps to some extent with that of juvenile alligator lizards and perhaps some other salamanders. California legless lizards eat insect larvae, small adult insects, and spiders. This species may be preyed upon by alligator lizards, snakes, birds, and small mammals.

The CNDDB reports 39 occurrences of California legless lizard within the 16 quadrangles reviewed. The CNDDB does not present specific location data for most of these occurrences. However, one specific occurrence mapped within the Fort Ord Natural Reserve near the City of Marina includes a portion of the Project Study Area (Product Water Conveyance: RUWAP alignment option), and occurrences are documented in six of the 16 quadrangles reviewed, including the Moss Landing, Marina, Salinas, Monterey, and Seaside quadrangles. Suitable habitat for California legless lizard is present throughout the Project Study Area where appropriate soils and cover conditions occur. Central coastal scrub, central dune scrub, and central maritime chaparral habitats provide the most suitable habitat for this species; however, the species does occur in non-native grasslands and oak woodlands where suitable soils and cover exist. These habitats and species requirements are present within the Project Study Areas of the Product Water Conveyance: RUWAP and Coastal alignment options, Injection Well Facilities site, CalAm Distribution System: Monterey Pipeline, Reclamation Ditch Affected Reach, and Old Salinas River Channel Affected Reach. Therefore, the California legless lizard has a high potential to occur within suitable habitat at these Proposed Project components. Please refer to **Table 4.5-4** for a list of potential occurrences of the California legless lizard within the Project Study Area by Proposed Project component.

Coast Horned Lizard

The coast horned lizard is a CDFW species of special concern. Horned lizards occur in valley-foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper, chaparral, and annual grass habitats. This species generally inhabits open country, especially sandy areas, washes, flood plains, and wind-blown deposits in a wide variety of habitats. Coast horned lizards rely on camouflage for protection and will often lie motionless when approached. Horned lizards often bask in the early morning on the ground or on elevated objects such as low boulders or rocks. Predators and extreme heat are avoided by burrowing into loose soil. Periods of inactivity and winter hibernation are spent burrowed into the soil or under surface objects. Little is known about the habitat requirements of this species for breeding and egg-laying. Prey species include ants, beetles, wasps, grasshoppers, flies, and caterpillars.

The CNDDB reports six occurrences of the coast horned lizard within the 16 quadrangles reviewed, two of which include the portions of the Project Study Area near the Armstrong Ranch (Product Water Conveyance: RUWAP alignment option). This species is known to occur throughout the former Fort Ord and Armstrong Ranch. Suitable habitat (e.g., non-native grassland, central coastal dune scrub, central coastal scrub, and maritime chaparral) for this species is present within the Project Study Area of the Product Water Conveyance: RUWAP and Coastal alignment options, Injection Well Facilities site, CalAm Distribution System: Monterey Pipeline, Reclamation Ditch Affected Reach, and Old Salinas River Channel Affected Reach. Therefore, coast horned lizard has a high potential to occur within suitable habitat at these Proposed Project components. Please refer to **Table 4.5-4** for a list of potential occurrences of the coast horned lizard within the Project Study Area by Proposed Project component.

California Red-Legged Frog (CRLF)

The CRLF was listed as a federally threatened species on June 24, 1996 (61 FR 25813-25833) and is also a CDFW species of special concern. Critical habitat was designated for CRLF on

April 13, 2006 (71 FR 19244-19346) and revised on March 17, 2010 (75 FR 12816-12959). The revised critical habitat went into effect on April 16, 2010.

The CRLF is the largest native frog in California and was historically widely distributed in the central and southern portions of the state (Jennings and Hayes, 1994). Adults generally inhabit aquatic habitats with riparian vegetation, overhanging banks, or plunge pools for cover, especially during the breeding season (Jennings and Hayes, 1988). They may take refuge in small mammal burrows, leaf litter, or other moist areas during periods of inactivity or to avoid desiccation (Rathbun, et al., 1993; Jennings and Hayes, 1994). Radio telemetry data indicate that adults engage in straight-line breeding season movements irrespective of riparian corridors or topography and they may move up to two miles between non-breeding and breeding sites (Bulger, et al., 2003). During the non-breeding season, a wider variety of aquatic habitats are used including small pools in coastal streams, springs, water traps, and other ephemeral water bodies (USFWS, 1996). CRLF may also move up to 300 feet from aquatic habitats into surrounding uplands where individuals may spend days or weeks, especially following rains (Bulger et al., 2003).

This species requires still or slow-moving water during the breeding season where it can deposit large egg masses, which are most often attached to submergent or emergent vegetation. Breeding typically occurs between December and April depending on annual environmental conditions and locality. Eggs require 6 to 12 days to hatch and metamorphosis generally occurs after 3.5 to 7 months, although larvae are also capable of over-wintering. Following metamorphosis, generally between July and September, juveniles are 25-35 mm in size. Juvenile CRLF appear to have different habitat needs than adults. Jennings and Hayes (1988) recorded juvenile frogs mostly from sites with shallow water and limited shoreline or emergent vegetation. Additionally, it was important that there be small one-meter breaks in the vegetation or clearings in the dense riparian cover to allow juveniles to sun themselves and forage, but to also have close escape cover from predators. Jennings and Hayes also noted that tadpoles have different habitat needs and, that in addition to vegetation cover, tadpoles use mud. It is speculated that CRLF larvae are algae grazers, however, foraging larval ecology remains unknown (Jennings, et al., 1993).

It has been shown that occurrences of CRLF are negatively correlated with presence of non-native bullfrogs (Moyle, 1973; Jennings and Hayes, 1986 and 1988), although both species are able to persist at certain locations, particularly in the coastal zone. It is estimated that CRLF has disappeared from approximately 75% of its former range and has been nearly extirpated from the Sierra Nevada, Central Valley, and much of southern California (USFWS, 1996).

The CNDDB reports 106 occurrences of CRLF within the 16 quadrangles reviewed. The CNDDB does not present specific location data for some of these occurrences. However, the nearest specific occurrence is a breeding location directly adjacent to the Blanco Drain Diversion site along the Salinas River (**Figure 4.5-1, CTS Occurrences within the Vicinity of the Project Study Area**). This occurrence is the only CNDDB, specific CRLF occurrence within 1.6 kilometers of the Project Study Area, the dispersal distance of CRLF from aquatic sites (Bulger, 1998). CRLF is known to occur within suitable habitat along the Salinas River at the Salinas Treatment Facility site; however, suitable upland or breeding habitat does not occur within the remaining Project Study Area. Since the CRLF is known to occur in the Salinas River, this species is assumed present within the riparian habitat at the Salinas Treatment Facility and Blanco Drain Diversion sites. Please refer to **Table 4.5-4** for a list of potential occurrences of the CRLF within the Project Study Area by Proposed Project component.

Coast Range Newt

The Coast Range newt, a subspecies of the California newt (*Taricha torosa*), is a CDFW species of special concern within all portions of their range south of the Salinas River in Monterey County. This species was historically distributed in coastal drainages from the vicinity of Sherwoods (central Mendocino County) in the North Coast Ranges, south to Boulder Creek, in San Diego County (CDFW, 2014). Populations in southern California appear to be highly fragmented, even historically. This species has been depleted by large-scale historical commercial exploitation coupled with the loss and degradation of stream habitats, particularly in Los Angeles, Orange, Riverside, and San Diego Counties. The known elevation range of this species extends from near sea-level to 1830 meters (Jennings and Hayes 1994). In central California, breeding appears to occur in two waves, the first in January or February and the second in March or April (Miller and Robbins, 1954), although Coast Range newts may enter ponds as early as December. Larvae take approximately three to six months to reach metamorphosis and subsist largely on aquatic invertebrates. Adult Coast Range newts eat a wide variety of aquatic and terrestrial invertebrates (earthworms, insects, snails, beetles, stoneflies, etc.) as well as egg masses, larvae, and carrion.

Breeding and egg-laying occur in intermittent streams, rivers, permanent and semi-permanent ponds, lakes and large reservoirs. Eggs are laid in small clusters on the submerged portion of emergent vegetation, on submerged vegetation, and on the underside of rocks off the bottom. Coast Range newt eggs contain toxic glands which repel many predators. However, Coast Range newt larvae may represent a significant seasonal food for newborn individuals of certain snakes, including California red-sided garter snake (*Thamnophis sirtalis*) and the endangered San Francisco garter snake (*T. s. tetraenia*) (CDFW, 2014).

CNDDB reports one occurrence within the 16 quadrangles reviewed, the nearest of which is located approximately 11 miles from the Source Water Diversion and Storage Site on the Tembladero Slough. This species is also known to occur throughout the Carmel Valley, approximately seven miles south of the Project Study Area. Marginal habitat for this species is present within the Project Study Area near the Salinas Treatment Facility site, Blanco Drain Diversion site, Lake El Estero, Locke Paddon Lake (Product Water Conveyance: Coastal alignment option), Roberts Lake (CalAm Distribution System: Monterey Pipeline), and within the riparian habitat at the three Affected Reaches. Therefore, the Coast Range newt has a moderate potential to occur within suitable habitat within these areas of the Project Study Area. Please refer to **Table 4.5-4** for a list of potential occurrences of the Coast Range newt within the Project Study Area by Proposed Project component.

Two-Striped Garter Snake

The two-striped garter snake is a CDFW species of special concern. The two-striped garter snake is distributed throughout the South Coast Range and the Transverse Range, from the eastern slope of the Diablo Range to the Mexican border. This species is associated with permanent or semi-permanent bodies of water in a variety of habitats from sea level to 8,000 feet. Habitat types include perennial and intermittent streams with rocky riverbeds, large sandy-bottom river beds, natural and artificial ponds (Jennings and Hayes, 1994). Two-striped garter snakes forage primarily for fish and their eggs, amphibians, and amphibian larvae, but small mammals and invertebrates are also taken. Courtship and mating occur in the spring and one to 25 young are born in later summer and fall.

The CNDDB reports one occurrence of two-striped garter snake within the 16 quadrangles reviewed, located approximately eight miles from the Project Study Area. Suitable habitat is present within the Project Study Area within the riparian habitat at the Salinas Treatment Facility site, Blanco Drain Diversion site, Lake El Estero, Locke Paddon Lake (Product Water Conveyance: Coastal alignment option), Roberts Lake (CalAm Distribution System: Monterey Pipeline), and within the riparian habitat at the three Affected Reaches. Therefore, there is a moderate potential for the two-striped garter snake to occur within suitable habitat within these portions of the Project Study Area. Please refer to **Table 4.5-4** for a list of potential occurrences of the two-striped garter snake within the Project Study Area by Proposed Project component.

Monarch Butterfly

The monarch butterfly is included on the CDFW's CNDDB "Special Animals" list. This species is the only known insect in the world that makes an annual, back-and-forth, long-distance migration. Each fall monarch butterflies fly west and south to the same overwintering sites, and frequently to the same trees, in coastal California conifer and eucalyptus groves and high altitude Mexican conifer forests. In California, the butterflies cluster in these sites from approximately October to February. A dwindling number of groves along the California coast have the characteristics necessary to support overwintering monarch butterflies. Monarch butterflies generally overwinter in stands of eucalyptus or Monterey pine and selected groves are often in a canyon or drainage where butterflies have a source of water. Specific microclimate conditions within the groves are necessary for monarch butterfly use. Overwintering groves generally have more stable temperatures (i.e., less variation between day and night temperatures), less direct sunlight, less wind, and more moisture in the air than groves not used by monarch butterflies. In the spring monarch butterflies depart their wintering grounds, flying north and east throughout North America to search for milkweed plants (*Asclepias* sp.), on which the females lay their eggs. The migrating butterflies die soon after they lay eggs. Monarchs migrating towards overwintering habitat are reliant on "autumnal roosts" and "nectaring bivouacs." Autumnal roosts generally host smaller populations in the fall and early winter and typically support one or more varieties of milkweed, the primary food source of monarch butterflies. These areas serve as important feeding habitats where monarchs replenish their fat reserves before winter sets in. Nectaring bivouacs are areas which may have a consistent flow of monarchs in and out of the site, as butterflies collect nectar and return to their clusters elsewhere.

The CNDDB reports 28 occurrences of monarch butterfly within the 16 quadrangles reviewed, one of which is located within the Project Study Area in the eucalyptus grove across from the Naval Postgraduate School in the City of Monterey (CalAm Distribution System: Monterey Pipeline).[8] This occurrence represents the only suitable monarch habitat within the Project Study Area and the species is unlikely to occur in other areas of the Project Study Area. Therefore, this species has a high potential to occur within the eucalyptus grove within this portion of the Project Study Area. Please refer to **Table 4.5-4** for a list of potential occurrences of the Monarch butterfly within the Project Study Area by Proposed Project component.

Smith's Blue Butterfly

Smith's blue butterfly was listed as a federally endangered species on June 1, 1976 (41 FR 22041 22044). This species historically ranged along the California coast from Monterey Bay south through Big Sur to near Point Gorda, occurring in scattered populations in association with coastal dune, coastal scrub, chaparral, and grassland habitats. The primary limiting factor for Smith's blue butterfly populations is the occurrence of their host plants, dune buckwheat and coast buckwheat, with which they are associated for their entire life span. There is also a

[8] Please refer to Attachment 7 of Appendix H for a map of potential habitat found within the Project Study Area.

potential for Smith's blue butterfly to use naked buckwheat (*E. nudum*) within a range of the obligate host species (pers. comm. Dave Dixon, California State Parks). The presence of the host plant, however, is not always an indication of the occurrence of the butterfly, as the host plant distribution is much more extensive than that of the butterfly.

Individual adult males and females live approximately one week. Adult emergence and seasonal activity is synchronized with the blooming period of the particular buckwheat used at a given site. Dispersal data from capture-recapture studies (Arnold, 1983) indicate that most adults are quite sedentary, with home ranges no more than a few acres. Smith's blue butterfly has only one generation per year. Females lay single eggs into buckwheat flower heads, which hatch in approximately one week. Caterpillars mature over a span of approximately three to four weeks, feeding on petals and seeds of the buckwheat plant. Chrysalis formation then takes place in the buckwheat flower head and the chrysalis eventually falls in to the leaf litter and topsoil beneath the plant where it remains for approximately 47 weeks until the cycle begins again (Dixon, 1999).

The CNDDB reports 36 occurrences of Smith's blue butterfly within the 16 quadrangles reviewed, one of which includes a portion of the Project Study Area. Dune buckwheat and coast buckwheat, the obligate host plants for this species, were identified within the Project Study Area near Fort Ord Dunes State Park (Product Water Conveyance: Coastal alignment option) and Window on the Bay Waterfront Park (CalAm Distribution System: Monterey Pipeline)[9]. In addition, the coastal scrub and coastal dune scrub habitats within the Reclamation Ditch Affected Reach and Old Salinas Channel Affected Reach may support obligate host species. Therefore, Smith's blue butterfly has a high potential to occur within suitable habitat within these portions of the Project Study Area. Please refer to **Table 4.5-4** for a list of potential occurrences of the Smith's blue butterfly within the Project Study Area by Proposed Project component.

Nesting Raptors, Migratory Birds, and Other Protected Avian Species

Raptors and their nests and migratory birds are protected under the California Fish and Game Code and the Migratory Bird Treaty Act (MBTA). While the life histories of these species vary, overlapping nesting and foraging similarities (approximately February through August) allow for their concurrent discussion in this EIR. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through August, with peak activity May through July. Prey for these species includes small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges. Various species of raptors (such as red-tailed hawk, red-shouldered hawk (*Buteo lineatus)*, great horned owl, Cooper's hawk, American kestrel, and turkey vulture (*Cathartes aura*) have a potential to nest within any of the large trees present within and adjacent to the Project Study Area, which includes several individuals or small clusters of cypress, Monterey pine, coast live oak, willow, and eucalyptus trees.

Additionally, migratory bird species that may be present within the Project Study Area include, but are not limited to, common poorwill (*Phalaenoptilus nuttallii*), western meadowlark (*Sturnella neglecta*), Townsend's warbler (*Setophaga townsendii*), black phoebe (*Sayornis nigricans*), white-crowned sparrow (*Zonotrichia aleucophrys*), California thrasher (*Toxostoma* redvivum), ash-throated fly catcher (*Myiarchus cinerascens*), tree swallow (*Tachycineta bicolor*), and California horned lark. Avian species identified as CDFW species of special concern or Fully

[9] Please refer to Attachment 7 of Appendix H for a map of obligate host plants found within the Project Study Area.

Protected Species (e.g., such as the white-tailed kite, and burrowing owl; see separate species descriptions above) have the potential to occur within suitable habitat, primarily associated with the non-native grassland.

All 16 quadrangles have occurrences of protected avian species documented by the CNDDB. Suitable nesting habitat is present within and adjacent to all Proposed Project component sites, with the exception of the Reclamation Ditch Diversion site and Tembladero Slough Diversion site, which are highly developed and urbanized and lack suitable nesting habitat. Therefore, nesting raptors, migratory birds, and other protected avian species have a high potential to nest within suitable habitat within all Proposed Project components, with the exception of the components identified.

4.5.2.5 *Sensitive Habitats*

Several sensitive habitats were identified within the Project Study Area. **Table 4.5.-5, Sensitive Habitats within the Project Study Area** identifies the acreage of sensitive habitats within the Project Study Area at each of the Proposed Project component sites. Some of these habitats may be considered an Environmental Sensitive Habitat Area (ESHA) by the California Coastal Commission (CCC) or local authority where they occur in the coastal zone. In addition, under Section 30107.5 of the California Coastal Act (CCA), an “environmentally sensitive area” is any area in which plant or animal life or their habitat are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. Therefore, the CCC or local authority may designate additional habitat areas within the Project Study Area as ESHA if CCC or local authority determines that it meets this definition.

The only parts of the Project Study Area that are within the Coastal Zone are: 1) portions of the Product Water Conveyance: Coastal alignment option; 2) portions of the CalAm Distribution System: Monterey Pipeline; 3) The Tembladero Slough Diversion site; and 4) the Affected Reaches of the Old Salinas River Channel and Tembladero Slough.[10]

Central Maritime Chaparral

Central maritime chaparral (brittle leaf – wooly leaf manzanita chaparral) is present within the Project Study Area along the Product Water Conveyance: RUWAP alignment option (approximately 2 acres)[11] and Injection Well Facilities Site (approximately 63 acres). This habitat type is considered a sensitive habitat by CDFW.[12]

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[10] These components of the Proposed Project fall within the following certified LCPs: North County LCP, City of Marina LCP, Sand City LCP, and City of Seaside LCP. A portion of the Project Study Area of the CalAm Distribution System: Monterey Pipeline falls within the City of Monterey; however, the City of Monterey does not have a certified LCP at this time and permits must be issued by the Coastal Commission.

[11] Habitat and resources associated with the Product Water Conveyance Alignment Options within the Project Study Area from just south of Lightfighter Drive to the Injection Well Facilities is accounted for under the RUWAP Alignment option; however, this portion of the Project Study Area is part of both the RUWAP and Coastal Product Water Conveyance Alignment Options (approximately 1 acre of central maritime chaparral occurs in this portion of the Project Study Area).

[12] This sensitive habitat acreage does not occur within the coastal zone.

Central Dune Scrub

Central dune scrub (silver dune lupine – mock heather scrub) is present within the Project Study Area along the CalAm Distribution System: Monterey Pipeline (approximately 3 acres) and Old Salinas River Channel Affected Reach (0.5 acre). This habitat is considered a sensitive habitat by CDFW and is located within the Coastal Zone.

Riparian Habitat

Riparian habitat (arroyo willow thickets) is present within the Project Study Area along the Coastal alignment option (approximately 0.6 acre), CalAm Distribution System: Monterey Pipeline (approximately 0.6 acre), the Salinas Treatment Facility site (approximately 35 acres), and the Blanco Drain Diversion site (approximately 0.7 acre). Areas of riparian habitat were also identified along the margins of the affected reaches of the Reclamation Ditch (approximately 2.5 acres), Tembladero Slough (approximately 1.8 acres), and the Old Salinas River Channel (approximately 0.02 acres). This habitat type is considered a sensitive habitat by CDFW and is regulated under Sections 1600-1616 of the Fish and Game Code. In addition, riparian habitat is usually associated with wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACOE). The riparian habitat areas within Project Study Area of the Coastal alignment option (Locke Paddon Lake) and CalAm Distribution System: Monterey Pipeline (Roberts Lake) are located within the Coastal Zone.

Emergent Wetland

Emergent Wetland (California bulrush marsh) habitat is present at Lake El Estero (approximately 0.7 acre), as well as along the affected reaches of Tembladero Slough (approximately 2.5 acres) and Old Salinas River Channel (approximately 2.8 acres). This habitat type is considered a sensitive habitat by CDFW, and may be subject to regulation under Sections 1600-1616 of the Fish and Game Code. In addition, emergent wetland habitat is usually associated with wetlands under the jurisdiction of the USACOE. The emergent wetland areas within Project Study Area of the Old Salinas River Channel affected reach and portions of the Tembladero Slough affected reach are located within the Coastal Zone.

Salt Marsh Wetland

Approximately 13 acres of salt marsh wetland (pickleweed mats) habitat is present along the Old Salinas River Channel affected reach. This habitat is considered a sensitive habitat by the CDFW and may be subject to regulation under Sections 1600-1616 of the Fish and Game Code. In addition, salt marsh wetland habitat is usually associated with wetlands under the jurisdiction of the USACOE. The salt marsh areas within Project Study Area of the Old Salinas River Channel affected reach are located within the Coastal Zone.

Wetlands and Other Waters

Jurisdictional wetlands may be present in riparian, emergent wetland, and salt marsh wetland habitats. Within the Coastal Zone, wetlands under the jurisdiction of the CCC may also occur in ruderal/developed/active agriculture habitat. Areas that meet the criteria of a wetland, as defined by the USACOE, are regulated under the Clean Water Act (CWA). Areas within the Coastal Zone that meet the definition of a wetland, as defined by the CCC, are regulated under the CCA. Other waters of the U.S. and the state are regulated under the CWA and Porter-Cologne Act respectively, and are often associated with aquatic habitat.

A formal wetland delineation was conducted at Locke Paddon Lake (Product Water Conveyance: Coastal alignment option) and Roberts Lake (CalAm Distribution System: Monterey Pipeline) in 2010. In 2014 and 2015, a formal wetland delineation was conducted along the affected reaches and at Proposed Project component sites along the Tembladero Slough, the Reclamation Ditch, and the Blanco Drain Diversion. The wetland delineations were conducted in accordance with the requirements set forth in the USACOE Wetland Manual, USACOE Supplement, and the CCC Wetland Guidance, to determine the extent of potentially jurisdictional wetlands under the CWA and CCA.

Areas within the Project Study Area of nine component sites were identified as potential jurisdictional coastal wetlands, federal wetlands, and/or other waters (including both federal and state jurisdiction): Reclamation Diversion site (0.05 acre of other waters); Tembladero Slough Diversion site (0.01 acre of coastal wetland and 0.2 acre of other waters); Blanco Drain Diversion site (0.3 acre of other waters); Lake El Estero (0.7 acre of federal wetland and 17.3 acres of other waters); Coastal alignment option (0.3 acre of coastal wetland and 0.3 acre federal wetland); Monterey pipeline (0.02 acre of coastal wetland, 0.6 acre federal wetland, and 0.2 acre of other waters); Reclamation Ditch affected reach (12.3 acres of other waters); Tembladero Slough affected reach (1.1 acres of coastal wetland, 2.0 acres federal wetland, and 16.4 acres of other waters); and Old Salinas River Channel affected reach (3.4 acres of coastal wetland, 12.4 acres federal wetland, and 22.5 acres of other waters).

A formal wetland delineation was not conducted within the riparian habitat along the Salinas River downstream of the Salinas Treatment Facility site, or within the Project Study Area associated with the Salinas Treatment Facility as the Proposed Project would not result in direct or indirect impacts to wetlands (if present) in these areas. Additionally, no formal delineation was conducted at Lake El Estero outside of area where permanent impacts could occur, wetlands and waters potentially under the jurisdiction of the USACOE were identified at Lake El Estero through the use of aerial images and personal knowledge of the area.

Monarch Butterfly Habitat

A eucalyptus grove is present within the Project Study Area along the CalAm Distribution System: Monterey Pipeline (approximately 2 acres). This habitat type is not considered a sensitive habitat by the CDFW. However, this area is located within the Coastal Zone and provides habitat for the Monarch butterfly. Therefore, this habitat may be considered ESHA.

Table 4.5-5
Sensitive Habitats within the Project Study Area

Sensitive Habitat (in acres)	Component Name: Source Water Diversion and Storage Sites							Product Water Conveyance*****			CalAm Distribution System		Affected Reaches			Total Area by Sensitive Habitat Type (ac)
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery**	Reclamation Ditch	Tembladero Slough	Blanco Drain	Lake El Estero**	Treatment Facilities at the Regional Treatment Plant	RUWAP Alignment Option	Coastal Alignment Option	Injection Well Facilities	Transfer Pipeline	Monterey Pipeline	Reclamation Ditch	Tembladero Slough	Old Salinas River Channel	
Central Maritime Chaparral	--	--	--	--	--	--	--	1.9 ac	--	62.5 ac	--	--	--	--	--	64.4 ac
Central Dune Scrub	--	--	--	--	--	--	--	--	--	--	--	2.7 ac	--	--	0.5 ac	3.2 ac
Riparian (<u>Note 1</u>)	--	34.7 ac	--	--	0.7 ac	*	--	--	0.6 ac	--	--	0.6 ac	2.5 ac	1.8 ac	0.02 ac	40.9 ac
Emergent Wetland (<u>Note 1</u>)	--	--	--	--	--	0.7 ac	--	--	--	--	--	--	--	2.5 ac	2.8 ac	6.0 ac
Salt Marsh Wetland (<u>Note 1</u>)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.0 ac	13.0 ac
Potential Coastal Wetlands***(<u>Note 1</u>)	--	N/A	--	0.01 ac	--	--	--	--	0.3 ac	--	--	0.02 ac	--	1.1 ac	3.4 ac	4.8 ac
Potential Federal Wetland****(<u>Note 1</u>)	--	N/A	--	--	--	0.7 ac	--	--	0.3 ac	--	--	0.6 ac	--	2.0 ac	12.4 ac	16.0 ac
Potential Jurisdictional Waters (<u>Note 1</u>)	--	N/A	0.05 ac	0.2 ac	0.3 ac	17.3 ac	--	--	--	--	--	0.2 ac	12.3 ac	16.4 ac	22.5 ac	69.3 ac
Monarch Butterfly Habitat (Potential ESHA)	--	--	--	--	--	--	--	--	--	--	--	2.2 ac	--	--	--	2.2 ac

* While riparian habitat is present adjacent to the Project Study Area at Lake El Estero, it is not within the Project Study Area and, therefore, is not quantified.
** No formal wetland delineation was conducted at the Salinas Treatment Facility or at Lake El Estero outside of the proposed Diversion site where direct, permanent impacts would occur.
*** Potential coastal wetlands are areas that did not qualify as wetlands as defined by the USACOE, but did meet the conditions required to be considered a wetland as defined by the CCC or authorized local authority.
**** Areas that are located in the coastal zone and meet the criteria to be considered wetlands under the USACOE may also fall under the jurisdiction of the CCC or authorized local authority.
***** Habitat and resources associated with the Product Water Conveyance Alignment Options within the Project Study Area from just south of Lightfighter Drive to the Injection Well Facilities is accounted for under the RUWAP Alignment option; however, this portion of the Project Study Area is part of both the RUWAP and Coastal Product Water Conveyance Alignment Options.
<u>Note 1: This habitat type would also be potentially considered waters of the state and regulated by the SWRCB/RWQCB under the Porter-Cologne Water Quality Control Act.</u>

Critical Habitat Designations within the Project Study Area

There are no areas of designated critical habitat aside from designated critical habitat for steelhead within the Project Study Area.[13] However, Critical Habitat Unit 3 for Monterey spineflower is located west of and directly adjacent to the Product Water Conveyance: Coastal alignment option within the Fort Ord Dunes State Park.

Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors in combination with urbanization have fragmented or separated large open-space areas. The fragmentation of natural habitat creates isolated "islands" of vegetation that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. Movement corridors offset the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange with separate populations. Within Monterey County, streams and drainages such as Moro Cojo, Tembladero and Alisal Sloughs, and the Carmel and Salinas Rivers serve as primary corridors for wildlife moving through agricultural and/or developed lands.

4.5.3 Regulatory Framework

4.5.3.1 *Federal*

Federal Endangered Species Act (ESA)

Provisions of the ESA of 1973 (16 USC 1532 et seq., as amended) protect federally listed threatened or endangered species and their habitats from unlawful take. Listed species include those for which proposed and final rules have been published in the Federal Register. The ESA is administered by the Service or National Oceanic and Atmospheric Administration Marine Fisheries Service (NOAA Fisheries). In general, NOAA Fisheries is responsible for the protection of ESA-listed marine species and anadromous fish, whereas other listed species are under Service jurisdiction.

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered or threatened. Take, as defined by ESA, is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the fish or wildlife…including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." In addition, Section 9 prohibits removing, digging up, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. Section 9 does not prohibit take of federally listed plants on sites not under federal jurisdiction. If there is the potential for incidental take of a federally listed fish or wildlife species, take of listed species can be authorized through either the Section 7 consultation process for federal actions or a Section 10 incidental take permit process for non-federal actions. Federal agency actions include activities that are on

[13] The Salinas River, Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel upstream of the confluence with Tembladero Slough are designated as critical habitat for the south-central coast steelhead. See **Section 4.4 Biological Resources**: Fisheries for further description of this critical habitat.

federal land, conducted by a federal agency, funded by a federal agency, or authorized by a federal agency (including issuance of federal permits).

Critical Habitat

Critical habitat is a term defined and used in the federal ESA. It is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as "critical habitat" after the USFWS publishes a proposed federal regulation in the Federal Register and then public comments are received and considered on the proposal. The final boundaries of the critical habitat area are also published in the Federal Register. Federal agencies are required to consult with the USFWS on actions they carry out, fund, or authorize to ensure that their actions will not destroy or adversely modify critical habitat. In this way, a critical habitat designation protects areas that are necessary for the conservation of the species.

Recovery Plans

The ultimate goal of the federal ESA is the recovery (and subsequent conservation) of endangered and threatened species and the ecosystems on which they depend. A variety of methods and procedures are used to recover listed species, such as protective measures to prevent extinction or further decline, consultation to avoid adverse impacts of federal activities, habitat acquisition and restoration, and other on-the-ground activities for managing and monitoring endangered and threatened species. The collaborative efforts of the USFWS and its many partners (federal, state, and local agencies, tribal governments, conservation organizations, the business community, landowners, and other concerned citizens) are critical to the recovery of listed species.

Two recovery plans have been prepared for listed species known or with the potential to occur within the Project Study Area:

- Smith's Blue Butterfly Recovery Plan, and
- Recovery Plan for Seven Coastal Plants and the Myrtle's Silverspot Butterfly.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 651 Et Seq.) requires all federal agencies to consult with and give strong consideration to the views of the USFWS, NOAA Fisheries, and state wildlife agencies regarding the fish and wildlife impacts of projects that propose to impound, divert, channel, or otherwise alter a body of water.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 prohibits killing, possessing, or trading migratory birds except in accordance with regulation prescribed by the Secretary of the Interior. Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the Migratory Bird Treaty Act. The Service is responsible for overseeing compliance with the Migratory Bird Treaty Act and implements Conventions (treaties) between the United States and four countries for the protection of migratory birds – Canada, Mexico, Japan, and Russia. The Service maintains a list of migratory bird species that are protected under the Migratory Bird Treaty Act, which was updated in 2010 to: 1) correct previous mistakes, such as misspellings or removing species no longer known to occur within the United States; 2) add species, as a result of expanding the geographic scope to include Hawaii and U.S. territories and new evidence of occurrence in the United States or U.S. territories; and 3) update name changes based on new taxonomy (USFWS, 2013).

The Clean Water Act

The USACOE and Environmental Protection Agency (EPA) regulate discharge of dredged and fill material into “Waters of the United States” (waters of the U.S.) under Section 404 of the CWA. Waters of the U.S. are defined broadly as waters susceptible to use in commerce (including waters subject to tides, interstate waters, and interstate wetlands) and other waters (such as interstate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds) (33 CFR 328.3). Potential wetland areas are identified as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions.”

Under Section 401 of the CWA, any applicant receiving a Section 404 permit from the USACOE must also obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). A Section 401 Water Quality Certification is issued when a project is demonstrated to comply with state water quality standards and other aquatic resource protection requirements.

Executive Order 11990 - Protection of Wetlands

Executive Order 11990 - Protection of Wetlands calls for no net loss of wetlands. For the regulatory process, the USACOE and EPA jointly define wetlands as follows: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Federal agencies are required to implement the following procedures for any federal action that involves wetlands: 1) provide an opportunity for early public involvement; 2) consider alternatives that would avoid wetlands, and it avoidance is not possible, measures to minimize harm to wetlands must be included in the action; 3) prepare a “Wetlands Only Practicable Alternative Finding” for actions that require an Environmental Impact Statement.

Executive Order 13112 - Invasive Species

Executive Order 13112 - Invasive Species requires the prevention of introduction and spread of invasive species. Invasive species are defined as “alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Each federal agency whose actions may affect the status of invasive species on a project site shall, to the extent practicable and permitted by law, subject to the availability of appropriations, use relevant programs and authorities to: 1) prevent the introduction of invasive species; 2) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; 3) monitor invasive species populations accurately and reliably; 4) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; 5) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and 6) promote public education on invasive species and the means to address them. A national invasive species management plan was prepared by the National Invasive Species Council and the Invasive Species Advisory Committee (ISAC) that recommends objectives and measures to implement the Executive Order.

National Wild and Scenic Rivers Act

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior. Each river is administered by either a federal or state agency. There are no designated Wild and Scenic Rivers in the Monterey Bay region (National Wild and Scenic Rivers System, http://www.rivers.gov/california.php, accessed 5-19-2014).

4.5.3.2 *State*

California Endangered Species Act (CESA)

The CESA was enacted in 1984. The California Code of Regulations (Title 14, §670.5) lists animal species considered endangered or threatened by the state. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. Section 2080 of the Fish and Game Code prohibits "take" of any species that the commission determines to be an endangered species or a threatened species. A Section 2081 Incidental Take Permit from the CDFW may be obtained to authorize "take" of state listed species.

California Fish and Game Code

Birds

Section 3503 of the Fish and Game Code states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Section 3503.5 prohibits the killing, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds-of-prey). Section 3511 prohibits take or possession of fully protected birds. Section 3513 prohibits the take or possession of any migratory nongame birds designated under the federal Migratory Bird Treaty Act. Section 3800 prohibits take of nongame birds.

Fully Protected Species

The classification of fully protected was the state's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish (§5515), mammals (§4700), amphibians and reptiles (§5050), and birds (§3511). Most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Lake or Streambed Alteration

Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the CDFW before beginning construction. If the CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. The CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider.

Species of Special Concern

As noted above, the CDFW also maintains a list of animal "species of special concern." Although these species have no legal status, the CDFW recommends considering these species during analysis of project impacts to protect declining populations and avoid the need to list them as endangered in the future.

<u>California Department of Fish and Wildlife Authority</u>

<u>CDFW is a Trustee Agency with responsibility under CEQA for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used under CEQA (Division 13 (commencing with Section 21000) of the Public Resources Code).</u>

<u>The Department also has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered. If the Project could result in the "take" of any species listed as threatened or endangered under the California Endangered Species Act (CESA), an Incidental Take Permit may need to be obtained for the Proposed Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (Public Resources Code Sections 21001(c), 21083, CEQA Guidelines Sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports a Statement of Overriding Consideration (SOC). The CEQA Lead Agency's SOC does not eliminate the project proponent's obligation to comply with Fish and Game Code Section 2080.</u>

California Native Plant Protection Act (CNPPA)

The CNPPA of 1977 directed the CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in the state." The CNPPA prohibits importing rare and endangered plants into California, taking rare and endangered plants, and selling rare and endangered plants. The CESA and CNPPA authorized the Fish and Game Commission to designate endangered, threatened and rare species and to regulate the taking of these species (§2050-2098, Fish and Game Code). Plants listed as rare under the CNPPA are not protected under CESA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne) is California's statutory authority for the protection of water quality and applies to surface waters, wetlands, and groundwater, and to both point and nonpoint sources. Under Porter-Cologne, the State Water Resources Control Board (State Board or SWRCB) has the ultimate authority over state water rights and water quality policy. However, Porter-Cologne also establishes nine Regional Water Quality Control Boards (RWQCB) to oversee water quality on a day-to-day basis at the local/regional level. The Project Study Area is located within Region 3 – Central Coast RWQCB. Porter-Cologne incorporates many provisions of the federal CWA, such as delegation to the State Board and RWQCBs of the National Pollutant Discharge Elimination System (NPDES) permitting program.

Under Porter-Cologne, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. Porter-Cologne sets forth the obligations of the State Board and RWQCBs to adopt and periodically update water quality control plans (basin plans). The act also requires waste dischargers to notify the RWQCBs of such activities through filing of Reports of Waste Discharge (RWD) and authorizes the State Board and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWD requirements and WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects, when implemented according to prescribed terms and conditions.

The term "Waters of the State" is defined by Porter-Cologne as "any surface water or groundwater, including saline waters, within the boundaries of the state." The RWQCB protects all waters in its regulatory scope but has special responsibility for wetlands, riparian areas, and headwaters, including isolated wetlands, and waters that many not be regulated by the USACOE under Section 404 of the CWA. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of fill and dredged material under Section 401 of the CWA and Porter-Cologne.

California Coastal Act

The California Coastal Commission (CCC) was established by voter initiative in 1972 (Proposition 20) and later made permanent by the California State Legislature through adoption of the California Coastal Act of 1976. The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. California's coastal zone generally extends 1,000 yards inland from the mean high tide line. In significant coastal estuarine habitat and recreational areas, it extends inland to the first major ridgeline or five miles from the mean high tide line, whichever is less. In developed urban areas, the boundary is generally less than 1,000 yards (NOAA website http://coastalmanagement.noaa.gov/consistency/resources.html link to State Coastal Zone Boundaries). Development activities, which are broadly defined by the Coastal Act to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a Coastal Development Permit (CDP) from either the CCC or the local government if a Local Coastal Program (LCP) has been certified. After certification of a LCP, coastal development permit authority is delegated to the appropriate local government, but the Commission retains original permit jurisdiction over certain specified lands (such as tidelands and public trust lands). The Commission also has appellate authority over development approved by local governments in specified geographic areas as well as certain other developments. A CDP is required in addition to any other permit required from resource agencies.

The Commission or the local government may designate areas of rare or unique biological value, such as wetland and riparian habitat and habitats for special-status species, as Environmentally Sensitive Habitat Areas (ESHA). Section 30107.5 of the CCA defines an "environmentally sensitive area" as any area in which plant or animal life or their habitat are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. Development is restricted within the coastal zone and prohibited within designated ESHA, unless the development is coastal dependent and does not have a significant effect on the resources. Coastal Act Section 30240 states that "environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas." This section also states that "development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas."

4.5.3.3 *Regional and Local*

Fort Ord Habitat Management Plan (HMP)

The U.S. Army's decision to close and dispose of the Fort Ord military base was considered a major federal action that could affect listed species under the ESA. The USFWS issued a Final Biological Opinion (BO) on the disposal and reuse of former Fort Ord requiring that a HMP be developed and implemented to reduce the incidental take of listed species and loss of habitat that supports these species (October 19, 1993). The HMP was prepared to assess impacts on vegetation and wildlife resources and provide mitigation for their loss associated with the disposal and reuse of former Fort Ord (USACOE, 1997).

The HMP establishes guidelines for the conservation and management of species and habitats on former Fort Ord lands by identifying lands that are available for development, lands that have some restrictions with development, and habitat reserve areas. The intent of the plan is to establish large, contiguous habitat conservation areas and corridors to compensate for future development in other areas of the former base. The HMP identifies what type of activities can occur on each parcel at former Fort Ord and parcels are designated as "development with no restrictions," "habitat reserves with management requirements," or "habitat reserves with development restrictions." The HMP sets the standards to assure the long-term viability of former Fort Ord's biological resources in the context of base reuse so that no further mitigation should be necessary for impacts to species and habitats considered in the HMP. This plan has been approved by the Service; the HMP, deed restrictions, and Memoranda of Agreement between the Army and various land recipients provide the legal mechanism to assure HMP implementation. It is a legally binding document, and all recipients of former Fort Ord lands are required to abide by its management requirements and procedures.

The HMP anticipates some losses to special-status species and sensitive habitats as a result of redevelopment of the former Fort Ord. With the designated reserves and corridors and habitat management requirements in place, the losses of individuals of species and sensitive habitats considered in the HMP are not expected to jeopardize the long-term viability of those species, their populations, or sensitive habitats on former Fort Ord. Recipients of disposed land with restrictions or management guidelines designated by the HMP will be obligated to implement those specific measures through the HMP and through deed covenants.

The Coordinated Resource Management and Planning (CRMP) process is a multi-agency multi-jurisdictional land use planning effort developed under the sponsorship of the California CRMP Memorandum of Understanding (MOU). This MOU has been signed by 14 federal and state agencies, including the BLM, CDFW, USFWS, Monterey County, and University of California. The CRMP program provides a mechanism for public agencies to share resources to deliver the most efficient habitat protection and public services for the money expended.

However, the HMP does not provide specific authorization for incidental take of federal or state listed species to existing or future non-federal land recipients under the ESA or CESA. In compliance with the ESA and CESA, FORA is currently in the process of obtaining a Section

10(a)(1)(B) Incidental Take Permit from the Service and Section 2081 Incidental Take Permit from the CDFW, which will provide base-wide coverage for the take of federal and state listed wildlife and plant species to all non-federal entities receiving land on the former Fort Ord. This process involves the preparation of a Habitat Conservation Plan (HCP) and Implementing Agreement (IA). The Administrative Draft Installation-Wide Multispecies HCP and IA are currently in draft form and being reviewed by the resource agencies. The base-wide Incidental Take Permits are expected to be issued by the USFWS and CDFW in 2015.

All Proposed Project components located on former Fort Ord land are proposed within designated development parcels. Parcels designated as “development” have no management restrictions. However the BO and HMP require the identification of sensitive biological resources within the development parcels that may be salvaged for use in restoration activities in reserve areas.

Monterey County Code

Title 16, Chapter 16.60, Monterey County Code, provides for the preservation of oaks and other protected tree species within the unincorporated areas of the County. As defined in Chapter 16.60.040 C, removal of more than three protected trees on a lot in a one-year period requires a Forest Management Plan (FMP) and approval of a Use Permit by the Monterey County Planning Commission. The FMP must be prepared by a qualified forester selected from the County's list of consultants. Chapter 16.060.040 D requires that the applicant relocate or replace each removed tree on a one-to-one ratio. This ratio may be varied upon showing that such a requirement will create a special hardship in the use of the site or such a replacement would be detrimental to the long-term health and maintenance of the remaining habitat.

City of Marina Municipal Code Chapter 12.04

The City of Marina Municipal Code Chapter 12.04 (Tree Removal, Preservation, and Protection) outlines the city’s policies regarding tree removal and relocation. The policies applicable to the Proposed Project include Section 12.04.030 (Unlawful Action upon Trees) and Section 12.04.060 (Tree Removal Permit). As outlined in Section 12.04.060 (D), if it is determined by the City of Marina that adverse effects of tree removal can be mitigated, conditions shall be imposed on the removal, including, but not limited to, one or more of the following: 1) compensation plan, 2) site restoration plan, and 3) tree protection plan and program.

City of Sand City

There are no Sand City codes related to biological resources applicable to the Proposed Project, including tree removal ordinances.

City of Seaside Municipal Code Chapter 8.54

The City of Seaside Municipal Code Chapter 8.54 (Trees) outlines the policies regarding tree removal and planting. The policies applicable to the Proposed Project include Section 8.54.030 (Permit—required for certain tree removal, alteration or planting), Section 8.54.060 (New construction, development, subdivisions and site plans), and Section 8.54.070 (Replacement of Trees). As outlined in Section 8.54.070, if removal of a tree from a site has been authorized on an undeveloped parcel, the developer shall replace the tree with a minimum five-gallon specimen tree of a species and in a location approved by the board of architectural review, if applicable, or other individual or body responsible for the approval of applicant's plans. This requirement may be modified or waived if it is determined that replacement on one-for-one basis constitutes an unreasonable hardship.

City of Monterey Municipal Code Chapter 37

The City of Monterey Municipal Code Chapter 37 (Preservation of Trees and Shrubs) outlines the city's policies regarding tree removal. The policies applicable to the Proposed Project include Section 37-2.5 (Protection of Trees During Construction), Section 37-8 (Removal or damaging trees on private property; permit required), and Section 37-11 (Conditions of Removal/Mitigation measures). As outlined in Section 37-11 (D), if it is determined by the City of Monterey that adverse effects of tree removal can be mitigated, conditions shall be imposed on the removal, including, but not limited to, one or more of the following: 1) No replacement tree, 2) One replacement tree, 3) Up to three replacement trees, 4) Payment in lieu of replacement, 5) Payment in lieu of maintenance, 6) Maintenance and care program, and 7) Replacement tree maintenance.

Habitat Conservation Plans and Natural Community Conservation Plans

There are no adopted Habitat Conservation Plans (HCP) or Natural Community Conservation Plans (NCCP) associated with the Proposed Project Study Area. A Draft HCP is currently in progress and that process and document are described in the Fort Ord Habitat Management Plan section above.

Plans and Policies Consistency Analysis

Table 4.5-6, Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial describes the state, regional, and local land use plans, policies, and regulations pertaining to terrestrial biological resources that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.5-6** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.5.4**, Environmental Impacts and Mitigation Measures, for additional discussion, including the relevant impact determination and mitigation measures.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Policy OS-5.4: Development shall avoid, minimize, and mitigate impacts to listed species and critical habitat to the extent feasible. Measures may include but are not limited to: a. clustering lots for development to avoid critical habitat areas, b. dedications of permanent conservation easements; or c. other appropriate means. If development may affect listed species, consultation with USFWS and CDFW may be required and impacts may be mitigated by expanding the resource elsewhere on-site or within close proximity off-site. Final mitigation requirements would be determined as required by law.	Consistent, with Mitigation: Listed species occur or have potential to occur within some of the Proposed Project component sites. Construction of these project components may disrupt such species. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Policy OS-5.6: Native and native compatible species, especially drought resistant species, shall be utilized in fulfilling landscaping requirements.	Consistent, with Mitigation: Upon completion of construction, disturbed areas would be restored to their approximate pre-construction condition. Site restoration could involve the use of non-native plant species. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Policy OS-5.16: A biological study shall be required for any development project requiring a discretionary permit and having the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare, or threatened species. An ordinance establishing minimum standards for a biological study and biological surveys shall be enacted. A biological study shall include a field reconnaissance performed at the appropriate time of year. Based on the results of the biological study, biological surveys may be necessary to identify, describe, and delineate the habitats or species that are potentially impacted. Feasible measures to reduce significant impacts to a less-than-significant level shall be adopted as conditions of approval.	Consistent, with Mitigation: Special-status species, critical habitat, sensitive natural communities, and wetlands and waters occur or have the potential to occur within, or in the vicinity of, some of the Proposed Project component sites. Construction could disrupt these species, habitats, and communities. These issues are addressed further in Impacts BT-1, BT-2, BT-5, and BT-6 and mitigation measures are provided to reduce or avoid any impacts. A biological study was prepared for the Proposed Project.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump & Pipeline Diversion	Policy OS-5.18: Prior to disturbing any federal or state jurisdictional areas, all applicable federal and state permitting requirements shall be met, including all mitigation measures for development of jurisdictional areas and associated riparian habitats.	Consistent, with Mitigation: Construction of some of the Proposed Project components could disturb wetlands and waters. This issue is addressed further in Impacts BT-2 and BT-6 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Policy OS-5.24: The County shall require discretionary projects to retain movement corridors of adequate size and habitat quality to allow for continued wildlife use based on the needs of the species occupying the habitat. The County shall require that expansion of its roadways and public infrastructure projects provide movement opportunities for terrestrial wildlife and ensure that existing stream channels and riparian corridors continue to provide for wildlife movement and access.	Consistent: Construction of the Proposed Project would not substantially disrupt wildlife habitat or movement through wildlife corridors.
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Policy OS-5.25: Occupied nests of statutorily protected migratory birds and raptors shall not be disturbed during the breeding season (generally February 1 to September 15). The County shall: a. Consult, or require the developer to consult, with a qualified biologist prior to any site preparation or construction work in order to: 1. Determine whether work is proposed during nesting season for migratory birds or raptors, 2. Determine whether site vegetation is suitable to nesting migratory birds or raptors, 3. Identify any regulatory requirements for setbacks or other avoidance measures for migratory birds and raptors which could nest on the site, and 4. Establish project-specific requirements for setbacks, lock-out periods, or other methods of avoidance of disruption of nesting birds. b. Require the development to follow the recommendations of the biologist. This measure may be implemented in one of two ways: 1. Preconstruction surveys may be conducted to identify active nests and, if found, adequate buffers shall be provided to avoid active nest disruption until after the young have fledged; or 2. Vegetation removal may be conducted during the non-breeding season (generally September 16 to January 31); however, removal of vegetation along waterways shall require approval of all appropriate local, state, and federal agencies. This policy shall not apply in the case of an emergency fire event requiring tree removal. This policy shall apply for tree removal that addresses fire safety planning, since removal can be scheduled to reduce impacts to migratory birds and raptors.	Consistent, with Mitigation: Construction of some of the Proposed Project components could disturb migratory birds and raptors during the breeding season. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
County of Monterey	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Policy OS-4.1: Federal and State listed native marine and fresh water species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant shall be protected. Species designated in Area Plans shall also be protected.	Consistent, with Mitigation: Special-status species could occur within Proposed Project component sites. Construction could result in impacts to special-status species. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	Greater Monterey Peninsula Area Plan	Conservation / Open Space	Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Blanco Drain Pump and Pipeline Diversion Site	Policy GMP-3.6: A 100-foot setback from all wetlands, as identified by a County-approved biologist, shall be provided and maintained in open space use. No new development shall be allowed in this setback area. No landscape alterations will be allowed in this setback area unless accomplished in conjunction with a restoration and enhancement plan prepared by a County-approved biologist and approved by the California Department of Fish and Wildlife.	Consistent, with Mitigation: Construction and maintenance activities would occur within 100 feet of wetlands and could disrupt sensitive habitats and species. These issues are addressed further in Impacts BT-1 and BT-5 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.2.1: With the exception of resource dependent uses, all development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be prohibited in the following environmentally sensitive habitat areas: riparian corridors, wetlands, dunes, sites of known rare and endangered species of plants and animals, rookeries, major roosting and haul out sites, and other wildlife breeding or nursery areas identified as environmentally sensitive. Resource dependent uses, including nature education and research hunting, fishing and aquaculture, where allowed by the plan, shall be allowed within environmentally sensitive habitats only if such uses will not cause significant disruption of habitat values.	Consistent, with Mitigation: Construction and maintenance of the Tembladero Slough Diversion could disrupt sensitive habitats and species. The project component at this site would be considered a resource dependent use. These issues are addressed further in Impacts BT-1 and BT-5 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.2.2: Land uses adjacent to locations of environmentally sensitive habitats shall be compatible with the long-term maintenance of the resource. New land uses shall be considered compatible only where they incorporate all site planning and design features needed to prevent habitat impacts, upon habitat values and where they do not establish a precedent for continued land development which, on a cumulative basis, could degrade the resource.	Consistent, with Mitigation: Construction and maintenance of the Tembladero Slough Diversion could disrupt sensitive habitats and species. These issues are addressed further in Impacts BT-1 and BT-5 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.2.5: Where private or public development is proposed in documented or potential locations of environmentally sensitive habitats - particularly those habitats identified in General Policy No. 1- field surveys by qualified individuals or agencies shall be required in order to determine precise locations and to recommend mitigating measures to ensure protection of any sensitive habitat present. The required survey shall document that the proposed development complies with all applicable environmentally sensitive habitat policies.	Consistent, with Mitigation: Construction and maintenance of the Tembladero Slough Diversion could disrupt sensitive habitats and species. These issues are addressed further in Impacts BT-1 and BT-5 and mitigation measures are provided to reduce or avoid any impacts. A biological study was prepared for the Proposed Project.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.2.10: Construction activities, industrial, and public and commercial recreational uses which would affect rare and endangered birds shall be regulated to protect habitats of rare, endangered, and threatened birds during breeding and nesting seasons. Regulations may include restriction of access, noise abatement, and restriction of hours of operation of public or private facilities. Regulations shall not prohibit emergency operation of service and public utility equipment. Access in such locations shall be confined to appropriate areas on designated trails and paths. No access shall be approved which results in significant disruption of habitat.	Consistent, with Mitigation: Construction of the Tembladero Slough Diversion could disrupt rare and endangered birds. These issues are addressed further in Impacts BT-1 and BT-5 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.3.B1: Riparian plant communities shall be protected by establishing setback requirements consisting of 150 feet on each side of the bank of perennial streams, and 50 feet on each side of the bank of intermittent streams, or the extent of riparian vegetation, whichever is greater. In all cases, the setback must be sufficient to prevent significant degradation of the habitat area. The setback requirement may be modified if it can be conclusively demonstrated by a qualified biologist that a narrower corridor is sufficient or a wider corridor is necessary to protect existing riparian vegetation from the impacts of adjacent use.	Consistent, with Mitigation: Construction and maintenance of the Tembladero Slough Diversion could disrupt sensitive habitats and species. These issues are addressed further in Impacts BT-1 and BT-5 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.3.B2: All development, including dredging, filling, and grading within stream corridors, shall be limited to activities necessary for flood control purposes, water supply projects, improvement of fish and wildlife habitat, or laying of pipelines when no alternative route is feasible, and continued and future use of utility lines and appurtenant facilities. These activities shall be carried out in such a manner as to minimize impacts from increased runoff, sedimentation, biochemical degradation, or thermal pollution. When such activities require removal of riparian plant species, re-vegetation with native plants shall be required.	Consistent, with Mitigation: The Proposed Project is a water supply project. Mitigation measures are provided in this section to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.3.B4: A setback of 100 feet from the landward edge of vegetation of all coastal wetlands shall be provided and maintained in open space use. No permanent structures except for those necessary for resource-dependent use which cannot be located elsewhere shall be constructed in the setback area. Prior to approval of all proposed structures in the setback area, it must be demonstrated that the development does not significantly disrupt the habitat resource.	Consistent, with Mitigation: Potential wetlands or waters were observed within the vicinity of the Tembladero Slough Diversion site. Construction of this component could impact these features. This issue is addressed further in Impact BT-2 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.3.B6: Dredging or other major construction activities shall be conducted so as to avoid breeding seasons and other critical phases in the life cycles of commercial species of fish and shellfish and other rare, endangered, and threatened indigenous species.	Consistent, with Mitigation: Construction of the Tembladero Slough Diversion could disrupt breeding seasons and other critical phases in the life cycles of certain species. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	Policy 2.3.3.C2: Critical wildlife habitat areas (refer to General Policy 2) shall be protected and an adequate distance based on a site-by-site analysis between such habitat and disturbed areas (e.g., building sites and roads) shall be maintained.	Consistent, with Mitigation: There is no designated critical habitat for terrestrial biological resources associated with the Tembladero Slough. However, construction of the Tembladero Slough Diversion could disrupt sensitive natural communities, wetlands and water, and species dependent upon those habitats. These issues are addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts. Potential impacts to fish critical habitat are addressed in Section 4.4, Biological Resources: Fisheries
Monterey County	North County Land Use Plan	Water Resour-ces	Tembladero Slough	Policy 2.5.2.4 Adequate quantities of water should be maintained instream or supplied to support natural aquatic and riparian vegetation and wildlife during the driest expected year.	Consistent with Mitigation: Operation of the Proposed Project with Mitigation Measures BF-2a, BT-1, and BT-2 would ensure adequate quantities of water are maintained to natural aquatic and riparian vegetation and wildlife during the driest expected year (See Impacts BF-2, BT-1, BT-2 and BT-6)
Monterey County	North County Land Use Plan	Land Use and Development	Tembladero Slough Diversion Site	Key Policy 4.3.4: All future development within the North County coastal segment must be clearly consistent with the protection of the area's significant human and cultural resources, agriculture, natural resources, and water quality.	Consistent, with Mitigation: Construction of the Tembladero Slough Diversion could disrupt sensitive natural communities, wetlands and water, and species dependent upon those habitats. These issues are addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
Monterey County	Monterey County Code	Chapter 21.64 – Special Regulations	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Section 21.64.260 – Preservation of Oak and Other Protected Trees. In Monterey County oak trees within areas designated as Resource Conservation, Residential, Commercial, or Industrial cannot be removed without the approval of necessary permits. Exceptions include removal of oak trees pursuant to the purpose and standards required in areas designated as Agriculture, Industrial, and or Mineral Extraction. In addition, Title 20, Parts 2-5, addresses native tree removal and protection in the Coastal Zone and Title 21 outside the Coastal Zone. Chapter 16 of the Monterey County Municipal Code also addresses oak and other native tree protection. Native trees in Monterey County, as defined in the ordinance, include Santa Lucia fir, black cottonwood, Fremont cottonwood, box elder, willows, California laurel, sycamores, oaks and madrones. Trees must be at least six inches in diameter two feet above the ground level in order to be subject to these regulations. A landmark oak tree is defined as an oak tree that is 24 inches or more in diameter when measured two feet above ground level or one that is visually significant, historically significant, or exemplary of its species. Removal of any landmark tree is prohibited unless approved by the County Director of Planning and Building Inspection.	Consistent, with Mitigation: Construction of Proposed Project components could result in the removal of oak and other native trees. This issue is addressed further in Impact BT-1 and a mitigation measure is provided to reduce or avoid any impacts.
City of Marina	Marina General Plan	Biological Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	4.114 IMarGP): Within areas identified as supporting sensitive habitat(s), the following requirements shall apply: 1. With the exceptions of areas where an approved Habitat Management Program (HMP) or Habitat Conservation Program (HCP) allows development without restrictions, and for structures erected to maintain, restore or enhance sensitive habitat and species, require discretionary approval for all new structural and road development proposed within sensitive habitat areas or on sites supporting sensitive species and habitat. 2. Site and design those new structures or roads which may be allowed within designated Habitat Reserves or other identified sensitive habitat areas so as to minimize adverse impacts upon habitat areas. This may entail site plan modification and/or the inclusion of appropriate mitigation measures developed by biologists, soils engineers, or hydrologists (e.g., erosion and storm-drainage controls, wildlife culverts, and grading limitations).	Consistent, with Mitigation: Construction of some of the Proposed Project components would occur within, and could disrupt, sensitive natural communities (which may include wetlands and waters) and sites supporting special-status species. This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
City of Marina	Marina General Plan	Biological Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	4.116 (MarGP): Where new development may remove all or a portion of identified sensitive habitat in an area not subject to an approved HMP or HCP, and where no less environmentally damaging alternative can be feasibly implemented, comparable habitat should be restored either on-site or off-site on a two-to-one basis (e.g., two acres of habitat shall be restored for every acre of habitat removed).	Consistent, with Mitigation: Construction of some of the Proposed Project components would occur within, and could disrupt, sensitive natural communities (which may include wetlands and waters). This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	Marina General Plan	Biological Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	4.118 (MarGP): Where development sites are adjacent to areas designated as "Habitat Reserves" or other identified sensitive areas, site improvements and buildings shall be located and designed so as to avoid adverse impacts on the biological resource in question. Development shall be conditioned upon the incorporation of adequate mitigation measures in terms of site design. Such measures might include the following: a) providing an adequate buffer between new development and identified sensitive habitat; b) minimizing the need for grading that would substantially alter the existing topography; c) incorporating erosion- and sediment-control techniques during and after construction; d) establishing appropriate native landscaping between new development and sensitive habitat; and e) providing wildlife corridors or connections between the sensitive habitat and other natural open space areas.	Consistent, with Mitigation: Some of the Proposed Project sites are proposed for sites adjacent to areas designated as "Habitat Reserves and Other Open Space." These Habitat Reserves are comprised of sensitive natural communities (which may include wetlands and waters). Installation and maintenance of these components could disrupt such communities. This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	Marina General Plan	Biological Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	4.119 (MarGP): As part of any application package for development proposed on undeveloped lands in former Fort Ord or on the Armstrong Ranch, seasonally timed surveys for known or suspected sensitive or unique species and habitats shall be undertaken by a qualified biologist approved by the City Community Development Director (except in those areas where such species have already been addressed by approved habitat conservation/management plans or similar plans or agreements). This information shall be provided as part of a preliminary site and development review, and, for development on former Fort Ord, should be submitted to CRMP for review and recommendations. Where such species are found to occur, mitigation plans (or Habitat Management Plans) shall be prepared in coordination with the USFWS and DFG unless approved habitat management plans are already in place.	Consistent, with Mitigation: A portion of the Proposed RUWAP Alignment option is located on undeveloped lands within the former Fort Ord that potentially support special-status species and sensitive natural communities. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	Marina General Plan	Biological Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	4.122 (MarGP): The City shall require that lighting of streets and other public areas in proximity to areas of natural open space be shielded and as unobtrusive as possible so as to direct light away from habitat reserve areas and other areas of natural open space. The same requirements shall follow for outdoor lighting on private development sites adjacent to such lands.	Proposed Project consistency with plans, policies, and ordinances related to nighttime lighting is presented in Section 4.2, Aesthetic Resources.
City of Marina	Marina General Plan	Community Land Use – Primary Policies	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	Policy 2.4.4: Wherever possible, lands with significant agricultural, natural habitat, or scenic value shall be retained and protected from degradation.	Consistent, with Mitigation: Construction and maintenance of Proposed Project components would occur within sensitive natural communities. This issue is addressed further in Impacts BT-1, BT-2, BT-5, and BT-6 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	Marina General Plan	Community Design and Development	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	Policy 4.112: The policies of the Community Land Use Element are designed to protect areas with significant agricultural or natural-habitat value from being displaced by development, and they are designed to protect and conserve air, water and energy resources.	Consistent, with Mitigation: Construction of some Proposed Project components would occur within and could disrupt sensitive natural communities (which may include wetlands and waters) and sites supporting special-status species. This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	Marina General Plan	Community Land Use	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	Policy 2.10: Lands designated as "Habitat Reserve and Other Open Space" are intended for permanent retention in open space to protect significant plants and wildlife inhabiting these areas. These lands consist of the following natural areas: 1. Riparian Habitat. Land occupied by riparian vegetation along the banks of the Salinas River shall be retained and the scarce riparian habitat preserved. Use of these lands for development purposes is further restricted by the potential for flooding. 2. Coastal Strand and Dunes. These lands adjacent to Monterey Bay provide habitat for rare, threatened wildlife and plant species. Approximately 1,600 acres west of Highway One are designated as habitat reserve for this purpose. Except for a limited number of areas where visitor-serving facilities and public park use is to be permitted, this entire area shall be retained as open space. As part of the "Habitat Reserve" designation, a stand-alone State Park designation is recognized as an appropriate use by this plan for the 370 acre Lonestar property,[14] with the condition that most of this site be provided with an implementing funding source for protection of its habitat values, and recreational uses be limited and subordinated to the habitat requirements of sensitive plant and wildlife species occurring here. On both public and privately owned lands, dune habitat shall be restored to a healthy condition. 3. Maritime Chaparral, Coastal Scrub, and Coast Live Oak Woodland. Approximately 1,160 acres of land within the Marina Planning Area is designated for permanent retention in open space so as to protect maritime chaparral, coastal scrub, and coast live oak woodlands and other plant and wildlife species that inhabit these areas. The designated lands include approximately 600 acres in the University of California Natural	Consistent, with Mitigation: Some Proposed Project components are proposed for sites in areas designated as "Habitat Reserves and Other Open Space." These Habitat Reserves are comprised of sensitive natural communities (which may include wetlands and waters). Installation and maintenance these facilities could disrupt such communities. This issue is addressed further under Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.

[14] The Lonestar Property is currently owned by Cemex.

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Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
				Reserve System located next to the Monterey Bay Educational, Science, and Technology Center; an adjoining 124- acre site occupying a combination of lands conveyed to the City as part of the transfer of the airport and adjacent land on Armstrong Ranch and 160 acres located within the larger East Garrison Reserve. Another 227-acre reserve is located south of Imjin Road. This area is a former landfill site that has been capped, and which will be restored as a natural habitat area. An additional 50 acres located along the east side of Highway One in the vicinity of the planned extension of Del Monte Boulevard is also a designated reserve 4. Wetlands. An area of 80 acres on the Armstrong Ranch property between Del Monte Boulevard and Highway One is designated as Habitat Reserve due to the presence of vernal ponds. Additional small areas where vernal ponds occur may exist elsewhere on the Armstrong property. Prior to approval of development plans for this property, biological field surveys shall be conducted to determine if additional vernal ponds exist. If such surveys document the existence of such ponds, development plans must provide either for the preservation or replacement of this habitat. In Central Marina, several vernal ponds are also designated as open space, and a potential seasonal pond is located at the southwest corner of the Reservation Road/Beach Road intersection. Any development application for this latter site shall be evaluated by a qualified biologist to determine the pond boundaries and any needed restoration measures consistent with the Marina Landing Enhancement Plan, incorporated as part of the 1989 Local Coastal Program Land Use Plan Amendment. (2005-82).	
City of Marina	City of Marina Land Use Plan	Policies	Coastal Alignment Option	Policy 24: To protect and encourage the restoration of the vernal ponds to their original state and allow only those uses adjacent which will reinforce and conserve the unique habitat qualities of these ponds.	Consistent, with Mitigation: Vernal ponds (including the pond associated with Locke-Paddon Park) occur in the vicinity of the Proposed Coastal Alignment option and could be adversely affected by pipeline construction. This issue is addressed further in Impact BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	City of Marina Land Use Plan	Policies	Coastal Alignment Option	Policy 26: To regulate development in areas adjacent to recognized rare and endangered species or their habitats so that they will not threaten continuation of the species or its habitat.	Consistent, with Mitigation: Construction and maintenance of the Proposed Coastal Alignment option would occur adjacent to, and could indirectly disrupt, special-status species habitat. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	City of Marina Land Use Plan	Planning Guidelines	Coastal Alignment Option	Rare and Endangered Species: Habitat Protection. In Marina's Coastal Zone, the foredune, dune and grassy inland areas all contain potential habitat for rare and endangered plants and animals. The precise range for each plant and animal is not known because intensive site-specific study throughout the area was not financially possible. However, the potential for various rare and endangered habitats has been identified and mapped (see Environmental Capability section) to provide a guide to the locations where more intensive study is required. Because a site-specific study is needed in many areas before any development can take place, the following policies apply to all of the areas indicated on the map1 or meeting the definitions of Exhibit "A" as being potential habitats for rare and endangered plants and animals. • Before any use or change in use, areas identified as potential habitat for rare and endangered plant or animal species shall be investigated by a qualified biologist to determine the physical extent of the primary habitat areas for the specific rare and endangered plants and animals on that site. • Primary habitat areas shall be protected and preserved. All development must be sited and designed so as not to interfere with the natural functions of such habitat areas. Management and enhancement opportunities should be incorporated into use or development proposals; potential impacts shall be mitigated. • Potential secondary or support habitat areas to the primary habitats identified on the site should also be defined. Secondary habitat investigation should include identification of the role and importance of the secondary area to the primary habitat area and should stress the impact of use or development in the secondary area on the primary habitat. All development in this area must be designed to prevent significant adverse impacts on the primary habitat areas. In concert with State law, City Ordinances shall require environmental review and appropriate mitigation of identified impacts for all development in the Coastal Zone. • Development in wetlands shall be prohibited. Access for nature observation shall be the only exception; and this access should not be permitted unless a qualified biologist determines that the impacts of construction and human observation can be sufficiently mitigated to insure continuation of the rare and endangered species and/or its habitat. • Available evidence indicates that dune vegetation is more resilient than previously thought, and areas damaged by illegal use or negligence shall be considered restorable and eligible for restoration. • Where habitats of rare and endangered species are located on any parcel, owners and/or operators shall, at such time that development is proposed, develop and execute a Management Plan which will protect identified rare and endangered plant and animal communities. Each plan should be drawn up by a qualified biologist in cooperation with the property owner developer. 1 Presumably this refers to the maps entitled "Natural Habitats" and "Potential Wildlife Habitats." 2 Exhibit 'A' Habitat Definitions: Primary habitat. This term includes all of the environmentally sensitive areas in Marina. These are as follows: 1. Habitat for all identified plant and animal species which are rare, endangered, threatened, or are necessary for the survival of an endangered species. These species will be collectively referred to as "rare and endangered". 2. Vernal ponds and their associated wetland vegetation. The Statewide Interpretive Guideline for Wetlands and Other Wet Environmentally Sensitive Habitat Areas	Consistent, with Mitigation: Construction of some of the Proposed Project components would occur within special-status species habitats (including wetlands and including those defined as primary and secondary habitat in the City of Marina Local Coastal Land Use Plan). This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
				(California Coastal Commission, February 14, 1981) contains technical criteria for establishing the inland boundary of wetland vegetation. 3. All native dune vegetation, where such vegetation is extensive enough to perform the special role of stabilizing Marina's natural sand dune formations. Secondary habitat. This term refers to areas adjacent to primary habitat areas within which development must be sited and designed to prevent impacts which would significantly degrade the primary habitat. The secondary habitat area will be presumed to include the following, subject to more precise determination upon individual site investigation: 1. The potential/known localities of rare and endangered plant species as shown on LUP page 71 ("Disturbed Vegetation" map). 2. The potential wildlife habitats as shown on LUP page 75 ("Potential Wildlife" map). 3. Any area within 100 feet of the landward boundary of a wetland primary habitat area. Rare and endangered species. In Marina, this term will apply to those plant and animal species which are rare, endangered, threatened or are necessary for the survival of such species. The Environmental Analysis Report prepared for this LUP identified such species in the dune habitat areas. While future scientific studies may result in addition or deletion of species, the list presently includes: 1. Smith's Blue Butterfly (*Shijimiaeoides enoptes smithi*) 2. Globose Dune Beetle (*Coelus globosus*) 3. Black Legless Lizard (*Anniella pulchra nigra*) 4. Salinas Kangaroo Ray (*Dipodomys Heermanni Goldmani*) 5. Seaside Painted Cup (*Castilleja latifolia* ssp. *latifolia*) 6. Monterey Spine Flower (*Chorizanthe pungens var. pungens*) 7. Eastwood's Ericameria (*Ericameria fasciculata*) 8. Coast Wallfower (*Erysimum ammophilum*) 9. Menzies' Wallflower (*Erysimum menziesii*) 10. Coastal Dunes Milk Vetch (*Astragalus tener var. titi*) 11. Dune Gilia (*Gilia tenuiflora var. arenaria*) 12. Wild Buckwheat (*Erigonum latifolium*)* 13. Wild Buckwheat (*Erigonum parvifolium*)* 14. Bush Lupine (*Lupinus* ssp.)+ * only within the range of Smith's Blue Butterfly. + only within the range of the Black Legless Lizard.	
City of Marina	City of Marina Land Use Plan	Planning Guidelines	Coastal Alignment Option	Wetlands Protection. Despite their seasonal nature, the vernal ponds are considered to be coastal wetlands. There are several vernal ponds remaining in Marina's Coastal Zone; all but one supports a marsh. Most of the ponds are brackish and, except in the very wettest years, most are dry for some part of the year. The following shall be applied when planning in or near the vernal ponds: Because of their fragile geology, no new structures shall be allowed within the vernal pond itself. The only new structure allowed in the wetland area should be those designed for public access for nature observation. No access structure should be allowed without thorough investigation by a qualified biologist and geologist. Design should include mitigation for all impacts identified by these specialists. New development within the drainage areas of the natural Vernal Ponds shall be regulated to protect the vernal pond and its water quality. No development within the drainage area of a vernal pond should be approved without investigation by a qualified	Consistent, with Mitigation: Vernal ponds (including the pond associated with Locke-Paddon Park) occur in the vicinity of the proposed Coastal Alignment option. Construction could occur within the 100-foot riparian setback of the edge of the vernal ponds and water quality within the vernal ponds could be adversely affected by pipeline construction. This issue is addressed further in Impact BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Marina	Marina Municipal Code	Chapter 17.51 – Tree Removal, Preservation and Protection	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	Chapter 17.51 – Tree Removal, Preservation and Protection includes measures to preserve and maintain existing trees. This ordinance requires that a tree removal permit be obtained from the City for any tree that shall be removed or relocated.	Consistent, with Mitigation: Construction of some of the Proposed Project components could result in tree removal. This issue is addressed further in Impact BT-1 and a mitigation measure is provided to reduce or avoid any impacts.
City of Seaside	Seaside General Plan	Conservation / Open Space Element	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facility Site Transfer Pipeline Monterey Pipeline	COS-4.1: Preserve ecological and biological resources by maintaining these resources as open space.	Consistent, with Mitigation: Construction of some of the Proposed Project components could occur within and disturb sensitive natural communities. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Seaside	Seaside General Plan	Conservation/Open Space	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facility Site Transfer Pipeline Monterey Pipeline	Policy COS-4.2: Protect and enhance the creeks, lakes, and adjacent wetlands for their value in providing visual amenity, habitat for wildlife, and recreational opportunities.	Consistent, with Mitigation: Construction of some of the Proposed Project components could occur within, and/or disturb, wetlands or waters. This issue is addressed further in Impact BT-2 and mitigation measures are provided to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Coastal Alignment Option Monterey Pipeline	Policy NCR-CZ 1.1.C: Minimize Adverse Effects to Natural Coastal Resources. New development shall be located in areas where it will not have a significant adverse effect either individually or cumulatively on natural coastal resources and public access and recreation.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and/or disturb, sensitive natural communities, wetlands, and/or special-status species habitat. These issues are addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Coastal Alignment Option Monterey Pipeline	Policy NCR-CZ 3.1.A: Proposed development in areas adjacent to an ESHA, including wetlands (as identified earlier by Policies NCR-CZ 1.2.A and 1.3.A), shall be required to demonstrate that it is sited and designed to be compatible with the protection of these resources. …	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disrupt, environmentally sensitive habitat areas (which may include wetlands and waters). This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Monterey Pipeline	Policy NCR-CZ 1.2.A: Designation of ESHA. Areas of particular habitat value and fragility consistent with Policy LUD-CZ 1.3.B are considered Environmentally Sensitive Habitat Areas (ESHA). Actual determination of ESHA boundaries shall be based on facts on the ground at the time development is considered.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disrupt, environmentally sensitive habitat areas (which may include wetlands and waters). This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Monterey Pipeline	Policy NCR-CZ 1.2.B: Protection of ESHA ESHAs shall be protected against significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Development in areas adjacent to ESHAs shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat areas. Site-specific surveys to confirm the presence and extent of identifiable plant and animal life or habitats shall be required for all new development in, and adjacent to, ESHA. Site-specific surveys shall be prepared by a qualified biologist and shall include recommended mitigation measures to avoid, and where avoidance is not possible, minimize sensitive habitat impacts.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disrupt, environmentally sensitive habitat areas (which may include wetlands and waters). This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Monterey Pipeline	Policy NCR-CZ 1.3.A: Designation of Wetlands. Areas periodically or permanently covered with water that meet the definition of wetland in Coastal Act Section 30121, are considered to be wetlands. The presence of either hydrology, soils, or vegetation must be evidenced for an area to qualify as a wetland. Actual determination of wetland boundaries shall be based on facts on the ground at the time development is considered.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disturb, wetlands. This issue is addressed further in Impact BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Monterey Pipeline	Policy NCR-CZ 1.3.B: Protection of Wetlands The biological health and productivity of wetland areas shall be maintained, and where feasible, restored. Development that may have an adverse effect on a wetland shall not be allowed. The biological productivity of coastal waters, streams, wetlands, estuaries, and lakes, shall be maintained and restored, where feasible, to maintain optimum populations of marine organisms and to protect human health where applicable. Maintenance and restoration efforts shall support biological productivity by minimizing adverse effects of wastewater discharges and entrainment; controlling runoff, preventing substantial interference with surface water flow, and minimizing alteration of natural streams; preventing depletion of groundwater supplies; encouraging wastewater reclamation; and maintaining natural vegetation buffer areas that protect riparian habitats.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disturb, wetlands and waters. This issue is addressed further in Impact BT-2 and mitigation measures are provided to reduce or avoid any impacts. Water quality is addressed in EIR Section 4.11, Surface Water Hydrology and Water Quality.
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Monterey Pipeline	Policy LUD-CZ 3.1.A: Considerations for Natural Habitat Areas – ESHA Proposed development in areas adjacent to an ESHA, including wetlands (as identified earlier by Policies NCR-CZ 1.2.A and 1.3.A), shall be required to demonstrate that it is sited and designed to be compatible with the protection of these resources. Proposed development in areas adjacent to an ESHA (including wetlands) shall be required to provide a site-specific resource report prepared by a qualified biologist. The report shall include, at a minimum, the following: A site-specific survey evaluating existing known resources at the time of proposed development. A map identifying existing known resources within the project's identified area of potential impact at the time of proposed development. An evaluation of necessary buffers and/or setbacks required around any identified ESHA, wetland or riparian vegetation to ensure the long term biological integrity of the resource. All identified necessary buffers and/or setbacks required to ensure the biological integrity of the resource shall be mapped. Buffers or setbacks are required around Natural Habitat Areas including ESHA, riparian vegetation, and wetlands of a sufficient size to ensure the biological integrity of the resource, including under changing sea level conditions. A minimum buffer of 50 feet as measured from the extent of identified habitat type shall be required, unless a biological assessment results in information indicating that expanded or reduced setback/buffer would ensure the biological integrity of the resource. Smaller setbacks or buffers may be allowed only if it can be demonstrated that: (1) the required minimum 50-foot buffer would render the site unusable for its designated use; and (2) the buffer has been adjusted downward only to a point where the designated use can be accommodated. Under no circumstances shall the buffer be reduced to less than 25-feet. If the buffer/setback is adjusted downward, additional mitigation measures developed in consultation with the Department of Fish & Game shall be implemented.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disturb, environmentally sensitive habitat areas (which may include wetlands and waters). This issue is addressed further in I Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
				No permanent structures shall be permitted within the required buffer/setback area except for structures of a minor nature that do not lead to significant degradation of the resource such as fences or at grade improvements for public access and/or recreation purposes (i.e. paths, trails, platforms, parking). Identification of all biological impacts of proposed development. Alternatives and/or mitigation for avoiding and/or reducing any identified impacts to a less than a significant level. Mitigation / Restoration and Monitoring Program for any mitigation required, including identification of appropriate acre replacement / restoration ratios for any unavoidable impacts.	
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Monterey Pipeline	Policy LUD-CZ 3.1B: Considerations for Natural Habitat Areas – Wetland Vegetation Management. For proposed development within the coastal zone, a Vegetation Management Report prepared by a qualified biologist shall be required. The report shall consist, at a minimum, of the following: A site-specific survey of the vegetation and habitat types at the time of proposed development. A map identifying existing vegetation and habitat types relative to the identified project area, and identification of all potential impacts associated with the proposed development. Identification of appropriate native plant species for use in restoration activities. Identification of appropriate buffers, or setbacks, necessary to protect identified vegetation Alternatives and/or mitigation for avoiding and/or minimizing identified impacts. Mitigation shall include procedures and planting/maintenance plans that will encourage, enhance, or reestablish desirable plant communities. The Vegetation Management Report shall be consistent with the most current version of the Wetland Management/Enhancement and Restoration Program (refer to Policy NCR-CZ 1.5D).	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within environmentally sensitive habitat areas (which may include wetlands and waters). This issue is addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Seaside	Seaside Municipal Code	Chapter 8.54 – Trees	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facility Site Transfer Pipeline Monterey Pipeline	Chapter 8.54 –Regulates and controls the planting, removal, protection and preservation of trees within the city. A permit is required for the removal or alteration of any tree on private property in the city without a permit issued as provided in this chapter. A permit is also required to plant any Coast Redwood, Blue Gum Eucalyptus, Willow, Cottonwood or Poplar within the city.	Consistent, with Mitigation: Construction of some of the Proposed Project components could result in removal or alteration of trees. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Sand City	Sand City Land Use Plan	Costal Resource Management	Monterey Pipeline	Policy 4.3.22: Plans for protection of environmentally sensitive habitat shall be subject to the following standards: a. Prior to any development or specific plan approval which affects habitat areas identified on Figure 7 in the LCP, a qualified professional botanist shall prepare a plant survey and plan for the affected area which includes: 1. description of type and location of existing native and other species; 2. protection goals consistent with Policy 4.3.20; 3. in habitat preservation areas: methods for controlling public access and eliminating invasive non-native species (iceplant); 4. in habitat enhancement and consolidation areas: irrigation, fertilization and long-term maintenance requirements, and methods of establishing new native plants (e.g., seeding, transplanting) and eliminating iceplant; 5. mitigation measures for adverse impacts, such as loss of transplants to shock; 6. schedule setting forth time requirements for plant establishment, dune stabilization, access controls, etc.; b. Prior to approval of any development, specific plan, public works project or tentative subdivision map for these areas which may require habitat relocation or off-site restoration activities, a qualified professional botanist shall prepare a plan which, to the satisfaction of the California Department of Fish and Game, demonstrates: 1. the long-term suitability of the restored habitat for these species, including but not limited to wind protection, soil condition, and acre-for-acre replacement of habitat; 2. the management methods needed for installation, nurturing, and permanent protection of the restored habitat, including but not limited to the method of establishment (seed, hydromulch, transplant), and access restrictions; 3. the requirements for successful establishment of each species in another location, after which removal of the original plants may be possible. Prior to the commencement of any development which affects Areas 1, 2, or 5, the rare and endangered species located in these areas shall be successfully established in the appropriate locations (see Policies 4.3.20.a and 4.3.20.d). c. All habitat protection plans shall include the maximum feasible planting or protection of dune buckwheat (*Eriogonum parvifolium*) and *E. latifolium*) as a food source tor the endangered Smith's blue butterfly (*Shijimiaeoides enoptes smithi*). d. All habitat protection plans shall contain an implementation and management component which provides for: 1. fencing, signing, or other appropriate access control measures to be installed as a condition of development (or as a condition of permits for restoration activities if no other development is proposed). 2. responsibility by the developer for habitat installation, maintenance and preservation for at least five years. Permanent maintenance shall also be provided for, with	Consistent, with Mitigation: Installation of the Monterey Pipelines proposed for the coastal zone may occur within, and disrupt, environmentally sensitive habitat areas (which may include wetlands and waters), such as central dune scrub, and habitat for special-status species, such as Smith's blue butterfly. This issue is addressed in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	Del Monte Beach Land Use Plan	Natural Coastal Resources	Monterey Pipeline	Policy 2: In areas of dunes habitat, a dune restoration program shall be required as a condition of approval for any new development. Dune habitat areas include, but are not limited to, those represented on the generalized mapping on Figure 3A in the LCP. Prior to approval of any specific development plan, public work project, or general development plan, the applicant shall have a qualified professional biologist/botanist prepare a dune restoration and protection plan that includes the following: a. Project description, including location of project, project description, and coordination required with other agencies b. Restoration and preservation goals and objectives to achieve these goals. c. Ecological considerations, including land use history at the restoration site, existing ecological conditions (including soil type and hydrologic regime, as well as existing plants and animals on site), and restoration constraints. d. Site Analysis including: (1) Environmentally sensitive habitat areas to be preserved without degradation; (2) Areas to be maintained and/or restored as buffers for environmentally sensitive habitat	Consistent, with Mitigation: Installation of the Monterey Pipeline would occur within, and could disrupt, central dune scrub. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
				preservation areas; and (3) Dune restoration areas that are good ecological candidates for habitat restoration because of their biological and locational potential for reestablishment of environmentally sensitive habitat. e. A restoration implementation plan, including the following: (1) Regulatory and legal considerations (e.g., permits, liability); (2) Preconstruction requirements; (3) Site preparation; (4) Exotic species removal; (5) Procurement of native plant species propagules (must be from the site vicinity for genetic similarity); (6) List of species to be planted including size, spacing, and quantity of plants; (7) Planting plan/revegetation methods; (8) Irrigation plan (if necessary); (9) Schedule; (10) As builts; (11) Responsible parties. f. A site-wide management plan, including the following: (1) Maintenance activities during the monitoring period; (2) Long-term management activities; (3) Signs, fencing, allowable access; (4) Schedule; (5) Responsible parties for long-term and short-term management. g. Success criteria, including the following: (1) Final success criteria. These should refer specifically to the objectives of the plan, the monitoring methods, and contingency measures; (2) Interim success criteria (these should address the expected mortality rate). h. A monitoring plan, including the following: (1) Methods used to monitor progress in achieving each of the success criteria (quantitative and qualitative); (2) Final monitoring effort; (3) Reference site (include soil type, elevation, community description, disturbance regime/management, location and reference plots); (4) Statistical methods (5) Adaptive management (6) Annual reports (include results, recommendations, photo-documentation); (7) Schedule; (8) Responsible parties. i. Contingency measures, i.e. if the objectives and/or success criteria are not being met, what will be the potential methods for alleviating the problems. j. Funding (for all aspects of the preservation/restoration plan/project). k. References.	
City of Monterey	Del Monte Beach Land Use Plan	Natural Coastal Resources	Monterey Pipeline	Policy 3: All environmentally sensitive habitat shall be protected. Revegetation with wild buckwheat (*Eriogonum latifolium or E. parvifolium*) shall be included as part of the dune restoration program for any new development to enhance habitat for the Smith's blue butterfly.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disturb, central dune scrub, habitat for Smith's blue butterfly, and other environmentally sensitive habitats such as wetlands, riparian woodland and scrub, and coast live oak woodland. These issues are addressed further in Impacts BT-1 and BT-2 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	Del Monte Beach Land Use Plan	Natural Coastal Resources	Monterey Pipeline	Policy 4: For any proposed development in the environmentally sensitive habitat areas of the Del Monte Beach area, as shown in, but not limited to, Figure 3A in the LCP, a resource survey shall be conducted, according to established protocols, for all sensitive species, including dune plants, snowy plover, black legless lizard, and marine mammals known to occur in the vicinity.	Consistent, with Mitigation: A number of special-status species have potential to occur within environmentally sensitive habitat areas within the Monterey Pipeline alignment. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	Del Monte Beach Land Use Plan	Natural Coastal Resources	Monterey Pipeline	Policy 10: New development shall be sited to preserve native oak, pine, and cypress trees. In reviewing requests for tree removal, preservation of scenic resources shall be a primary objective. Removal of any significant living tree (diameter greater than 12 inches) will ordinarily be allowed only in cases where life, property, or existing access is immediately threatened, or where a diseased tree is determined by a qualified professional arborist to represent a severe and serious infection hazard to other surrounding trees.	Consistent, with Mitigation: Installation of the Monterey Pipeline could result in the removal of significant trees, including native oak, pine, and cypress. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	Monterey Harbor Land Use Plan	Natural Resources	Monterey Pipeline	Policy 3.d: Revegetation with wild buckwheat (*Eriogonum parvifolium and latifolium*) shall be included as part of the dune restoration program for any new development to enhance habitat for the endangered Smith's Blue butterfly.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disrupt, Smith's Blue butterfly habitat. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	Monterey Harbor Land Use Plan	Natural Resources	Monterey Pipeline	Policy 3.e: For any proposed development in the environmentally sensitive habitat areas of the Harbor LUP area, as shown in, but not limited to, Figure 2 in the LUP, a resource shall be conducted, according to established protocols, for all sensitive species, including dune plants, snowy plover, black legless lizard, and marine mammals known to occur in the vicinity.	Consistent, with Mitigation: A number of special-status species have potential to occur within environmentally sensitive habitat areas within the portion of the Monterey Pipeline alignment proposed for the Monterey Harbor LUP planning area. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	Monterey Harbor Land Use Plan	Natural Resources	Monterey Pipeline	Policy 3.k: New development shall be sited to preserve native oak, pine, and cypress trees. In reviewing requests for tree removal, preservation of scenic resources shall be a primary objective. Removal of any significant living tree (diameter greater than 12 inches) will ordinarily be allowed only in case where life, property, or existing access is immediately threatened, or where a diseased tree is determined by a qualified professional arborist to represent a severe and serious infection hazard to other surrounding trees.	Consistent, with Mitigation: Installation of the Monterey Pipeline could result in the removal of significant trees, including native oak, pine, and cypress. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	Monterey Harbor Land Use Plan	Natural Resources	Monterey Pipeline	Policy 3.l.: Native dune plant landscaping shall be required with any further development or redevelopment of portions of the recreation trail adjacent to dune habitat.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disrupt, central dune scrub. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.

Table 4.5-6
Applicable Local Plans, Policies, and Regulations – Biological Resources: Terrestrial

Project Planning Region	Applicable Plan	Plan Element / Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies, and Programs
City of Monterey	CCC	Land Resources	Monterey Pipeline	Section 30240: Environmentally sensitive habitat areas; adjacent developments. a. Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. b. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disrupt, environmentally sensitive habitat areas, which may include communities such as central dune scrub. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
City of Monterey	CCC	Marine Environment	Monterey Pipeline	Section 30233: Diking, filling or dredging; continued movement of sediment and nutrients The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following: New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities. Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps. In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities. Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines. Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas. Restoration purposes. Nature study, aquaculture, or similar resource dependent activities.	Consistent, with Mitigation: Installation of the Monterey Pipeline could occur within, and disrupt, wetlands or waters. This issue is addressed further in Impact BT-2 and mitigation measures are provided to reduce or avoid any impacts. Impacts related to wetlands or waters in the marine environment are discussed in EIR Section 4.13, Marine Biological Resources.
City of Monterey	Monterey City Code	Chapter 37 – Preservation of Trees and Shrubs	Monterey Pipeline	Chapter 37 – Preservation of Trees and Shrubs is intended to assure preservation of trees and replacement of trees when removal is unavoidable. A tree permit is required to be obtained from the City for removal or excessive pruning of any protected tree. Protected trees are defined as a) trees located on a vacant private parcel that are more than two inches (2") in diameter when measured at a point four feet six inches (4'6") above the tree's natural grade; and, b) trees located on a private, developed parcel that are more than six inches (6") when measured at a point four feet six inches (4'6") above the tree's natural grade. The City can also designate Local Landmark Trees, which is an outstanding, healthy, and prominent tree that is designated landmark in accordance to procedures established in the Municipal Code.	Consistent, with Mitigation: Installation of the Monterey Pipeline could result in the removal or substantial pruning of one or more protected tree or Local Landmark Tree. This issue is addressed further in Impact BT-1 and a mitigation measure is provided to reduce or avoid any impacts.
City of Pacific Grove	Pacific Grove Municipal Code	Title 12 – Trees and the Urban Forest	Monterey Pipeline	Title 12 – Trees and the Urban Forest is intended to facilitate the protection, preservation, and restoration of Pacific Grove's urban forest; and enhance the visual and aesthetic uniqueness of Pacific Grove, in accordance with the city of Pacific Grove General Plan. A tree permit is required to be obtained from the City for substantial pruning (greater than 25 percent of the live branches of the tree) or removal or any protect trees. Protected trees are defined as follows: Native Trees. All Gowen cypress, regardless of size; all Coast live oak, Monterey cypress, Shore pine, and Monterey pine six inches or greater in trunk diameter, measured at 54 inches above native grade.	Consistent, with Mitigation: Installation of the Monterey Pipeline could result in the removal of native trees. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts. Installation and maintenance of the Monterey Pipeline would not occur within 100 yards of designated Monarch Sanctuaries in Pacific Grove
Fort Ord Reuse Authority	Fort Ord Reuse Plan	Conservation	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option Coastal Booster Pump Station Injection Well Facility Site Transfer Pipeline	Biological Resources Policy A-9: The County shall encourage the preservation of small pockets of habitat and populations of HMP species within and around developed areas. Program A-9.1: The County shall require project applicants who propose development in undeveloped natural lands to conduct reconnaissance-level surveys to verify the general description of resources for the parcel provided in the biological resource documents prepared for the U.S. Army Corps of Engineers. The information gathered through these reconnaissance-level surveys shall be submitted as a component of the project application package. Program A-9.3: Where development will replace existing habitat which supports sensitive biological resources, the County shall encourage attempts to salvage some of those resources by collecting seed or cuttings of plants, transplanting vegetation, or capturing and relocating sensitive wildlife species.	Consistent, with Mitigation: Construction of some of the Proposed Project components could occur within, and disturb, a potential wetland impact Fort Ord HMP plant or wildlife species. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.
Fort Ord Reuse Authority	Fort Ord Reuse Plan	Conservation	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option Coastal Booster Pump Station Injection Well Facility Site Transfer Pipeline	Biological Resources Policy C-3: Lighting of outdoor areas shall be minimized and carefully controlled to maintain habitat quality for wildlife in undeveloped natural lands. Street lighting shall be as unobtrusive as practicable and shall be consistent in intensity throughout development areas adjacent to undeveloped natural lands.	Consistent, with Mitigation: Construction of some of the Proposed Project components could occur during nighttime hours. This issue is addressed further in Impact BT-1 and mitigation measures are provided to reduce or avoid any impacts.

4.5.4 Impacts and Mitigation Measures

4.5.4.1 *Significance Criteria*

Based on Appendix G of the CEQA Guidelines, the project would result in significant impacts related to terrestrial biological resources if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS).
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the federal Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.5.4.2 *Impact Analysis Overview*

Areas of No Impact

All of the significance criteria outlined above are discussed within this section because they are potentially applicable to the Proposed Project.

Approach to Analysis

This section describes the methods used to analyze potential terrestrial biological resources impacts of the Proposed Project. This impact analysis addresses direct and indirect impacts that may result from the construction and operation of the Proposed Project components. Direct impacts are those effects of a project that occur at the same time and place of project implementation, such as removal of habitat from ground disturbance. Indirect impacts are those effects of a project that occur either later in time or at a distance from the Project Study Area but are reasonably foreseeable, such as loss of aquatic species due to upstream effects on water quality or quantity. Direct and indirect impacts can also vary in duration and result in temporary, short-term, and long-term effects on biological resources. A temporary effect would occur only during an activity that would happen for a short period of time, then end. A short-term effect would last from the time an activity ceases to some intermediate period of approximately one to five years (i.e., repopulation of habitat following restoration). A long-term or permanent effect would last longer than 5 years after an activity ceases. Long-term effects may result from ongoing maintenance and operation of a project, or may result from a permanent change in the condition of a resource, in which case it could be considered a permanent impact.

Construction Impacts

This impact analysis assumes that the construction activities would be limited to the Project Study Area. The Proposed Project would result in the construction of a variety of permanent features required for the operation of the Proposed Project, including, but not limited to, pipelines, pump stations, a water treatment facility, and Injection Well Facilities. Some components would be located underground (e.g., pipelines) and, therefore, construction activities may result in temporary, short-term impacts to biological resources but would not result in long-term permanent impacts. For the above-ground Proposed Project components (source water diversion sites, Treatment Facilities at the Regional Treatment Plant, booster pump station options, etc.), construction activities would potentially result in permanent, long-term impacts to biological resources.

Operational Impacts

Daily operation of the pipelines and other underground Proposed Project components would not result in impacts to biological resources; however, periodic maintenance activities associated with project operations would potentially result in ongoing impacts to biological resources. Maintenance activities associated with pipelines would include annual inspections, testing and servicing of valves, vegetation maintenance along rights-of-way, and repairs of minor leaks in buried pipeline joints or segments. In addition, it is anticipated that the deep injection wells at the Injection Well Facilities site would require back-flushing for about four hours about once per week and would require discharge of the back-flush water to a back-flush percolation basin.

While not affected by construction, potential operational impacts to surface water bodies, downstream of source water diversion sites (Blanco Drain, Reclamation Ditch, and Tembladero Slough) including the Salinas River, Lake El Estero, and the affected reaches of the Reclamation Ditch, Tembladero Slough, and the Old Salinas River Channel due to water diversions are also addressed.

HMP Species

All of the Proposed Project Study Area within the former Fort Ord is located within parcels designated by the HMP as “development.” Proposed Project components within the former Fort Ord include portions of the Product Water Conveyance pipeline and booster pump RUWAP and Coastal options, and Injection Well Facilities.[15]

Through implementation of the HMP, impacts to HMP species and habitats occurring within the designated development parcels were anticipated and mitigated through the establishment of habitat reserves and corridors, and the implementation of habitat management requirements within habitat reserve parcels on former Fort Ord. As described in the Regulatory discussion above (**Section 4.5.3**), parcels designated as “development” have no management restrictions. However, the Biological Opinion (BO) and HMP require the identification of sensitive biological resources within these parcels that may be salvaged for use in restoration activities in reserve areas.

The HMP species known or with the potential to occur within the Proposed Project Study Area on the former Fort Ord include Monterey spineflower, sandmat manzanita, Monterey ceanothus,

[15] The Transportation Agency for Monterey County (TAMC) right-of-way that traverses through the former Fort Ord it is not on former Fort Ord property.

Eastwood's goldenbush, California legless lizard, and Monterey ornate shrew (see **Table 4.5-7, HMP Species and Habitats Identified within the Project Study Area on the former Fort Ord (in sq. ft. and acres)** below). With the designated habitat reserves and corridors and habitat management requirements of the HMP in place, the loss of one or more individuals of these species is not expected to jeopardize the long-term viability of these species and their populations on the former Fort Ord (USFWS, 1993). This is because the recipients of disposed land with restrictions or management guidelines designated by the HMP would be obligated to implement those specific measures through the HMP and deed covenants. In addition to the HMP species identified, impacts to sensitive central maritime chaparral habitat are also addressed in the HMP and, therefore, impacts to this habitat are also considered mitigated through the implementation of the HMP based on the same conclusions. Because the project is: 1) only proposing development activities within designated development parcels; 2) required to comply with the habitat management restrictions identified in the HMP; and 3) would not result in any additional impacts to HMP species and habitats beyond those anticipated in the HMP, no additional mitigation measures for these HMP species or central maritime chaparral habitat are required. Impacts to these special-status species and central maritime chaparral are considered less-than-significant. However, because the BO and HMP require the identification of sensitive biological resources within development parcels that might be salvaged for use in restoration activities in reserve areas, additional mitigation measures are identified where appropriate to comply with and ensure consistency with the BO and HMP.

Table 4.5-7
HMP Species and Habitats Identified within the Project Study Area on the former Fort Ord (in sq. ft. and acres)

Biological Resource	Component Name		
	Product Water Conveyance**		Injection Well Facilities*
	RUWAP alignment option	Coastal alignment option	
Sandmat manzanita	0.5 ac.	--	8.9 ac
Monterey ceanothus	1,341 sq. ft.	--	17.8 ac
Monterey spineflower	2,063 sq. ft.	0.1 ac	0.1 ac
Eastwood's goldenbush	198 sq. ft.	--	2.8 ac
Maritime chaparral	1.9 ac	--	62.5 ac
California legless lizard	H/O	H/O	H
Monterey ornate shrew	H	H	H

Key: H = Habitat Present within Project Study Area; O = Occurrence (from CNDDB or other resource) within Project Study Area

*An additional area of approximately 39 acres was added to the Injection Well Facilities following the 2014 Focused Botanical Survey. Other areas of HMP plant species may be present in the additional area.

**Including pipelines and booster pump stations

Surface Water Bodies

Operational or long-term impacts on inland surface waterbodies (e.g., Salinas River, Reclamation Ditch, Tembladero Slough, and Lake El Estero) relative to flow quantities and water quality may occur due to facility siting, operational diversions of source water, discharges to surface waters, and maintenance activities. Biological resources operational impacts due to source water diversions are analyzed based on the results of the following technical reports:

- ~~Draft~~ Technical Memorandum for the Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River (Todd Groundwater, 2015c) (Appendix N);
- ~~Draft~~ Salinas River Inflows Impacts Report (Schaaf & Wheeler, 2015a) (Appendix O rev);
- ~~Draft~~ Reclamation Ditch Yield Study (Schaaf & Wheeler, 2015b) (Appendix P);
- ~~Draft~~ Blanco Drain Yield Study (Schaaf & Wheeler, 2014a). (Appendix Q-rev); and
- ~~Draft~~ Urban Runoff Capture at Lake El Estero (Schaaf & Wheeler, 2014b) (Appendix R).

The Schaaf & Wheeler studies evaluate changes to hydrology and water quality in Lake El Estero (including the beach and bay), and in the Salinas River due to the proposed changes to operation of the Salinas Treatment Facility and the City of Salinas urban stormwater runoff systems. In addition, these studies analyze potential changes in hydrology along identified affected reaches as a result of proposed direct diversions from the Reclamation Ditch, Tembladero Slough, and Blanco Drain. These analyses address how changes in the existing hydrology and water quality at Lake El Estero, the Salinas River, the Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel may affect sensitive habitats (i.e., riparian, aquatic, or wetland habitats) and special-status species that are known or have the potential to benefit from or use these water bodies.

Summary of Impacts

Table 4.5-8, Summary of Impacts – Biological Resources provides a summary of potential impacts to biological resources and significance determinations at each Proposed Project component site.

Table 4.5-8
Summary of Impacts – Biological Resources: Terrestrial[16]

Impact Title	Source Water Diversion and Storage Sites: Salinas Pump Station	Salinas Treatment Facility	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero Diversion	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	Monterey Pipeline	Project Overall
BT-1: Construction Impacts to Special-Status Species and Habitat	LSM	LSM	LSM	LSM	LSM	LSM	NI	LSM	LSM	LSM	LSM	LSM	LSM
BT-2: Construction Impacts to Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	NI	NI	LSM	LSM	LSM	NI	NI	LS	LSM	LS	NI	LSM	LSM
BT-3: Construction Impacts to Movement of Native Wildlife and Native Wildlife Nursery Sites.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
BT-4: Construction Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan.	LS	LS	LS	LS	LS	LS	LS	LSM	LSM	LSM	LS	LS	LSM
BT-5: Operational Impacts to Special-Status Species and Habitat.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
BT-6: Operational Impacts to Riparian, federally protected wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	LS	LS	LS	LS	LS	LS	NI	LS	LS	LS	NI	LSM	LSM
BT-7: Operational Impacts to Movement of Native Wildlife and Native Wildlife Nursery Sites.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
BT-8: Operational Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan.	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Cumulative Impacts	LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts to biological resources: terrestrial												

NI - No Impact
LS - Less than Significant
LSM - Less than Significant with Mitigation
SU - Significant Unavoidable
BI – Beneficial Impact

[16] Impacts to Affected Reaches are presented in **Tables 4.5-9, 4.5-10**, and **4.5-11**.

4.5.4.3 *Construction Impacts and Mitigation Measures*

Impact BT-1: Construction Impacts to Special-Status Species and Habitat. Proposed Project construction may adversely affect, either directly or through habitat modification, special-status plant and wildlife species and their habitat within the Project Study Area. (Criteria a, b, c, and d) (Less than Significant with Mitigation)

Construction of the Proposed Project would result in direct and indirect impacts to special-status plant and wildlife species. Impacts to special-status species would occur due to use of heavy equipment and other construction activities that could result in the loss of individuals, soil compaction, dust, vegetation removal/loss of habitat, wildlife harassment or mortality, root damage, erosion, destruction or disturbance of nests, and introduction and spread of non-native, invasive species.

In addition, nighttime construction activities could introduce temporary nighttime lighting at some Proposed Project component locations. As discussed in **Chapter 2, Project Description**, the majority of construction activities would occur during the daytime and would not result in new or increased sources of light or glare. However, extended work hours into the night could be necessary during construction of certain Proposed Project components (specifically, the Treatment Facilities at the Regional Treatment Plant, Injection Well Facilities, and the Cal-Am Distribution System Pipeline: Monterey and Transfer Pipelines).

The following provides detailed analysis of the impacts by Proposed Project component.

Source Water Diversion and Storage Sites

Salinas Pump Station

No special-status plant species were observed at the Salinas Pump Station site and none are expected to occur. Therefore, no impacts to special-status plant species would occur as a result of construction activities associated the Salinas Pump Station improvements. Mature trees occur within the Salinas Pump Station site, which may provide suitable habitat for roosting special-status bat species and nesting raptors, migratory birds, or other protected avian species. Impacts to these species due to wildlife harassment and destruction or disturbance of nests are considered potentially significant and Mitigation Measures BT-1b, BT-1g, and BT-1k are identified below to reduce potential impacts to a less-than-significant level. No other suitable habitat for special-status wildlife species occurs at the Salinas Pump Station site.

This component would be constructed on a parcel that currently contains the existing Salinas Pump Station, which is an existing source of nighttime light due to the safety lighting at the facility. There are no other significant sources of light or glare in the vicinity, as this component is located within agricultural fields. Construction activities could result in increased glare from construction lighting and equipment, although the site is surrounded by developed land and active agricultural operations neither of which support sensitive biological resources. Additionally, construction activity at this site is not expected to extend past 8 PM. There may be times of construction that extend into 24-hour periods; however, nighttime lighting would be temporary and intermittent over the estimated five-month construction period and would not shine directly onto offsite areas. Thus, construction lighting would be of limited duration and visibility. Due to the absence of sensitive biological resources in the vicinity, nighttime construction lighting would not result in impacts to biological resources.

Salinas Treatment Facility

Construction activities at the site include installing new pipelines and a lift station within and adjacent to the wastewater treatment ponds. Trenching and other ground disturbing activities would be required. No nighttime construction is proposed that would produce lighting or glare. No special-status plant species were observed within the Salinas Treatment Facility site and none are expected to occur. Therefore, no impacts to special-status plant species would occur as a result of construction activities at this site.

The Salinas Treatment Facility is located adjacent to the Salinas River where California red-legged frog is known to occur. Although no suitable upland or breeding habitat occurs within the site, construction activities may result in impacts to California red-legged frog, if utilizing the site for dispersal. This impact is considered potentially significant and Mitigation Measures BT-1b and BT-1q are identified below to reduce this impact to a less-than-significant level.

The riparian habitat and Salinas River may also support other special-status wildlife species, including western pond turtle, Coast Range newt, and two-striped garter snake. The construction activities at the Salinas Treatment Facility site are proposed on the eastern side of the wastewater ponds, over 200 feet from the riparian habitat and river. Due to the lack of habitat on the eastern side of the ponds and the distance from suitable habitat, it is unlikely that any of these wildlife species would be impacted by construction activities associated with the Proposed Project. Therefore, no impacts to these special-status wildlife species are anticipated.

The riparian habitat associated with the Salinas River provides suitable habitat for roosting special-status bat species and nesting raptors, migratory birds, or other protected avian species. Impacts to these species due to wildlife harassment and destruction or disturbance of nests are considered potentially significant and Mitigation Measures BT-1b, BT-1g, and BT-1k are identified below to reduce potential impacts to a less-than-significant level.

Reclamation Ditch Diversion / Tembladero Slough Diversion

Direct Impacts

Construction of the diversion pump station at the Reclamation Ditch Diversion site would require construction activities and placement of structures within the channel bed and bank. No nighttime construction is proposed that would produce lighting or glare. No special-status plant species were observed within the Reclamation Ditch Diversion site and none are expected to occur. No suitable habitat for special-status wildlife species occurs at the Reclamation Ditch Diversion site. Therefore, no impacts to special-status plant or wildlife species would occur as a result of construction activities associated the Reclamation Ditch Diversion site. This site contains approximately 0.05 acre of aquatic habitat, which is considered a sensitive habitat and potentially jurisdictional, and potential impacts are discussed in Impact BT-2 below.

Improvements at the Tembladero Slough Diversion site would consist of a new intake structure and new lift station within the channel bed and bank. No nighttime construction is proposed that would produce lighting or glare. No special-status plant species were observed within the Tembladero Slough Diversion site and none are expected to occur. No suitable habitat for special-status wildlife species occurs at the Tembladero Slough Diversion Site. Therefore, no impacts to special-status plant or wildlife species would occur as a result of construction activities associated the Tembladero Slough Diversion Site. This site contains approximately 0.2 acre of aquatic habitat and approximately 0.01 acre of potential coastal wetland, which are considered sensitive habitats and potentially jurisdictional, and potential impacts are discussed in Impact BT-2 below.

Indirect Construction Impacts on Affected Reaches

Focused botanical surveys were conducted below the top of bank along the Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel downstream of the proposed Reclamation Ditch and Tembladero Slough Diversion Sites. No focused botanical surveys were conducted along the Old Salinas River Channel upstream of its confluence with Tembladero Slough as this area was added after the appropriate identification period. No special-status plant species were identified below the top of bank in areas surveyed and none are expected to occur.

Although there is the potential for some species of special-status plants to occur past the top of bank along the Reclamation Ditch and Tembladero Slough, no construction activities are proposed in these areas, and, therefore, construction-related direct impacts to special-status plant species and their habitats would not occur.

The Affected Reaches contain habitats which may support the following special-status wildlife species: Smith's blue butterfly, western pond turtle, California legless lizard, coast horned lizard, Coast Range newt, two-striped garter snake, Monterey dusky-footed woodrat, Salinas harvest mouse, Monterey ornate shrew, special-status bat species, tricolored blackbird, and nesting raptors, migratory birds, and other protected avian species. There are no construction activities proposed along the Affected Reaches; and, therefore, no construction-related direct impacts to special-status plant or wildlife species would occur.

Construction activities at the diversion sites may result in indirect impacts to special-status plant and wildlife species if water quality was adversely affected during construction (for example sedimentation of water and/or accidental spills of hazardous materials). This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a below.

Blanco Drain Diversion

Construction of the Blanco Drain Diversion improvements would include minor grading, installation of a new well/diversion structure, and installation of new pipelines within the bed and bank of the Blanco Drain. No nighttime construction is proposed that would produce lighting or glare. The Blanco Drain is located adjacent to the Salinas River where California red-legged frog is known to occur and contains riparian and aquatic habitat that may support California red-legged frog, western pond turtle, Coast Range newt, two-striper garter snake, Monterey dusky-footed woodrat, Salinas harvest mouse, Monterey ornate shrew, special-status bat species, tricolored blackbird, and nesting raptors, migratory birds, or other protected avian species. Construction activities proposed at this site have the potential to significantly impact these special-status wildlife species. This impact is considered potentially significant and Mitigation Measures BT-1b, BT-1g, BT-1h, and BT-1k are identified below to reduce this impact to a less-than-significant level.

This site contains approximately 0.3 acre of aquatic habitat and approximately 0.7 acre of riparian habitat, which are considered sensitive habitats and potentially jurisdictional, and potential impacts are discussed in Impact BT-2 below.

No special-status plant species were observed within the Blanco Drain Diversion site and none are expected to occur. Therefore, no impacts to special-status plant species would occur as a result of construction activities at the Blanco Drain Diversion site.

No construction activities are proposed along the Salinas River outside of the Blanco Drain Diversion site; therefore, no direct impacts to special-status plant or wildlife species would occur along the Salinas River.

Construction activities at the Blanco Drain Diversion site may result in indirect impacts to special-status plant and wildlife species associated with the Salinas River if water quality was adversely affected by construction activities (for example sedimentation of water and/or accidental spills of hazardous materials). This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a below.

Lake El Estero Diversion

Construction at this site would be limited to an entirely paved area of the existing pump station. No nighttime construction is proposed that would produce lighting or glare. No special-status plant or wildlife species were observed within the proposed Lake El Estero Diversion site and none are expected to occur. However, there is suitable habitat (e.g., mature trees, riparian habitat) near the diversion site that could support nesting raptors, migratory birds, and other protected avian species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1k identified below. No other special-status wildlife species were observed within the Lake El Estero Diversion site and none are expected to occur.

Treatment Facilities at the Regional Treatment Plant

Construction activities at the Treatment Facilities at the Regional Treatment Plant would include installation of pipelines, pumps, storage tanks, electrical equipment, and other facilities. No special-status plant species were observed within the Project Study Area during site surveys at the site and none are expected to occur. In addition, the non-native grassland at the site is subject to on-going disturbance from mowing and adjacent uses. The non-native grassland provides very low wildlife habitat at the site and no special-status wildlife species are anticipated to occur. Therefore, no impacts to special-status plant species would occur as a result of construction activities at the Treatment Facilities at the Regional Treatment Plant.

Within suitable habitat present in or adjacent to the Project Study Area associated with this project component, there is the potential for protected avian species to occur. Most of the birds observed or with the potential to occur within the Project Study Area are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503, and, in addition, birds may be designated as state species of special concern or Fully Protected species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1k identified below. No other special-status wildlife species were observed within the Project Study Area and none are expected to occur.

The Treatment Facilities at the Regional Treatment Plant would be constructed at the existing MRWPCA Regional Treatment Plant. This existing facility has exterior lighting of buildings and grounds that are typical of an industrial facility. Existing nighttime safety lighting is provided at the facility. Construction activities could result in increased glare from nighttime construction lighting and equipment. Construction of the Treatment Facilities at the Regional Treatment Plant could occur over 24 hours over an 18 month construction period. However, nighttime lighting would be temporary and, due to the absence of sensitive biological resources in the vicinity, nighttime construction lighting would not result in impacts to biological resources.

Product Water Conveyance

Construction of the product water pipelines would occur primarily within existing roads and infrastructure easements and most segments would be installed using conventional open-trench technology; where it is not feasible or desirable to perform open-cut trenching, trenchless methods would be used. No nighttime construction is proposed that would produce lighting or glare.

RUWAP and Coastal Booster Pump Station Options

No special-status plant species were observed within the Project Study Area associated with the proposed booster stations (Product Water Conveyance: RUWAP and Coastal alignment options), and none are expected to occur.

The mature trees within and adjacent to the Project Study Area at the proposed Booster Pump Station sites provide suitable habitat for roosting special-status bat species. Impacts to these species due to wildlife harassment and destruction or disturbance of nests are considered potentially significant and Mitigation Measures BT-1b and BT-1g are identified below to reduce potential impacts to a less-than-significant level.

Within suitable habitat present in or adjacent to the Project Study Area associated with these project components, there is the potential for protected avian species to occur. Most of the birds observed or with the potential to occur adjacent to the Project Study Area are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503, and, in addition, birds may be designated as state species of special concern or Fully Protected species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1k identified below. No other special-status wildlife species were observed within the Project Study Area associated with the proposed booster stations (Product Water Conveyance: RUWAP and Coastal alignment options), and no other special-status wildlife species are expected to occur.

RUWAP Pipeline Alignment Option

Special-Status Plant Species

The construction of the RUWAP alignment option may result in impacts to sandmat manzanita (0.5 acre), Monterey ceanothus (1,341 sq. ft.), Monterey spineflower (0.1 acre) Eastwood’s goldenbush (198 sq. ft.), and Kellogg’s horkelia (2 sq. ft.).

Of the populations of HMP species, approximately 0.5 acre of sandmat manzanita, 2,063 sq. ft. of Monterey spineflower, and all of the populations of Monterey ceanothus and Eastwood’s goldenbush occur on the former Fort Ord. Approximately 1,088 sq. ft. of sandmat manzanita and 2,293 sq. ft. of Monterey spineflower occur outside of the former Fort Ord.

As described in the Approach to Analysis, impacts to these plant species on the former Fort Ord are considered less-than-significant because these special-status plant species are HMP species and impacts to these species are mitigated through compliance with the HMP. No take authorization is required from the CDFW. However, the HMP and BO require the identification of sensitive biological resources that may be salvaged for use in restoration activities in reserve areas. Mitigation Measure BT-4 has been identified to further reduce impacts to these species in accordance with the BO and HMP.

For the sandmat manzanita and Monterey spineflower populations that occur outside of the former Fort Ord boundaries, impacts are considered potentially significant. In addition, impacts to Kellogg's horkelia are considered potentially significant. These potentially significant impacts can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1e identified below.

Special-Status Wildlife Species

Based on the presence of suitable habitat, the construction of the Product Water Conveyance: RUWAP alignment option may result in impacts to California legless lizard, coast horned lizard, Monterey dusky-footed woodrat, Monterey ornate shrew, American badger, special-status bat species, western burrowing owl, California horned lark, white-tailed kite, and nesting avian species protected under the Migratory Bird Treaty Act and Fish and Game Code, as detailed in the following paragraphs.

Within suitable habitat, there is the potential for the following two HMP wildlife species to occur within the Project Study Area of the Product Water Conveyance: RUWAP alignment option on the former Fort Ord: the Monterey ornate shrew (i.e., within the coast live oak woodland and central maritime chaparral habitats), and California legless lizard (i.e., within the central maritime chaparral, and coast live oak woodland habitats). The impacts to the Monterey ornate shrew and California legless lizard are considered less-than-significant because impacts to these special-status wildlife species have been identified and mitigated by the HMP on development parcels at the former Fort Ord; in addition, no take authorization is required from the Service or CDFW. However, the HMP and BO require the identification of sensitive biological resources that may be salvaged for use in restoration activities in reserve areas. Due to its high metabolic rate and cryptic nature, it is unlikely that salvaging individual shrews would be appropriate or successful. Salvage of California legless lizards has been proven effective and successful, and, therefore, Mitigation Measure BT-1c has been identified to further reduce impacts to this species in accordance with the BO and HMP.

The Project Study Area of the RUWAP pipeline that occurs outside of the former Fort Ord boundaries contains suitable habitat for California legless lizard and Monterey ornate shrew (i.e., non-native grassland). The construction of the RUWAP alignment option may result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1b, BT-1d, and BT-1h identified below.

The RUWAP alignment option Project Study Area contains suitable habitat for the coast horned lizard (i.e., non-native grassland and central maritime chaparral). The construction of the RUWAP alignment option may result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1B and BT-1h identified below.

The Project Study Area of the RUWAP alignment option contains suitable habitat for the Monterey dusky-footed woodrat (i.e., coast live oak woodland and central maritime chaparral) and American badger (i.e., non-native grassland), and construction activities could result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1i and BT-1j identified below.

Removal of mature oak trees may result in direct impacts to special-status bats, if present at the time of removal. As described above, hoary bats breed inland and to the north of their overwintering locations on the coast. As a result, this species would not be breeding within the vicinity of the Project Study Area. However, maternity roosts of the pallid bat may occur. Impacts to individuals and roosting habitat are considered potentially significant that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1g identified below.

The Migratory Bird Treaty Act protects the majority of migrating birds breeding in the U.S., regardless of their official federal or state listing status under the ESA or CESA. The law applies to the disturbance or removal of active nests occupied by migratory birds during their breeding season. Most of the birds observed or with the potential to occur within the Project Study Area are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503. In addition, birds may be designated as state species of special concern or Fully Protected species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. With the exception of the ruderal/developed areas (e.g., paved areas, buildings, roads) and active agriculture within the Project Study Area of the Product Water Conveyance: RUWAP alignment option, all habitats within the Project Study Area and vicinity (250 feet) of the RUWAP pipeline alignment provide potential nesting habitat for protected avian species. The oak woodland habitat provides suitable nesting habitat for tree-nesting raptors and migratory birds. Other ground-nesting birds may nest in non-native grassland or maritime chaparral. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1k identified below.

Coastal Alignment Option

Special-Status Plant Species

The construction of the Product Water Conveyance: Coastal alignment option may result in impacts to sandmat manzanita (0.5 ac.), Monterey ceanothus (0.3 ac), Monterey spineflower (0.3 ac), and Kellogg's horkelia (0.1 ac).

A portion of the Project Study Area along the Coastal alignment option was not able to be surveyed for special-status plants.[17] This portion occurs from the existing Regional Treatment Plant site through Armstrong Ranch to Del Monte Boulevard. The proposed pipeline Project Study Area in this location consists of non-native grassland habitat. For the purposes of this analysis and based on botanical survey results on Armstrong Ranch along the RUWAP

[17] A portion of the Product Water Conveyance: Coastal alignment option, from existing Regional Treatment Plant site through Armstrong Ranch to Del Monte Boulevard, was not surveyed as authorization to access this area was not received.

alignment option, it is assumed that Monterey spineflower and Kellogg's horkelia are present in this location.

Of the populations of HMP species, approximately 0.1 acre of Monterey spineflower occur on the former Fort Ord. Approximately 0.2 acre of Monterey spineflower occurs outside the former Fort Ord, along with all the populations of sandmat manzanita and Monterey ceanothus.

As described in the Approach to Analysis, impacts to these plant species on the former Fort Ord are considered less-than-significant because these special-status plant species are HMP species and no take authorization is required from the USFWS or CDFW. Compliance with the HMP mitigates impacts to the species. However, the HMP and BO require the identification of sensitive biological resources that may be salvaged for use in restoration activities in reserve areas and Mitigation Measure BT-4 has been identified to further reduce impacts to these species in accordance with the BO and HMP.

For the sandmat manzanita, Monterey ceanothus, and Monterey spineflower populations that occur outside of the former Fort Ord boundaries (including at the portions of this component at Armstrong Ranch that were not surveyed), impacts are considered potentially significant. In addition, impacts to Kellogg's horkelia are considered potentially significant. These potentially significant impacts can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1f identified below.

Special-Status Wildlife Species

Based on the presence of suitable habitat, the construction of the Coastal alignment option may result in impacts to Smith's blue butterfly, western pond turtle, California legless lizard, coast horned lizard, Coast Range newt, two-striped garter snake, Monterey dusky-footed woodrat, Salinas harvest mouse, Monterey ornate shrew, American badger, special-status bat species, tricolored blackbird, western burrowing owl, California horned lark, white-tailed kite, and nesting avian species protected under the Migratory Bird Treaty Act and Fish and Game Code.

There is no suitable habitat for the two HMP wildlife species (e.g., California legless lizard and Monterey ornate shrew) within the former Fort Ord. Therefore, these species do not have the potential to occur within the portions of the Project Study Area along the Coastal alignment option on the former Fort Ord. However, the Project Study Area of the Coastal alignment option outside of the former Fort Ord boundaries contains suitable habitat for California legless lizard (i.e., non-native grassland and central coastal scrub) and Monterey ornate shrew (i.e., non-native grassland, riparian, and central coastal scrub). The construction of the Coastal alignment option may result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1d and BT-1h identified below.

The Project Study Area of the Coastal alignment option contains suitable habitat (i.e., riparian habitat at Locke Paddon Lake) for the western pond turtle, Coast Range newt, two-striped garter snake, Salinas harvest mouse, tricolored blackbird, and nesting avian species protected under the Migratory Bird Treaty Act and Fish and Game Code. The construction of the Coastal alignment option may result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1h, BT-1k, and BT-1p identified below.

The Project Study Area of the Coastal alignment option contains suitable habitat for the coast horned lizard (i.e., non-native grassland and central coastal scrub chaparral). The construction of the Coastal alignment option may result in direct impacts to individuals and loss of habitat.

This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1h identified below.

The Project Study Area of the Coastal alignment option contains suitable habitat for the Monterey dusky-footed woodrat (i.e., central coastal scrub) and American badger (i.e., non-native grassland), and construction activities could result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1i identified below.

Removal of mature oak trees may result in direct impacts to special-status bats, if present at the time of removal. As described above, hoary bats breed inland and to the north of their overwintering locations on the coast. As a result, this species would not be breeding within the vicinity of the Project Study Area. However, maternity roosts of the pallid bat may occur. Impacts to individuals and roosting habitat are considered potentially significant impacts that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1g identified below.

Most of the birds observed or with the potential to occur within the Project Study Area are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503, and, in addition, birds may be designated as state species of special concern or Fully Protected species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. With the exception of the ruderal/developed areas (e.g., paved areas, buildings, roads) and active agriculture within the Project Study Area of the Coastal Alignment Option, all habitats within the alignment provide potential nesting habitat for protected avian species. The oak woodland habitat provides suitable nesting habitat for tree-nesting raptors and migratory birds. Other ground-nesting birds may nest in non-native grassland or maritime chaparral. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1k identified below.

The construction of the Coastal alignment option may result in impacts to approximately 0.4 acre of habitat for Smith's blue butterfly, including direct impacts to individuals and loss of habitat. This analysis assumes that Smith's blue butterfly is present within identified suitable habitat areas (i.e., areas containing the obligate host plants for the species). This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of the Mitigation Measure BT-1o identified below.

A portion of the Project Study Area (from the existing Regional Treatment Plant site through Armstrong Ranch to Del Monte Boulevard) of the Coastal Alignment option was not surveyed for wildlife or its habitat.[18] Therefore, it also is assumed to contain suitable habitat for the California legless lizard, coast horned lizard, Monterey ornate shrew, American badger, western burrowing owl, California horned lark, and nesting avian species protected under the Migratory Bird Treaty Act and Fish and Game Code. Therefore, as described above, the construction of this portion of the Coastal alignment option may result in impacts to these species, including loss of individuals and habitat. These are considered potentially significant impacts that can be reduced to a less-than-significant level with implementation of the Mitigation Measure BT-1f identified below.

[18] Authorization was not received to survey this area.

Injection Well Facilities

Installation of the proposed injection wells typically would follow a three-step process: drilling and logging, installation, and testing and equipping. The construction of the back-flush pipeline would involve excavating pipe trenches, retaining the spoilage on site, importing and installing bedding material, and laying the pipe, backfilling and compacting the trench.

Special-Status Plant Species

The construction of the Injection Well Facilities may result in impacts to sandmat manzanita (8.9 ac), Monterey ceanothus (0.3 ac), Monterey spineflower (0.3 ac), Eastwood's goldenbush (0.1 ac), and Kellogg's horkelia (2 sq. ft.). This entire Proposed Project component site is located within the former Fort Ord. Therefore, as described in the Approach to Analysis, impacts to sandmat manzanita, Monterey spineflower, and Eastwood's goldenbush on the former Fort Ord are considered less-than-significant because these special-status plant species are HMP species and no additional take authorization is required from the CDFW. Compliance with the HMP mitigates impacts to these species. However, the HMP and BO require the identification of sensitive biological resources that may be salvaged for use in restoration activities in reserve areas and Mitigation Measure BT-4 has been identified to further reduce impacts to these species in accordance with the BO and HMP.

A portion of the Injection Well Facilities site was added to the Project Study Area after the appropriate identification period and, therefore, was not able to be surveyed for special-status plants. The additional area added to the Project Study area consists of central maritime chaparral and ruderal/developed/active agriculture habitat.

For the purposes of this analysis and based on botanical survey results adjacent to the new area, it is assumed that sandmat manzanita, Monterey ceanothus, Monterey spineflower, Eastwood's goldenbush, and Kellogg's horkelia are present in this location. In addition, there is a high likelihood sand gilia and seaside bird's beak, both listed species under the CESA, may occur in this location.

Impacts to Kellogg's horkelia are considered potentially significant. These potentially significant impacts can be reduced to a less-than-significant level with implementation of the Mitigation Measures BT-1f and BT-1e identified below.

Special Status Wildlife Species

Based on the presence of suitable habitat, the construction of the Injection Well Facilities may result in impacts to California legless lizard, coast horned lizard, Monterey dusky-footed woodrat, Monterey ornate shrew, special-status bat species, and nesting raptors, migratory birds, and other avian species protected under the Migratory Bird Treaty Act and Fish and Game Code.

Within suitable habitat, there is the potential for the following two HMP wildlife species to occur within the Project Study Area of the Injection Well Facilities on the former Fort Ord: the Monterey ornate shrew (i.e., within the coast live oak woodland and central maritime chaparral habitats); and California legless lizard (i.e., within the central maritime chaparral and coast live oak woodland habitats). The impacts to the Monterey ornate shrew and California legless lizard are considered less-than-significant because these special-status wildlife species are HMP species and no take authorization is required from the Service or CDFW. Compliance with the HMP mitigates impacts to these species. However, the HMP and BO require the identification of sensitive biological resources that may be salvaged for use in restoration activities in reserve areas. Due to its high metabolic rate and cryptic nature, it is unlikely that salvaging individual shrews would be appropriate or successful. Salvage of California legless lizards has been proven effective and successful, and, therefore, Mitigation Measure BT-1d has been identified to further reduce impacts to this species in accordance with the BO and HMP.

The Injection Well Facilities site contains suitable habitat for the coast horned lizard (i.e., central maritime chaparral). The construction of the Injection Well Facilities site may result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of the Mitigation Measure BT-1h identified below.

The Injection Well Facilities site contains suitable habitat for the Monterey dusky-footed woodrat (i.e., central maritime chaparral and coast live oak woodland), and construction activities could result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1i identified below.

Removal of mature oak trees may result in direct impacts to special-status bats, if present at the time of removal. As described above, hoary bats breed inland and to the north of their overwintering locations on the coast. As a result, this species would not be breeding within the vicinity of the Project Study Area. However, maternity roosts of the pallid bat may occur. Impacts to individuals and roosting habitat are considered potentially significant impacts that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1g identified below.

Most of the birds observed or with the potential to occur within the Project Study Area are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503, and some of the birds that that the potential to occur are designated as state species of special concern or Fully Protected species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. With the exception of the ruderal/developed areas (e.g., paved areas, buildings, roads), all habitats within the Injection Well Facilities site provide potential nesting habitat for protected avian species. The oak woodland habitat provides suitable nesting habitat for tree-nesting raptors and migratory birds. Other ground-nesting birds may nest in non-native grassland or maritime chaparral. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1k identified below.

Based on similar habitat type and review of aerial photography the portion of the Injection Well Facilities site that was added to the Project Study Area after site surveys, is assumed to contain suitable habitat for the California legless lizard, coast horned lizard, Monterey dusky-footed woodrat, special-status bat species, and nesting raptors, migratory birds, and other avian species protected under the Migratory Bird Treaty Act and Fish and Game Code. Therefore, the construction in this additional area of the Injection Well Facilities site may result in impacts to these species, including loss of individuals and habitat. These are considered potentially significant impacts that can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1d, BT-1g, BT-1h, BT-1i, and BT-1k identified below.

At the Injection Well Facilities site, nighttime construction activities would introduce a source of light and glare that potentially would be visible to nearby residents and would shine on adjacent open space areas. Therefore, nighttime construction activities at the Injection Well Facilities site may result in impacts to wildlife species due to artificial influence on species diel patterns.[19] This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1m identified below.

CalAm Distribution System Pipelines

The construction of CalAm Distribution Pipelines Transfer and Monterey Pipelines would involve similar activities as those described for the Project Water Conveyance Pipeline.

The construction of the CalAm Distribution Pipelines would typically take place during daylight hours. Although nighttime lighting may be used in construction, the pipeline construction would occur within the urban and built-up landscape unit, and, therefore, would not make a significant contribution to the existing amount of light and glare, especially given the temporary nature of construction. Therefore, potential impacts to wildlife species as a result of nighttime construction lighting is considered less-than-significant.

Transfer Pipeline

The Transfer Pipeline contains developed habitat and construction would occur in disturbed, developed areas within existing right-of-ways and easements. No special-status plant species were observed within the Project Study Area of the Transfer Pipeline and none are expected to occur. Therefore, no impacts to special-status plant species would occur as a result of construction activities associated with the Transfer Pipeline.

Within suitable habitat within and adjacent to the Project Study Area of the Transfer Pipeline, there is the potential for protected avian species to occur. Most of the birds observed or with the potential to occur adjacent to the Project Study Area are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503, and, in addition, birds may be designated as state species of special concern or Fully Protected species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1k identified below.

No suitable habitat for other special-status wildlife species occurs within the Project Study Area of the Transfer Pipeline. Therefore, no impacts to other special-status wildlife species would occur as a result of construction activities associated with the Transfer Pipeline.

The pipeline installation is expected to take place during daytime hours. Therefore, nighttime construction lighting would not result in impacts to biological resources.

Monterey Pipeline

The construction of the Monterey Pipeline may result in impacts to Monterey ceanothus (38 sq. ft.) and coast wallflower (337 sq. ft.). These potentially significant impacts can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1e identified below.

Based on the presence of suitable habitat, the construction of the Monterey Pipeline may result in impacts to Monarch butterfly, Smith's blue butterfly, western pond turtle, California legless lizard, coast horned lizard, Coast Range newt, two-striped garter snake, Salinas harvest mouse,

[19] Diel refers to a 24 hour time period.

Monterey ornate shrew, western burrowing owl, special-status bat species, and nesting raptors, migratory birds, and other avian species protected under the Migratory Bird Treaty Act and Fish and Game Code, as further described in the following paragraphs:

The construction of the Monterey Pipeline would result in significant impacts to Monarch butterflies, including direct impacts to individuals and loss of habitat, assuming Monarch butterflies are present within the eucalyptus grove along Del Monte Boulevard adjacent to the Naval Postgraduate School that are within the Project Study Area. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1o identified below.

The construction of the Monterey Pipeline would result in significant impacts to approximately 0.1 acre of habitat for Smith’s blue butterfly, including direct impacts to individuals and loss of habitat, assuming that Smith’s blue butterfly is present within identified habitat areas (i.e., coast and dune buckwheat identified within the Project Study Area). This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1n identified below.

The Project Study Area of the Monterey Pipeline contains suitable habitat for California legless lizards (i.e., central dune scrub). The construction of the Monterey Pipeline may result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1d identified below.

Although the Project Study Area contains suitable habitat (i.e., riparian habitat at Roberts Lake) for the Monterey ornate shrew, western pond turtle, Coast Range newt, two-striped garter snake, Salinas harvest mouse, special-status bat species, and nesting raptors, migratory birds, and other avian species protected under the Migratory Bird Treaty Act and Fish and Game Code; the construction of the pipeline is proposed outside of the riparian habitat and would be attached to the existing bridge. Therefore, no direct impacts to Monterey ornate shrew, western pond turtle, Coast Range newt, two-striped garter snake, Salinas harvest mouse, would occur as a result of the construction of the Monterey Pipeline near Roberts Lake. However, there is the potential that construction activities may result in indirect impacts to these species’ habitats (e.g., impacts to water quality). In addition, construction adjacent to potential roosting and nesting habitat may result in impacts to special-status bats species and nesting avian species. These are considered potentially significant impacts that can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1a, BT-1b, BT-1g, and BT-1k identified below.

The Monterey Pipeline Alignment contains suitable habitat for the coast horned lizard (i.e., central dune scrub). The construction of the Monterey Pipeline may result in direct impacts to individuals and loss of habitat. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of the Mitigation Measure BT-1h identified below.

Most of the birds observed or with the potential to occur within the Project Study Area are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503, and, in addition, birds may be designated as state species of special concern or Fully Protected species. Construction-related activities (e.g., trimming and removal of vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals or abandonment of an active nest would be considered a significant impact. With the exception of the ruderal/developed areas (e.g., paved areas, buildings, roads), all habitats within the Monterey (but not transfer) pipeline alignment provide potential nesting habitat for protected avian species. The oak woodland habitat provides suitable nesting habitat for tree-nesting raptors and migratory birds. Other ground-nesting birds may nest in non-native grassland or maritime chaparral. If a raptor or other migratory birds (including species of special concern or Fully Protected species) were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measures BT-1k and BT-1l identified below.

At the Monterey Pipeline site, nighttime construction activities would introduce a source of light and glare that potentially would be visible to nearby residents and would shine on adjacent open space areas. Therefore, nighttime construction activities at the Monterey Pipeline may result in impacts to wildlife species. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1m identified below.

Impact Conclusion

The Proposed Project construction could result in impacts to special status species due to construction activities at all the Proposed Project component sites. Impacts to special status species would be considered a significant impact. Implementation of Mitigation Measures BT-1a through BT- 1q, as specified for each component, would reduce potentially significant impacts to special status species during construction to a less-than-significant level.

Mitigation Measures

The following mitigation measures apply to the Proposed Project components identified in the title of each measure. Implementation of the following mitigation measures would reduce Impact BT-1 to a less-than-significant level.

Mitigation Measure BT-1a: Implement Construction Best Management Practices. (Applies to All Proposed Project Components)

The following best management practices shall be implemented during all identified phases of construction (i.e., pre-, during, and post-) to reduce impacts to special-status plant and wildlife species:

1. A qualified biologist must conduct an Employee Education Program for the construction crew prior to any construction activities. A qualified biologist must meet with the construction crew at the onset of construction at the site to educate the construction crew on the following: 1) the appropriate access route(s) in and out of the construction area and review project boundaries; 2) how a biological monitor will examine the area and agree upon a method which would ensure the safety of the monitor during such activities, 3) the special-status species that may be present; 4) the specific mitigation measures that will be incorporated into the construction effort; 5) the general provisions and protections afforded by the USFWS and CDFW; and 6) the proper procedures if a special-status species is encountered within the site.

2. Trees and vegetation not planned for removal or trimming shall be protected prior to and during construction to the maximum extent possible through the use of exclusionary fencing, such as hay bales for herbaceous and shrubby vegetation, and protective wood barriers for trees. Only certified weed-free straw shall be used, to avoid the introduction of non-native, invasive species. A biological

monitor shall supervise the installation of protective fencing and monitor at least once per week until construction is complete to ensure that the protective fencing remains intact.

3. Protective fencing shall be placed prior to and during construction to keep construction equipment and personnel from impacting vegetation outside of work limits. A biological monitor shall supervise the installation of protective fencing and monitor at least once per week until construction is complete to ensure that the protective fencing remains intact.
4. Following construction, disturbed areas shall be restored to pre-construction contours to the maximum extent possible and revegetated using locally-occurring native species and native erosion control seed mix, per the recommendations of a qualified biologist.
5. Grading, excavating, and other activities that involve substantial soil disturbance shall be planned and carried out in consultation with a qualified hydrologist, engineer, or erosion control specialist, and shall utilize standard erosion control techniques to minimize erosion and sedimentation to native vegetation (pre-, during, and post-construction).
6. No firearms shall be allowed on the construction sites at any time.
7. All food-related and other trash shall be disposed of in closed containers and removed from the project area at least once a week during the construction period, or more often if trash is attracting avian or mammalian predators. Construction personnel shall not feed or otherwise attract wildlife to the area.
8. <u>To protect against spills and fluids leaking from equipment, the project proponents shall require that the construction contractor maintains an on-site spill plan and on-site spill containment measures that can be easily accessed.</u>
9. <u>Refueling or maintaining vehicles and equipment should only occur within a specified staging area that is at least 100 feet from a waterbody (including riparian and wetland habitat) and that has sufficient management measures that will prevent fluids or other construction materials including water from being transported into waters of the state. Measures shall include confined concrete washout areas, straw wattles placed around stockpiled materials and plastic sheets to cover materials from becoming airborne or otherwise transported due to wind or rain into surface waters.</u>
10. <u>The project proponents and/or their contractors shall coordinate with the City of Seaside on the location of Injection Well Facilities and the removal of sensitive biotic material.</u>

Mitigation Measure BT-1b: Implement Construction-Phase Monitoring. (Applies to Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Project Water Conveyance: RUWAP and Coastal Pipeline Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline)

The project proponents shall retain a qualified biologist to monitor all ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to protect any special-status species encountered. Any handling and relocation protocols of special-status wildlife species shall be determined in coordination with CDFW prior to any ground disturbing activities, and conducted by a qualified biologist with appropriate scientific collection permit. After ground disturbing project activities are complete, the qualified biologist shall train an individual from the construction crew to act as the on-site construction biological monitor. The construction biological monitor shall be the contact for any special-status wildlife species encounters, shall conduct daily inspections of equipment and materials stored on site and any holes or trenches prior to the commencement of work, and shall ensure that all installed fencing stays in place throughout the construction period. The qualified biologist shall then conduct regular scheduled and unscheduled visits to ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols. Both the qualified biologist and the construction biological monitor shall have the authority to stop and/or redirect project activities to ensure protection of resources and compliance with all environmental permits and conditions of the project. The qualified biologist and the construction monitor shall complete a daily log summarizing activities and environmental compliance throughout the duration of the project. The log shall also include any special-status wildlife species observed and relocated.

Mitigation Measure BT-1c: Implement Non-Native, Invasive Species Controls. (Applies to All Proposed Project Components)

The following measures shall be implemented to reduce the introduction and spread of non-native, invasive species:

1. Any landscaping or replanting required for the project shall not use species listed as noxious by the California Department of Food and Agriculture (CDFA).
2. Bare and disturbed soil shall be landscaped with CDFA recommended seed mix or plantings from locally adopted species to preclude the invasion on noxious weeds in the Project Study Area.
3. Construction equipment shall be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds, before mobilizing to arrive at the construction site and before leaving the construction site.
4. All non-native, invasive plant species shall be removed from disturbed areas prior to replanting.

Mitigation Measure BT-1d: Conduct Pre-Construction Surveys for California Legless Lizard. (Applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline)

The project proponents shall retain a qualified biologist to prepare and implement a legless lizard management plan in coordination with CDFW, which shall include, but is not limited to, the protocols for pre-construction surveys, construction monitoring, and salvage and relocation. The management plan shall include, but is not limited to, the following:

- *Pre-Construction Surveys*. Pre-construction surveys for legless lizards shall be conducted in all suitable habitat proposed for construction, ground disturbance, or staging. The qualified biologist shall hold or obtain a CDFW scientific collection permit for this species. The pre-construction surveys shall use a method called "high-grading." The high grading method shall include surveying the habitat where legless lizards are most likely to be found, and the survey must occur under the conditions when legless lizards are most likely to be seen and captured (early morning, high soil moisture, overcast, etc.). The intensity of a continued search may then be adjusted, based on the results of the first survey in the best habitat.

- A “three pass method” shall be used to locate and remove as many legless lizards as possible. A first pass shall locate as many legless lizards as possible, a second pass should locate fewer lizards than the first pass, and a third pass should locate fewer lizards than the second pass. All search passes shall be conducted in the early morning when legless lizards are easiest to capture. Vegetation may be removed by hand to facilitate hand raking and search efforts for legless lizards in the soil under brush. If lizards are found during the first pass, an overnight period of no soil disturbance must occur before the second pass, and the same requirement shall be implemented after the second pass. If no lizards are found during the second pass, a third pass is not required. Installation of a barrier, in accordance with the three pass method, shall be required if legless lizards are found at the limits of construction (project boundaries) and sufficient soft sand and vegetative cover are present to suspect additional lizards are in the immediate vicinity on the adjacent property. A barrier shall prevent movement of legless lizards into the property. All lizards discovered shall be handled according to the salvage procedures outlined below.
- *Construction Monitoring*. Monitoring by a qualified biologist shall be ongoing during construction. The onsite monitor shall be present during all ground-disturbing construction activities. To facilitate the careful search for lizards during construction, vegetation may need to be removed. If removal by hand is impractical, equipment such as a chainsaw, string trimmer, or skid-steer may be used, if a monitor and crew are present. The task of the vegetation removal is to remove plants under the direction of the monitor, allowing the monitor to watch for legless lizards. After plants are removed, the monitor and crew shall search the exposed area for legless lizards. If legless lizards are found during pre-construction surveys or construction monitoring, the protocols for salvage and relocation identified below shall be followed. Upon completion of pre-construction surveys, construction monitoring, and any resulting salvage and relocation actions, a report shall be submitted to the CDFW. The CDFW must be notified at least 48 hours before any field activity begins.
- *Salvage and Relocation*. Only experienced persons may capture or handle legless lizards. The monitor must demonstrate a basic understanding, knowledge, skill, and experience with this species and its habitat. Once captured, a lizard shall be placed in a lidded, vented box containing clean sand. Areas of moist and dry sand need to be present in the box. The boxes must be kept out of direct sunlight and protected from temperatures over 72°F. The sand must be kept at temperatures under 66°F. Ideal temperatures are closer to 60°F. On the same day as capture, the lizards shall be examined for injury and data recorded on location where found as well as length, color, age, and tail condition. Once data is recorded, lizards shall be relocated to appropriate habitat, as determined through coordination with the CDFW, qualified biologist, and potential landowners.
- Suitability of habitat for lizard release must be evaluated and presented in a management plan. The habitat must contain habitat factors most important to the health and survival of the species such as appropriate habitat based on soils, vegetated cover, native plant species providing cover, plant litter layer and depth,

soil and ambient temperature, quality and composition of invertebrate population and prey availability. Potential relocation sites that contain the necessary conditions may exist within the habitat reserves on the former Fort Ord, including the Fort Ord National Monument. Lizards shall be marked with a unique tag (pit or tattoo) prior to release. Release for every lizard shall be recorded with GPS. GPS locations shall be submitted as part of the survey result report to document the number and locations of lizards relocated.

Mitigation Measure BT-1e: Prepare and Implement Rare Plant Restoration Plan to Mitigate Impacts to Sandmat Manzanita, Monterey Ceanothus, Monterey Spineflower, Eastwood's Goldenbush, Coast Wallflower, and Kellogg's Horkelia. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline; does not apply to HMP species within the former Fort Ord.)

Impacts to rare plant species individuals shall be avoided through project design and modification, to the extent feasible while taking into consideration other site and engineering constraints. If avoidance is not possible, the species shall be replaced at a 1:1 ratio for area of impact through preservation, restoration, or combination of both. A Rare Plant Restoration Plan, approved by the lead agency prior to commencing construction on the component site upon which the rare plant species would be impacted, shall be prepared and implemented by a qualified biologist. The plan shall include, but is not limited to, the following:

a. A detailed description of on-site and/or off-site mitigation areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, including, if appropriate, increased planting ratio to ensure the applicable success ratio. Specifically, seed shall be collected from the on-site individuals that would be impacted and grown in a local greenhouse, and then transplanted within the mitigation area. Plants shall be transplanted while they are young seedlings in order to develop a good root system. Alternatively, the mitigation area may be broadcast seeded in fall; however, if this method is used, some seed shall be retained in the event that the seeding fails to produce viable plants and contingency measures need to be employed.

b. A description of a 3-year monitoring program, including specific methods of vegetation monitoring, data collection and analysis, restoration goals and objectives, success criteria, adaptive management if the criteria are not met, reporting protocols, and a funding mechanism.

The mitigation area shall be preserved in perpetuity through a conservation easement or other legally enforceable land preservation agreement. Exclusionary fencing shall be installed around the mitigation area to prevent disturbance until success criteria have been met.

Mitigation Measure BT-1f: Conduct Pre-Construction Protocol-Level Botanical Surveys within the Product Water Conveyance: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch; and the remaining portion of the Project Study Area within the Injection Well Facilities site. (Applies to Product Water Conveyance: Coastal Alignment Option and non-HMP species at the Injection Well Facilities site.)

The project proponents shall retain a qualified biologist to conduct protocol-level surveys for special-status plant species within the Project Survey Area of the Product Water Conveyance Pipeline: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch and the portion of the Injection Well Facilities site not yet surveyed. Protocol-level surveys shall be conducted by a qualified biologist at the appropriate time of year for species with the potential to occur within the site. A report describing the results of the surveys shall be provided to the project proponents prior to any ground disturbing activities. The report shall include, but is not limited to: 1) a description of the species observed, if any; 2) map of the location, if observed; and 3) recommended avoidance and minimization measures, if applicable. The avoidance and minimization measures shall include, but are not limited to, the following:

- Impacts to species individuals shall be avoided through project design and modification, to the extent feasible while taking into consideration other site and engineering constraints.
- If impacts to State listed plant species cannot be avoided, the project proponents shall comply with the CESA and consult with the CDFW to determine whether authorization for the incidental take of the species is required prior to commencing construction. If it is determined that authorization for incidental take is required from the CDFW, the project proponents shall comply with the CESA to obtain an incidental take permit prior to commencing construction on the site upon which state listed plant species could be taken. Permit requirements typically involve preparation and implementation of a mitigation plan and mitigating impacted habitat at a 3:1 ratio through preservation and/or restoration. At a minimum, the impacted plant species shall be replaced at a 1:1 ratio through preservation and/or restoration, as described below. The project proponents shall retain a qualified biologist to prepare a mitigation plan, which shall include, but is not limited to identifying: avoidance and minimization measures; mitigation strategy, including a take assessment, avoidance and minimization measures, compensatory mitigation lands, and success criteria; and funding assurances. The project proponents shall be required to implement the approved plan and any additional permit requirements.
- If impacts to non-State listed, special-status plant species cannot be avoided, the species shall be replaced at a 1:1 ratio for acreage and/or individuals impacted through preservation, restoration, or combination of both. A Rare Plant Restoration Plan, approved by the project proponents prior to commencing of construction on the site upon which the rare plant would be impacted, shall be prepared and implemented by a qualified biologist. The plan shall include, but is not limited to, the following:
    - A detailed description of on-site and/or off-site mitigation areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, including, if appropriate, increased planting ratio to ensure the applicable

success ratio. Specifically, seed shall be collected from the on-site individuals that will be impacted and grown in a local greenhouse, and then transplanted within the mitigation area. Plants shall be transplanted while they are young seedlings in order to develop a good root system. Alternatively, the mitigation area may be broadcast seeded in fall; however, if this method is used, some seed shall be retained in the event that the seeding fails to produce viable plants and contingency measures need to be employed.

- A description of a 3-year monitoring program, including specific methods of vegetation monitoring, data collection and analysis, restoration goals and objectives, success criteria, adaptive management if the criteria are not met, reporting protocols, and a funding mechanism.

The mitigation area shall be preserved in perpetuity through a conservation easement or other legally enforceable land preservation agreement. Exclusionary fencing shall be installed around the mitigation area to prevent disturbance until success criteria have been met.

Mitigation Measure BT-1g: Conduct Pre-Construction Surveys for Special-Status Bats. (Applies to Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options and Booster Stations, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline)

To avoid and reduce impacts to special-status bat species, the project proponents shall retain a qualified bat specialist or wildlife biologist to conduct site surveys during the reproductive season (May 1 through September 15) to characterize bat utilization of the component site and potential species present (techniques utilized to be determined by the biologist) prior to tree or building removal. Based on the results of these initial surveys, one or more of the following shall occur:

- If it is determined that bats are not present at the component site, no additional mitigation is required.
- If it is determined that bats are utilizing the component site and may be impacted by the Proposed Project, pre-construction surveys shall be conducted no more than 30 days prior to any tree or building removal (or any other suitable roosting habitat) within 100 feet of construction limits. If, according to the bat specialist, no bats or bat signs are observed in the course of the pre-construction surveys, tree and building removal may proceed. If bats and/or bat signs are observed during the pre-construction surveys, the biologist shall determine if disturbance would jeopardize a maternity roost or another type of roost (i.e., foraging, day, or night).
- If a single bat and/or only adult bats are roosting, removal of trees, buildings, or other suitable habitat may proceed after the bats have been safely excluded from the roost. Exclusion techniques shall be determined by the biologist and would depend on the roost type.
- If an active maternity roost is detected, avoidance is preferred. Work in the vicinity of the roost (buffer to be determined by biologist) shall be postponed until the biologist monitoring the roost determines that the young have fledged and are no longer dependent on the roost. The monitor shall ensure that all bats have left the area of disturbance prior to initiation of pruning and/or removal of trees that would disturb the roost. If avoidance is not possible and a maternity roost must

be disrupted, authorization from CDFW shall be required prior to removal of the roost.

Mitigation Measure BT-1h: Implementation of Mitigation Measures BT-1a and BT-1b to Mitigate Impacts to the Monterey Ornate Shrew, Coast Horned Lizard, Coast Range Newt, Two-Striped Garter Snake, and Salinas Harvest Mouse. (Applies to Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline)

If these species are encountered, implementation of Mitigation Measures BT-1a and BT-1b, which avoid and minimize impacts through implementing construction best management practices and monitoring, would reduce potential impacts to these species to a less-than-significant level.

Mitigation Measure BT-1i: Conduct Pre-Construction Surveys for Monterey Dusky-Footed Woodrat. (Applies to Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities)

To avoid and reduce impacts to the Monterey dusky-footed woodrat, the project proponents shall retain a qualified biologist to conduct pre-construction surveys in suitable habitat proposed for construction, ground disturbance, or staging within three days prior to construction for woodrat nests within the project area and in a buffer zone 100 feet out from the limit of disturbance. All woodrat nests shall be flagged for avoidance of direct construction impacts and protection during construction, where feasible. Nests that cannot be avoided shall be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material shall be replaced, and the nest left alone for 2-3 weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling.

Mitigation Measure BT-1j: Conduct Pre-Construction Surveys for American Badger. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options)

To avoid and reduce impacts to the American badger, the project proponents shall retain a qualified biologist to conduct focused pre-construction surveys for badger dens in all suitable habitat proposed for construction, ground disturbance, or staging no more than two weeks prior to construction. If no potential badger dens are present, no further mitigation is required. If potential dens are observed, the following measures are required to avoid potential significant impacts to the American badger:

- If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers from re-using them during construction.
- If the qualified biologist determines that potential dens may be active, the den shall be monitored for a period sufficient (as determined by a qualified biologist) to determine if the den is a maternity den occupied by a female and her young, or if the den is occupied by a solitary badger.
- Maternity dens occupied by a female and her young shall be avoided during construction and a minimum buffer of 200 feet in which no construction activities shall occur shall be maintained around the den. After the qualified biologist determines that badgers have stopped using active dens within the project

boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.

- Solitary male or female badgers shall be passively relocated by blocking the entrances of the dens with soil, sticks, and debris for three to five days to discourage the use of these dens prior to project construction disturbance. The den entrances shall be blocked to an incrementally greater degree over the three to five day period. After the qualified biologist determines that badgers have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.

Mitigation Measure BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark. (Applies to All Components)

Prior to the start of construction activities at each project component site, a qualified biologist shall conduct pre-construction surveys for suitable nesting habitat within the component Project Study Area and within a suitable buffer area from the component Project Study Area. The qualified biologist shall determine the suitable buffer area based on the avian species with the potential to nest at the site.

In areas where nesting habitat is present within the component project area or within the determined suitable buffer area, construction activities that may directly (e.g., vegetation removal) or indirectly (e.g., noise/ground disturbance) affect protected nesting avian species shall be timed to avoid the breeding and nesting season. Specifically, vegetation and/or tree removal can be scheduled after September 16 and before January 31. Alternatively, a qualified biologist shall be retained by the project proponents to conduct pre-construction surveys for nesting raptors and other protected avian species where nesting habitat was identified and within the suitable buffer area if construction commences between February 1 and September 15. Pre-construction surveys shall be conducted no more than 14 days prior to the start of construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). Because some bird species nest early in spring and others nest later in summer, surveys for nesting birds may be required to continue during construction to address new arrivals, and because some species breed multiple times in a season. The necessity and timing of these continued surveys shall be determined by the qualified biologist based on review of the final construction plans.

If active raptor or other protected avian species nests are identified during the pre-construction surveys, the qualified biologist shall notify the project proponents and an appropriate no-disturbance buffer shall be imposed within which no construction activities or disturbance shall take place until the young have fledged and are no longer reliant upon the nest or parental care for survival, as determined by a qualified biologist.

Mitigation Measure BT-1l: Conduct Pre-Construction Surveys for Burrowing Owl. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options and CalAm Distribution System: Monterey Pipeline)

In order to avoid impacts to active burrowing owl nests, a qualified biologist shall conduct pre-construction surveys in suitable habitat within the construction footprint and within a suitable buffer, as determined by a qualified biologist, of the footprint no more than 30 days prior to the start of construction at a component site. If ground disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site shall be resurveyed. The survey shall conform to the DFG 1995 Staff Report protocol. If no burrowing owls are found, no further mitigation is required. If it is determined that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation effort (e.g., blocking burrows with one-way doors and leaving them in place for a minimum of three days) shall be undertaken to ensure that the owls are not harmed or injured during construction. Once it has been determined that the owls have vacated the site, the burrows shall be collapsed, and ground disturbance can proceed. If burrowing owls are detected within the construction footprint or immediately adjacent lands (i.e. within 250 feet of the footprint) during the breeding season (February 1 to August 31), a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer area shall be enclosed with temporary fencing, and construction equipment and workers shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls shall take place as described above.

Mitigation Measure BT-1m: Minimize effects of nighttime construction lighting. (Applies to Injection Well Facilities and CalAm Distribution System: Monterey Pipeline)

Nighttime construction lighting shall be focused and downward directed to preclude night illumination of the adjacent open space area.

Mitigation Measure BT-1n: Mitigate Impacts to Smith's blue butterfly. (Applies to Product Water Conveyance: Coastal Alignment Option and CalAm Distribution System: Monterey Pipeline)

Removal or damage to obligate host plant species (coast and dune buckwheat) shall be avoided through project design and modification to the extent feasible while taking into consideration other site and engineering constraints, unless protocol-level surveys by an approved biologist determine the species is not present and the USFWS concurs with this finding.

If avoidance is not possible and protocol-level surveys are not conducted, or if protocol-level surveys have a positive presence finding, Section 7 formal consultation under the federal ESA with the USFWS would be required due to the project's federal nexus (e.g., federal funding) and the potential impacts to federally listed species that may result from the Proposed Project. If the project construction activities would be likely to adversely affect the species, a Section 7 consultation would be initiated, and the USFWS would issue a Biological Opinion for the project. The Biological Opinion would require measures to reduce impacts to this species such that jeopardy to the species is avoided. Measures shall include, but would not be limited to, restoration and/or preservation at a 3:1 ratio of impacted habitat and buckwheat plant and/or seed salvage prior to ground disturbing activities. Any measures required by the Biological Opinion shall be incorporated into the Proposed Project's Mitigation Monitoring and Reporting Program and implemented in accordance with the Biological Opinion.

Mitigation Measure BT-1o: Avoid and Minimize Impacts to Monarch butterfly. (Applies to CalAm Distribution System: Monterey Pipeline)

If any eucalyptus trees must be removed during the monarch butterfly winter roosting season (generally October – February), the site containing the trees shall be surveyed by a qualified biologist to ensure that a roosting colony is not present prior to eucalyptus tree removal. Since timing of monarch migration on the coast varies year to year, the survey shall be conducted at a time to coincide with monarch roosting activity on the coast for that particular year as determined by a qualified biologist. Information on monarch roosting activity must be verified with a qualified biologist prior to conducting the survey. If a roosting colony is not detected, tree removal may commence and no further surveys are warranted. However, if a roosting colony is detected, trees shall not be removed until the winter roosting season has concluded (i.e., no more monarchs have been observed in the general area or using the trees).

Mitigation Measure BT-1p: Avoid and Minimize Impacts to Western Pond Turtle. (Applies to Blanco Drain Diversion and Product Water Conveyance: Coastal Alignment Option)

A qualified biologist shall survey suitable habitat no more than 48 hours before the onset of work activities at the component site for the presence of western pond turtle. If pond turtles are found and these individuals are likely to be killed or injured by work activities, the biologist shall be allowed sufficient time to move them from the site before work activities begin. The biologist shall relocate the pond turtles the shortest distance possible to a location that contains suitable habitat and would not be affected by activities associated with the project.

Mitigation Measure BT-1q: Avoid and Minimize Impacts to California Red-Legged Frog. (Applies to Salinas Treatment Facility and Blanco Drain Diversion)

The following measures for avoidance and minimization of adverse impacts to California Red-Legged Frog (CRLF) during construction of the Proposed Project components are those typically employed for construction activities that may result in short-term impacts to individuals and their habitat. The focus of these measures is on scheduling activities at certain times of year, keeping the disturbance footprint to a minimum, and monitoring.

- The MRWPCA shall annually submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project construction activities at the component site would begin until the MRWPCA receives confirmation from the USFWS that the biologist(s) is qualified to conduct the work.
- A USFWS-approved biologist shall survey the work site 48 hours prior to the onset of construction activities. If CRLF, tadpoles, or eggs are found, the approved biologist shall determine the closest appropriate relocation site. The approved biologist shall be allowed sufficient time to move the CRLF, tadpoles or eggs from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and moving of CRLF.
- Before any construction activities begin on the project component site, a USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the CRLF and its habitat, the importance of the CRLF and its habitat, general measures that are

being implemented to conserve the CRLF as they relate to the project, and the boundaries within which the project construction activities may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

- A USFWS-approved biologist shall be present at the work site until such time as all removal of CRLF, instruction of workers, and disturbance of habitat have been completed. After this time, the biologist shall designate a person to monitor on-site compliance with all minimization measures and any future staff training. The USFWS-approved biologist shall ensure that this individual receives training outlined in Mitigation Measure Bt-1a and in the identification of CRLF. The monitor and the USFWS-approved biologist shall have the authority to stop work if CRLF are in harm's way.
- The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of riparian and wetland areas to the extent practicable.
- Work activities shall be completed between April 1 and November 1, to the extent practicable. Should the project proponent demonstrate a need to conduct activities outside this period, the project proponent may conduct such activities after obtaining USFWS approval (applies to Blanco Drain site only).
- If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters (mm) to prevent CRLF from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
- The Declining Amphibian Populations Task Force's Fieldwork Code of Practice shall be followed to minimize the possible spread of chytrid fungus or other amphibian pathogens and parasites.

Impact BT-2: <u>Construction Impacts to Sensitive Habitats</u>. Proposed Project construction may adversely affect sensitive habitats (including riparian, wetlands, and/or other sensitive natural communities) within the Project Study Area. (Criteria b and c) (Less than Significant with Mitigation)

Several sensitive habitats were identified within the Project Study Area (**Table 4.5-5**; **Attachment 8 of Appendix H <u>rev</u>; Appendix I**). Construction of the Proposed Project may result in direct and indirect impacts to sensitive habitats (defined herein to include any riparian, federally protected wetlands as defined by Section 404 of the Clean Water Act, or other sensitive natural communities) within the Project Study Area with the exception of the component specific study areas of the Salinas Pump Station, Treatment Facilities at the Regional Treatment Plant, and CalAm Distribution System: Transfer Pipeline. <u>In accordance with a comment from the RWQCB, impacts to other waters of the U.S. and coastal wetlands would also constitute impacts to waters of the state.</u> Impacts to sensitive habitats may include direct and indirect impacts associated with construction activities that could result in the direct loss of habitat, soil compaction, root damage, erosion, and introduction and spread of non-native, invasive species. These are considered potentially significant impacts that can be reduced to a less-than-significant level with implementation of the mitigation measures identified below.

Some of these habitats may be considered an ESHA by the CCC or local authority where they occur in the coastal zone. In addition, under Section 30107.5 of the CCA, an “environmentally sensitive area” is any area in which plant or animal life or their habitat are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. Therefore, the CCC or local authority may designate additional habitat areas within the Project Study Area as ESHA if CCC or local authority determines that it meets this definition. The only parts of the Project Study Area that are within the Coastal Zone (see **Section 4.12, Land Use**, **Figures 1-5**) are: 1) portions of the Product Water Conveyance: Coastal alignment option; 2) the Tembladero Slough Diversion site; 3) the Affected Reaches of the Old Salinas River Channel and Tembladero Slough; and 4) portions of the CalAm Distribution System: Monterey Pipeline.[20]

The following provides analysis of impacts to sensitive habitat by Proposed Project component.

Source Water Diversion and Storage Sites

Salinas Pump Station

No sensitive habitats occur at the Salinas Pump Station site, and, therefore, no construction impacts to sensitive habitats would occur.

Salinas Treatment Facility

Approximately 35 acres of riparian habitat occurs within the Project Study Area at the Salinas Treatment Facility (Attachment 8 of **Appendix H <u>rev</u>**). Construction activities are proposed on the east side of the wastewater treatment ponds and not within or directly adjacent to the riparian habitat. Therefore, the Proposed Project would not result in impacts to sensitive habitat at this component site.

[20] Components of the Proposed Project fall within the following certified LCPs: North Monterey County LCP, City of Marina LCP, Sand City LCP, and City of Seaside LCP. A portion of the Monterey Pipeline falls within the City of Monterey; however, the City of Monterey does not have a certified LCP at this time and permits must be issued by the Coastal Commission.

Reclamation Ditch Diversion and Affected Reaches

Approximately 0.05 acre of other waters of the U.S., potentially under the jurisdiction of the USACOE, that would also be waters of the state, occurs within the Project Study Area at the Reclamation Ditch Diversion site (**Appendix I**). Construction activities would include the installation of permanent wet well/diversion structure and pipeline, a portion of which would be located within the unvegetated Reclamation Ditch banks and channel below ordinary high water. This analysis assumes that construction of the diversion facility may result in up to 0.5 acre of permanent impacts to other waters of the U.S. and waters of the state; however, the facility may be designed to impact less. Although the site is highly disturbed, indirect water quality impacts affecting sensitive habitats at the site and within downstream reaches of the Project Study Area, such as erosion and sedimentation, resulting from construction activities may also occur due to earth moving/ground disturbance at this site. This is considered potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a and BT-2.

Sensitive habitats were identified within the three Affected Reaches of this component (Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel) downstream of the Project Study Area for the Reclamation Ditch Diversion site (**Attachment 8 of Appendix H rev; Appendix I**). No construction activities are proposed within the Affected Reaches and, therefore, no direct impacts to sensitive habitats would occur within the Affected Reaches. However, construction activities at the diversion sites may result in indirect impacts to water quality in the Affected Reaches. This is considered potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a.

Table 4.5-9
Summary of Construction Impacts to Affected Reaches below the Reclamation Ditch Diversion

	Affected Reaches		
Impact Title	**Reclamation Ditch**	**Tembladero Slough**	**Old Salinas River Channel**
BT-1: Construction Impacts to Special-Status Species and Habitat	LSM	LSM	LSM
BT-2: Construction Impacts to Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	LSM	LSM	LSM
BT-3: Construction Impacts to Movement of Native Wildlife and Native Wildlife Nursery Sites.	LS	LS	LS
BT-4: Construction Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan.	LS	LS	LS
NI - No Impact LS - Less than Significant LSM - Less than Significant with Mitigation SU - Significant Unavoidable			

Tembladero Slough Diversion and Affected Reaches

Approximately 0.2 acre of other waters of the U.S., potentially under the jurisdiction of the USACOE, and 0.01 acre of coastal wetlands potentially under the jurisdiction of the County under the CCA (both of which are also considered to be waters of the state) occur within the Project Study Area at the Tembladero Slough Diversion site (Appendix I, page 13). Construction activities include the installation of new wet well/diversion structure and pipeline, a portion of which would be located within the unvegetated Tembladero Slough banks and channel below ordinary high water. This analysis assumes that construction of the diversion facility may result in up to 0.2 acre of permanent impacts to other waters of the U.S. and waters of the state, and 0.01 acre of coastal wetlands potentially under the jurisdiction of the County under the CCA; however, the facility may be designed to impact less area. Although the site is highly disturbed, indirect water quality impacts affecting sensitive habitat at the site and within downstream reaches of the Project Study Area, such as erosion and sedimentation, resulting from construction activities may also occur at this site. Impacts to other waters of the U.S. and waters of the state are considered potentially significant impact and can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a. Impacts to wetlands as defined by the USACOE, SWRCB/RWQCB, and/or the CCC are considered potentially significant impact that can be reduced to a less-than-significant level with implementation of the Mitigation Measure BT-1a and BT-2a identified below.

Sensitive habitats were identified within the two Affected Reaches of this component (i.e., Tembladero Slough and Old Salinas River Channel) downstream of the Project Study Area for the Tembladero Slough Diversion site (Attachment 8 of Appendix H rev; Appendix I). No construction activities are proposed within the Affected Reaches and, therefore, no direct impacts to sensitive habitats would occur within the Affected Reaches. However, construction activities at the diversion sites may result in indirect impacts to water quality in the Affected Reaches. This is considered potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a.

Table 4.5-10
Summary of Construction Impacts to Affected Reaches below the Tembladero Slough Diversion

	Affected Reaches	
Impact Title	**Tembladero Slough**	**Old Salinas River Channel**
BT-1: Construction Impacts to Special-Status Species and Habitat	LSM	LSM
BT-2: Construction Impacts to Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	LSM	LSM
BT-3: Construction Impacts to Movement of Native Wildlife and Native Wildlife Nursery Sites.	LS	LS
BT-4: Construction Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan.	LS	LS

NI - No Impact
LS - Less than Significant
LSM - Less than Significant with Mitigation
SU - Significant Unavoidable

Blanco Drain Diversion Site

Approximately 0.3 acre of other waters potentially under the jurisdiction of the USACOE (**Appendix I**), and 0.7 acre of riparian habitat (arroyo willow thickets) (Attachment 8 of **Appendix H rev**) (both of which would also be considered waters of the state) exist within the Project Study Area at the Blanco Drain Diversion site.

Construction activities include the installation of a new wet well/diversion structure, new force main and gravity pipelines, a portion of which would be located within the Blanco Drain banks and channel bottom and the riparian habitat adjacent to the Salinas River. The pipeline would be constructed under the Salinas River; however, excavation pits for constructing the pipeline under the river would result in impacts to the riparian habitat.

This analysis assumes that construction of the diversion facility may result in up to 0.3 acre of permanent impacts to other waters of the U.S. and 0.7 acre of riparian habitat potentially under the jurisdiction of the CDFW (both of which would also be considered permanent impacts to waters of the state); however, the facility may be designed to impact less. In addition, indirect water quality impacts, such as erosion and sedimentation, resulting from construction activities may also occur at this site. Construction of facilities and/or pipelines in the vicinity of the Salinas River may require a construction methodology referred to as “horizontal directional drilling” underneath the Salinas River channel. Horizontal directional drilling is a trenchless technology where a drill bit fitted with a transmitter is guided from the drilling machine. The drill bit uses a fluid “mud” to lubricate, loosen and carry the drilled soil from the hole. The intent of this design is to stay far enough below the river bottom to avoid having the “mud” find a fissure in the soil, which would create a connection to the river above (called a “frack-out”). If a frack-out occurs, the mud, which is a highly caustic material, could spill into the aquatic resource and indirectly impact species dependent upon the resource. The development of a frack-out plan, which would include spill prevention, containment, and clean-up methodology in the event of a frack out, is included in Mitigation Measure BT-2c below to reduce this impact to less-than-significant. Impacts to other waters of the U.S. and waters of the state are considered potentially significant impact and can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a. Impacts to riparian habitat (including waters of the state) are considered potentially significant impact that can be reduced to a less-than-significant level with implementation of the Mitigation Measures BT-1a and BT-2a identified below.

Sensitive habitats may be present along the Salinas River downstream of the Project Study Area at the Blanco Drain Diversion site. No construction activities are proposed within the Salinas River downstream of the Blanco Drain Diversion site and, therefore, no direct impacts to sensitive habitats would occur to sensitive habitat along the downstream reach of the Salinas River. However, construction activities at the Blanco Drain Diversion site may result in indirect impacts to water quality in the Salinas River. This is considered potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1a.

Lake El Estero Diversion Site

Although the Project Study Area includes the entire Lake El Estero, which contains aquatic habitat and emergent wetland habitat, no construction activities are proposed within the aquatic habitat or emergent wetland habitat. Construction activities would occur within the existing pump station box culvert and on paved areas adjacent to Lake El Estero would be conducted such that no impacts to sensitive habitats would occur.

Treatment Facilities at Regional Treatment Plant

No sensitive habitats occur at the Project Study Area for the Treatment Facilities at the Regional Treatment Plant, and, therefore, no construction impacts to sensitive habitats would occur.

Product Water Conveyance Facilities

No sensitive habitats were observed within the Project Study Area associated with the proposed booster stations (RUWAP and Coastal Pipeline alignment options), and none are expected to occur. Therefore, no impacts to sensitive habitats would occur as a result of construction activities associated with either booster station. Therefore, the following impact discussion for the Product Water Conveyance: RUWAP and Coastal pipeline alignment options refers to construction impacts associated with the Proposed Project pipelines only.

RUWAP Alignment Option

Approximately two acres of central maritime chaparral (brittle leaf-wooly leaf manzanita chaparral) is present within the Project Study Area along the Product Water Conveyance: RUWAP alignment option (Attachment 8 of **Appendix H rev**). This habitat type is considered a sensitive habitat by CDFW. This habitat is located within the former Fort Ord and outside of the coastal zone. As discussed in the Approach to Analysis, impacts to sensitive central maritime chaparral habitat are analyzed and addressed in the HMP and, therefore, impacts to this habitat are also considered mitigated through the implementation of the HMP. Therefore, impacts to central maritime chaparral along the Product Water Conveyance: RUWAP alignment option are considered less-than-significant and no additional mitigation measures are required.

No additional sensitive habitats identified occur within the Project Study Area for the Product Water Conveyance: RUWAP alignment option.

Coastal Alignment Option

Riparian habitat (arroyo willow thickets) is present within the Project Study Area at Locke Paddon Lake along the Product Water Conveyance: Coastal Pipeline alignment option (approximately 0.6 acre) (Attachment 8 of **Appendix H rev**). This habitat type is considered a sensitive habitat by CDFW and is regulated under Sections 1600-1616 of the Fish and Game Code. Approximately 0.3 acre of wetlands potentially under USACOE jurisdiction was identified associated with the riparian habitat (**Appendix I**). In addition, the entire 0.6 acre of riparian habitat meet the CCA definition of wetlands and may be under the jurisdiction of the City of Marina under the CCA. These sensitive habitat areas would also be considered waters of the state under the jurisdiction of the State Water Resources Control Board/Regional Water Quality Control Board. Impacts to this sensitive habitat are considered potentially significant impact that can be reduced to a less-than-significant level with implementation of the Mitigation Measures BT-1a and BT-2a identified below.

Injection Well Facilities

The construction of the Injection Well Facilities may result in impacts to central maritime chaparral (approximately 63 acres) (Attachment 8 of **Appendix H rev**). This habitat type is considered a sensitive habitat by CDFW. This entire Proposed Project component site is located within the former Fort Ord and outside of the coastal zone. As described in the Approach to Analysis, impacts to sensitive central maritime chaparral habitat are analyzed and addressed in the HMP and, therefore, impacts to this habitat are also considered mitigated through the implementation of the HMP. Therefore, impacts are considered less-than-significant and no additional mitigation measures are required.

CalAm Distribution System Pipelines

Transfer Pipeline

No sensitive habitats were observed within the Project Study Area associated with the Transfer Pipeline; therefore, no construction impacts to sensitive habitats would occur.

Monterey Pipeline

Riparian (arroyo willow thickets) and aquatic habitats are present at Roberts Lake within the Project Study Area associated with the Monterey Pipeline (approximately 0.8 acre total) (Attachment 8 of **Appendix H rev**). However, the construction of the pipeline is proposed outside of the riparian and aquatic habitats (i.e., by attaching it to the existing bridge). Therefore, no direct impacts to these habitats would occur as a result of the construction of the Monterey Pipeline. Potential indirect impacts to water quality in this area would be mitigated through implementation of Mitigation Measure BT-1a.

Central dune scrub (silver dune lupine – mock heather scrub) is present within the Project Study Area of the Monterey Pipeline (approximately 3 acres) (Attachment 8 of **Appendix H rev**). This habitat is considered a sensitive habitat by CDFW, located within the Coastal Zone, and supports habitat for the Smith's blue butterfly. Potential construction impacts to central dune scrub habitat are considered potentially significant which can be reduced to a less-than-significant level with implementation of the Mitigation Measure BT-2b identified below.

A eucalyptus grove is present within the Project Study Area along the Monterey Pipeline (approximately two acres) (Attachment 8 of **Appendix H rev**). This habitat type is not considered a sensitive habitat by the CDFW. However, this area is located within the Coastal Zone and provides habitat for the Monarch butterfly. Therefore, this habitat may be considered ESHA. Potential construction impacts to the eucalyptus grove habitat are considered potentially significant which can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-1o.

Impact Conclusion

The Proposed Project construction could result in impacts to sensitive habitat including wetlands, waters of the U.S., and riparian areas (which would also be considered "waters of the state"), central dune scrub, and eucalyptus grove due to construction activities at various project component sites. For components located within former Fort Ord, impacts to sensitive habitat have been analyzed and addressed in the HMP, therefore impacts are considered less-than-significant. Implementation of Mitigation Measures BT-1a and BT-2a through BT- 2c, as specified for components located outside of former Fort Ord where sensitive habitat occurs, would reduce potentially significant impacts to sensitive habitat during construction to a less-than-significant level.

Mitigation Measures

The following mitigation measures apply to the Proposed Project components identified. Implementation of Mitigation Measure BT-1a and the following mitigation measures would reduce Impact BT-2 to a less-than-significant level.

Mitigation Measure BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Reclamation Ditch, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.)

Implement Mitigation Measure BT-1a. When designing the facilities at these component sites, the MRWPCA shall site and design project features to avoid impacts to the riparian and wetland habitats shown in **Attachment 8 of Appendix H rev** and **Appendix I**, including direct habitat removal and indirect hydrology and water quality impacts, to the greatest extent feasible while taking into account site and engineering constraints. To protect this sensitive habitat during construction, the following measures shall be implemented:

- Place construction fencing around riparian and wetland habitat (i.e., areas adjacent to or nearby the Proposed Project construction) to be preserved to ensure construction activities and personnel do not impact this area.
- All proposed lighting shall be designed to avoid light and glare into the riparian and wetland habitat. Light sources shall not illuminate these areas or cause glare.

In the event that full avoidance is not possible and a portion or all of the riparian and wetland habitat would be impacted, the following minimization measures shall be implemented:

- Permanently Impacted riparian and wetland habitat shall be mitigated at no less than a ~~1~~2:1 replacement-to-loss ratio through restoration and/or preservation. The final mitigation amounts for both temporary and permanent impacts to riparian and wetland habitat shall be determined during the design phase but cannot be less than 2:1 for permanent impacts and 1:1 for temporary impacts, and must be approved by the relevant permitting agencies (USACOE, RWQCB, CDFW, and the entity issuing any Coastal Development Permit). The preserved mitigation land shall be managed to improve wetland and riparian conditions compared to existing conditions. It is expected that the mitigation can occur within the Locke Paddon Lake watershed, along the Tembladero Slough, and within the Salinas River corridor near the Blanco Drain near where impacts may occur. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared by a qualified biologist to mitigate for impacts to riparian and wetland habitat. The HMMP shall outline the details of a riparian and wetland habitat restoration plan, including but not limited to, planting plan, success criteria, monitoring protocols to determine if the success criteria have been met, adaptive management protocols in the case that the success criteria are not met, and funding assurances. Plantings and revegetation conducted in compliance with this mitigation measure shall be monitored for a minimum of three years after project completion.

Mitigation Measure BT-2b: Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to CalAm Distribution System: Monterey Pipeline)

When designing the Monterey Pipeline, the project proponents shall site and design project features to avoid impacts to the central dune scrub habitat shown in Attachment 8 of **Appendix H rev**, including direct habitat removal, to the greatest extent feasible while taking into account site and engineering constraints. To protect this sensitive habitat during construction, the following measures shall be implemented:

- Place construction fencing around central dune scrub habitat to be preserved to ensure construction activities and personnel do not impact this area.
- All proposed lighting shall be designed to avoid light and glare into the central dune scrub habitat. Light sources shall not illuminate central dune scrub habitat areas or cause glare.

If full avoidance is not possible and a portion or all of the central dune scrub habitat would be impacted, the following minimization measures shall be implemented:

- Approximately 2.7 acres of central dune scrub habitat could be impacted by the project. Impacted central dune scrub habitat shall be mitigated at a 1:1 replacement-to-loss ratio through restoration and/or preservation. The final mitigation amounts shall be determined during the design phase but cannot be less than 1:1. It is expected that the mitigation can occur onsite or within the immediate vicinity. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared by a qualified biologist to mitigate for impacts to central dune scrub habitat. The HMMP shall outline the details of a central dune scrub habitat restoration plan, including but not limited to, planting plan, success criteria, monitoring protocols to determine if the success criteria have been met, adaptive management protocols if success criteria are not met, and funding assurances.

Mitigation Measure BT-2c: Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River (Applies to Blanco Drain Diversion)

The project proponents in coordination with the contractor shall prepare and implement a Frack-Out Plan to avoid or reduce accidental impacts resulting from horizontal directional drilling (HDD) beneath the Salinas River. The Frack-Out Plan shall address spill prevention, containment, and clean-up methodology in the event of a frack out. The proposed HDD component of the Blanco Drain diversion shall be designed and conducted to minimize the risk of spills and frac-out events. The Frac-Out Plan shall be prepared and submitted to United States Fish and Wildlife Services, California Department of Fish and Wildlife, National Marine Fisheries Services, and the Regional Water Quality Control Board prior to commencement of HDD activities for the Blanco Drain Diversion construction. The following are typical contents of a Frac-Out Plan:

- Project description, including details of the HDD design and operations
- Site description and existing conditions
- Potential modes of HDD failure and HDD failure prevention and mitigation
- Frac-out prevention measures (including for example, geotechnical investigations, planning for appropriate depths based on those investigations, presence of a qualified engineer during drilling to monitor the drilling process, live adjustments to the pace of drill advancement to ensure sufficient time for cutting and fluid circulation and to prevent or minimize plugging, maintaining the minimum drilling pressure necessary to maintain fluid circulation, etc.)
- Monitoring requirements (for example, monitoring pump pressure circulation rate, ground surface and surface water inspection, advancing the drill only during daytime hours, on-site biological resource monitoring by a qualified biologist)

- Response to accidental frac-out (including stopping drilling, permitting agency notification, surveying the area, containing the frac-out material, contacting the project biological monitor to identify and relocate species potentially in the area, turbidity monitoring, procedures for clean-up and mitigation of hazardous waste spill materials, preparation of documentation of the event, etc.)
- Coordination plan and contact list of key project proponents, biological monitor, and agency staff in the event of an accidental frac-out event.

Impact BT-3: Construction Impacts to Movement of Native Wildlife and Native Wildlife Nursery Sites. Proposed Project construction would not adversely affect native wildlife corridors and wildlife nursery sites. (Criterion d) (Less than Significant)

All Proposed Project Components

The following Proposed Project component sites are located within identified, documented wildlife corridors or native wildlife nursery sites: Tembladero Slough Diversion (Tembladero Slough), Blanco Drain Diversion (Salinas River), and CalAm Distribution System: Monterey Pipeline (potential monarch butterfly habitat located along Del Monte boulevard near the Naval Postgraduate School). The proposed construction activities would temporarily discourage wildlife from using the Project Study Area within and in the vicinity of each Proposed Project component site. However, construction activities along the Tembladero Slough, Salinas River, and monarch butterfly habitat would not compromise the utility of the site on a long-term basis because construction activities would be temporary and no net loss of habitat, trees, or tree coverage would occur. Given the regional abundance of open space in the project vicinity, the temporary, short-term construction activities would not significantly impact the movement of wildlife in the area. Therefore, impacts are considered less-than-significant.

The analysis of impact of the Source Water Diversion sites on fisheries, including on fish migration is provided in **Section 4.13, Biological Resources: Fisheries**.

Impact Conclusion

Construction impacts to movement of native wildlife and native wildlife nursery sites are considered less-than-significant. No mitigation measures are required.

Impact BT-4: Construction Conflicts with Local Policies, Ordinances, or Approved Habitat Conservation Plan. Proposed Project construction would potentially conflict with local policies or ordinances protecting biological resources. A conflict may occur if the HMP plant species within the Proposed Project component sites on the former Fort Ord that do not require a take authorization from the Service or CDFW are impacted, and seed salvage is not conducted. There are no approved HCPs applicable to the Proposed Project. (Criteria e and f) (Less than Significant with Mitigation)

Product Water Conveyance: RUWAP and Coastal Alignment Options and Injection Well Facilities

None of the Proposed Project component sites are located within an approved Habitat Conservation Plan or Natural Community Conservation Plan area. However, portions of the Project Study Area associated with the Product Water Conveyance: RUWAP and Coastal alignment options, and the entire Injection Well Facilities site are located within development parcels inside the Fort Ord HMP boundaries and the plan area associated with a Draft HCP. As described in the Approach to Analysis section, construction of these Proposed Project components would be consistent with the approved HMP because all sites are located on parcels designated as "developed," if the construction activities comply with specific requirements. In particular, the BO and HMP require the identification of sensitive biological resources within development parcels that might be salvaged for use in restoration activities in reserve areas. If those species are identified, the seeds from those plants to be removed must be salvaged for restoration of other areas of the former Fort Ord. Plant species salvage requirements are described below in Mitigation Measure BT-4 to comply and ensure consistency with the BO and HMP, and would reduce this potentially significant impact to a less-than-significant level.

All Other Proposed Project Components

With the exception of the potential for inconsistency with the local requirements for the HMP plant species, the Proposed Project is consistent with all other local policies and ordinances intended to provide protection for biological resources, or would otherwise be required to comply with relevant ordinances. Construction of the Proposed Project may result in tree trimming and/or removal, although the exact number of trees will not be known until final engineering is completed. Prior to construction, the Proposed Project would be required to comply with the tree trimming/removal ordinances outlined in the relevant city and county codes (including City of Seaside Municipal Code Chapter 8.54 and City of Marina Municipal Code Chapter 12.04). Because the project proponent(s) would be required to comply with and implement the requirements of the relevant codes, the Proposed Project is considered consistent with the policies associated with tree trimming or removal and protection. Therefore, the impacts associated with potential conflict with tree removal and other biological resources policies and ordinances are considered less-than-significant.

Impact Conclusion

There is potential for inconsistency with the local requirements for the HMP plant species for components located within the boundaries of former Fort Ord. Implementation of Mitigation Measure BT-4, as specified for components with sites located within the former Fort Ord, would reduce this potentially significant impact to a less-than-significant level.

Mitigation Measures

The following mitigation measures apply to the Product Water Conveyance: RUWAP and Coastal alignment options and the Injection Well Facilities where located within the former Fort Ord. Implementation of the following mitigation measures would reduce Impact BT-4 to a less-than-significant level.

Mitigation Measure BT-4. HMP Plant Species Salvage. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities site within the former Fort Ord only)

For impacts to the HMP plant species within the Project Study Area that do not require take authorization from USFWS or CDFW, salvage efforts for these species shall be evaluated by a qualified biologist per the requirements of the HMP and BO. A salvage plan shall be prepared and implemented by a qualified biologist, which shall include, but is not limited to: a description and evaluation of salvage opportunities and constraints; a description of the appropriate methods and protocols of salvage and relocation efforts; identification of relocation and restoration areas; and identification of qualified biologists approved to perform the salvage efforts, including the identification of any required collection permits from USFWS and/or CDFW. Where proposed, seed collection shall occur from plants within the Project Study Area and topsoil shall be salvaged within occupied areas to be disturbed. Seeds shall be collected during the appropriate time of year for each species by qualified biologists. At the time of seed collection, a map shall also be prepared that identifies the specific locations of the plants for any future topsoil preservation efforts. The collected seeds shall be used to revegetate temporarily disturbed construction areas and reseeding and restoration efforts on- or off-site, as determined appropriate in the salvage plan.

4.5.4.4 *Operational Impacts and Mitigation Measures*

Impact BT-5: Operational Impacts to Special-Status Species. Proposed Project operations would not adversely affect, either directly or through habitat modification, special-status plant and wildlife species and their habitat. (Criteria a, b, c, and d) (Less than Significant)

All Proposed Project Components

As previously described in the Approach to Analysis, the potential impacts to special-status species would primarily occur during the construction of the Proposed Project. The operation of the project would not result in significant impacts to special-status species.

General operations and maintenance activities associated with pipelines would include annual inspections, testing and servicing of valves, vegetation maintenance along rights-of-way, and repairs of minor leaks in buried pipeline joints or segments. In addition, it is anticipated that each of the injection wells would be back-flushed for about four hours weekly, requiring discharge of the back-flush water to a percolation pond or back-flush basin. These discharges of groundwater would be intermittent, and would temporarily inundate a small area that is included in the Project Study Area prior to percolating to the groundwater basin. In addition, the area would be disked occasionally to maintain the percolation characteristics of the basin. General operations and maintenance activities associated with other project facilities (e.g., Salinas Pump Station, Salinas Treatment Facility, Lake El Estero, the Reclamation Ditch Diversion site, Tembladero Ditch Diversion site, Blanco Drain Diversion site, and Product Water Conveyance Booster Pump Station) would include staff oversight, monitoring and inspections, repairs, and servicing. These activities would not significantly impact any special-status species, if present, as the disturbance would be minimal and intermittent. Therefore, potential operations and maintenance impacts are considered less-than-significant and no mitigation is required.

Impact Conclusion

Operational impacts to Special-Status Species are considered less-than-significant. No mitigation measures are required.

Impact BT-6: Operational Impacts to Sensitive Habitats. Proposed Project operations may adversely affect sensitive habitats (including riparian, wetlands, and/or other sensitive natural communities) within and adjacent to the Project Study Area. (Criteria b and c) (Less than Significant with Mitigation)

Operation and maintenance activities associated with the Proposed Project may result in direct and indirect impacts to sensitive habitats. The following provides detailed analysis of the impacts by Proposed Project component.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion Site and Salinas Treatment Facility Storage and Recovery

Direct Habitat Impacts during Operation

No sensitive habitats occur at the Salinas Pump Station site, and, therefore, no operational or maintenance impacts to sensitive habitats would occur. Approximately 35 acres of riparian habitat occurs within the Project Study Area at the Salinas Treatment Facility. Operations at the site would consist of monitoring pumps and pond levels, diverting water to other ponds as needed. These operational activities are proposed on the north side of the wastewater treatment ponds and not within or directly adjacent to the riparian habitat along the Salinas River or riparian ditch north of the ponds. Therefore, the Proposed Project would not result in impacts to sensitive habitat at this component site.

Indirect Operational Impacts to Affected Reaches: Salinas River

The operation of the Salinas Pump Station Diversion and the Salinas Treatment Facility component of the Proposed Project would affect the hydrology of the Salinas River. The degree to which changes in the amount of flow and duration of flow may result in impacts to sensitive habitats and species and plants associated with these water bodies is assessed here.

Currently, treated agricultural wash water is disposed by using evaporation/percolation ponds and basins at the Salinas Treatment Facility, with some flows seeping into and contributing to flows in the Salinas River. The proposed diversion of estimated 3,730 AFY of agricultural wash water that would otherwise flow to this facility to the Regional Treatment Plant may reduce inflows to the Salinas River by up to 2,174 AFY, and may also increase percolation of river water to the shallow aquifer further reducing other river flows. Flows in the Salinas River below the Salinas Treatment Facility were estimated using a mass balance model, and a statistical analysis was performed on the results. The proposed diversions would reduce average annual flows in the river by up to 1%.

For the analysis of the Proposed Project on Salinas River flows, the change in seepage to the Salinas River is relevant to the estimation of inflow impacts. The evaporation and percolation rates from the Salinas Treatment Facility ponds were estimated by Todd Groundwater based upon operational records for the period December 2012 to December 2014 and site observations. The report estimated percolation to groundwater at an average rate of 0.73 cubic feet per second (cfs), and percolation to the Salinas River at an average rate of 3.0 cfs. This maximum percolation rate into the river is used for the impact analysis. Additional details concerning groundwater and percolation rates can be found in the analysis and discussion of groundwater provided in **Section 4.10, Hydrology and Water Quality: Groundwater**.

The Proposed Project diversions at the Salinas Pump Station Diversion Site, and storage and recovery from the Salinas Treatment Facility would reduce average annual flows by up to 1%

downstream of the diversion point. The potential reduction of up to 1% of average annual flows in Salinas River flows is not substantial in relation to total flows and would not result in a substantial alteration of existing flows that would lead to significant impacts to sensitive habitats. Thus, this diversion would result in a less-than-significant impact on Salinas River flows, and, therefore, a less-than-significant impact on the riparian and wetland habitats associated with the river.

Reclamation Ditch and Tembladero Slough Diversion

Direct Habitat Impacts during Operations

The Reclamation Ditch and Tembladero Slough Diversion facilities both include a pump station, which would be configured to operate autonomously. The sites would be monitored and approximately once per month, an operator would need to access the channel bottom to inspect, and if needed, physically clear vegetation or debris from the intake screen. The pumps would require annual inspection and servicing, using a lift truck to remove the pumps from the wet well. These activities may temporarily and intermittently result in the necessity to access facilities within the aquatic habitat at the site and potentially result in erosion and sedimentation. However, implementation of standard erosion BMPs during these activities would reduce this potential impact to a less-than-significant level.

Indirect Operational Impacts to Affected Reaches: Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel

The operation of the Tembladero Slough and Reclamation Ditch Diversion components of the Proposed Project would affect the hydrology of the Reclamation Ditch, Tembladero Slough, and the Old Salinas River Channel. The degree to which changes in the amount of flow and duration of flow may result in impacts to sensitive habitats and species and plants associated with these water bodies is assessed here.

Three of the affected reaches of the GWR project include the Reclamation Ditch (Ditch), Tembladero Slough, and the Old Salinas River Channel. While these three features are hydrologically connected, the Reclamation Ditch is evaluated separately from the Tembladero Slough and Old Salinas River Channel because of their relative locations within the landscape. The Reclamation Ditch follows the historic alignment of Gabilan Creek. Much of the alignment traversed rolling, grass-covered uplands. Conversely, the Tembladero Slough and Old Salinas River Channel are features within the historic floodplain of the Salinas River and estuary (Casagrande and Watson, 2006). The Reclamation Ditch gains elevation relatively quickly along its alignment to the east, while the Tembladero Slough and Old Salinas River Channel are located within the bottomlands of the system and remain relatively flat in comparison. The Reclamation Ditch is deeper and narrower compared to the Tembladero Slough and Old Salinas River Channel and is a much flashier system, meaning surface water elevations change more dramatically compared the other features lower in the system. As a result of the channel morphology being deep and narrow, the significant variability in water depth and duration of inundation, and historic and on-going maintenance activities, there is little to no opportunity for wetlands and riparian habitat to become established within the Reclamation Ditch. In contrast, the Tembladero Slough and Old Salinas River Channel are broad and relatively flat features with stable hydroperiod resulting from the moderating function of the Potrero Tide Gate (Gate) located at the bottom of the system at Potrero Road adjacent to the Moss Landing Harbor (Harbor) (Inman et al., 2014).

Wetlands within the Reclamation Ditch

As a result of the Reclamation Ditch's location within the landscape, the channel is V-shaped, very deep, and the banks are very steep. In addition, active agriculture or urban development occurs to the top of the bank in almost all cases. Historic and on-going maintenance activities include removal of vegetation, in addition to, fallback that occurs as a function of the artificially maintained steep slope (Casagrande and Watson, 2006).[21] The relatively significant elevation change within the Reclamation Ditch from Davis Road to its confluence with the Tembladero Slough facilitates relatively high velocity flows during storm events or high discharge events associated with agriculture. Low flow conditions occur as the base line condition between the potentially frequent, but inconsistent, high water events. All of these factors contribute to an environment that is not conducive to the establishment of wetlands which typically require a fairly stable hydrological source and substrate. Consistent with this narrative, no wetlands were present in the Reclamation Ditch at the time of the delineation, and, therefore, no impact to wetlands will occur.

Riparian Habitat within the Reclamation Ditch

Riparian habitat is a function of, and sustained by, dry season, sub-surface hydrology. While the Reclamation Ditch's hydrology is inconsistent in regards to periodicity, volume, depth, and duration of inundation, it rarely, if ever, goes dry (USGS, 2015). A continuously wetted channel results in saturated soils within, and directly adjacent to, its banks during the dry season. However, while vegetation removal associated with agricultural practices typically precludes establishment of vegetation along the top of bank and/or within the channel in most cases, there are two small patches of riparian habitat adjacent to the Reclamation Ditch where the land owner has allowed it to persist. These patches occur west of North Davis Road (**Attachment 8 of Appendix H <u>rev</u>**, Sheet 14) and just east of the intersection of Highway 183 and the Reclamation Ditch (**Attachment 8 of Appendix H <u>rev</u>**, Sheet 8). The proposed diversions include maintaining a minimum flow throughout the dry-season operation. At low volume conditions in permeable soils, surface water will not form unless there is some localized soil saturation. As a result, if surface flow is present within the Reclamation Ditch, soils within the Reclamation Ditch will be saturated. The saturated soils will continue to provide the necessary dry-season, sub-surface hydrology needed to sustain riparian habitat along the Reclamation Ditch. Therefore, the proposed diversion would not have a significant impact on the riparian habitat along the Reclamation Ditch.

Wetlands within the Tembladero Slough and Old Salinas River Channel

As discussed above, the Tembladero Slough and the Old Salinas River Channel can be discussed concurrently because they share common conditions as a function of their location in the landscape and hydrology. These resources are located in the flatland and historic floodplain of the Salinas River. There is relatively little elevation drop from the top of the Tembladero Slough to the end of the Old Salinas River Channel at the Potrero Road flood gate (Gate). Because these features are located further down in the system, there are more and varied hydrologic inputs. The presence of the Gate moderates the discharge of water exiting the Old Salinas River Channel, which results in a very stable hydroperiod with surface water elevations only fluctuating significantly during wet season storm events (Casagrande and Watson, 2006; Inman et al. 2014). The dry season elevations are consistent in depth and duration of inundation

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[21] Fallback refers to the on-going process of soil sloughing of the channel banks into the channel bottom as a result of the over steepness of the banks. The presence of erosion in the form of fallback and sedimentation within the channel requires regular maintenance in the form or soils removal and grading/contorting of the channel banks.

and resemble a muted tidal environment. While some remnants of historic salt marsh and emergent wetlands remain adjacent to the Old Salinas River Channel and at the confluence of the Tembladero Slough and the Old Salinas River Channel, the distribution of wetland habitat over the landscape is a function of existing agricultural operations. Specifically, wetlands only exist where farming land owners have decided that they want to keep vegetation along a narrow strip between their field and the channel.

The salt marsh exists to the west of the Old Salinas River Channel in a couple of large patches between the top of bank westward to the toe of slope of the dunes that lie between it and the Pacific Ocean (**Attachment 8 of Appendix H rev**, Sheets 1-2). In addition, a narrow band of salt marsh exists on the east bank of the Old Salinas River Channel from top of bank to the boundary of active agriculture. This habitat occurs from the Gate southward to just north of the confluence of the Tembladero Slough and Old Salinas River Channel. A water quality treatment wetland exists at the confluence, but is supplied by water pumped in from the Tembladero Slough (S. Hession, DD&A, personal observation). Additional emergent wetland occurs in a narrow band along the western bank of the Old Salinas River Channel from the confluence southward to the first big bend (**Attachment 8 of Appendix H rev**, Sheet 2).

The Tembladero Slough and Old Salinas River Channel receive hydrologic input from a variety of sources. One of those sources is the Reclamation Ditch. During the dry season the average daily flow by month has historically ranged from approximately 6 to 8 cfs (USGS, 2015). An additional 3 cfs is gained along the Reclamation Ditch and Slough between North Davis Road and the Castroville diversion sites.[22] The proposed diversion could significantly reduce the input from these combined sources. If the diversion resulted in a reduction in the depth or duration of inundation to the wetland resources identified above, there could be a potential impact. However, additional hydrologic inputs exist, the most significant of which is the Salinas River via the slide gate located on the east end of the Salinas River Lagoon (Lagoon). Per existing requirements, the Salinas Valley Water Project (SVWP) is required to sustain mandatory minimum flows under certain conditions. The Lagoon and Old Salinas River Channel are hydrologically connected via a large box culvert and slide gate. While there is no discharge data at the slide gate, bypass flow is measured at the SVWP each year it is operated. This data indicates significant bypass flows in the dry season (MCWRA 2011; MCWRA 2012; MCWRA 2013; MCWRA 2014). When the Lagoon is closed, as it is much of the summer, those flows enter the Lagoon and discharge into the Old Salinas River Channel via the slide gate. Typically, those flows have rarely fallen below 9 cfs for any significant length of time and may be significantly larger for much of the season. An additional input is leakage through the Gate when it is closed. While no data exists that quantifies the seepage into the Old Salinas River Channel, it can be observed and may constitute an additional 1 to 2 cfs (J. Harwayne, DD&A, personal observation, 2014). Salinity readings in the Old Salinas River Channel indicate a significant marine input and it is reasonable to assume that the leakage through the Gate provides this input (Casagrande and Watson, 2006; Nicol et al., 2010; Inman et al. 2014).

The most important factor influencing hydrologic conditions in the Tembladero Slough and Old Salinas River Channel is the presence and function of the Gate. The Gate opens twice a day as a result of the tidal cycle in the harbor. During the dry season, the surface water elevation changes very little between cycles relative to water surface elevation in the Old Salinas River

[22] Agricultural return flows to the Old Salinas River and Tembladero Slough below Castroville were estimated as 10% of the average crop irrigation plus precipitation. Irrigation rates for the CSIP service area and rainfall at the Salinas Airport were used. Return flow rate was conservatively assumed to be lower than the 17% estimated in the Blanco Drain Yield Study, (Schaaf & Wheeler, 2014).

Channel and Slough (Inman et al., 2014)[23]. During the wet season, the water surface elevation can and does rise dramatically in the Tembladero Slough and Old Salinas River Channel and annually exceeds its banks and floods adjacent lands (Casagrande and Watson, 2006). This predictable hydrologic condition, or hydroperiod, consists of a stable summer surface water elevation that fluctuates very little and winter condition with large variation in surface water elevations. The proposed diversions would occur almost exclusively during the dry season and would not significantly alter the existing hydroperiod within the Tembladero Slough and Old Salinas River Channel as the surface water elevation in this area is moderated by the tidal cycle of the harbor. Large wet season flows associated with storm events are of a magnitude that the diversion will have no measurable effect of the rise in surface water elevation and associated inundation of wetland adjacent to the channel. Therefore, the proposed diversions would not impact wetlands adjacent to the Tembladero Slough and Old Salinas River Channel.

Riparian Habitat within the Tembladero Slough and Old Salinas River Channel

Four small patches of riparian habitat are located adjacent to the channel within the Tembladero Slough west of Highway 183 (**Attachment 8 of Appendix H rev**, sheets 5-7). As with the other wetland and riparian habitats throughout the system, the distribution of riparian habitat within the Tembladero Slough is a function of urban and agricultural land uses. Each of the four patches are located between, and bounded by, the top of bank and adjacent urban or agricultural land uses. Unlike the riparian patches adjacent to the Reclamation Ditch, three of the four patches adjacent the Tembladero Slough receive urban runoff, which contributes to the dry season hydrology of these sites.

As described above, the proposed diversions include maintaining a minimum flow throughout the dry season operation, which would facilitate the dry season soil saturation necessary to sustain riparian habitat. In addition, the Tembladero Slough is subject to the hydrological effects of the Gate resulting in stable dry season hydrology. Therefore, the proposed diversion would not have a significant impact on the identified riparian habitat within the Tembladero Slough.

[23] The study by Inman et al. 2014 was conducted in a dry year following an extended dry period.

Table 4.5-11
Summary of Operational Impacts to Affected Reaches

Impact Title	Affected Reaches		
	Reclamation Ditch	Tembladero Slough	Old Salinas River Channel
BT-5: Operational Impacts to Special-Status Species and Habitat.	LS	LS	LS
BT-6: Operational Impacts to Riparian, federally protected wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	LS	LS	LS
BT-7: Operational Impacts to Movement of Native Wildlife and Native Wildlife Nursery Sites.	LS	LS	LS
BT-8: Operational Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan.	LS	LS	LS

NI - No Impact
LS - Less than Significant
LSM - Less than Significant with Mitigation
SU - Significant Unavoidable

Blanco Drain Diversion Site

Direct Habitat Impacts during Operations

The Blanco Drain Pump Station would be similar to the Reclamation Ditch and Tembladero Slough Pump Stations, configured to operate autonomously based upon diversion settings. The pipeline valves would be inspected and exercised once per year. Any above-grade air-release valves would be inspected quarterly, requiring a system operator to drive the pipeline alignment. These activities may temporarily and intermittently result in the necessity to access facilities within the aquatic and riparian habitats at the site and potentially result in erosion and sedimentation. However, implementation of standard erosion BMPs during these activities would reduce this potential impact to a less-than-significant level.

Indirect Operational Impacts to Affected Reaches: Salinas River

The operation of the Blanco Drain Diversion component of the Proposed Project would affect the hydrology of the Salinas River as the Blanco Drain is a direct tributary. However, the potential reduction in Salinas River flows due to the operation of the diversion is not substantial in relation to total flows and would not result in a substantial alteration of existing flows that would lead to significant impacts to sensitive habitats. Potential reductions in the Salinas River would only be up to 1% of average annual flows. Thus, this diversion would result in a less-than-significant impact on Salinas River flows, and, therefore, a less-than-significant impact on the riparian and wetland habitats associated with the river.

Lake El Estero Diversion

The Lake El Estero Pump Station would operate autonomously, based on lake and water levels in the receiving sanitary sewer. An operator would monitor the site, and if a lakeside intake is used, approximately once per month, an operator may need to physically clear vegetation or debris from the intake screen. The pumps would require annual inspection and servicing, using a lift truck to remove the pumps from the wet well. These activities would be contained within the developed area at the site and no impacts to sensitive habitats in the vicinity would occur.

The City of Monterey maintains the Lake El Estero water level for aesthetics and recreational use. The Proposed Project would not reduce the water levels below those currently maintained by the City of Monterey such that no habitat changes would occur. The Proposed Project would only reduce the volume of stormwater from the lake that would be discharged to the ocean.

Combined Impacts of Source Water Diversions on Sensitive Habitats due to Water Flow and Level Changes

Potential changes to water bodies that may adversely impact aquatic habitat, ecosystems, and species in the affected reaches include: (1) water flow or water surface elevation reductions that may also reduce the amount and duration of wetted habitat, soil saturation and moisture, and/or plant uptake of water, and (2) water quality worsening, in particular for this analysis, potential increases in salinity (and in particular, the inter-related effects of inland surface water flow inputs and salinity in the lower watershed).

Salinas River Watershed to Salinas River Lagoon

Water levels/flows. The proposed diversions of all three proposed source waters in the Salinas River watershed (Salinas urban runoff, agricultural wash water, and Blanco Drain) would reduce flows in the Salinas River by less than 1% total on an annual average basis, and would not affect water levels in the Lagoon. United States Geological Society (USGS) data and county gage data demonstrate that even with the Salinas River dry during the driest year on record (2014), the water levels in the Lagoon were consistent with historic water levels. **Table 4.5-11a**, below, shows the average monthly water level in the Lagoon during 2013 and 2014. Note that even when the Salinas Treatment Facility ponds were dry (July to November 2014), the average lagoon water levels were comparable to the previous year when the ponds were full.

Table 4.5-11a
Salinas River Lagoon Stage (feet)

_	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2013	9.7	10.2	10.3	10.3	10.5	10.3	10.3	10.4	10.4	10.1	10.1	10.1
2014	10.1	10.3	10.7	10.4	10.3	10.3	10.6	10.5	9.7	9.5	10.0	11.8

Notes:
1. CDEC Station SLG, maintained by MCWRA, datum not specified
2. Lagoon was open to the ocean from 12/12/2013 to 1/28/2013, and remained closed through September 2015 or later. Daily average flow at Spreckels gage was 0 cfs from 11/11/2013 to 12/12/2014.
3. Salinas River Diversion Facility operated 4/8/2013 to 11/8/2013, but not in 2014.
4. Salinas Treatment Facility flows diverted to MRWPCA 4/2/2014 to 11/26/2014. Ponds were empty by 7/1/2014.

The proposed agricultural wash water, Salinas stormwater, and the Blanco Drain diversions would reduce some inputs to the Salinas River and Lagoon upstream of the Salinas River Diversion Facility (SRDF). The proposed diversions in the Reclamation Ditch and Tembladero Slough watersheds would not result in any changes to water surface elevation in, or flows to or from, the Salinas Lagoon due to the operation of the slide gate and the relative elevations and flows of the two water bodies (i.e., flow from Tembladero Slough into OSR to the south of their confluence toward the Salinas Lagoon rarely occurs) as discussed in detail above.

Salinity. Due to the very small percentage change in total Lagoon inflows due to the Proposed Project (less than 1%), no measurable salinity changes to the Lagoon would occur.

Tembladero Slough and the OSR Channel

Water Levels/Flows. The proposed diversions in the Reclamation Ditch and Tembladero Slough would result in reduction in flows to the Tembladero Slough and OSR Channel as acknowledged in the Draft EIR, but this reduction would not be additive to flow reductions in the Salinas River watershed as the Reclamation Ditch watershed is not tributary to the Salinas River. The proposed diversions of agricultural wash water, Blanco Drain, and Salinas urban stormwater to the Regional Treatment Plant would constitute less than one percent of the average annual flows within the Salinas River. Based on the minor amounts of dry-season, inland surface water flows, the beach berm, and the operation of the slide gate at the Lagoon, the proposed flow reductions to the Salinas River, would not result in detectable changes in water levels during the dry season in the Lagoon even in dry years with minimal surface water flow inputs as demonstrated by **Table 4.5-11a**.

The combined diversions from the Reclamation Ditch and Tembladero Slough system represent less than one percent of the average annual flow entering Moss Landing Harbor and Elkhorn Slough due to the tidal action of the ocean on those waterbodies. The combined diversions from both the Salinas River watershed and the Tembladero Slough/Reclamation Ditch watersheds would have no detectable effect on the flows nor water surface elevations in any water bodies north of the Potrero Tide Gate (see discussion below under "Moss Landing Harbor, Elkhorn Slough, and Moro Cojo Slough" and **Figure 4.5-3new**).

The Lagoon flows that pass through the Lagoon slide gate and the Reclamation Ditch/Tembladero Slough system are both tributary to the OSR Channel. The Lagoon flows into the OSR Channel (at its southern terminus) through the Lagoon slide gate, and Tembladero Slough flows into the OSR Channel approximately 1.5 miles north. See **Figure 4.5-3new**. The only water bodies that would have *any* potential additive water surface elevation changes due to diversions from both watersheds would be the OSR Channel and to a lesser extent the lowest reach of the Tembladero Slough due to the tidal gate and tidal flow backwater effect.

The amount of surface water that flows into the OSR Channel from the south is controlled by a slide gate at the Lagoon (called the Salinas Lagoon Gate on **Figure 4.5-3new**). Near the northern end, the OSR Channel experiences a diurnal backwater cycle due to the rising and falling tides and the operation of the Potrero Tide Gate. Because of the tidal control and the Lagoon's stable dry season water levels described above, water levels would not be affected by the Proposed Project under conditions wherein all Proposed Project diversions (from both watersheds) would occur. The Proposed Project would not result in any loss of inundation in the OSR Channel and therefore, the combination of all proposed diversions would have less than significant impacts on water levels and the associated beneficial uses and habitats that rely upon those water levels because there would be no measurable loss of inundation nor reduced soil moisture.

Salinity. Diverting freshwater from the OSR Channel's tributaries may increase the salinity within the OSR Channel, which is currently a brackish water body due to leakage through soils and the Potrero tide gate and the Lagoon slide gate (Nicole et al., 2010 and Inman et al., 2014). There is a potential for increases in salinity near the water surface, and/or longer periods of salinity accumulation in the Tembladero Slough and the OSR Channel before seasonal flushing by winter runoff. This potential water quality impact is analyzed in the EIR (Draft EIR, pages 4.11-71 through 4.11-72) where the analysis concludes that the Proposed Project would have a less-than-significant impact on the water quality because the salinity changes would be within the range of salinities that are currently found in these water bodies every year. Species and habitats relying upon the OSR and Tembladero Slough waters have demonstrated their tolerance for high salinity waters. In particular much higher salinity levels (above 15 ppt) are seen during prolonged dry periods, such as late summer and fall of 2013 through 2015. (Inman et al, 2014 and Nicole, et al., 2010) Conversely, even moderate precipitation events during the Inman and Nicole studies resulted in drops of salinity to below 1 ppt. These precipitation events that result in flushing flows would continue to occur under Proposed Project operations.

Diversions from the Reclamation Ditch and Tembladero Slough would be most needed by the Proposed Project during dry years when irrigation demands are highest; during and after storm events Proposed Project source water requirements are expected to be met by municipal wastewater flows. Due to the tidal influence, water levels in the Tembladero Slough would not be noticeably affected by the Proposed Project, so wetland species would not see a loss of fresh water-wetted habitat due to salinity changes, only an increase in the duration of periods of higher salinity. The existing system exhibits a wide variation of salinities due to the influence of the ocean tidal fluctuations, storm surges, agricultural tile drain and surface runoff, and urban runoff; therefore, based on the above information, these changes would result in a less-than-significant impact on surface water quality in the affected reaches of the Reclamation Ditch, Tembladero Slough, and the Old Salinas River Channel.

Large rain events produce flushing flows through the OSR Channel, which push the brackish water past the tide gates and into the Moss Landing Harbor. These flows occur during storm events in the winter months, when project diversions would be much lower than during the dry season, and if diversions do occur would be a very small fraction of the surface water flows. Summer rain events can and do generate flows up to 70 cfs in the Reclamation Ditch/Tembladero Slough system. The Proposed Project would divert up to 9 cfs from the Reclamation Ditch and Tembladero Slough, leaving sufficient flow for thorough flushing of brackish water. In addition, as discussed above, the Proposed Project Salinas River watershed diversions would not result in measurable reduction in surface water elevation in the Salinas Lagoon and the OSR Channel. In addition, during these rain events the diversions would be reduced due to corresponding reduction of recycled water demand by agricultural irrigators, therefore, combined diversions would not prevent dry-season brackish water flushing from occurring in the lower watershed consistent with the existing conditions.

Moss Landing Harbor, Elkhorn Slough, and Moro Cojo Slough

Water Levels/Flows. Due to the Potrero Tide Gate controls on the OSR Channel, incoming fresh water mixes with the impounded, brackish water during rising tide cycles, and the brackish water moves through the Potrero Road tide gates into Moss Landing Harbor and the Monterey Bay on falling tides. A portion of the water from the OSR Channel is pushed back into Elkhorn Slough on the rising tide. The Moro Cojo Slough flows into the Moss Landing Harbor through a separate tide gate. The average tidal cycle in Elkhorn Slough is 122 x 10^6 cubic-feet of water (800 acres of surface area and an average tidal change of 3.5 feet). Assuming two cycles per day, the average inflow rate (over 6 hours) to Elkhorn Slough from the harbor and ocean is 5,670 cfs. The typical freshwater inflow rate to the OSR Channel in summer is 10 to 15 cfs (combined Salinas River plus Tembladero Slough[24]). Doubling the typical peak rate to account for the tidal cycle, 30 cfs is about 0.5% of the average inflow rate for Elkhorn Slough.

The Elkhorn Slough was determined not to be a waterbody within which biological species, ecosystems, or habitats would be potentially affected by the Proposed Project diversions (i.e., outside the project study area for terrestrial biological resources). However, Moss Landing Harbor and Elkhorn Slough were appropriately included as part of the project study area in

[24] Flows from Moro Cojo Slough are omitted from the estimate because (1) salinity data was not available, and (2) these flows will be unaffected by the Proposed Project.

Section 4.11, Hydrology and Water Quality: Surface Water due to the potential for changes to quantities, qualities, and timing of inflows. The study area conclusion was based on analysis of combined diversions of all Proposed Project source waters, storm runoff, and daily tidal cycles. The analysis of hydrology and water quality showed that the Potrero Tide gate is the farthest point downstream where biological species might have any potential effect from combined project diversions. As described above in Draft EIR Section 4.5.4.4, the effect of water flow/level changes due to all Proposed Project diversions on biological resources (including fisheries and terrestrial/aquatic species) in the affected portions of the Reclamation Ditch, Tembladero Slough, and the OSR Channel would be less than significant (with Mitigation Measure BF-2a or Alternate Mitigation Measure BF-2a for fish passage in the Reclamation Ditch). In addition, the Proposed Project would result in no impact due to water level/flow changes within Moss Landing Harbor, Elkhorn Slough, Monterey Bay, and other connected water bodies.

The Moro Cojo Slough flows into the Mos s Landing Harbor through a separate channel; similar to the OSR Channel, it is also protected with a tide gate. Moro Cojo flows would not be affected at all because its water surface elevations and flows are not affected by any increases or decreases in water surface elevations nor flows in the OSR Channel. Moro Cojo Slough is tributary directly to the Moss Landing Harbor and inflows from the Harbor are controlled by another tide gate. The Proposed Project would not divert any flows from the Moro Cojo Slough and would not change the amount of flow into or out of the Moro Cojo Slough.

Salinity. The analysis in **Appendix AA** shows that the Proposed Project would cause less than 0.8% salinity increase at Elkhorn Slough and 0.8% would occur only in a peak event using conservative assumptions such as drought conditions with low tidal influence. On a daily, weekly and monthly average, the Proposed Project would cause changes of even less than that amount (i.e., an undetectable change given the wide variations of salinity in the slough caused by the tidal cycle each day). Salinity levels (including measurements of electroconductivity and total dissolved solids concentrations), are used as the primary indicator of the relative amounts of freshwater versus saline ocean water in a water body. Thus, the Proposed Project would not result in an adverse impact on the biological resources or other beneficial uses within the Elkhorn Slough. In fact, the Proposed Project would result in a reduction in pollutant loading (including nutrients, such as nitrate/nitrogen and orthophosphate/phosphorous) in the Moss Landing Harbor and Elkhorn Slough as described on pages 2-5, and 4.11-64 through 4.11-75 of the Draft EIR.

Conclusions Regarding Combined Impacts of Source Water Diversions on Sensitive Habitats and Species due to Water Flow and Level Changes

Implementation of all proposed source water diversions would not result in measurable or detectable water level changes in the Lagoon, OSR Channel, Moss Landing Harbor, Elkhorn Slough, Moro Cojo Slough, and Monterey Bay/Pacific Ocean. The EIR found that stable water surface elevations would be maintained and thus proposed changes to flow would not adversely affect biological resources (habitat, species, and other ecosystem services) due to loss of inundation in downstream water bodies that support habitat, even during the summer months and drought years when all or a large majority of the proposed diversions would occur. Specifically, no detectable changes in the amount or areas of inundation (and corresponding soil saturation/moisture and plant uptake) would occur in these water bodies; therefore no adverse impacts on aquatic habitats (including wetland and riparian) due to the combined diversions of the Proposed Project. The proposed diversions would reduce the volume of freshwater entering the system, particularly in the dry summer months, and could result in increased salinity within these already brackish channels. The Proposed Project includes minimum in-channel by-pass flows for habitat protection. These minimum flows are consistent with the actual flows measured during the late summer and fall seasons of the current drought (2013-2015). The slight increase in salinity that would occur in some months of each year is within the normal fluctuation of the existing, background conditions. The additional technical analysis in **Appendix AA** clarifies the assumptions in the hydrology, water quality, and biological resources impact analysis and confirms the conclusions in the Draft EIR. Specifically, operational impacts of diverting all Proposed Project source waters in the Salinas Valley would result in less-than-significant impacts on the riparian and wetland habitats in and near the waterbodies of the lower watersheds of the Salinas River and the Reclamation Ditch/Tembladero Slough, including the following water bodies: the Reclamation Ditch (from Davis Road to its confluence with Tembladero Slough), the Tembladero Slough, and the Old Salinas River Channel. The Proposed Project would have no impact on riparian and wetland habitat in and near the following water bodies: Salinas River, Salinas River Lagoon, tributaries to the Reclamation Ditch, the Reclamation Ditch upstream of Davis Road, the Moss Landing Harbor, Moro Cojo Slough, Elkhorn Slough, and Monterey Bay/Pacific Ocean.

Treatment Facilities at Regional Treatment Plant

No sensitive habitats occur at the Treatment Facilities at the Regional Treatment Plant, and, therefore, no operational impacts to sensitive habitats would occur.

Product Water Conveyance Facilities

There are no sensitive habitats within either of the proposed booster pump station sites, and, therefore, no operational impacts to sensitive habitats would occur at these sites. Therefore, the following impact discussion for the Product Water Conveyance: RUWAP and Coastal alignment options refers to operational impacts associated with the proposed pipeline alignment options only (not the sites for the Booster Pump Station options).

General operations and maintenance activities associated with the RUWAP and Coastal Pipeline options would include annual inspections, testing, servicing, and repairs of minor leaks in buried pipeline joints.

RUWAP Pipeline Alignment Option

Central maritime chaparral (brittle leaf-wooly leaf manzanita chaparral) is present along the Product Water Conveyance: RUWAP pipeline option. This habitat is located within the former Fort Ord. As discussed in the Approach to Analysis, impacts to sensitive central maritime chaparral habitat are analyzed and addressed in the HMP and, therefore, impacts to this habitat are also considered mitigated through the implementation of the HMP. Therefore, operational impacts to central maritime chaparral along the Product Water Conveyance: RUWAP Pipeline option are considered less-than-significant and no additional mitigation measures are required.

Coastal Alignment Option

Operational activities may result in impacts to riparian habitat (arroyo willow thickets), regulated under the Fish and Game Code, and wetlands, potentially under USACOE and CCA jurisdiction, although the exact amount is unknown. Operation and maintenance activities may temporarily and intermittently result in the necessity to access facilities within the riparian and wetland habitats and potentially result in erosion and sedimentation. However, implementation of standard erosion BMPs during these activities would reduce this potential impact to a less-than-significant level.

Injection Well Facilities

The injection wells and associated facilities would operate 24 hours per day, 7 days a week throughout the year, although it is unlikely that all eight wells would be actively injecting at the same time. Operations and maintenance staff would conduct daily monitoring visits to the site, inspecting above-ground valves and appurtenances, and conducting and monitoring the back-flush operations. Based on the experience of the Water Management District in the operation of its nearby Aquifer Storage and Recovery wells, back-flushing of each injection well would occur for about four hours weekly and would require discharge of the back-flush water to the percolation basin. The Water Management District's experience is that the back-flushing operation should be conducted manually and the back-flush water discharge be visibly checked and field-tested to confirm adequate flushing time has been provided. Approximately annually, a disking machine would be used to disk-up the bottom of the pond to increase/restore the percolation rate.

The Injection Well Facilities site contains central maritime chaparral, which is considered a sensitive habitat by CDFW. This entire Proposed Project component site is located within the former Fort Ord and is not located in the coastal zone. As described in the Approach to Analysis, impacts to sensitive central maritime chaparral habitat are analyzed and addressed in the HMP and, therefore, impacts to this habitat are also considered mitigated through the implementation of the HMP. Therefore, impacts are considered less-than-significant and no additional mitigation measures are required.

CalAm Distribution Pipelines

General operations and maintenance activities associated with the Transfer and Monterey Pipelines would include annual inspections, testing, servicing, and repairs of minor leaks in buried pipeline joints.

Transfer Pipeline

No sensitive habitats were observed within the Project Study Area associated with the Transfer Pipeline; therefore, no operational impacts to sensitive habitats would occur.

Monterey Pipeline

Operational and maintenance activities may temporarily and intermittently result in the necessity to access facilities within the aquatic and riparian habitats and potentially result in erosion and sedimentation. However, implementation of standard erosion BMPs during these activities would reduce this potential impact to a less-than-significant level.

These activities may also temporarily and intermittently result in the necessity to access facilities within the central dune scrub and monarch butterfly habitats at the site. Operation and maintenance activities may result in direct disturbance to habitats in order to access buried pipelines within the central dune scrub or result in indirect impacts associated with noise, dust, and vibration adjacent to the monarch habitat. This is considered potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure BT-6. Although these measures apply to construction activities, applying this measure to operation and maintenance activities where central dune scrub and monarch habitat is present would reduce impacts by educating maintenance crews, fencing sensitive habitat, and monitoring.

Impact Conclusion

The operation of the Proposed Project could result in impacts to sensitive habitat along the CalAm Distribution System: Monterey Pipeline. Implementation of Mitigation Measure BT-6 would reduce potentially significant impacts to sensitive habitat during operational and maintenance activities to a less-than-significant level.

The combined operation of the Salinas Pump Station Diversion, Salinas Treatment Facility, and the Blanco Drain Diversion components of the Proposed Project would affect the hydrology of the Salinas River with a potential reduction of up to 2% of the average annual flow (up to 1% of the average annual flow with the operation of the Salinas Pump Station Diversion and the Salinas Treatment Facility, combined with up to 1% of the average annual flow with the operation of the Blanco Drain Diversion). The reduction of up to 2% of the average annual flow in the Salinas River by the coexistent operation of the Salinas Pump Station Diversion, Salinas Treatment Facility, and the Blanco Drain Diversion components of the Proposed Project is not substantial in relation to total flows. Thus, this diversion would result in a less-than-significant impact on Salinas River flows, and, therefore, a less-than-significant impact on the riparian and wetland habitats associated with the river.

As described in detail in the section titled "Combined Impacts of Source Water Diversions on Sensitive Habitats due to Water Flow and Level Changes," above, operational impacts of diverting all Proposed Project source waters in the Salinas Valley would result in less-than-significant impacts on the riparian and wetland habitats in the lower watersheds of the Salinas River and the Reclamation Ditch/Tembladero Slough, including the following water bodies: the Reclamation Ditch (from Davis Road to its confluence with Tembladero Slough), the Tembladero Slough, and the Old Salinas River Channel. The Proposed Project would have no impact on riparian and wetland habitat in and near the following water bodies: the Salinas River, the Salinas River Lagoon, tributaries to the Reclamation Ditch, the Reclamation Ditch upstream of Davis Road, the Moss Landing Harbor, Moro Cojo Slough, Elkhorn Slough, and Monterey Bay/Pacific Ocean.

Mitigation Measure

Mitigation Measure BT-6. Implementation of Mitigation Measures BT-1a for Avoidance and Minimization of Operational Impacts to Sensitive Habitat (Applies to CalAm Distribution System: Monterey Pipeline)

During operation and maintenance activities, implementation of Mitigation Measures BT-1a, which avoid and minimize impacts through implementing construction best management practices and monitoring, would reduce potential impacts to sensitive habitat to a less-than-significant level.

Impact BT-7: Operational Impacts to Movement of Native Wildlife and to Native Wildlife Nursery Sites. Proposed Project operations would not adversely affect native wildlife corridors and wildlife nursery sites. (Criterion d) (Less than Significant)

All Proposed Project Components

The operation of the Proposed Project components does not have the potential to impact the movement of native wildlife or native wildlife nursery sites. The Proposed Project components that are not located entirely underground would be located on existing paved, urbanized sites, less than ¼ acre in size with buildings less than 20 feet tall, and are not within known migratory corridors or nurseries used by native wildlife. The exception to this is the Treatment Facilities at the Regional Treatment Plant, which would be located on a 3.5 acre site but is immediately adjacent to and surrounded by access roads, the landfill, wastewater treatment plant, and other similar land uses. Therefore, operational impacts to movement of native wildlife and native wildlife nursery sites are considered less-than-significant. The impacts to fish and fish migration are addressed in **Section 4.4 Biological Resources: Fisheries**.

Impact Conclusion

Operational impacts to movement of native wildlife and native wildlife nursery sites are considered less-than-significant. No mitigation measures are required.

Impact BT-8: Operational Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan. Proposed Project operations would not conflict with local policies or ordinances protecting biological resources. (Criteria e and f) (Less than Significant)

All Proposed Project Components

The operation and maintenance of the Proposed Project components would not conflict with any local policies, ordinances, or approved Habitat Conservation Plan. Operation and maintenance activities would not require compliance with local requirements for the HMP plant species. The Proposed Project is consistent with all other local policies and ordinances intended to provide protection for biological resources, or would otherwise be required to comply with relevant ordinances. Because the project proponents would comply with and implement the requirements of the relevant codes, the Proposed Project is considered consistent with the policies associated with tree trimming or removal and protection. Therefore, the impacts associated with potential conflict with tree removal and other biological resources policies and ordinances are considered less-than-significant.

Impact Conclusion

Operational conflicts with local policies, ordinances, or approved Habitat Conservation Plan are considered less-than-significant. No mitigation measures are required.

4.5.4.5 *Cumulative Impacts*

The geographic scope for cumulative impact analysis on terrestrial resources consists of the overall region (such as central coastal California) in which the GWR facilities are being constructed. Based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis (listed by primary geographic area in which project is located)** (see **Section 4.1, Environmental Setting, Impacts, and Mitigation Measures**), projects throughout the region could have adverse effects on the same sensitive species and habitats that occur within and adjacent to the Proposed Project component sites.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the CalAm Monterey Peninsula Water Supply Project (MPWSP) (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects identified on **Table 4.1-2**:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[25] The MPWSP includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, and a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The overall estimated construction schedule is from June 2016 through March 2019 for the combined projects, during which time the construction schedule of each project could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPWSP that includes a 6.4 mgd desalination plant. Similarly, the MPWSP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPWSP Variant are shown in **Appendix Y**.
- Overall Cumulative Projects: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1, Introduction**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPWSP (with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPWSP (with the 6.4 mgd Desalination Plant). The Proposed Project and MPWSP Variant components involve construction activities that could impact sensitive habitats (e.g., central dune scrub, central maritime chaparral, and riparian and wetland habitats), special-status plants (please refer to **Table 4.5-3,** and Mitigation Measure BT-1f), and special-status wildlife species (e.g., Smith's blue butterfly, California legless lizard, Coast horned lizard, western burrowing owl, American badger, Monterey dusky-footed woodrat, California red-legged frog, western pond turtle, special-status bats, and nesting birds).

The Desalinated Water Pipeline (or Transmission Main) component of the MPWSP would be in a similar location as the segments of the Proposed Project's Product Water Conveyance Coastal Alignment pipeline along the Transportation Agency for Monterey County's rail line corridor. The construction schedules for the two projects could overlap. If the Proposed Project, as approved, includes the Coastal Alignment option for the Product Water Conveyance pipeline, construction of the two pipelines in parallel to each other could involve simultaneous construction within the same area. However, the limits of construction for the two projects would occur within the GWR Project Study Area and impacts within this Project Study Area have been addressed in **Section 4-5** and the Proposed Project's contribution to the cumulative impact can be reduced to less-than-significant with implementation of the mitigation measures identified. The seasonal timing of construction as well as implementing pre-construction avoidance and minimization measures would mitigate these short-term, construction-related impacts. Mitigation

[25] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

measures included in this EIR will protect special-status species and potential nesting birds during construction and would reduce the project's contribution to cumulative impacts to a less-than-significant level.

Both the Product Water Conveyance pipeline and the MPWSP pipelines that coincide in location would be located entirely underground after construction; therefore, there would not be a permanent cumulative impact to terrestrial biological resources after completion of construction. Future operations and maintenance activities associated with the pipelines may occur at the same time; however, these impacts would be temporary and short-term. This is not considered a significant cumulative impact of the combined projects because of the short-term and temporary nature of the operation and maintenance activities.

Overall Cumulative Impacts. The Proposed Project has the potential to impact some of the same biological resources as other past, present, and probable future projects. However, the Proposed Project's construction-related impacts would not be cumulatively considerable with implementation of the mitigation measures identified. Proposed Project construction impacts to special-status species and habitat, and construction impacts to riparian, federally protected wetlands as defined by section 404 of the Clean Water Act, or other sensitive natural community (see **Table 4.5-8** above) were found to be less-than-significant with mitigation. **Table 4.5-9** provides a summary of construction impacts to affected reaches below the Reclamation Ditch Diversion. With mitigation, construction impacts from the Proposed Project on affected reaches (e.g., the Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel) can be reduced to less-than-significant.

Similarly, the Proposed Project's operational impacts would not be cumulatively considerable with implementation of the mitigation measures identified. The Proposed Project operational impacts to special-status species and habitat and operational impacts to movement of native wildlife were found to be less-than-significant, as were operational conflicts with local policies, ordinances, or approved Habitat Conservation Plan. The Proposed Project impacts from operations to riparian, federally protected wetlands, and other sensitive natural communities were found to be less-than-significant with mitigation.

Proposed Project operational impacts associated with the operation of the Tembladero Slough and Reclamation Ditch Diversion would affect the hydrology of the Reclamation Ditch, Tembladero Slough, and the Old Salinas River Channel. The degree to which changes in the amount of flow and duration of flow may result in impacts to sensitive habitats and species and plants associated with these water bodies is assessed above and conclusions provided in **Table 4.5-11, Summary of Operational Impacts to Affected Reaches**.

The Proposed Project's operational impacts and one of the cumulative projects listed in **Table 4.1-2** could result in combined impacts on Salinas River flows. The Proposed Project and the Salinas Valley Water Project Phase 2 both would involve changes to surface flows that would occur in the Salinas River. As discussed above under Impact BT-6, the Proposed Project would result in minor changes to flow in the Salinas River. Reductions in the total annual flow of the Salinas River resulting from the operation of various components of the Proposed Project would be less-than-significant. Therefore, impacts to sensitive habitat as a result of changes in flow in the Salinas River as a result of the Proposed Project would be less-than-significant.

New projects involving diversions from the Salinas River will be subject to the water rights and appropriate permits from the State Water Resources Control Board (SWRCB) as well as environmental restrictions to maintain adequate flow for fisheries (details concerning fisheries presented in **Section 4.4 Biological Resources: Fisheries**). With the permit conditions imposed and required by SWRCB water rights permits and the requirements of flows for fish migration, the Proposed Project and the Salinas Valley Water Project Phase 2 would not result in a significant cumulative impact to sensitive habitat due to a reduction of flow in the Salinas River.

Cumulative Impact Conclusion

The Proposed Project would not make a considerable contribution to significant cumulative impacts to terrestrial biological resources, and this is a less than significant cumulative impact.

4.5.5 References

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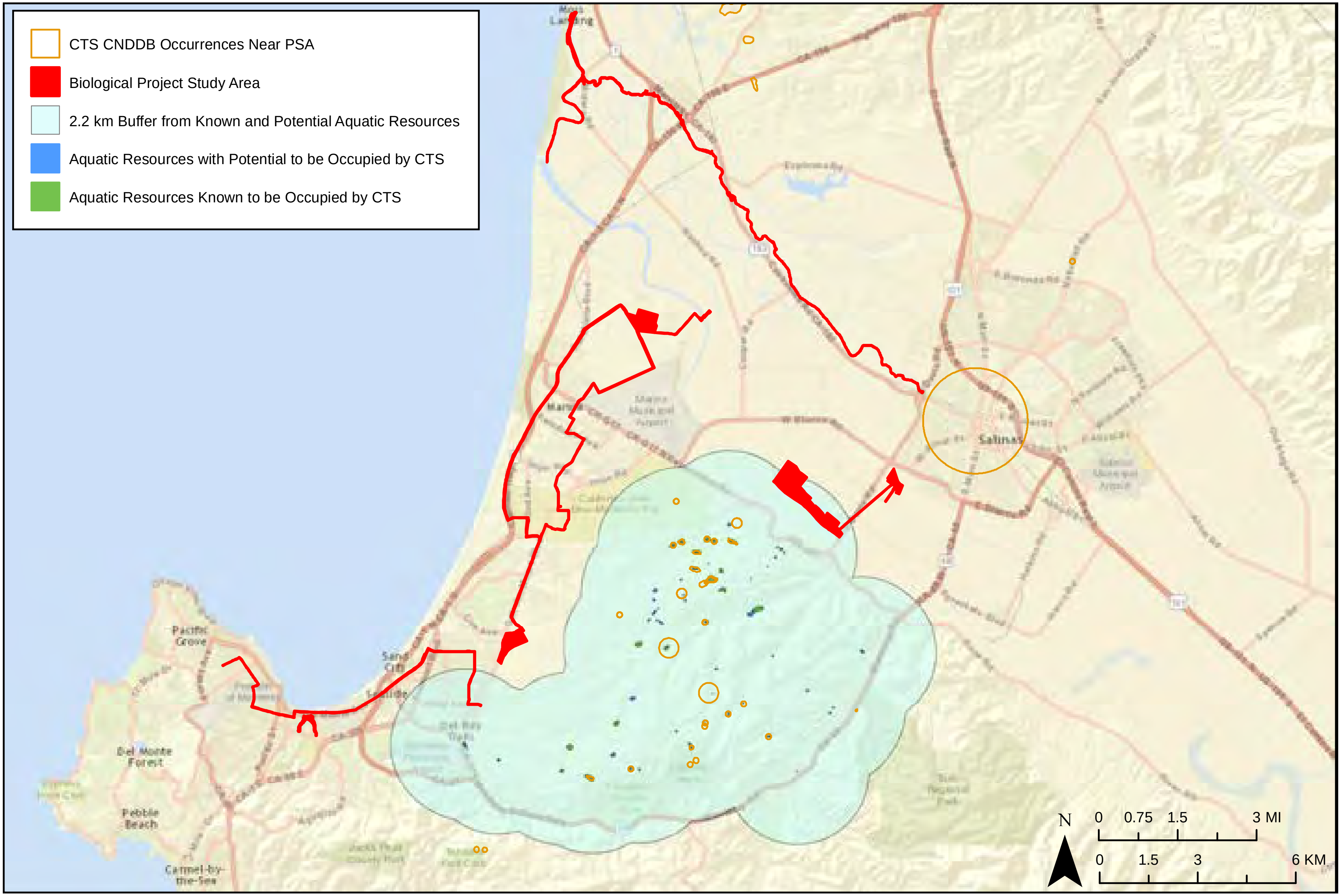
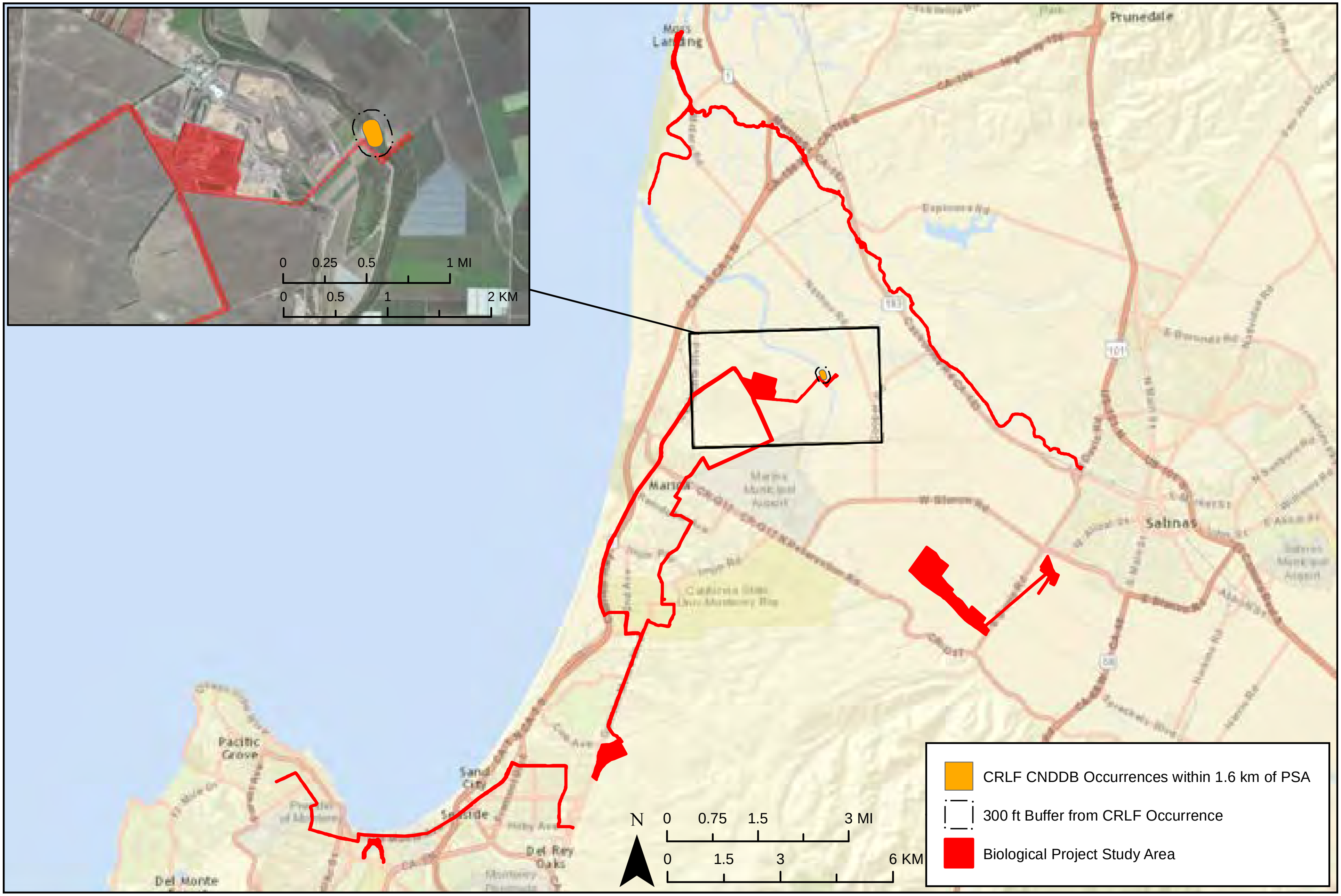


CTS Occurrence within the Vicinity of the PSA

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.5-1



DD&A

CRLF Occurrences within the Vicinity of the PSA

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.5-2

DD&A

Surface Water Features in Northern Salinas Valley Tributary to Lower Elkhorn Slough

This figure has been added to the EIR to clarify the hydrologic and terrestrial biological resources analyses related to surface waters in response to letters F and G.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure
4.5-3
new

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4.6 CULTURAL AND PALEONTOLOGICAL RESOURCES

Sections	Tables	Figures
4.6.1 Introduction 4.6.2 Environmental Setting 4.6.3 Regulatory Framework 4.6.4 Impacts and Mitigation Measures 4.6.5 References	4.6-1 Recorded Cultural Sites Within Vicinity of Proposed Project Sites (Identified by CHRIS Within ½ mile of Project Sites) 4.6-2 Historic Structures Within Monterey Pipeline Area of Potential Effects 4.6-3 Criteria for Determining Potential For Paleontological Resources 4.6-4 Applicable State, Regional, and Local land use Plans and Policies - Cultural and Paleontological Resources 4.6-5 Damage Threshold to Historic Buildings from Construction Equipment 4.6-6 Summary of Impacts – Cultural Resources	4.6-1 Historic Structures Within the Monterey Pipeline APE

4.6.1 Introduction

This section assesses cultural resources including historic, archaeological, paleontological, and human remains known to occur at the Proposed Project sites and/or which may be accidentally encountered or discovered in the project area. The section is based on a Phase 1 Cultural and Paleontological Resources Survey prepared by Archaeological Consulting (Archaeological Consulting, 2014) and included in **Appendix J**, and review of other relevant studies and reports regarding cultural resources in the project area. A discussion of cumulative impacts is provided at the end of the section.

Public and agency comments related to cultural resources were received during the public scoping period, and are summarized below:

- Demonstrate compliance with the National Historic Preservation Act Section 106.
- Identify Area of Potential Effects[1]; records search request must include an area larger than the Area of Potential Effects.
- Evaluate impacts to submerged cultural resources.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report**.

Cultural resources encompass paleontological, archaeological, and historic resources as briefly summarized below:

Paleontological Resources: Paleontology is the study of plant and animal fossils. Generally, paleontological resources are more than 10,000 years old.

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[1] The Area of Potential Effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The Area of Potential Effects was developed to identify all areas where construction-related ground-disturbance could occur and is further explained in **Subsection 4.6.4.2** below.

Archaeological Resources: Archaeology is the study of prehistoric human activities and cultures. Archaeological resources are generally associated with indigenous cultures and are less than 10,000 years old.

Historic Resources: Historic resources are associated with the more recent past. In California, historic resources are typically associated with the Spanish, Mexican, and American periods in the state's history and are usually less than 200 years old (ICF Jones & Stokes, 2008).

4.6.2 Environmental Setting

4.6.2.1 Regional Cultural Setting

Pre-History

Archaeological evidence and radiocarbon dates establish human occupation of the California coast dating back at least 10,000 years. Evidence from coastal areas of Monterey County suggests settlement of this area by at least 7,000 years ago and possibly earlier (Jones & Stokes, 2006). The project area lies within the currently recognized ethnographic territory of the Costanoan (Ohlone) linguistic group. Historically, the Ohlone were called the *Costanoan Indians*. Costanoan is the name assigned to the group by the Spaniards and is derived from the word *costaños*, meaning "people of the coast;" the term *Ohlone* is preferred by the group themselves (Jones & Stokes, 2006). The Ohlone are believed to have inhabited the area 1,500 years ago, and their territory extended along the coast from San Francisco Bay in the north to just beyond Carmel in the south, and as much as 60 miles inland. The Ohlone are a linguistically defined group speaking eight different yet related languages and composed of several autonomous tribelets (Jones & Stokes, 2006). The Monterey Peninsula and the current location of the former Fort Ord were inhabited by the Rumsen group of Ohlone Indians; the Rumsen territory encompassed the Carmel River Valley and the Monterey Peninsula (Jones & Stokes, 2006).

In brief, the Ohlone followed a general hunting and gathering subsistence pattern with partial dependence on the natural acorn crop. Habitation is considered to have been semi-sedentary, and occupation sites can be expected most often at the confluence of streams, other areas of similar topography along streams, or in the vicinity of springs, although the original sources of water may no longer be present or adequate. Also, resource gathering and processing areas and associated temporary campsites are frequently found on the coast and in other locations containing resources utilized by the group. Factors that influence the location of these sites include the presence of suitable exposures of rock for bedrock mortars or other milling activities, the presence of specific resources (oak groves, marshes, quarries, game trails, trade routes, etc.), proximity to water, and the availability of shelter. Temporary camps or other activity areas can also be found along ridges or other travel corridors (Archaeological Consulting, 2014).

Historical Background

Spanish Period

European contact began with the arrival of Spanish explorers in the 16th century. Monterey County has been called the "cradle of California history," owing to its central position relative to historical activities. Monterey Bay became the focus of several Spanish exploratory expeditions after it was first noticed by Juan Cabrillo in 1542. Sebastian Vizcaino, who sailed into it in 1602, named the bay after Conde de Monterrey, Viceroy of Spain (ICF Jones & Stokes, 2008). It was not until 1770 that the Portola expedition arrived in Monterey Bay and established the first mission and Royal Presidio (Mission San Carlos Borromeo de Carmelo at the Presidio of Monterey); in 1771, the Mission was moved to the Carmel Valley. The Franciscans founded three missions (San Carlos Borroméo, San Antonio de Padua, and Nuestra Soñora de Soledad) in what is now Monterey County. These missions, along with the Presidio established in the late eighteenth century and eight large ranchos that formed from land concessions to Spanish army veterans, became focal points of activity (ICF Jones & Stokes, 2008).

With the Mission, a period of intense Native American conversion to Catholicism was initiated. In 1776, Monterey was named the capital of Alta and Baja California. By 1778, most of the Rumsen and Esselen Indians in Carmel and Monterey were baptized and settled around the Mission to farm church lands. Following the founding of the mission and the move to its permanent site on the Carmel River the following year, the native populations went into decline. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement. Today, the Ohlone still have a strong presence in the Monterey Bay Area, and are highly interested in their historic and prehistoric past (Archaeological Consulting, 2014).

Mexican Period

When the Mexican Republic formed in 1822, the missions were secularized and new ranchos developed on 68 Mexican land grants. A robust economy emerged, based on cattle ranching on these large ranchos, some of which exceeded 10,000 acres. This economy received a great boost when the Mexican regime opened Monterey harbor to foreign trade. The Custom House in Monterey became the site for collection of duties, providing the main source of income for Alta California's government. The harbor enabled rancheros to trade their hides and tallow for products from around the world. This commercial vitality led to Monterey's role as the Mexican capital of California (ICF Jones & Stokes, 2008). In May 1846, the United States declared war against Mexico, commencing the Mexican-American War. On February 2, 1848, the Treaty of Guadalupe Hidalgo was signed, giving the United States possession of Alta California (ICF Jones & Stokes, 2008).

American Period

Monterey continued to play a key role after the United States took control of California in the late 1840s. For example, the convention to draft and sign California's new constitution convened at Colton Hall in Monterey. This period coincided with the California gold rush and economic growth in the region (Jones & Stokes, 2006). Agriculture in the Salinas Valley began in the 19th century. During the 1870s, the Southern Pacific Railroad extended its rail line from Pajaro in Monterey County southeast to the Salinas Valley, which enabled crops to be shipped more efficiently. The combination of improved irrigation systems and additional railroad connections spurred the economic growth of Monterey County (Jones & Stokes, 2006). Carlisle S. Abbott of Salinas, with the support of David Jacks in Monterey, led a movement in 1874 to create California's first narrow gauge, the Monterey and Salinas Valley Railroad. The Monterey and Salinas Valley Railroad was chartered in February of 1874; construction of the nineteen-mile section linking the port of Monterey to Salinas City began in April and was completed in October. The hope and ambition was to make Monterey a deep water port for the cheap and self - controlled shipment of the grain produced in the valley to other parts of California. The extension of the narrow - gauge railway to Salinas in 1874 allowed ranchers to ship wheat to Monterey, where it was then shipped by steamer (Architectural Resources Group, 2012).

In 1865, a group of San Francisco businessmen formed Southern Pacific Railroad to construct a railroad from San Francisco to San Diego (ESA, 2014). Plagued with financial troubles from the beginning, the Monterey and Salinas Valley Railroad was purchased by the Southern Pacific in December 1879 with subsequent construction of a spur connecting Monterey to the main rail line in Castroville. As soon as direct rail connection had been established between Monterey and San Francisco, powerful business interests began aggressively promoting the Monterey Peninsula, with its scenic coastline, mountains, forests, and historic adobes, as an ideal tourist and recreation destination. Wealthy tourists began regularly visiting the area in the 1880s and 1890s. The “Big Four” of the Southern Pacific Company – Charles Crocker, Collis P. Huntington, Mark Hopkins and Leland Stanford – capitalized upon these natural resources, and in 1880 erected the palatial Hotel Del Monte through their holding company, the Pacific Improvement Company (Architectural Resources Group, 2012).

The fishing industry started in the Monterey Peninsula as early as the late nineteenth century when Portuguese and Chinese fisherman fished the region for salmon. In the early twentieth century, a cannery and packing plant for sardine production was started around the Monterey Wharf, and three other canneries were established in the area by 1913. Sardine production exploded during World War I when the U.S. sardine supply from Europe was stopped, and by the late 1930s, Monterey became the third-largest fish tonnage port in the world. By 1948, the waters were depleted by over-fishing, and the last cannery closed (Jones & Stokes, 2006).

There has been a military presence in Monterey County since the United States took control of the Presidio of Monterey in the 1840s. In 1917, Fort Ord was created, and the installation was originally called Gigling Reservation and was a subinstallation of the Presidio of Monterey. The reservation was renamed Camp Ord in 1933 after Major General Edward Ord, an important figure in California military history, and was renamed Fort Ord in 1940. The 7th Infantry Division was reactivated and stationed there in 1940. After the attack on Pearl Harbor, Fort Ord was expanded and construction increased dramatically. In addition to artillery training, Fort Ord was an important staging area for units deployed to the Pacific during World War II and was used as a processing center for deactivated personnel when the war ended. During the Korean War, Fort Ord was again used as a basic and advanced training facility for artillery and ground troops. In 1953, the areas of Camp Roberts and Hunter Liggett, also in Monterey County, were placed under the command of Fort Ord as subinstallations (Jones & Stokes, 2006). In 1994, Fort Ord became the 72nd stateside Army post to close in accordance with Base Realignment and Closure Commission recommendations (Jones & Stokes, 2006).

4.6.2.2 Cultural Resources in the Vicinity of Project Sites

Archaeological Methods, Surveys and Results

Archaeological Consulting conducted a background records search at the Northwest Information Center of the California Historical Resources Information System (CHRIS). In addition to the CHRIS records, background research was performed by examining Archaeological Consulting files and maps for supplemental information, such as mentions of historic or prehistoric resources in the general area. Background literature searches were undertaken to determine if any archaeological resources have been recorded in or adjacent to the project Area of Potential Effects, and whether the Area of Potential Effects had been included in previous archaeological research or reconnaissance studies.

Archaeological Consulting also performed a Sacred Lands File Search through the California Native American Heritage Commission (NAHC). Following their search, the Commission recommended consultation with locally affiliated Native Americans and provided a list of individuals from several bands to contact for such consultation. Initial contact was made by mail or email, followed by telephone or additional email if a timely response was not received.

Archaeological Consulting conducted field surveys of portions of the Area of Potential Effects not previously subject to archaeological surveys; the CalAm Distribution Pipeline routes were subject to archaeological investigations conducted by ESA (ESA, 2014), which also included previous surveys along segments of the routes. The field surveys conducted as part of the preparation of this EIR included accessible segments of the Area of Potential Effects for the Product Water Conveyance pipelines and other Proposed Project components not previously subject to archaeological survey, including the portions of the Area of Potential Effects containing the Injection Well Facilities within the former Fort Ord.

Archaeological Resources Identified in Project Area

The Monterey County General Plan EIR shows the proposed Tembladero Slough Diversion site as being mapped in an area of "high archaeological sensitivity" and the proposed Treatment Facilities at the Regional Treatment Plant site as being mapped in an area of "moderate" archaeological sensitivity (ICF Jones & Stokes, 2008 - Figure 4.10-2). The City of Monterey General Plan EIR also shows the proposed Lake El Estero Source Water Diversion and Storage site and the proposed Monterey Pipeline portion of the CalAm Distribution System as being located within areas of "High Probability of Pre-Historic Artifacts" (City of Monterey, 2004). There are no archaeological sensitivity maps in the General Plans of other jurisdictions in which Proposed Project components would be located, except for the City of Seaside. Seaside's General Plan identifies the drainage area along its southern border, leading to and including Laguna del Rey (the Monterey Pipeline passes through this area), as an area of prehistoric archaeological sensitivity (City of Seaside, 2004-Figure COS-4).

The background search of the CHRIS files found 20 recorded resources within or adjacent to the project Area of Potential Effects as summarized on **Table 4.6-1, Recorded Cultural Sites Within Vicinity of Proposed Project Sites** and described below. Many resources are recorded within one half mile of the project Area of Potential Effects. Correspondence and consultation with several of the Native Americans recommended by the NAHC resulted in no additional information about specific resources or sacred sites within the project area, although recommendations were made to keep the Coastanoan Rumsen Carmel Tribe informed of any positive findings of cultural sensitivity in the Monterey area as detailed in **Appendix J** (Archaeological Consulting, 2014).

Tembladero Slough Diversion site

Prehistoric midden site CA-MNT-1382/H (P-27-1408) is located near the Tembladero Slough source water Area of Potential Effects. Originally recorded south of the intersection of Highway 1 and Merritt Street, the midden site boundary was expanded to include the sewer pump station in 1989. Subsequent archaeological testing resulted in a remapping of the site boundary to nearly the size and location of the original site record. Based on the corrected site boundary, the Proposed Project is not expected to affect this recorded site.

Salinas Treatment Facility Storage and Recovery site

Two recorded sites are located on/adjacent to the Salinas Treatment Facility site. CA-MNT-494 (P-27-0580), located within the site, was recorded as a slight midden containing several burials. The site was greatly disturbed, if not destroyed by the 1972 grading of the aeration lagoon that unearthed the deposit. A historic farm site, CA-MNT-2281H (P-27-3057), is recorded near the eastern end of the industrial facility site north and east of the Area of Potential Effects, but would not be affected by the Proposed Project.

Table 4.6-1
Recorded Cultural Sites Within Vicinity of Proposed Project Sites
(Identified by CHRIS Within ½ mile of Project Sites)

Project Component	Site Number	Site Description
Tembladero Slough Diversion	CA-MNT-1382/H (P-27-1408)	Prehistoric midden
Salinas Treatment Facility Storage and Recovery	CA-MNT-494 (P-27-0580)	Prehistoric site with midden/burials
	CA-MNT-2281H (P-27-3057)	Historic farm site
Lake El Estero Diversion	CA-MNT-955H (P-27-1011), east of Lake El Estero	Prehistoric site
	CA-MNT-272/304 (P-27-0377)	Prehistoric site
	CA-MNT-372 & CA-MNT-373 CA-MNT-271 (P-27-0376)	National Register listed Royal Presidio Chapel historic site
Treatment Facilities at Regional Treatment Plant	No sites	
RUWAP Alignment of the Product Water Conveyance System	CA-MNT-2079H (P-27-2416)	Sections of historical fence lines
	CA-MNT-2080H (P-27-2417)	Segment of the Monterey and Salinas Valley Railroad Grade
Coastal Alignment of the Product Water Conveyance System	CA-MNT-2079H (P-27-2416)	Sections of historical fence lines
	CA-MNT-2080H (P-27-2417)	Segment of the Monterey and Salinas Valley Railroad Grade
	CA-MNT-1288H (P-27-1325)	Historic site at Marina State Beach
	P-27-2881, P-27-2882, P-27-2883, P-27-2884, P-27-2893, P-27-2894, P-27-2895, and P-27-2896	Numerous concrete, military, storage bunkers and one guard tower in the dunes west of Highway 1
Injection Well Facilities	No sites	
CalAm Distribution System (Monterey and Transfer Pipelines)	CA-MNT-2295H (P-27-2923)	Segments of the Southern Pacific Railroad in Monterey
	CA-MNT-931 (P-27-000988)	Prehistoric Midden at Presidio of Monterey
	P-27-2940	Del Monte Hotel Depot Foundation

Lake El Estero Diversion site

Several archaeological sites are found around Lake El Estero, a proposed source water site: prehistoric site CA-MNT-955H (P-27-1011) on the hill to the southeast and prehistoric sites CA-MNT-272/304 (P-27-0377), CA-MNT-372 and CA-MNT-373 at the southeast end of the lake. None of these recorded sites are within or close to the proposed source water diversion Area of Potential Effects on the northern end of Lake El Estero.

CalAm Distribution Pipelines

Three prehistoric archaeological resources (CA-MNT-931 and two prehistoric unnumbered sites) have been identified in the Presidio of Monterey within the Area of Potential Effects for the CalAm Distribution System, Monterey Pipeline. CA-MNT-931(P-27-000988) is prehistoric midden located in the Presidio of Monterey that was originally recorded in 1978. Test excavations conducted in 1985 suggest the "site" is actually re-deposited midden soils used for fill during landscaping (Pacific Legacy, 2011). Therefore, no further consideration of this resource is necessary for the Proposed Project.

The two unnumbered sites were identified by Pacific Legacy during their investigations associated with the previously proposed Monterey Bay Regional Desalination Project (Pacific Legacy, 2011). Identified as “Presidio #1” and “Presidio #2”, these two sites appear to be discrete and re-deposited patches of midden soil that were likely imported during landscaping activities (Pacific Legacy, 2011). At Presidio #1, the midden patch is highly disturbed by both historic-era construction and rodent burrowing in the soil (Pacific Legacy, 2011). Based on the known conditions of Presidio #1, the midden soil does not appear to be an intact or significant prehistoric deposit; it does not retain “focus”[2] and therefore the integrity necessary to convey the archaeological significance necessary for National Register of Historic Places (NRHP) eligibility. Presidio #1 does not appear eligible for listing in the NRHP or the California Register of Historical Resources (CRHR) (ESA, 2014). It also is not considered a “unique” archaeological resource as defined in Public Resources Code section 21083.3(g) as it does not retain integrity and is not an intact site, but rather re-deposited material. Therefore, no further consideration of this resource is necessary for the Proposed Project.

The surface evidence was inconclusive as to whether the Presidio # 2 site extends into the CalAm Distribution System Area of Potential Effects, because the Area of Potential Effects is paved in this location, and limited subsurface testing was recommended (ESA, 2014). However, the subsurface stratigraphy of the deposit has not been investigated, and it is not known whether the midden soils extend into the boundaries of the Monterey Pipeline Area of Potential Effects. While formal evaluation to determine the site’s eligibility for listing in the NRHP or the CRHR has not been conducted, ESA has indicated that sufficient information exists to suggest that the site may qualify as a historic resource pursuant to CEQA Guidelines section 15064.5(a)(4) and Public Resources Code section 21098.1 and as a historic property based on the criteria of the National Historic Preservation Act of 1966, as amended (ESA, 2014). Preliminary reviews indicate that if Presidio #2 is an intact deposit it could be eligible under Criterion D/4 (for data potential) and possibly Criterion A/1 (for events) (ESA, 2014). These criteria are further defined in the Regulatory Framework section, below.

Historic Resources Identified in Project Area

A few properties within the former Fort Ord have been identified as being eligible for listing in the NRHP. Those properties include Whitcher Cemetery, Stilwell Hall, Martinez Hall, and the Mess Hall Complex in the East Garrison (Jones & Stokes, 2006). None of these properties is located in the project Area of Potential Effects. The project Area of Potential Effects does not contain historical resources listed in the California Inventory, California Historical Landmarks, or the National Register of Historic Places, except for the vicinity of the Lake El Estero Diversion site, some segments of the Product Water Conveyance Pipelines, and some segments of the CalAm Distribution Pipelines as described below.

Lake El Estero Diversion site

The National Register-listed Royal Presidio Chapel historic site CA-MNT-271 (P-27-0376) is located near the southwestern end of the lake. This recorded site is not within or close to the

[2] Focus refers to the accuracy with which the archaeological remains represent a situation or condition.

proposed Source Water Diversion and Storage site that is located on the northern end of Lake El Estero.

Product Water Conveyance Pipeline

Sections of historical fence lines, CA-MNT-2079H (P-27-2416), are adjacent to the northern end of the proposed Coastal and RUWAP product water conveyance pipeline alignments. The historic-era fenceline, first recorded in 1998, was constructed from four-by-six-inch vertical posts, one- by-six-inch horizontal rails at the top and bottom, and vertical pickets of various sizes between the posts with barbed wire taped to the fence. A chain-link fence has replaced a large section of the historic fence at the Regional Treatment Plant (ESA, 2014). The fenceline is associated with the Armstrong Ranch, which is an early American-period ranch in the Monterey Bay area. Based on previous reviews, the fence is not considered eligible for listing in the CRHR because: the fence itself does not represent an important event in the history of California (Criterion A); is not specifically associated with a significant person (Criterion B); does not represent the craftsmanship of a master builder or style of construction (Criterion C); and does not have the potential to yield information important to history (Criterion D). Furthermore, the fence does not retain integrity of design, materials, workmanship, or feeling because a substantial portion of the original fence has been replaced by a chain-link fence (ESA, 2014). Thus, the fenceline has been determined to be ineligible for listing in the CRHR (ESA, 2014).

The northernmost segment of the Product Water Conveyance Pipeline, Coastal Alignment would pass around the western end of historic fence line CA-MNT-2079H (P-27-2416), but no evidence of potentially significant historic resources was noted within the Area of Potential Effects during the field survey. The northern segment of the Product Water Conveyance Pipeline, RUWAP Alignment would pass by the eastern section of historic fence line CA-MNT-2079H (P-27-2416). Again no evidence of potentially significant resources was noted during the field survey.

A segment of the Monterey and Salinas Valley Railroad Grade, CA-MNT-2080H (P-27-2417), would be crossed by the northernmost alignment of the Product Water Conveyance Pipeline, Coastal Alignment. This recorded site is a historic-era, narrow-gauge railroad grade; the railroad grade consisted of cuts through low hills and sand dunes with raised berms across low-lying areas. The railroad grade represents the remains of California's first narrow-gauge railroad—the Monterey and Salinas Valley Railroad that was constructed in 1874 by local farmers to facilitate the shipping of produce to Salinas (ESA, 2014). However, the railroad alignment within the Area of Potential Effects exhibits no remaining characteristics of the railroad grade. None of the features or materials associated with the railroad is present in that section of the alignment. The railroad grade at the point of crossing is visually unremarkable, and appears to have been previously altered by agricultural activity. Although the northernmost segment of the proposed Product Water Conveyance Pipeline, Coastal Alignment would cross the former Monterey and Salinas Valley Railroad Grade, CA-MNT-2080H (P-27-2417), no evidence of potentially significant historic resources was noted within the Area of Potential Effects during the field survey. A segment of the railroad grade further south is more apparent in a substantial grade cut through stabilized dunes.

There is a recorded historic site at Marina Beach (CA-MNT-1288H (P-27-1325), west of the Product Water Conveyance Pipeline Coastal Alignment. There are several historic structures located in the former Fort Ord (P-27-2881, P-27-2882, P-27-2883, P-27-2884, P-27-2893, P-27-2894, P-27-2895, and P-27-2896). None of these resources would be physically or visually affected by the project.

CalAm Distribution Pipelines – Monterey Pipeline

Historic Districts. The project Area of Potential Effects for the CalAm Distribution Pipeline - Monterey Pipeline segment - includes a portion of downtown Monterey and a portion of the Presidio of Monterey. The Monterey Old Town Historic District in downtown Monterey is a National Historic Landmark District and also is a NRHP-listed district (#70000137), which is divided into two discontiguous sections. The southern section is bounded roughly by the four blocks surrounding the intersection of Madison and Pacific Streets, and the northern section borders the Monterey Bay and encompasses the blocks surrounding the intersections of Scott Street, Pacific Street, Olivier Street, Alvarado Street, and Calle Principal. This historic district includes 17 adobes and other early Spanish Colonial buildings and is located within the Monterey State Historic Park. Historic buildings within the district include the Custom House, the Cooper-Molera Adobe Complex, the Larkin House, California's First Brick House, Colton Hall (City Hall of Monterey), Old Whaling Company, the Stevenson House, the First Theater, the Pacific House Museum, the Interpretive House, Casa del Oro, and Casa Soberanes (ESA, 2014). The Area of Potential Effects for this project component is located near, but outside the boundaries of the Monterey Old Town Historic District as shown on **Figure 4.6-1, Historic Structures Within the Monterey Pipeline APE**.

At the Presidio of Monterey, there is one National Register Historic District and one National Register eligible Historic District. The El Castillo Historic District, located in the Lower Presidio Historic Park, is listed on the NRHP and the California Register of Historical Resources because of archaeological sites as well as evidence of Native American occupation (U.S. Army, Presidio of Monterey, 2013).

The Presidio of Monterey has been determined eligible for listing in the NRHP (California Office of Historic Preservation, 2010). Resources listed in or eligible for listing in the NRHP are also eligible for listing in the CRHR. The boundary of the district coincides with the boundary of the Presidio of Monterey. There are 90 buildings at the Presidio of Monterey that are contributing elements, along with Soldier Field, the road system, and retaining walls (Jackson and Hildebrandt [1985] cited in ESA, 2014). Another 26 buildings built after the period of significance identified for the district, are considered noncontributing elements. The Presidio represents the 1902-1939 American period Infantry, Calvary, and Artillery cantonment and is comprised of 76 buildings, 20 structures, 3 monuments, roads, rock walls and cultural landscapes. The Royal Presidio Chapel at the Presidio is a National Historic Landmark – the highest level of National recognition (City of Monterey, 2005). Directly adjacent to the Presidio's southeast boundary is the City of Monterey's "Old Town," which as indicated above is a National Historic Landmark.

There also is a National Register eligible Historic District and Historic Landscaped Grounds on the campus of the Naval Postgraduate School, (City of Monterey, 2005). However, the Project Area of Potential Effects is located to the north and does not include the Naval Postgraduate School.

Recorded Resources. One previously recorded historic-era resource, the Del Monte Hotel Depot foundation (P-27-002940), is mapped within 200 feet of the Area of Potential Effects of the Monterey Pipeline. The Del Monte Hotel Depot foundation is a concrete and tile foundation for the Colonial Revival-style railroad depot built for the third Del Monte Hotel during the 1920s (ESA, 2014). The foundation is located in a parking lot and is marked by a Monterey Historical Society sign. The foundation is immediately adjacent to, but outside of, the Monterey Pipeline Area of Potential Effects and would not be affected by the project (ESA, 2014).

The Monterey Branch Line of the Southern Pacific Railroad (P-27-002923) traverses a segment of the proposed alignment for the CalAm Distribution Pipelines (Monterey Pipeline). Fourteen contributing resources, including the railroad line and associated buildings, have been evaluated for their eligibility to the NRHP (Herbert et al.[2010], cited in ESA, 2014). One building (located outside the Area of Potential Effects of the pipeline)—the Monterey Southern Pacific Passenger Depot—was determined eligible for listing in the NRHP (Architectural Resources Group, May 2012). Previous evaluations of the railroad line found that the surveyed portions and related structures are not eligible for listing in the NRHP (ESA, 2014). The most recent recording and evaluation effort included all portions of the Monterey Branch Line located within the Monterey Pipeline Area of Potential Effects. The evaluation concluded that while the Monterey Branch Line appears to meet the significance criteria for listing in the NRHP, it lacks integrity to convey its significance. Therefore, it was determined to be ineligible for listing in the NRHP (Herbert et al., 2010, cited in ESA, 2014).

Listed Structures and Structures Eligible for Listing. A total of 23 architectural/structural resources have been identified in the Area of Potential Effects for the Monterey Pipeline. This includes three structures in the Presidio, including the Presidio Entrance Monument partially within Stillwell Avenue, and 20 resources along W. Franklin Street in downtown Monterey. These resources are listed in **Table 4.6-2, Historic Structures Within the Monterey Pipeline Area of Potential Effects** and shown in **Figure 4.6-1**.

Table 4.6-2
Historic Structures Within the Monterey Pipeline Area of Potential Effects

Number on Figure 4.6-1	Historic Name	Address	Date of Construction	Determination of Eligibility	Distance from Curb (feet)
1	Osio-Rodriguez Adobe	380 Alvarado Street	1849	3S	44
2	Ordway Block Building, Ordway Pharmacy	398 Alvarado Street	1905	3S	10
3	Monterey County Bank, Wells Fargo Bank	399 Alvarado Street	1931	3S	15
4	Goldstine Block Building, Atlas Pawn Shop	400 Alvarado Street	1906	3S	10
5	Monterey Hotel	408 Alvarado Street	1904	2S2	30
6	Village Hardware	410 Alvarado Street	1880	3S	30
7	Blazer Development	201 W. Franklin Street	1928	3S	10
8	Unnamed residence	498 W. Franklin Street	1903	5S3	32
9	Unnamed residence	530 W. Franklin Street	1911	5S1	20
10	Unnamed residence	541 W. Franklin Street	1926	5S3	25
11	Unnamed residence	560 W. Franklin Street	1907	5S3	30
12	Unnamed residence	632 W. Franklin Street	1908	5S3	20
13	Unnamed residence	698 W. Franklin Street	1908	5S3	25
14	Unnamed residence	702 W. Franklin Street	1908	5S3	32
15	Unnamed residence	716 W. Franklin Street	1908	5S3	25
16	Unnamed residence	759 W. Franklin Street	1905	5S3	25
17	Unnamed residence	882 W. Franklin Street	n.d.	5S3	20
18	Unnamed residence	898 W. Franklin Street	1908	5S3	20
19	Unnamed residence	899 W. Franklin Street	n.d.	5S3	20

Table 4.6-2
Historic Structures Within the Monterey Pipeline Area of Potential Effects

Number on Figure 4.6-1	Historic Name	Address	Date of Construction	Determination of Eligibility	Distance from Curb (feet)
20	Monterey First Presbyterian Church	398 Pacific Street	1910	3S	10
21	Entrance Monument, Structure 112	Presidio- Stillwell Avenue	1935	2D2	Within direct Area of Potential Effects
22	Flagpole Structure 133	Presidio- Stillwell Avenue	1935	2D2	25
23	Officer's Club, Building 105	Presidio- Stillwell Avenue	1904	2D2	44

ELIGIBILITY CODES:
1S = Individual property listed in the NRHP by the Keeper. Listed in the CRHR.
2D2 = Contributor to a district determined eligible for NR (National Register) by consensus through Section 106 process. Listed in the CR (California Register)
2S2 = Individual property determined eligible for the NRHP by consensus through the Section 106 process. Listed in the CRHR.
3S = Appears eligible for the NRHP as an individual property through survey evaluation.
3D = Appears eligible for the NRHP as a contributor to a NR eligible district through survey evaluation.
5S1 = Individual property that is listed or designated locally.
5S3 = Appears eligible for local listing or designation through survey evaluation.
6Y = Determined ineligible for the NRHP by consensus through the Section 106 process. Not evaluated for the CRHR or local listing.
NOTE:
[a] Recent evaluation not yet approved by the Office of Historic Preservation.
SOURCE: ESA, 2014 based on Office of Historic Preservation, Historic Property Directory for Monterey County, 2013.

4.6.2.3 Paleontological Resources

Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, uncommon, and diagnostically or stratigraphically important—and those that add to an existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally. They include fossil remains of large to very small aquatic and terrestrial vertebrates, remains of plants and animals previously not represented in certain portions of the stratigraphy, and assemblages of fossils that might aid stratigraphic correlations—particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, paleoclimatology, and the relationships of aquatic and terrestrial species (ICF Jones & Stokes, 2008).

Most of the fossils found in Monterey County are of marine life forms that form a record of the region's geologic history of advancing and retreating sea levels. As a result of the marine origin of these deposits, the area lacks the large, terrestrial fossils found in other regions such as the dinosaur fossils of the southwestern United States. Most of Monterey County's fossils are micro-organisms such as foraminifera or diatoms, or assemblages of mollusks and barnacles most commonly found in sedimentary rocks ranging from Cretaceous age (138 to 96 million years old) to Pleistocene age (1.6 million to 11 thousand years old). Fossils are found throughout the county because of the widespread distribution of marine deposits (ICF Jones & Stokes, 2008). The EIR prepared for Monterey County's General Plan reported a review of nearly 700 known fossil localities that was conducted by paleontologists in 2001, in which 12 fossil sites were identified as having outstanding scientific value. Generally, the fossils at these 12 sites reflect the type of assemblages found throughout the county (microorganisms or invertebrates); however, each has special characteristics that make it unique or rare, or in some way provide important stratigraphic or historic information (ICF Jones & Stokes, 2008). None of the Proposed Project sites are located in proximity to the general areas of important paleontological sites as depicted in the County's General Plan EIR.

The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (Society of Vertebrate Paleontology, 1995, 1996), which are followed by most practicing paleontologists in the United States, and in some cases, the SVP standards have been adopted by federal, state or local agencies. The SVP has helped define the value of paleontological resources and, in particular, indicates that a paleontological resource is considered to be 5,000 years before present or older and not to be confused with an archaeological resource (ICF Jones & Stokes, 2008). Vertebrate fossils and fossiliferous (fossil-containing) deposits are considered significant nonrenewable paleontological resources and are afforded protection by federal, state, and local environmental laws and guidelines (ICF Jones & Stokes, 2008). Invertebrate fossils are not significant paleontological resources unless they are present within an assemblage of vertebrate fossils or they provide undiscovered information on the origin and character of the plant species, past climatic conditions, or the age of the rock unit itself.

The SVP has outlined criteria for screening the paleontological potential of rock units and established assessment and mitigation procedures tailored to such potential. **Table 4.6-3, Criteria for Determining Potential for Paleontological Resources** lists the criteria for high-potential, undetermined, and low-potential rock units. **Section 4.8, Geology, Soils, and Seismicity**, describes the geologic units that the Proposed Project components would be constructed on or within. Using the paleontological potential criteria shown in **Table 4.6-3**, the following geologic units at Proposed Project sites may have the potential for paleontological resources:

- Alluvial Fans (Pleistocene)
- Monterey Formation (Tertiary)
- Coastal Terraces

Table 4.6-3
Criteria for Determining Potential for Paleontological Resources

Paleontological Potential	Description
High	Geologic units from which vertebrate or significant invertebrate or plant fossils have been recovered in the past, or rock formations that would be lithologically and temporally suitable for the preservation of fossils. Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant. Common examples are: Most tertiary-age sedimentary rocks, especially fine-grained, low-energy deposits such as shale and mudstone Pleistocene-age alluvial fans, lake/playa deposits, shallow marine deposits, and marine terraces
Undetermined	Geologic units for which little or no information is available.
Low	Geologic units that are not known to have produced a substantial body of significant paleontological material, as demonstrated by paleontological literature and prior field surveys, and which are poorly represented in institutional collections. Common examples are: All intrusive igneous rocks (e.g., granites) Most metamorphic rocks and volcanic rocks (e.g., marble, slate, schist, basalt, etc.) Sediment deposited within the last 10,000 years (e.g., Holocene alluvium, bay muds/estuarine areas, slope wash, or recent landslide deposits)
SOURCE: Society of Vertebrate Paleontology, 1995	

Most of the Proposed Project components would be located within areas that have a low potential for paleontological resources based on the criteria in **Table 4.6-2**, except the Salinas Treatment Facility Storage and Recovery site located on Pleistocene alluvial fans, and two short segments of the CalAm Distribution Pipelines (Monterey Pipeline) located in the coastal terrace and Monterey formation. The Monterey Formation is an extensive unit and the microfossils (generally small algae and marine protozoa found in sea floor sediment) have been found within this formation within Monterey County. However, the location of the Monterey Pipeline alignment is also within existing road rights-of way where most shallow soils would have been reworked or replaced with imported fill (ESA, 2015).

4.6.3 Regulatory Framework

4.6.3.1 Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA), first adopted in 1966, has become the foundation and framework for historic preservation in the United States. The act requires federal agencies to take into account the effects of their undertakings on historic properties; and makes the heads of all federal agencies responsible for the preservation of historic properties owned or controlled by their agencies. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP. Undertakings include federally funded, licensed, or permitted projects.

The National Historic Preservation Act established the National Register of Historic Places (NRHP), the official record of historical resources. Districts, sites, buildings, structures, and objects are eligible for listing in the Register. Nominations are listed if they are significant in American history, architecture, archeology, engineering, and culture. The NRHP is administered by the National Park Service (NPS). A property must have both historical significance and integrity to be eligible for listing in the NRHP. To be significant, a property must be "associated with an important historic context." The National Register identifies four possible context types, of which at least one must be applicable to the property at the national, state, or local level. A property is considered significant if it meets the National Register listing criteria at 36 CFR 60.4, as stated below:

The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

a. Are associated with events that have made a significant contribution to the broad patterns of our history; or

b. Are associated with the lives of persons significant in our past; or

c. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d. Have yielded, or may be likely to yield, information important in prehistory or history.

For a property to qualify under one or more of these Criteria for Evaluation, it must also retain "historic integrity of those features necessary to convey its significance." While a property's significance relates to its role within a specific historic context, its integrity refers to the "property's physical features and how they relate to its significance." To determine if a property retains the physical characteristics corresponding to its historic context, the National Register has identified seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.

4.6.3.2 State

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility to the California Register are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for or listed in the National Register.

To be eligible for the California Register as a historical resource, a prehistoric or historic-period resource must be significant at the local or State level under one or more of the following criteria:

a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b. Is associated with the lives of persons important in our past;

c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d. Has yielded, or may be likely to yield, information important in prehistory or history (CEQA Guidelines Section 15064.5 [a][3]).

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. The seven aspects of integrity are: location, design, setting, materials, workmanship, feeling and association. A resource that does not retain sufficient integrity to meet the National Register criteria may still be eligible for listing in the California Register. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register if it maintains the potential to yield significant scientific or historical information or specific data (California Office of Historic Preservation, 2014).

California's list of special considerations is shorter than the criteria considerations for the National Register listed above. It includes some allowances for moved buildings, structures, or objects, as well as requirements for proving the significance of resources that are less than 50 years old and discussion of the eligibility of reconstructed buildings. Additionally, unlike the criteria considerations for the National Register, cemeteries do not come under the scrutiny of special considerations for the California Register. In addition to separate evaluations for eligibility for the California Register, the State automatically lists in the California Register resources that are listed or formally determined eligible for the National Register.

California Public Resources Code

Several sections of the Public Resources Code protect cultural resources and PRC Section 5097.5 protects vertebrate paleontological sites located on public land. Under Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site (including fossilized footprints), inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Violation of this section is a misdemeanor.

PRC Section 5097.98 states that if Native American human remains are identified within a project area, the landowner must work with the Native American Most Likely Descendant as identified by the NAHC to develop a plan for the treatment or disposition of the human remains and any items associated with Native American burials with appropriate dignity. These procedures are also addressed in Section 15064.5 of the CEQA Guidelines. California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur as a result of development on public lands.

California Health and Safety Code

California Health and Safety Code Section 7050.5 regulates the treatment of human remains. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to his or her authority. If the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact the NAHC by telephone within 24 hours.

4.6.3.3 Regional and Local

In addition to the general requirements of CEQA and California laws and regulations, protection of cultural resources are addressed in General Plans, Local Coastal Plans and municipal codes of local jurisdictions within the Proposed Project area.

Monterey County

The *Monterey County General Plan* covers cultural resources in Chapter 5, Public Service Element (Monterey County, 2010), which are shown on **Table 4.6-4, Applicable State, Regional, and Local Land Use Plans, and Policies – Cultural and Paleontological Resources**. Title 21 of the Monterey County Zoning Ordinance also provides development standards which help to ensure the protection and appropriate treatment of archaeological sites. Title 21.66.050 requires that an Archeological Survey Report be prepared for any development project located in a “High Archaeological Sensitivity Zone,” which requires an environmental assessment according to the County’s CEQA Guidelines, or where archaeological resources are known to be present nearby.

City of Marina

The *City of Marina General Plan* (City of Marina, 2006) addresses cultural resources in the “Community Design and Development” chapter; relevant policies are shown on **Table 4.6-4**.

City of Seaside

The *City of Seaside General Plan* (City of Seaside, 2004) addresses cultural resources in the Conservation/Open Space Element; relevant policies are shown on **Table 4.6-4**.

City of Monterey

The *City of Monterey General Plan* (City of Monterey, 2005) addresses cultural resources in its Historic Preservation Element, as does City Code Chapter 26, Planning, Article 3: Architectural Review Committee.

Plans and Policies Consistency Analysis

Table 4.6-4 describes the state, regional, and local land use plans, policies, and regulations pertaining to cultural and paleontological resources that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.6-4** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.6.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

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Table 4.6-4
Applicable State, Regional, and Local Land Use Plans, and Policies – Cultural and Paleontological Resources

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific Policy or Program	Project Consistency with Policies and Programs
Monterey County	Monterey County General Plan	Public Services	Tembladero Slough Diversion site Blanco Drain Diversion site Reclamation Ditch Diversion site Salinas Treatment Facility Storage and Recovery Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	Policy PS-12.1.3: All proposed development, including land divisions, within high sensitivity zones shall require an archaeological field inspection prior to project approval.	Consistent: An archaeological field survey was conducted at all Proposed Project component sites, including those that are mapped as high sensitivity archaeological zones. See Archaeological Consulting, January 2015.
Monterey County	Monterey County General Plan	Public Services	Tembladero Slough Diversion site Blanco Drain Diversion site Reclamation Ditch Diversion site Salinas Treatment Facility Storage and Recovery Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	Policy PS-12.1.4: All major projects (i.e., 2.5 acres or more) that are proposed for moderate sensitivity zones, including land divisions, shall require an archaeological field inspection prior to project approval.	Consistent: An archaeological field survey was conducted at all Proposed Project component sites, including those that are mapped as moderate sensitivity archaeological zones. (Archaeological Consulting, 2015)
Monterey County	Monterey County General Plan	Public Services	Tembladero Slough Diversion site Blanco Drain Diversion site Reclamation Ditch Diversion site Salinas Treatment Facility Storage and Recovery Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	Policy PS-12.1.6: Where development could adversely affect archaeological resources, reasonable mitigation procedures shall be required prior to project approval.	Consistent, with Mitigation: The Proposed Project would not result in any impacts to known archaeological resources, and if unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
Monterey County	Monterey County General Plan	Public Services	Tembladero Slough Diversion site Blanco Drain Diversion site Reclamation Ditch Diversion site Salinas Treatment Facility Storage and Recovery Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	Policy PS-12.10: Historic landscape, consisting of resource features important to the setting of a designated historic site, such as mature trees and vegetation, walls and fences, within historic neighborhoods, districts, and heritage corridors for which there is an adopted plan shall be protected.	Consistent The Proposed Project would not result in significant adverse impacts to historic resources or the historic landscape.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion site	2.9.1 Key Policy. North County's archaeological resources, including those areas considered to be archaeologically sensitive but not yet surveyed and mapped, shall be maintained and protected for their scientific and cultural heritage values. New land uses, both public and private, should be considered compatible with this objective only where they incorporate all site planning and design features necessary to minimize or avoid impacts to archaeological resources.	Consistent, with Mitigation: The Proposed Project would not result in any impacts to known archaeological resources, and if unknown resources are found, the impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion site	2.9.2 General Policies. 1. Monterey County shall encourage the timely identification and evaluation of archaeological, historical, and paleontological resources, in order that these resources be given consideration during the conceptual design phase of land use planning or project development. 2. Whenever development is to occur in the coastal zone, including any proposed grading or excavation activity or removal of vegetation for agricultural use, the Archaeological Site Survey Office or other appropriate authority shall be contacted to determine whether the property has received an archaeological survey. If not, the parcel(s) on which the proposed development will take place shall be required to have an archaeological survey made if located: a. within 100 yards of the floodways of the Pajaro or Salinas Rivers, McCluskey, Bennett, Elkhorn, Moro Cojo, or Tembladero Sloughs, the Old Salinas River Channel or Moss Landing Harbor; b. within 100 yards of any known archaeological site (unless the area has been previously surveyed and recorded). The archaeological survey should describe the sensitivity of the site and appropriate levels of development, and development mitigation consistent with the site's need for protection. 3. All available measures, including purchase of archaeological easements, dedication to the County, tax relief, purchase of development rights, etc., shall be explored to avoid development on sensitive prehistoric or archaeological sites. 4. When developments are proposed for parcels where archaeological or other cultural sites are located, project design shall be required which avoids or substantially minimizes impacts to such cultural sites. To this end, emphasis should be placed on preserving the entire site rather than on excavation of the resource, particularly where the site has potential religious significance.	Consistent, with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project component sites within the jurisdiction of Monterey County, including Tembladero Slough. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion site	2.9.3: Specific Policies 1. No development proposals in archaeologically sensitive areas or in areas described in policy 2.9.2(2) above shall be categorically exempt from environmental review. 2. When sufficient planning flexibility does not permit avoiding construction on archaeological or other types of cultural sites, adequate preservation measures shall be required. Mitigation shall be designed in accordance with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission. Any adverse impacts of development on archaeological or paleontological resources will be mitigated to the maximum extent feasible. 3. Off-road vehicle use, unauthorized collecting of artifacts, and other activities which could destroy or damage	Consistent, with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project component sites within the jurisdiction of Monterey County, including Tembladero Slough. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.

Table 4.6-4
Applicable State, Regional, and Local Land Use Plans, and Policies – Cultural and Paleontological Resources

				archaeological or cultural sites shall be prohibited. 4. Public access to or over known archaeological or paleontological sites should be limited, and concentrated in areas where supervision and interpretive facilities are available.	
City of Marina	City of Marina General Plan	Community Design and Development	RUWAP Alignment Option Coastal Alignment Option	Policy 4.126: The following scenic and cultural resources are deemed to be particularly valuable, and the following policies should be pursued. • All archaeological resources which may be present in the Marina Planning Area shall be protected and preserved. To this end, development proposed in areas of high archaeological sensitivity, i.e., the terraces and benches along the Salinas River, the peripheries of vernal ponds, and coastal beaches, shall be required to undertake a reconnaissance by a qualified archaeologist, and, where artifacts are identified, to protect and preserve such resources.	Consistent, with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project component sites. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
City of Seaside	City of Seaside Local Coastal Program Land Use Plan	Land Use and Development Requirements	CalAm Distribution System Transfer Pipeline	Policy LUD-CZ 3.7.A –Considerations for Cultural Resources i. Identify and protect archaeological resources within Seaside. ii. Require a Phase I Archaeological Study performed by a Registered Professional Archaeologist to determine whether significant archeological resources may be present when excavation activities are proposed. iii. Mitigations are to be required as a condition of development where it would adversely impact any archaeological or paleontological resources, including, but not limited to, those qualified individuals as identified by the State Historic Preservation Officer.	Consistent, with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project component sites. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
City of Seaside	Seaside General Plan	Open Space and Conservation Element	Product Water Conveyance Pipeline -RUWAP & Coastal Alignment Options Coastal Booster Pump Station Option Injection Well Facilities CalAm Distribution System (Transfer and Monterey) Pipeline	COS-5.1.1: Assess and Mitigate Impacts to Cultural Resources. Continue to assess development proposals for potential impacts to sensitive historic, archaeological, and paleontological resources pursuant to the California Environmental Quality Act (CEQA). a) For structures that potentially have historic significance, require that a study be conducted by a professional archaeologist or historian to determine the actual significance of the structure and potential impacts of the proposed development in accordance with CEQA Guidelines Section 15064.5. The City may require modification of the project and/or mitigation measures to avoid any impact to a historic structure, when feasible. b) Assess development proposals for potential impacts to significant paleontological resources pursuant to of the California Environmental Quality Act Guidelines. If the project involves earthworks, the City may require a study conducted by a professional paleontologist to determine if paleontological assets are present, and if the project will significantly impact the resources. If significant impacts are identified, the City may require the project to be modified to avoid impacting the paleontological materials, or require mitigation measures to mitigate the impacts.	Consistent. with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project component sites within the jurisdiction of the City of Seaside. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
Sand City	Sand City Local Coastal Program Land Use Plan	Coastal Resource Management	CalAm Distribution System (Transfer and Monterey) Pipelines	Policy 4.4.30: Require protection, evaluation, and/or removal under supervision by a qualified archaeologist and consultation with a qualified Native American representative, archaeological resources that may be found during the construction process.	Consistent, with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project component sites within the jurisdiction of Sand City. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
City of Monterey	California Coastal Act	Land Resources	CalAm Distribution System Monterey Pipeline	Section 30244: Archaeological or paleontological resources. Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.	Consistent, with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project component sites. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.
Fort Ord Reuse Authority (inland areas)	Fort Ord Base Reuse Plan	Conservation	Injection Well Facilities CalAm Distribution System Transfer Pipeline	Cultural Resources Policy A-1: The City of Seaside shall ensure the protection and preservation of archaeological resources at the former Fort Ord. Program A-1.1: The City of Seaside shall conduct a records search and a preliminary archaeological surface reconnaissance as a part of environmental review for any development project(s) proposed in a high archaeological resource sensitivity zone. Program A-1.2: The City of Seaside shall require that all known and discovered sites on the former Fort Ord with resources likely to be disturbed by a Proposed Project be analyzed by a qualified archaeologist with local expertise, recommendations made to protect and preserve resources and, as necessary, restrictive covenants imposed as a condition of project action or land sale. Program A-1.3: As a contractor work specification for all new construction projects, the City of Seaside shall include that during construction, upon the first discovery of any archaeological resource or potential find, development activity shall be halted within 50 meters of the find until the potential resources can be evaluated by a qualified professional archaeologist and recommendations made.	Consistent, with Mitigation: An archaeological study was conducted (including past surveys) for all Proposed Project components. The Proposed Project would not result in significant adverse impacts to known archaeological resources. If unknown resources are found, potential impacts would be reduced to less-than-significant with mitigation Measure CR- 2a, CR-2b and CR-2c.

4.6.4 Impacts and Mitigation Measures

4.6.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, the project would result in significant impacts related to cultural resources if it would:

a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.

b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

d. Disturb any human remains, including those interred outside of formal cemeteries.

CEQA requires review of potential adverse impacts to defined historical resources (Public Resources Code section 21084.1). The CEQA Guidelines Section 15064.5(a) defines "historical resources" as any of the following:

1. Resources listed in or determined eligible by the State Historic Resources Commission for listing in the California Register (CEQA Guidelines Section 15064.5(a)(1)).
2. Resources included in a local register as defined in Public Resources Code Section 5020.1(k), or that are identified as significant in surveys that meet the standards provided in Public Resources Code Section 5024.1[g] (CEQA Guidelines Section 15064.5(a)(3)) "unless the preponderance of evidence demonstrates" that the resource "is not historically or culturally significant." (CEQA Guidelines Section 15064.5(a)(2)).
3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence. Generally, a resource shall be considered by the lead agency to be "historically significant" if it meets criteria for listing in the California Register of Historical Resources, including:
    a. Is associated with events that made a significant contribution to the broad patterns of California's history and cultural heritage.
    b. Is associated with the lives of people important in our past.
    c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    d. Has yielded or may be likely to yield information important in prehistory or history (CEQA Guidelines Section 15064.5(a)(3)).
4. The fact that a resource is not listed in, or determined to be eligible for listing in the California Register, not included in a local register of historical resources, or

identified in an historical resource survey does not preclude a lead agency under CEQA from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1 (CEQA Guidelines Section 15064.5(a)(4)).

CEQA Guidelines Section 15064.5(b) defines a "substantial adverse change" to an historical resource as: "physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." The significance of an historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources or in registers meeting the definitions in Public Resources Code 5020.1(k) or 5024.1(g).

If it is determined that an archaeological site is a historical resource, the provisions of Public Resources Code Section 21084.1 (of CEQA) and CEQA Guidelines Section 15064.5 apply. If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site may be treated as a "unique" archaeological resource in accordance with the provisions of Public Resources Code Section 21083.2(h), in which a unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

Contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information;

Has a special and particular quality such as being the oldest of its type or the best available example of its type; or

Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological resource is determined not to be a unique archaeological resource, the resource need not be given further consideration, other than the simple recording of its existence by the lead agency if it so elects (Public Resources Code Section 21083.2[h]). The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064.5[c][4]).

No additional significance criteria are needed to comply with the CEQA-Plus[3] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

4.6.4.2 Impact Analysis Overview

Approach to Analysis

The Area of Potential Effects for the Proposed Project was developed to identify all areas where construction-related ground disturbance could occur in order to evaluate the project's potential

[3] To comply with applicable federal statutes and authorities, EPA established specific "CEQA-Plus" requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

impacts on cultural resources. The Area of Potential Effects was established based on input from the project technical team, preliminary project plans, and assessor parcel information. The Area of Potential Effects maps are included in **Appendix J**.

The Area of Potential Effects for potential effects on paleontological and archaeological resources includes all areas of ground disturbance, staging areas, access, and work areas. The Area of Potential Effects for pipelines includes the area where the pipeline will be installed (component footprint) as well as a work area (construction boundary). The exact location of some pipelines has not yet been determined, thus, a maximum width (approximately 200 feet) has been delineated as the Area of Potential Effects in undeveloped areas. For the pipelines that will be installed below (within) existing roadways, the Area of Potential Effects is the varying width of the road right-of-way. No excavation or grading is expected to occur in the staging areas, but clearing and grubbing will occur in these locations with a minimal depth (less than 6 inches) of potential disturbance, and placement and movement of personnel and heavy equipment.

The Area of Potential Effects for historic architectural/structural resources within developed areas includes the area where construction will occur and the varying width of the road right-of-way (typically 50–75 feet from curb to curb). In the case of Proposed Project components to be located within undeveloped areas, the Area of Potential Effects for effects on architectural/structural resources includes 25 feet on either side of the centerline of the pipeline or a 25-foot buffer from a project component or staging area.

Other considerations for determining potential impacts on historic resources include temporary vibration effects from excavation and construction, with the potential to generate vibration at levels that could cause structural damage to historic structures. Construction-related vibration, such as that generated by jackhammers, drill rigs, and vibratory rollers, can potentially cause structural damage to historic-era buildings and structures (Wilson, Ihrig & Associates, 2009). Historical buildings in the vicinity of Proposed Project components include primarily older structures in the City of Monterey. This EIR uses a vibration threshold for historic buildings of 0.12 inches per second (in/sec) peak particle velocity (PPV) at a distance of 25 feet (Wilson, Ihrig, & Associates et al., 2012). **Table 4.6-5, Damage Threshold to Historic Buildings from Construction Equipment** presents the distances at which vibratory construction equipment that could be used during project construction would generate vibration levels at the 0.12-in/sec PPV damage threshold.

Table 4.6-5
Damage Threshold to Historic Buildings from Construction Equipment

Equipment Type	Typical PPV at 25 feet	Approx. Distance of Damage Threshold (0.12 PPV in/sec)
Vibratory roller	0.210 in/sec	45 feet
Drill rig	0.12 in/sec	25 feet
Bulldozer	0.089 in/sec	20 feet
Jackhammer	0.035 in/sec	15 feet

SOURCE: ESA,2015 based on Wilson, Ihrig, & Associates et al., 2012

Areas of No Impact

The potential impacts to cultural resources would occur during the construction phase. Once construction has been completed, operation of the Proposed Project components would have no effect on cultural resources.

All Proposed Project components would be located either within previously disturbed or developed areas or in open areas that lack any prominent geological features. There were no "unique geological features," such as rock outcroppings and bluff exposures identified at any of the Proposed Project sites. Therefore, this element of significance (criterion "c") is not applicable to the Proposed Project.

Summary of Impacts

Table 4.6-6, Summary of Impacts – Cultural and Paleontological Resources provides a summary of potential impacts related to cultural and paleontological resources and significance determinations at each Proposed Project component site.

Table 4.6-6
Summary of Impacts – Cultural and Paleontological Resources

Impact Title	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain Diversion (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	
CR-1: Construction Impacts on Historical Resources	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LSM	LSM
CR-2: Construction Impacts on Archaeological Resources or Unknown Human Remains	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM
CR-3: Construction Impacts on Paleontological Resources	LS	LS	NI	NI	NI	NI	LS	NI	NI	NI	LS	LS	LS
Cumulative Impact	LS: There would be no significant cumulative construction or operational cultural resources impacts.												

NI – No Impact
LS – Less-than-significant
LSM – Less-than-significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.6.4.3 Construction Impacts and Mitigation Measures

Impact CR-1: Construction Impacts on Historic Resources. Proposed Project construction may result in a substantial adverse change in the significance of a known historic resource as defined in 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5. (Criterion a) (Less-than-significant with Mitigation)

Historic resources have been identified within the Area of Potential Effects for the CalAm Distribution System Monterey Pipeline. There are no historic resources within the Area of Potential Effects for the remainder of the project components and those components are not expected to have an effect on known historic resources.

CalAm Distribution Pipelines - Monterey Pipeline

The Area of Potential Effects for the CalAm Distribution Pipelines (Monterey Pipeline) crosses the Presidio of Monterey and is located between the northern and southern sections of the Monterey Old Town Historic District. The Monterey Pipeline would be constructed within the rights-of-way of various streets, including those that pass through the Presidio of Monterey Historic District. However, the proposed Monterey Pipeline would not be within the boundaries of the Monterey Old Town Historic District, and none of the buildings and structures that contribute to the NRHP-listed Monterey Old Town Historic District are within the Area of Potential Effects of the Monterey Pipeline (ESA, 2014).

The majority of the 90 contributing buildings at the Presidio of Monterey Historic District, including Soldier Field, and numerous streets and retaining walls are not within the Area of Potential Effects of the Monterey Pipeline, and no above-ground project components would be visible within this NRHP-eligible District after project completion. However, three contributing buildings or structures in the Presidio of Monterey Historic District are within the Proposed Project Area of Potential Effects, located either within or adjacent to Stillwell Avenue that may be directly affect or indirectly impacted from construction vibration because they are within 45 feet of the street curb as further discussed below. These include: (1) the 1935 Entrance Monument (Structure 112) located partially within Stillwell Avenue; (2) the 1935 Flagpole (Structure 133); and (3) the 1904 Officer's Club (Building 105) (see **Figure 4.6-1**). In addition, 18 other historic structures (listed on **Table 4.6-2**) would be within the Proposed Project Area of Potential Effects.

Direct Impacts. Direct effects would occur if project construction equipment and vehicles were to directly damage a historic resource by striking the resource. There is one historical resource that could be directly affected by the installation of the Monterey Pipeline. The Presidio's Entrance Monument (Structure 112 - #21 on **Table 4.6-2** and **Figure 4.6-1**), which consists of two decorative stone columns capped by Spanish tile, is located partially within Stillwell Avenue and immediately adjacent to the curbs on either side of this street. Constructed in 1935, this stone entrance monument is a contributing element to the Presidio of Monterey Historic District, which has been determined eligible for listing in the National Register of Historic Places, and thus is considered a historical resource under CEQA Guidelines definitions and the National Historic Preservation Act.

Since detailed construction plans have not yet been prepared, the Monterey Pipeline could be constructed anywhere within the Stillwell Avenue road right-of-way, and installation of the pipeline could directly damage the entrance monument during construction if construction vehicles and equipment were to strike the monument. The monument would not be removed, but potential damage could cause a substantial adverse change to a historical resource, resulting in a potential significant impact. Final designs that locate the pipeline in a manner that would avoid direct impacts to the monument entrance would eliminate the impact.

Indirect Impacts. Indirect effects would occur if vibration from project construction equipment were to damage a historic resource. In addition to the Presidio Entrance Monument, there are 22 other historical resources located within the Area of Potential Effects for the Monterey Pipeline. These resources are located along Stillwell Avenue (two structures) in the Presidio of Monterey Historic District, and along W. Franklin Street in downtown Monterey (20 structures). These structures are identified in **Table 4.6-2** and **Figure 4.6-1**. Three of the 22 structures have been identified as “contributors” to the Presidio of Monterey, a district determined eligible for listing in the National Register and are listed in the California Register. As shown on **Table 4.6-2**, another structure, the Monterey Hotel, has been identified as individually eligible for the National Register and also is listed in the California Register. Seven of the properties within the Area of Potential Effects appear eligible for the National Register of Historic Places as an individual property through a survey evaluation (Osio-Rodriguez Adobe; Ordway Block Building, Ordway Pharmacy; Monterey County Bank, Wells Fargo Bank; Goldstine Block Building, Atlas Pawn Shop; Village Hardware; Blazer Development; Monterey First Presbyterian Church). The remaining historic structures appear eligible for local listing or designation through a survey evaluation.

These historical resources could be affected by construction vibration because they are within 45 feet from the street curb. Due to the concentration of historic properties in the Presidio of Monterey Historic District and downtown Monterey, the relatively minimal building setbacks from the street curbs in these areas (which range anywhere from 10 to 45 feet), and the assumption that the Monterey Pipeline could be installed anywhere within the road rights-of-way of Stillwell Avenue and W. Franklin Street, there is the potential that construction could occur within 45 feet of historic properties. All of the identified historic buildings are located within 10-30 feet of the road curb, except two are located a distance of 44 feet from the curb. Depending on the final pipeline alignment, most construction activities would typically occur 25 feet or more from identified historic resources, which would be outside the area of vibration impact associated with most construction equipment as shown on **Table 4.6-5**. However, the use of vibratory rollers during construction of the Monterey Pipeline could cause cracking or other cosmetic or structural damage to historical resources that could affect the integrity of the buildings, and materially impair historic buildings. This analysis uses a damage threshold for historical resources of 0.12 in/sec PPV at a distance of 25 feet. The use of vibratory rollers must occur at distances greater than 45 feet in order to avoid exceeding the threshold. Cosmetic or structural damage to these historical resources could result in a substantial adverse change in their appearance, which would be a significant impact.

Impact Conclusion

The Proposed Project construction could result in potentially significant impacts to historical resources as a result of construction of the CalAm Distribution Pipeline-Monterey Pipeline. However, with implementation of Mitigation Measure CR-1 (Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, and Downtown Monterey), this impact would be reduced to a less-than-significant level.

Mitigation Measure

Mitigation Measure CR-1: <u>Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, and Downtown Monterey.</u> (Applies to portion of the CalAm Distribution System-Monterey Pipeline.)

CalAm shall construct the section of the Monterey Pipeline located on Stillwell Avenue within the Presidio of Monterey Historic District and within W. Franklin Street in downtown Monterey as close as possible to the centerlines of these streets to: (1) avoid direct impacts to the historic Presidio Entrance Monument, and (2) reduce impacts from construction vibration to below the 0.12 inches per second (in/sec) peak particle velocity vibration PPV) threshold. If CalAm determines that the pipeline cannot be located near the centerline of these street segments due to traffic concerns or existing utilities, the historic properties identified on Table 4.6-2 of this EIR shall be monitored for vibration during pipeline construction, especially during the use of jackhammers and vibratory rollers. If construction vibration levels exceed 0.12 in/sec PPV, construction shall be halted and other construction methods shall be employed to reduce the vibration levels below the standard threshold. Alternative construction methods may include using concrete saws instead of jackhammers or hoe-rams to open excavation trenches, the use of non-vibratory rollers, and hand excavation.

If impact sheet pile installation is needed (i.e., for horizontal directional drilling or jack-and-bore) within 80 feet of any historical resource or within 80 feet of a historic district, CalAm shall monitor vibration levels to ensure that the 0.12-in/sec PPV damage threshold is not exceeded. If vibration levels exceed the applicable threshold, the contractor shall use alternative construction methods such as vibratory pile drivers.

Impact CR-2: <u>Construction Impacts on Archaeological Resources or Human Remains</u>. Proposed Project construction may result in a substantial adverse change in the significance of one known archaeological resource and to unknown archaeological resources during construction and/or encounter unknown human remains. (Criteria b and d) (Less-than-significant with Mitigation)

Based on the background research through the California Historic Resources Information System and the Native American Heritage Commission and based on the findings of the field survey and previous surveys undertaken within the Area of Potential Effects, the Proposed Project sites contain no recorded or known archaeological resources, except for a segment along the CalAm Distribution System Monterey Pipeline as discussed below.

There is a possibility of unidentified (e.g., buried) resources being found during any portion of project construction. There is a potential for unknown historic-era subsurface archaeological resources to be discovered, and inadvertently damaged or destroyed, especially during installation of the section of the Monterey Pipeline located in the W. Franklin Street road right-of-way in downtown Monterey. Historic-era archaeological resources could include features or deposits related to early Spanish and Mexican occupation as well as early roads or transportation related features and water conveyance features such as pipelines or sewer systems.

No known human remains have been documented in the Proposed Project Area of Potential Effects. However, there is the possibility of inadvertently uncovering human remains during construction. The potential inadvertent discovery of archaeological resources and/or human remains and potential inadvertent damage or disturbance during construction is considered a significant impact.

CalAm Distribution Pipelines - Monterey Pipeline

A possible prehistoric archaeological resource is located adjacent to a segment of the CalAm Distribution Pipeline in the Presidio of Monterey (identified as Presidio #2). The surface evidence was inconclusive as to whether the site extends into the Monterey Pipeline Area of Potential Effects, because the Area of Potential Effects is paved in this location. While formal evaluation to determine the site's eligibility for listing in the NRHP or the CRHR has not been conducted, ESA has indicated that sufficient information exists to suggest that the site may qualify as a historical resource pursuant to CEQA Guidelines Section 15064.5(a)(4) and Public Resources Code Section 21098.1 and as a historic property based on the criteria of the National Historic Preservation Act of 1966, as amended (ESA, 2014). If Presidio #2 is an intact deposit it could be eligible under Criteria D/4 (for data potential) and possibly Criteria A/1 (for events). As a result, construction of the Monterey Pipeline could result in inadvertent damage or disturbance to this resource, which represents a potentially significant impact.

Avoidance as the preferred manner of mitigating impacts to this archaeological site has been considered. As a consequence of the difficulty in determining the location of buried resources and the general archaeological sensitivity of the Presidio of Monterey, especially nearer to the Monterey Bay shoreline, rerouting the pipeline alignment to avoid Presidio #2 could result in impacts to other unknown previously undiscovered archaeological sites. Preserving archaeological resources in place (i.e., incorporating the archaeological sites into parks or green space, covering or capping archaeological sites, and/or deeding sites into a permanent conservation easement) is not appropriate as the proposed pipeline would be below grade and wholly within an existing CalAm easement. However, potentially significant impacts to Presidio #2 could be reduced to a less-than-significant level with implementation of Mitigation Measure CR-2a, which requires that all ground disturbing activities within 100 feet of Presidio #2 be monitored by a qualified archaeologist, and actions would be taken in accordance with an Archaeological Monitoring Plan in the event of discovery of resources.

Unknown archeological resources could be located at any of the Proposed Project component sites. Such resources are of particular concern, however, at the Lake El Estero Diversion site. Based on the geoarchaeological assessment developed by ESA (ESA, 2014), there is potential for deeply buried well-developed soil horizons to be located in the Area of Potential Effects near Lake El Estero in the City of Monterey, with the potential for archaeological resources associated with those buried soils to be encountered during project work. Project construction activities could result in damage or disturbance to such resources if they exist and are determined to be a historical resource or unique archaeological resource, a potentially significant impact. Implementation of Mitigation Measure CR-2a requires archaeological monitoring during project construction in the event unknown archaeological resources are encountered.

Impact Conclusion

Based on the above analysis, construction of the Proposed Project would result in potentially significant impacts to one known archaeological resource within the Presidio of Monterey and to unknown archaeological resources and/or human remains that may be uncovered during construction at any of the other Proposed Project component sites, but particularly in the vicinity of the Lake El Estero Diversion site. Both are considered potentially significant impacts. Implementation of Mitigation Measures CR-2a (Archaeological Monitoring Plan), CR-2b (Discovery of Archeological Resources or

Human Remains) and CR-2c (Native American Notification) would reduce the impact to a less-than-significant level.

Mitigation Measures

Mitigation Measure CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution System: Monterey Pipeline through the Presidio of Monterey and along West Franklin Street and to the Lake El Estero Diversion Site)

Each of the project proponents shall contract a qualified archaeologist meeting the Secretary of the Interior's Qualification Standard (Lead Archaeologist) to prepare and implement an Archaeological Monitoring Plan, and oversee and direct all archaeological monitoring activities during construction. Archaeological monitoring shall be conducted for all subsurface excavation work within 100 feet of Presidio #2 in the Presidio of Monterey, in downtown Monterey on W. Franklin Street between High and Figueroa Streets; and at potentially sensitive archaeological sites at Lake El Estero. At a minimum, the Archaeological Monitoring Plan shall:

a. Detail the cultural resources training program that shall be completed by all construction and field workers involved in ground disturbance;

b. Designate the person(s) responsible for conducting monitoring activities, including Native American monitor(s), if deemed necessary;

c. Establish monitoring protocols to ensure monitoring is conducted in accordance with current professional standards provided by the California Office of Historic Preservation;

d. Establish the template and content requirements for monitoring reports;

e. Establish a schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;

f. Establish protocols for notifications in case of encountering cultural resources, as well as methods for evaluating significance, developing and implementing a plan to avoid or mitigate significant resource impacts, facilitating Native American participation and consultation, implementing a collection and curation plan, and ensuring consistency with applicable laws including Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code;

g. Establish methods to ensure security of cultural resources sites;

h. Describe the appropriate protocols for notifying the County, Native Americans, and local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction with reference to Public Resources Code 5097.99.

During the course of the monitoring, the Lead Archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the conditions and professional judgment regarding the potential to encounter resources. If archaeological materials are encountered, all soil disturbing activities within 100 feet of the find shall cease until the resource is evaluated. The Lead Archaeologist shall immediately notify the relevant Proposed Project proponent of the encountered archaeological resource. The Lead Archaeologist shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological resource, present the findings of this assessment to the lead agency, or CPUC, for the CalAm Distribution Pipeline. In the event archaeological resources qualifying as either historical resources pursuant to CEQA Section 15064.5 or as unique archaeological resources as defined by Public Resources Code 21083.2 are encountered, preservation in place shall be the preferred manner of mitigation.

If preservation in place is not feasible, the applicable project proponent shall implement an Archaeological Research Design and Treatment Plan (ARDTP). The Lead Archaeologist, Native American representatives, and the State Historic Preservation Office designee shall meet to determine the scope of the ARDTP. The ARDTP will identify a program for the treatment and recovery of important scientific data contained within the portions of the archaeological resources located within the project Area of Potential Effects; would preserve any significant historical information obtained; and will identify the scientific/historic research questions applicable to the resources, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The results of the investigation shall be documented in a technical report that provides a full artifact catalog, analysis of items collected, results of any special studies conducted, and interpretations of the resource within a regional and local context. All technical documents shall be placed on file at the Northwest Information Center of the California Historical Resources Information System.

Mitigation Measure CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to all Proposed Project components)

If archaeological resources or human remains are unexpectedly discovered during any construction, work shall be halted within 50 meters (±160 feet) of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented, with the concurrence of the Lead Agency (MRWPCA). The County Coroner shall be notified in accordance with provisions of Public Resources Code 5097.98-99 in the event human remains are found and the Native American Heritage Commission shall be notified in accordance with the provisions of Public Resources Code section 5097 if the remains are determined to be of Native American origin.

Mitigation Measure CR-2c: Native American Notification. (Applies to all Proposed Project components)

Because of their continuing interest in potential discoveries during construction, all listed Native American Contacts shall be notified of any and all discoveries of archaeological resources in the project area.

Impact CR-3: Construction Impacts on Unknown Paleontological Resources. Proposed Project construction would not result in damage to or destruction of unknown paleontological resources. (Criterion c) (Less-than-significant)

The Proposed Project sites would not be located in proximity of general areas of significant paleontological resources as mapped by Monterey County (ICF Jones & Stokes, 2008). Most of the Proposed Project components would be located within areas that have a low potential for paleontological resources based on the criteria in **Table 4.6-2**, except for the Salinas Treatment Facility Storage and Recovery site and segments of the CalAm Distribution Pipeline (Monterey Pipeline). Vertebrate fossils have been collected from the Monterey Formation, but not from the other listed geologic units.

Proposed improvements at the Salinas Treatment Facility consist of minor land disturbance associated with construction of new diversion structures and short pipelines near the existing Salinas Pump Station. Construction of the CalAm Distribution Pipeline could result in disturbance within the top 4 to 8 feet of the surface (e.g., pipelines). Project components would be constructed within a limited extent of the Monterey Formation within the previously-disturbed rights-of-way. As such, much of the surficial and shallow materials that the Proposed Project components would be placed on or within are fill materials or previously-disturbed native materials that have a low paleontological potential. In addition, the diatoms and benthic foraminifera that comprise much of the formation are not considered a significant paleontological resource (Society of Vertebrate Paleontology, 1995). Therefore, the potential impact to known paleontological resources would be considered less-than-significant and no mitigation is necessary.

Impact Conclusion

Based on the above analysis, the project would not result in significant impacts to paleontological resources, and no mitigation measures are required.

4.6.4.4 Operation Impacts and Mitigation Measures

As previously indicated, the potential impacts to cultural resources would occur during the construction of the Proposed Project. Operation of the Proposed Project would have no impacts on cultural resources.

4.6.4.5 Cumulative Impacts

The geographic scope for cumulative impact analysis on cultural and paleontological resources includes all sites upon which past, present or future activities could affect the same cultural resources as the Proposed Project. As described in the preceding section, the known cultural resources potentially affected by the Proposed Project are historical and archaeological resources along segments of the CalAm Distribution System-Monterey Pipeline. Cumulative projects are provided in **Table 4.1-2, Project Considered for Cumulative Analysis** (see **Section 4.1, Introduction**).

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the Monterey Peninsula Water Supply Project (MPWSP), with the 6.4 mgd desalination plant, and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects identified on **Table 4.1-2**:

- *Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant)* (referred to and the MPWSP Variant):[4] The CalAm Monterey Peninsula Water Supply Project includes: a subsurface seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed

[4] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

for either the MPWSP or GWR projects. The overall estimated construction schedule is from June 2016 through March 2019 for the combined projects and could overlap for approximately 18 months during GWR construction (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4-mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.

- *Overall Cumulative Projects:* This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). There would be no overlap of project sites that could potentially affect the same known cultural or paleontological resources.

The Proposed Project construction could result in potentially significant impacts to historical resources as a result of construction of the CalAm Distribution System-Monterey Pipeline, however, with implementation of Mitigation Measure CR-1 (Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, and Downtown Monterey), this impact would be reduced to a less-than-significant level. Under the MPSWP, impacts to historic resources associated with construction of the CalAm facilities would be identical to those of the proposed project because the Monterey Pipeline is included in the MPWSP.

The MPSWP would have a similar potential to affect unknown archeological resources or disturb human remains as the Proposed Project. The combined impact would be mitigated to a less-than-significant level, with implementation of standard mitigation .

Thus, there would be no significant cumulative cultural resources impacts resulting from combined impacts of the Proposed Project plus the MPSWP (with 6.4 mgd desalination plant)

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1.1 <u>rev</u>, Cumulative Projects Location Map.** The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**. The overall cumulative impact analysis considers impacts of the Proposed Project along with the potential impacts of other projects that are reasonably foreseeable to take place near the Proposed Project.

All of the cumulative development identified in **Table 4.1-2** could result in potential impacts to cultural and paleontological resources; however, impacts to cultural resources are site specific and are evaluated and mitigated on a project-by-project basis. None of the cumulative projects would be located in sufficiently close proximity to result in combined impacts to the known historic and archaeological resources that could be affected by the Proposed Project. Two of the cumulative projects would be located in the City of Monterey: 459 Alvarado Street (#30) and 480 Cannery Row (#31). The project at 459 Alvarado Street includes 21 multi-family residential units and commercial and retail space. It has been approved and construction is underway. The Proposed Project's construction schedule would not overlap with construction of this project; therefore the projects would not result in cumulative impacts to historic resources from construction-related vibration, nor would the project at 459 Alvarado Street affect the same potential archeological site as the Proposed Project. The project at 480 Cannery Row would be one mile away from the CalAm Distribution System: Monterey Pipeline and would not affect the same cultural resources as the Proposed Project.

Cumulative Impact Conclusion

Construction of the GWR facilities results in less-than-significant impacts to historic, archaeological and paleontological resources. No cumulative impacts to cultural resources have been identified related to ongoing operation of cumulative projects. Therefore, the proposed project would not contribute to cumulative impacts related to cultural resources.

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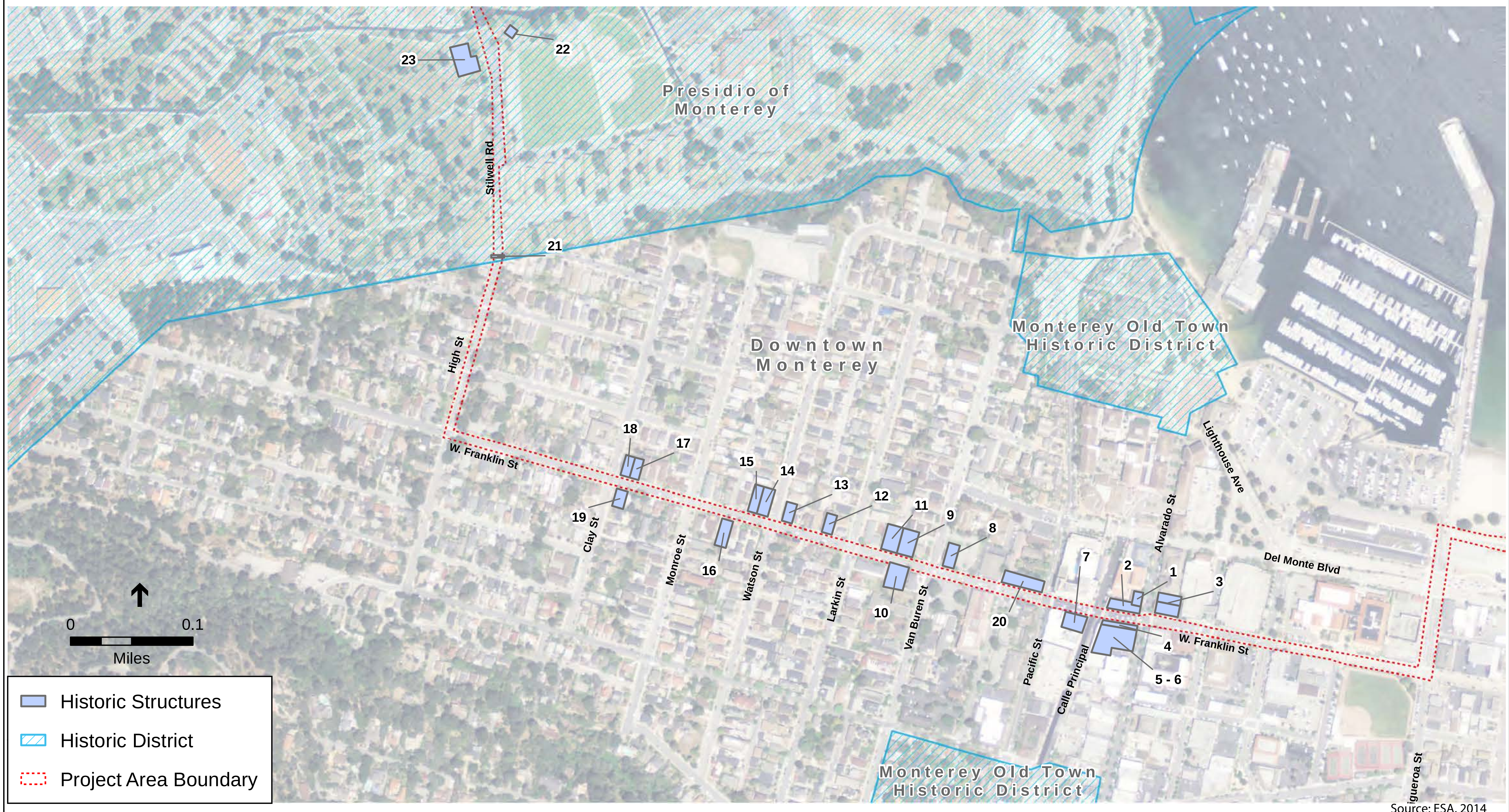

Historic Structures Within the Monterey Pipeline APE

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 4.6-1

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4.7 ENERGY AND MINERAL RESOURCES

Sections	Tables	Figures
4.7.1 Introduction 4.7.2 Environmental Setting 4.7.3 Regulatory Framework 4.7.4 Impacts and Mitigation Measures 4.7.5 References	4.7-1 Applicable State, Regional, and Local Land Use Plans, Policies, and Regulations – Energy and Minerals 4.7-2 Summary of Impacts - Energy and Mineral Resources	4.7-1 Mineral Resources Map

4.7.1 Introduction

This section analyzes the Proposed Project's potential impacts on non-renewable energy and mineral resources, and the potential for the Proposed Project's construction and operation to adversely affect the availability of these resources. This section also describes the existing regional and local energy systems and the applicable regulations related to energy production and consumption.

Public and agency comments received during the public scoping period in response to the Notice of Preparation are summarized in **Appendix A, Scoping Report**. No comments were received with regard to energy or mineral resources impacts.

4.7.2 Environmental Setting

The Proposed Project would be located in Monterey County and would include components in the unincorporated area of Monterey County and in the cities of Monterey, Seaside, Marina, Salinas, Sand City, and Pacific Grove. For a detailed view of the geographic location of the Proposed Project components, see **Chapter 2.0, Project Description**, and **Figure 2-18, Proposed Project Facilities Overview**.

4.7.2.1 Electricity

The production of electricity requires the consumption or conversion of energy resources: water, wind, oil, gas, coal, solar, geothermal, and nuclear sources. Approximately 70% of the state's electricity supply comes from in-state sources; the remainder is imported from the Pacific Northwest and the Southwest (California Energy Commission, 2008). The electricity generated is distributed via a network of transmission and distribution lines commonly called the power grid.

Pacific Gas & Electric (PG&E), the local public utility and energy supplier, provides electricity from both renewable and non-renewable resources. The power mix PG&E provided to its customers in 2012 consisted of non-emitting nuclear generation (21%), large hydroelectric facilities (11%) and eligible renewable resources (19%), such as wind, geothermal, biomass, solar and small hydro. The remaining portion came from natural gas/other (27%) and unspecified power (21%). According to PG&E, unspecified power refers to electricity that is not traceable to specific generation sources by any auditable contract trail. In Monterey County, electricity is distributed via local infrastructure owned and operated by PG&E. The largest source of electricity in the county is supplied to the electrical grid by the Moss Landing Gas Fired Power Plant owned by Dynegy (California Energy Commission, 2009). The Moss Landing Plant generates over 1,500 megawatts.

Electricity consumption reported in the California Energy Commission's Statewide Energy Demand report for Monterey County was 2,568 million gigawatt hours (GWh) in 2012 (including nonresidential use of 722 GWh and residential use of 1,921 GWh) (California Energy Commission, 2014).

4.7.2.2 Natural Gas

After electricity, natural gas is the most widely used energy source in California. Depending on yearly conditions, 40 to 45% of the total consumed natural gas is burned for electricity generation. The primary source of natural gas in Monterey County is the natural gas transmission system owned and operated by PG&E. PG&E's gas is delivered via high-pressure pipelines to its load centers, with compressors used to maintain transmission pressure. The gas is then received at either an underground storage facility or redistributed through another series of pipelines. The most recent report for natural gas consumption shows that Monterey County consumed 112 million therms in 2012 (including nonresidential use of 53 million therms and residential use of 59 million therms) (California Energy Commission, 2014).

4.7.2.3 Oil, Gas, and Geothermal Wells

According to the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, three plugged oil or gas wells are located in the cities of Seaside, Sand City, and Del Rey Oaks; these wells are inactive and do not lie within the Proposed Project area (Division of Oil, Gas and Geothermal Resources, 2013).

4.7.2.4 Mineral Resources

The primary mineral commodities mined in Monterey County are sand, gravel, and petroleum. Sand and gravel are used to make concrete for buildings and asphalt to pave roads. Crude oil, natural gas, and coal are fuel minerals used for producing petroleum and petrochemicals. Of the non-metallic minerals, construction-grade aggregate (sand, gravel, and crushed stone) is the most abundant and commonly used mineral resource in the county.

In accordance with the Surface Mining and Reclamation Act of 1975 (SMARA), the California Department of Conservation, Division of Mines and Geology, currently known as the California Geological Survey (CGS), has mapped nonfuel mineral resources of the state to show where economically significant mineral deposits are either present or likely to occur based on the best available scientific data. These resources have been mapped using the California Mineral Land Classification System, which includes the following Mineral Resource Zones (MRZ).

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated.

- MRZ-4: Areas where available information is inadequate for assignment to any other zone.

According to the Guidelines for the Classification and Designation of Mineral Lands, there are two general categories used to exclude lands from an MRZ-2 designation, the first is an economic exclusion and the second a social exclusion (California Geological Survey, 1999). Social exclusions include cemeteries, public parks and recreation areas, schools, hospitals, prisons and military bases and reservations. Economic exclusions include the following:

- Residential areas and areas committed to residential development, such as approved tracts.
- Commercial areas with land improvements (buildings).
- Industrial areas (buildings and adjacent storage and parking facilities).
- Major public and private engineering projects, such as canals, freeways, bridges, airports, dams, and railroads.
- Small areas isolated by urbanization (generally less than 40 acres).

The classification process is based solely on the underlying geology without regard to existing land use or land ownership. The primary goal of the mineral land classification is to ensure that the mineral potential of the land is recognized by local government decision-makers and is considered before making land use decisions that could preclude mining. Historic mineral production in Monterey County included sand and gravel mining for construction materials, mining for industrial materials (diatomite, clay, quartz, and dimension stone[1]) and metallic minerals (chromite, placer gold, manganese, mercury, platinum, and silver) (Monterey County General Plan, 2010).

Figure 4.7-1, Mineral Resources Map displays the location of the MRZs in Monterey County, as well as the existing mines and oil wells. Nearly all the areas classified as MRZ-1 are located in the urbanized areas around Salinas, Castroville, and the Pajaro region. These are areas where, based on available geologic studies and information, no significant mineral resources were identified. The area in Monterey County designated as MRZ-2, or as an area of identified mineral resource significance, is in the vicinity of Marina, Sand City and Seaside. Monterey and Pacific Grove are designated as MRZ-3, with undetermined mineral resource significance (Monterey County, 2010). A majority of the Proposed Project component sites in Marina, Seaside, and Sand City, are designated MRZ-2; the proposed sites of Treatment Facilities at the Regional Treatment Plant, Product Water Conveyance System, and the Injection Well Facilities are designated as MRZ-2 zones due to the presence of significant sand and gravel deposits. All designated MRZ-2 lands are encouraged to be protected, as feasible, from land uses that would eliminate their future availability for mining. The Salinas Pump Station component site is not within a designated MRZ (California Geological Survey, 2012).

Portions of Marina are underlain by the quaternary beach and dune sand formation. Most undeveloped lands supporting these sand deposits are classified as mineral resource areas for construction aggregate. Armstrong Ranch, which is an area north of the city of Marina and in the northern portion of the Proposed Project area, is identified as an area of potential mineral resources for construction aggregate.

[1] A natural stone that is selected and mined based on specific size, shape, texture, or pattern.

The Proposed Project components are all within the Monterey Bay Production-Consumption Region, a study area designated by the California Geologic Survey to establish and quantify aggregate supply and demand. According to the California Geologic Survey (California Geological Survey, 2006), the region has 347 million tons of permitted aggregate resources over the next 50 years, which is sufficient to supply approximately 91% of the anticipated demand.

4.7.3 Regulatory Framework

4.7.3.1 Federal

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including buying hybrid vehicles, building energy efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

4.7.3.2 State

California Department of Conservation

The California Department of Conservation (CDC) is the primary agency charged with mineral resource protection in California. Several divisions within the CDC (the California Geological Survey, the Office of Mine Reclamation, the Division of Land Resource Protection, and the Division of Oil, Gas, and Geothermal Resources) are responsible for managing the development, utilization, and conservation of mineral resources, and the reclamation of mined lands.

Surface Mining and Reclamation Act of 1975 (SMARA)

As discussed in **Section 4.7.1**, the State Mining and Reclamation Act (SMARA) (Public Resources Code Section 2710 et seq.) was enacted in response to land use conflicts between urban growth and essential mineral production. The Act requires the State Mining and Geology Board (SMGB) to adopt state policies for the reclamation of mined lands and the conservation of mineral resources. These policies are found in Title 24 of the California Code of Regulations, Division 2, Chapter 8, Subchapter 1.

In accordance with SMARA, the State of California established the Mineral Land Classification System to help identify and encourage protection of mineral resources in areas that are subject to urban expansion or other irreversible land uses that would preclude mineral extraction. Protected mineral resources include construction materials, industrial and chemical mineral materials, metallic and rare minerals, and non-fluid mineral fuels.

2005 California Energy Action Plans and 2008 Update

The Energy Action Plan II, and subsequent update in 2008, is the state's principal energy planning and policy document (California Public Utilities Commission, 2008). The plan continues the goals of the original Energy Action Plan, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first-priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation; for example, the use of relatively small power plants near, or at, centers of high demand.

To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported. At the beginning of 2008, the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) determined it was not necessary or productive to create a new Energy Action Plan. The State's energy policies have been significantly influenced by the passage of Assembly Bill 32, the California Global Warming Solutions Act of 2006. Rather than produce a new Energy Action Plan, the CEC and CPUC prepared an "update" that examines the State's ongoing actions in the context of global climate change.

The Energy Action Plan II includes the following energy efficiency actions specific to water supply systems: identify opportunities and support programs to reduce electricity demand related to the water supply system during peak hours, as well as opportunities to reduce the energy needed to operate water conveyance and treatment systems. Because much of electricity demand growth is expected to be met by increases in natural-gas-fired generation, reducing consumption of electricity and diversifying electricity generation resources are significant elements of plans to reduce natural gas demand.

California Code of Regulations

The 2013 California Green Building Standards Code (CALGreen) is a code with mandatory and/or voluntary requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools and hospitals) throughout California. As of July 1, 2012, some mandatory requirements were extended to certain nonresidential additions and alterations. The code is Part 11 of the California Building Standards Code in Title 24 of the California Code of Regulations and is also known as the CALGreen Code. In short, the code is established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impact during and after construction. For more information see the *Guide to the 2013 California Green Building Standards Code (Nonresidential)* at http://www.documents.dgs.ca.gov/bsc/CALGreen/CALGreen-Guide-2013-FINAL.pdf.

In its Final Order Regulation For In-Use Off-Road Diesel-Fueled Fleets (California Code of Regulations in Title 13, article 4.8, chapter 9, section 2449, subsection (d), the state will be implementing requirements for construction and other off-road vehicles and equipment that use diesel to limit idling. Specifically, this section states "no vehicle or engines subject to this regulation may idle for more than 5 consecutive minutes" with some exceptions. The enforcement of this regulation would reduce energy use during construction.

In its Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, the state requires the driver of any vehicle subject to this section to comply with the following requirements, except as noted in subsection (d) below: (A) the driver shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location. (B) the driver shall not operate a diesel-fueled auxiliary power system (APS) to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5 minutes at any location when within 100 feet of a restricted area.

The enforcement of these regulations would reduce energy use during construction and operation of the Proposed Project.

Assembly Bill 32: Global Warming Solutions Act

The 2006 Act directs the California Air Resources Board to begin developing discrete actions to reduce greenhouse gases. For a discussion of the requirements of AB32, see **Section 4.3, Air Quality and Greenhouse Gases.**

4.7.3.3 Regional and Local

Plan and Policies Consistency Analysis

Table 4.7-1, Applicable State, Regional, and Local Land Use Plans, Policies, and Regulations – Energy and Minerals describes the state, regional, and local land use plans, policies, and regulations pertaining to energy and mineral resources that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.7-1** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.7.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

Table 4.7-1
Applicable State, Regional, and Local Land Use Plans, Policies, and Regulations – Energy and Minerals

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Regulation	Project Consistency with Policies and Regulations
California	California Code of Regulations	California Green Building Standards Code Title 24, Part 11 (CALGreen)	All	**CALGreen** requires energy efficiency measures in all new nonresidential buildings. See Guide to the 2013 California Green Building Standards Code (Nonresidential) at http://www.documents.dgs.ca.gov/bsc/CALGreen/CALGreen-Guide-2013-FINAL.pdf for more information.	**Consistent**: The Proposed Project must comply with the mandatory requirements in this regulation.
California	California Code of Regulations	Title 13, article 4.8, chapter 9, section 2449, subsection (d)		**Final Order For In-Use Off-Road Diesel-Fueled Fleets Idling** – The idling limits in section 2449(d)(2) shall be effective and enforceable immediately upon this regulation being certified by the Secretary of State. Fleets must meet the following idling limits. (A) Idling Lim it – No vehicle or engines subject to this regulation may idle for more than 5 consecutive minutes. Idling of a vehicle that is owned by a rental company is the responsibility of the renter or lessee, and the rental agreement shall so indicate. The idling limit does not apply to: 1. idling when queuing, 2. idling to verify that the vehicle is in safe operating condition, 3. idling for testing, servicing, repairing or diagnostic purposes, 4. idling necessary to accomplish work for which the vehicle was designed (such as operating a crane), 5. idling required to bring the machine system to operating temperature, and 6. idling necessary to ensure safe operation of the vehicle. (B) Written Idling Policy – As of March 1, 2009, medium and large fleets must al so have a written idling policy that is made available to operators of the vehicles and informs them that idling is limited to 5 consecutive minutes or less. (C) Waiver – A fleet owner may apply to the Executive Officer for a waiver to allow additional idling in excess of 5 consecutive minutes. The Executive Officer shall grant such a request upon finding that the fleet owner has provided sufficient justification that such idling is necessary.	**Consistent**: The Proposed Project must comply with this regulation.
California	California Code of Regulations	Title 13, article 4.8, chapter 9, section 2485, subsection (1)		**Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling** - or after February 1, 2005, the driver of any vehicle subject to this section shall comply with the following requirements: (A) the driver shall not idle the vehicle's primary diesel engine for greater than 5.0 minutes at any location; (B) the driver shall not operate a diesel-fueled auxiliary power system (APS) to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 100 feet of a restricted area.	**Consistent**: The Proposed Project must comply with this regulation.
Monterey County	Monterey County General Plan	Public Services	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion site Tembladero Slough Diversion site Blanco Drain Diversion site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy PS-13.2**: All new utility lines shall be placed underground, unless determined not to be feasible by the Director of the Resource Management Agency.	**Consistent**: The Proposed Project would not require any new utility lines in the unincorporated area of the County; furthermore, new utility lines in the area of the Injection Well facility would be undergrounded.
Monterey County	Monterey County General Plan	Conservation and Open Space		**Policy OS-9.1**: The use of solar, wind and other renewable resources for agriculture, residential, commercial, industrial, and public building applications shall be encouraged.	**Consistent**: This policy obligates the County to encourage the use of renewable resources, but does not obligate project sponsors to incorporate renewable resources into their projects. Solar energy currently is used to meet part of the electricity demand at the Regional Treatment Plant, and would continue to be used during operation of the Proposed Project.
Monterey County	Monterey County General Plan	Conservation and Open Space		**Policy OS-2.1**: Potentially significant mineral deposits and existing mining operations identified through the State Division of Mines and Geology, including idle and reserve properties, shall be protected from on-site and off-site land uses that would be incompatible with mineral extraction activities.	**Consistent**: Within unincorporated Monterey County, the Proposed Project component that would traverse known mining operations would be the conveyance pipeline component that traverses Armstrong Ranch. The pipeline would not prevent sand mining operations at this site. Other segments of the Product Conveyance Pipeline and the Treatment Facilities at the Regional Treatment Plant would be located on lands designated as mineral resource areas on the County's mineral resources map; however the project would not prevent access to and recovery of such mineral resources. See Impact EN-3, below.
City of Marina	City of Marina Local Coastal Program Land Use Plan	Article 6, Development	Coastal Alignment Option	**Section 30253**: Minimization of Adverse Impacts. New development shall do all of the following: d. Minimize energy consumption and vehicle miles traveled.	**Consistent, with mitigation**: Short-term construction activities in the City of Marina that would be associated with the Proposed Project could result in wasteful or inefficient use of energy, but implementation of Mitigation MeasuresEN-2 would minimize energy consumption during project construction. This issue is addressed under Impact EN-1. Operations would require long-term consumption of energy that would not be used in an inefficient or wasteful manner.
Former Fort Ord	FORA Base Reuse Plan	Conservation	RUWAP Alignment Option including Booster Pump Station Coastal Alignment Option including Booster Pump Station Injection Well Facilities site	**Soils and Geology Policy B-2**: The City shall protect designated mineral resource protection areas from incompatible land uses.	**Consistent**: The Proposed Project would not be constructed nor operated on mineral resource protection areas within the former Fort Ord.

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4.7.4 Impacts and Mitigation Measures

4.7.4.1 Significance Criteria

Based on Appendices F and G of the CEQA Guidelines, the project would have a significant effect on energy resources and minerals if it would:

a. Use large amounts of fuel or energy in an unnecessary, wasteful, or inefficient manner;

b. Constrain local or regional energy supplies, require additional capacity, or substantially affect peak and base periods of electrical demand;

c. Require or result in the construction of new electrical generation and/or transmission facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects;

d. Conflict with existing energy standards, including standards for energy conservation;

e. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;

f. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

4.7.4.2 Impact Analysis Overview

Approach to Analysis

Energy

This analysis evaluates the use of energy resources (direct and indirect) associated with the construction and operation of the Proposed Project. The energy conservation analysis is based, in part, on estimates of the operational electricity requirements of the Proposed Project provided by MRWPCA as well as estimates of diesel and gasoline consumption that would occur during project construction; estimates of the electricity requirements for operations and the potential fuel required for operations are given in **Chapter 2, Project Description**. For construction and operations, the analysis considers whether the Proposed Project would use large amounts of fuels or electricity, and whether they would be used in an unnecessary, wasteful, or inefficient manner; estimates of energy demand and capacity of the existing PG&E grid also are provided. No new electrical generation or transmission facilities would be required for construction or operations. The new power supply facilities associated with the project (in this case small electricity distribution lines to connect to existing PG&E transmission facilities) are described in **Chapter 2, Project Description**, and the topical sections within this **Chapter 4, Environmental Setting, Impacts and Mitigation Measures**, address the environmental effects of constructing and operating those onsite facilities. Natural gas would not be required for Proposed Project construction or operation and is not discussed further in this section.

Minerals

This impact analysis also evaluates the potential for the Proposed Project to result in the loss of availability of locally or regionally important mineral resources based on mineral resource maps prepared using the Mineral Land Classification System. Impacts related to the loss of mineral resources would be considered significant if the long term location of project components would result in the loss of availability of a known resource of statewide or regional significance or if the Project component would result in the loss of an locally designated resource recovery site. All potential impacts related to mineral resources would be associated with long-term operations; no impacts to mineral resources would result from temporary Proposed Project construction.

Areas of No Impact

The Proposed Project would not result in impacts related to some of the significance criteria, as explained below. Impact analyses related to the other criteria are addressed below under **Subsections 4.7.4.4** (**Construction Impacts**), **4.7.4.5** (**Operational Impacts**), and **4.7.4.6** (**Cumulative Impacts**).

(c) Require or result in the construction of new electrical generation and/or transmission facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. The Proposed Project would not necessitate construction of new electrical generation or transmission facilities or expansion of existing electrical generation or transmission facilities. The Proposed Project includes construction of some small power distribution lines to connect project electrical equipment to existing PG&E transmission lines. Those facilities would be within the Project boundaries and are evaluated as part of the Proposed Project throughout this EIR. The Proposed Project would not necessitate construction of other new transmission facilities beyond the Proposed Project boundaries and this impact is not evaluated further in this section (No impact related to construction beyond those identified elsewhere in this EIR; no impact related to operations.)

(f) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. As shown in **Figure 4.7-1, Mineral Resources Map**, there are nine non-metallic mineral recovery sites (mines) in the vicinity of the Proposed Project that are recognized in the Monterey County General Plan (Monterey County, 2010); it is unknown whether these facilities are actively mining aggregate resources at this time. Regardless, all delineated mines are over 0.25-miles from the closest Proposed Project component (the Coastal Alignment option of the Product Water Conveyance Pipeline and the Proposed CalAm Distribution Pipelines). Therefore, neither construction nor operations would result in the loss of availability of a resource recovery site (mine). (No impact related to construction or operations.)

Summary of Impacts

Table 4.7-2, Summary of Impacts – Energy and Mineral Resources provides a summary of potential impacts related to energy and mineral resources and significance determinations at each Proposed Project component site.

Table 4.7-2
Summary of Impacts – Energy and Mineral Resources

Impact Title	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	
EN-1: Construction Impacts due to Temporary Energy Use	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM
EN-2: Operational Impacts due to Energy Use	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
EN:3: Operational Impacts due to Availability of Mineral Resources	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Cumulative Energy Impact	LS: The Proposed Project would not make a cumulatively considerable contribution to a significant cumulative energy impact.												
Cumulative Minerals Impact	NI: There would be no significant construction or cumulative impacts to mineral resources.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.7.4.3 Construction Impacts and Mitigation Measures

Impact EN-1: <u>Construction Impacts due to Temporary Energy Use.</u> Proposed Project construction could result in wasteful or inefficient use of energy if construction equipment is not maintained or if haul trips are not planned efficiently. The Proposed Project would not conflict with existing energy standards. (Criteria a, b, and d) (Less than significant with mitigation)

Although energy consumed during the construction period would be a one-time use, it would represent irreversible consumption of non-renewable energy resources. During construction, the Proposed Project would consume energy in two general forms: 1) the fuel energy consumed by construction vehicles and equipment; 2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass. Fossil fuels used for construction vehicles and other energy-consuming equipment would be used during site clearing, grading, trenching, and construction. Fuel energy consumed during construction would be temporary and would not represent a significant demand on energy resources. The energy consumption for construction would not result in long-term depletion of non-renewable energy resources and would not permanently increase reliance on energy resources that are not renewable.

The Proposed Project construction vehicles and equipment, construction worker trips, and construction truck trips are provided in **Table 2-20, Construction Areas of Disturbance and Permanent Footprint,** in **Chapter 2, Project Description**, and **Table 2.17, Estimated Average-Year Diversion from the Blanco Drain**. Based on cost optimization and idling prohibitions required by Air Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (13 CCR Chapter 10, Section 2485) and Final Order Regulation For In-Use Off-Road Diesel-Fueled Fleets Idling (13 CCR, article 4.8, chapter 9, Section 2449), (i.e., the Idling Limitations), construction activity is not anticipated to use gasoline or diesel fuel unnecessarily, wastefully, nor inefficiently; however, other wasteful fuel or electricity use may occur if construction equipment is not well maintained, or if haul trips are not planned efficiently.

Construction activities would not reduce or interrupt existing electrical or natural gas services due to insufficient supply. Proposed Project construction would not interrupt existing local PG&E service, and project-related construction electricity demands would be too small to have a significant effect on PG&E's energy delivery systems or resources as evidenced by the letter received from PG&E (Kooyman, 2015). Construction activities would not significantly constrain local or regional energy supplies, require additional capacity, or substantially affect peak and base periods of electrical demand.

Energy efficiency and conservation would be accomplished by several approaches. The Proposed Project would be required to comply with existing codes and standards for efficiency and conservation, including Title 24. Title 24 building energy efficiency standards are updated every three years to constantly improve energy efficiency in residential and non-residential buildings. In addition, some incidental energy conservation would occur during construction through implementation of Mitigation Measure NV-1b identified in **Section 4.13, Noise and Vibration**, of this Draft EIR. In addition, the Idling Limitations in state regulations for diesel-fueled vehicles discussed above and discussed in **Section 4.3, Air Quality**, include a requirement that equipment not in use for more than five (5) minutes be turned off to save energy during construction.

Impact Conclusion

Construction activities could result in wasteful or inefficient use of energy if construction equipment is not well maintained or if haul trips are not planned efficiently. The potential for project construction to use large amounts of fuel or energy in a wasteful or inefficient manner is considered a significant impact. However, with implementation of Mitigation Measures EN-1 (Construction Equipment Efficiency Plan), which would ensure construction activities are conducted in a fuel-efficient manner, the impact would be reduced to a less-than-significant level.

Mitigation Measure

Mitigation Measure EN-1: <u>Construction Equipment Efficiency Plan</u>. (Applies to all Proposed Project components)

MRWPCA (for all components except the CalAm Distribution System) or CalAm (for the Cal Am Distribution System) shall contract a qualified professional (i.e., construction planner/energy efficiency expert) to prepare a Construction Equipment Efficiency Plan that identifies the specific measures that MRWPCA or CalAm (and its construction contractors) will implement as part of project construction to increase the efficient use of construction equipment. Such measures shall include, but not necessarily be limited to: procedures to ensure that all construction equipment is properly tuned and maintained at all times; a commitment to utilize existing electricity sources where feasible rather than portable diesel-powered generators; consistent compliance with idling restrictions of the state; and identification of procedures (including the use of routing plans for haul trips) that will be followed to ensure that all materials and debris hauling is conducted in a fuel-efficient manner.

4.7.4.4 Operation Impacts and Mitigation Measures

Impact EN-2: Operational Impacts due to Energy Use. Proposed Project operations would not result in the consumption of energy such that existing supplies would be substantially constrained nor would the Project result in the unnecessary, wasteful, or inefficient use of energy resources. (Criteria a and b) (Less than significant)

The operation and maintenance of the Proposed Project would result in the ongoing consumption of energy including the use of electricity for pumps, treatment processes, miscellaneous lighting, automated controls, and maintenance equipment. The Proposed Project also would generate up to 22 new employee trips per day and up to six new heavy duty truck deliveries per week and up to four maximum per weekday (eight trips), resulting in ongoing use of diesel and gasoline fuel. These vehicle trips would consume fossil fuels and would contribute to the operational energy demand of the Proposed Project. The amount of fossil fuel required to fuel these vehicle trips would be approximately 8,473 gallons per year, assuming an average fuel economy of 15 miles per gallon for employee vehicles and 5 miles per gallon for delivery trucks.

The components of the Proposed Project that would result in new operational electricity demand include the following:

- The source water diversion and storage facilities would have a net electricity demand of 911 megawatt-hours per year (MW-hr/yr) for operation of the pumps and miscellaneous controls.
- The Proposed Project's additions and changes at the Regional Treatment Plant (including the new AWT Facility and the SVRP modifications) would have the potential new demand for about 11,980 MW-hr/yr of electricity, which would be partially offset by a savings of 1,900 MW-hr/yr reduction in electricity demand from use of CSIP supplemental wells and by use of 2,726 MW-hr/yr produced by the cogeneration plant. New electricity would be required for pumping, pre-treatment, advanced water treatment, stabilization, and concentrate disposal facilities. Cogeneration at the Regional Treatment Plant would continue to provide all of the electricity required for the primary and secondary treatment processes. In addition, MRWPCA recently began using solar power generated on-site to meet approximately half of the electricity demand of the Salinas Valley Reclamation Plant. The net new electricity for the Salinas Valley Reclamation Plant would still be lower than the PG&E system demand prior to completion of the solar array (Bob Holden, personal communication, November 2014). The onsite electrical system components would include an electricity conveyance line, transformers, and switchgear. The major electrical loads would be from the influent pumping, oxygen generator, ozone generator, biologically active filtration backwash pumps, membrane filtration and reverse osmosis feedwater pumping,

ultraviolet light reactors, and product water pumping. The AWT Facility would not require back-up power; therefore, no new back-up generators are proposed and no increase in the use of existing generators is anticipated.

- A new Booster Pump Station would receive flow from the first "leg" of the Product Water Conveyance Pipeline. For either pipeline alignment, the Booster Pump Station building would include electrical and control equipment, maintenance access, electrical supply transformer and a surge tank for the pumps. The energy demand would be 1,912 MW-hr/yr for either booster station option (RUWAP and Coastal alignments).
- The proposed Injection Well Facilities would require a permanent power supply (approximately 147 MW-hr/yr) to the site, primarily for back-flushing the deep injection wells. The facilities would require a new connection to the existing PG&E power grid. The onsite electrical system, housed in four separate points of service would be designed to have an electrical building and outdoor switchgear for each well. The injection wells and associated electrical and mechanical systems would operate 24 hour per day, 7 days per week throughout the year, although all eight wells would never be actively injecting at the same time. The Proposed Project would also use a small amount of fuel for worker trips to perform routine operations and maintenance checks at each well facility site. Each well station would be visited daily when wells are operating. At other times, the wells would be visited on a weekly basis or less. Monitoring well water sample collection would occur during regularly scheduled visits.

The Proposed Project would require a total of approximately 11,000 MW-hr/yr of net new electricity representing only 0.1% of the Monterey County electrical usage. This amount would not substantially affect delivery of electricity on either a peak period or annual basis. The energy demands of the Proposed Project, described above, would be met by the existing PG&E grid and the following specifications:

- The source water diversion facilities (a portion of the Salinas Pump Station, Salinas Treatment Facility, Reclamation Ditch Plant Diversion, Tembladero Slough Diversion, Blanco Drain and Lake El Estero Source Water Diversion pumps) would be served by local PG&E electricity and distribution systems. The Salinas Pump Station will also receive a large portion of its power from solar that the City of Salinas will be purchasing. The AWT Facility power would be supplied through a new PG&E utility connection.
- The Booster Pump Station would receive the necessary electricity through a new PG&E utility connection.
- The proposed Injection Well Facilities will require a new PG&E connection. PG&E has two circuits in the vicinity of the Injection Well Facilities components. The circuits are called Del Monte 1101 and Del Monte 2012: circuit capacity at Del Monte 1101 is 8.73 MW and the projected maximum load is 5.28 MW; Del Monte 2012 circuit capacity is 16.48 MW and the projected maximum load is 9.82 MW. Either circuit has the capacity for the proposed 400 hp well load. The power would be brought to the site from offsite overhead power poles and run to the Injection Well Facilities by underground cables.

At a minimum, the proposed structures at the Injection Well Facilities would be designed to meet California's energy efficiency standards outlined in Title 24 of the California Code of Regulations. In addition, the Proposed Project pumps at the AWT Facility, Booster Pump

Station, and Injection Well Facilities, would utilize new, well-maintained, high efficient pump motors that would operate with automatic or manual variable speed controls. This type of pump motor minimizes wasted energy at the well pumps, because the motor would not start at the maximum speed, but instead would gradually ramp up when turned on and ramp down when turned off to prevent wasteful energy use.

The energy impact of the Proposed Project would be less-than-significant, for the following reasons:

- The electrical power would be provided directly from the PG&E grid that has adequate capacity to supply the Proposed Project demands (i.e., the necessary power can be produced by existing electricity generating facilities and delivered by existing electricity transmission lines) (Kooyman, 2015);
- Existing Treatment Facilities at the Regional Treatment Plant are partially powered by solar energy and cogeneration of biogas (including methane generated during the treatment processes) thus minimizing the need for new electricity generation using fossil fuels;
- The Proposed Project is designed to be energy efficient and not waste energy because the new pumps and electrical facilities would be energy efficient, including the use of variable speed controls and LED lighting at a minimum; and
- The energy resources that would be consumed by the Proposed Project would be for the public benefit and would not be wasteful. The Proposed Project would serve to increase water supply diversity and reliability using water recycling, a method that is encouraged by State and federal agencies and non-profit entities due to its energy efficiency.

Impact Conclusion

Proposed Project operations would not result in the consumption of energy such that existing supplies would be substantially constrained nor would it result in the unnecessary, wasteful, or inefficient use of energy resources. Proposed Project operations would result in a less-significant energy impacts.

Impact EN-3: <u>Operational Impacts on Mineral Resources.</u> The Proposed Project would not result in a significant impact due to the loss of availability of known mineral resources of value to the region or to the state or to any locally-important mineral recovery site. (Criterion e) (Less than significant)

A large portion of the Proposed Project area is mapped as MRZ-2 (see **Figure 4.7-1, Mineral Resources Map**) and is within an area of identified mineral resource significance (see **Section 4.7.1.4**). Siting of the Proposed Project could indirectly affect the availability of the mineral resource if the location or maintenance of the facilities would preclude access to such mineral resources. The following discussion evaluates the potential for impacts to mineral resource impacts at each Proposed Project site:

- Salinas Pump Station, Blanco Drain, Salinas Treatment Facility Diversion and Storage sites do not lie within a designated MRZ and thus they have no known locally-important mineral resources. Siting facilities at these locations would not impact mineral resources.
- Reclamation Ditch Plant Diversion, Tembladero Slough Diversion, and Lake El Estero Diversion sites are designated as MRZ-1, a location where adequate

information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. Siting facilities at these locations would not impact access to potential mineral resources or designated mineral resource recovery sites at these diversion sites.

- The Treatment Facilities at the Regional Treatment Plant are on lands designated as MRZ-2. The Treatment Plant property is used as a wastewater treatment plant and is adjacent to the Monterey County Regional landfill and transfer station. For this reason, access to mineral resources already is substantially impeded at this site, and it is unlikely that mineral resources would be accessed from this location in the future. Therefore, siting the Advanced Water Treatment Facility and Salinas Valley Reclamation Plant improvements at the Regional Treatment Plant would not cause a significant impact on access to mineral resources or locally important mineral resource recovery sites.
- The RUWAP and Coastal Alignment Options of the Product Water Conveyance Pipeline would be located mostly within existing road rights-of-way, but the northernmost portion of both pipelines would cross undeveloped portions of the MRZ-2 area between the City of Marina and the Regional Treatment Plant. The Coastal alignment through this area is within the MRWPCA's wastewater interceptor easement and the RUWAP alignment is within the Marina Coast Water District's property. The Proposed Project would result in the construction of a new pipeline that would not preclude mineral extraction except on a narrow swath of land (approximately 10 feet wide) on top of and adjacent to the pipeline. The proposed pipeline through this area would have a limited footprint (less than 10 foot wide trench cross-section) such that mineral resources on either side of the pipeline easement could still be accessed from this vicinity under guidance of a geotechnical engineer to ensure pipeline stability. Neither pipeline option would result in a significant reduction in the availability of mineral resources (primarily dune sands). Therefore, the construction of the proposed conveyance facilities at these sites would have a less-than-significant impact on mineral resources.
- The Injection Well Facilities (including wells, back-flush, and control housing) would be sited in an area that is not within a designated mineral resource zone; this is an area that is not known to have any mineral resources. Therefore, the construction of the proposed Injection Well Facilities would have a less-than-significant impact on availability of mineral resources.
- The CalAm Distribution System pipeline would be sited entirely within existing road rights-of-way, which are designated MRZ-2 and MRZ-3 from Lake El Estero west to the end of the pipeline. These pipelines would be located within road rights-of-way and would have limited footprints, meaning the potential impact on mineral resources would be less-than-significant.

The siting of the Proposed Project components would not result in a loss in the availability of the known mineral resources in the MRZ-2 zoned area either directly (because the work would not consume large amounts of aggregate resources) or indirectly (precluding access to such resources). No aggregate extraction currently is occurring on the Proposed Project component sites, and future extraction would not be precluded, significantly obstructed, or otherwise affected by the Proposed Project. The Proposed Project would not result in the loss of availability of known mineral resources; therefore, the project would have a less-than-significant impact on mineral resources.

4.7.4.5 Cumulative Impacts and Mitigation Measures

The geographic area for the analysis of mineral and energy impacts consists of Monterey County and PG&E's service area. All of the cumulative projects identified in **Section 4.1.3.2**, **Table 4.1-2, Project Considered for Cumulative Analysis** could result in additional consumption of electricity, natural gas, gasoline and diesel in the region.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the Monterey Peninsula Water Supply Project (MPWSP), with the 6.4 mgd desalination plant, and then to address the overall combined impacts of the Proposed Project and all relevant projects identified on **Table 4.1-2** for the cumulative analysis:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[2] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The overall estimated construction schedule would be from June 2016 through March 2019 for the combined projects and could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1,Introduction**).
- The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Energy Resources

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). The proposed 6.4 mgd CalAm desalination plant would require substantial amounts of new electricity.

New structures, including the Proposed Project Booster Pump Stations and Advanced Water Treatment Facility and the proposed CalAm desalination plant, would be required to be constructed in accordance with specifications contained in Title 24 of the California Code of Regulations. Recently adopted changes in state building and energy efficiency requirements to

[2] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

help reduce GHG emissions will also minimize increases in energy consumption. Such measures have been factored into California energy forecasts, which predict an overall reduction in per capita use of electricity due to energy efficiency standards and conservation.

PG&E has stated that it has adequate supplies to provide electricity to the Proposed Project and to the larger, 9.6 mgd CalAm Water Supply Project. (PG&E, 2014b, and Kooyman, 2015). Therefore, the MPSWP (with the 6.4 mgd desalination plant) and the Proposed Project would not result in a significant cumulative impact related to energy.

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1.1 rev.** The cumulative projects are cross-referenced (in parentheses) to the project number on Table 4.1-2. All cumulative projects would result in a cumulative demand for energy. As indicated above, the California Energy Commission, PG&E's system-wide electricity consumption is expected to increase from approximately 113,000 gigawatts in 2015 to a range of between 119,831 to 131,731 gigawatt in the year 2022 (California Energy Commission, 2012). Cumulative demand is taken into account in these projections. Cumulative projects are unlikely to use energy wastefully, inefficiently, or unnecessarily given the regulatory requirements related to fuel efficiency/energy conservation and cost-effectiveness considerations, and climate change regulations (such as AB32) that mandate reductions in petroleum-based electricity generation, and reductions in use of petroleum-based fuels.

While new cumulative development in the region would be required to comply with applicable energy standards, it is unknown whether such development would necessitate new or expanded energy or natural gas supplies or distribution facilities. If such facilities are required for a particular project, the environmental effects of such facilities would be evaluated during the environmental review process for the particular project.

The Proposed Project energy demand would constitute less than 0.1% of PG&E's projected increase of electricity demand between 2015 and 2022 (approximately 6,800 to 18,700 gigawatts). The Proposed Project construction and operation would not make a considerable contribution to a significant cumulative energy impact due to: consumption or use of energy unnecessarily, wastefully, or inefficiently; the need for new offsite power generation; nor construction of new transmission facilities. As described in Impact EN-2, the Proposed Project would not necessitate construction of new or expanded electricity generation or transmission facilities; therefore it would not contribute to cumulative impacts from construction of such facilities.

Mineral Resources

The Proposed Project would have no impact on the availability of mineral resources during construction, and would have a less-than-significant impact on availability of mineral resources due to Proposed Project operations.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant in the EIR currently being prepared). While some components of each project would be sited on lands with known mineral resources, the siting and operation of the facilities would not result in a loss of availability of known mineral resources or interfere with mining operations. No aggregate extraction currently is occurring on the GWR component sites, and future extraction would not be precluded, significantly obstructed, or otherwise affected by the Proposed Project. MPWSP components within the CEMEX site would be buried, clustered with existing development, and/or set back from active mining areas, and would not preclude continued mining activities. Therefore, the combined effect of both projects would not result in a significant cumulative impact on mineral resources.

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1.1 rev, Cumulative Projects Location Map.** Except for the MPWSP (#1) as discussed above, no other cumulative development projects listed in **Table 4.1-2** would affect access to mineral resources in the same locations as the Proposed Project.

Cumulative Impact Conclusion

The Proposed Project would not make a considerable contribution to a significant cumulative energy impact. There would be no significant construction or operational cumulative impacts to mineral resources.

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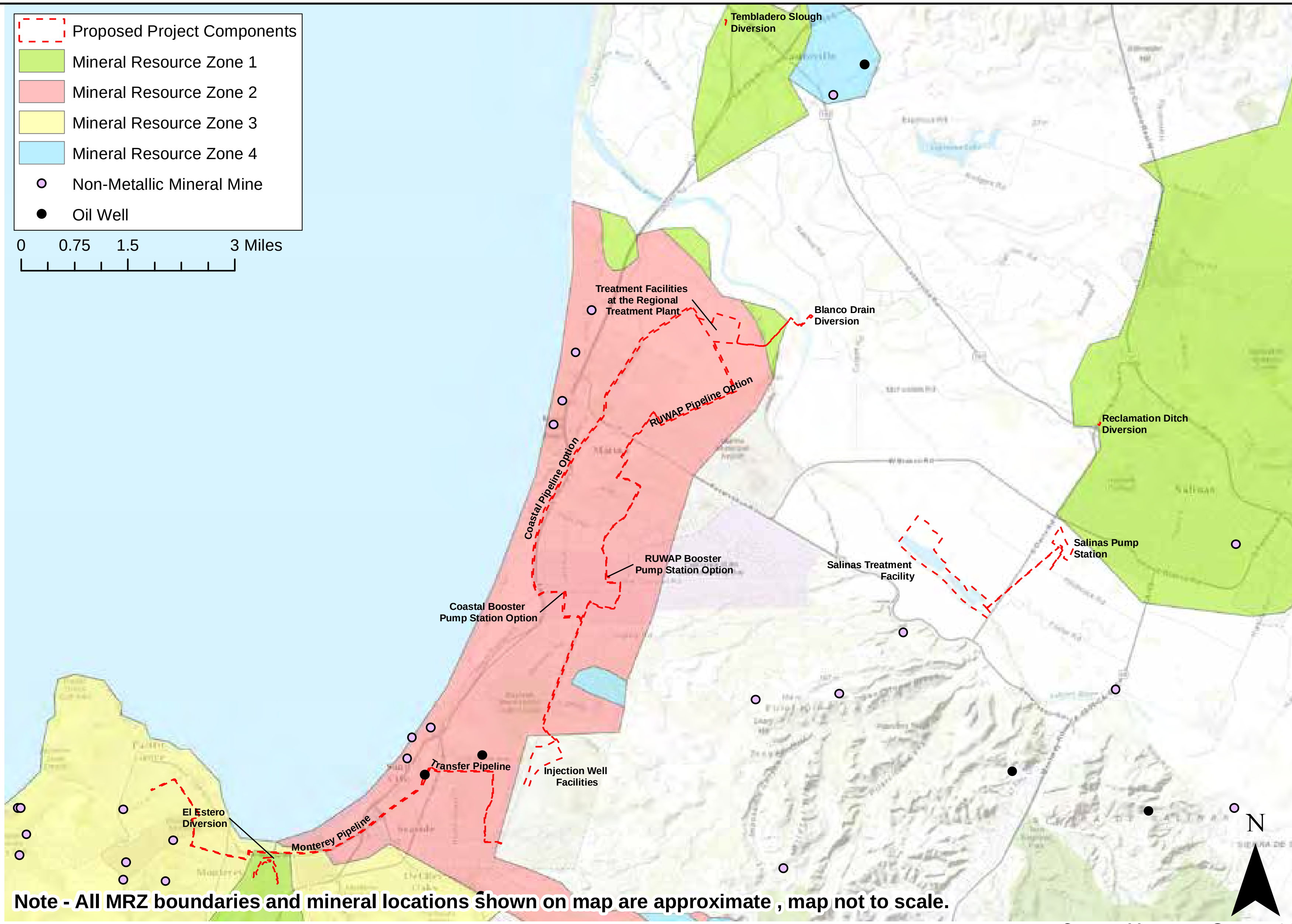

Source: Monterey County, 2014

DD&A

Mineral Resources Map

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.7-1

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4.8 GEOLOGY, SOILS, AND SEISMICITY

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4.8.1 Introduction

This section describes geology, soils, and seismicity conditions in the vicinity of the Proposed Project sites and assesses the extent to which the project could expose people or structures to potential seismic, liquefaction, landslide, and expansive soil impacts, and the extent to which the project could result in substantial soil erosion or loss of topsoil. The impact section evaluates construction and operational impacts, and mitigation measures are presented as necessary. The section is based on a preliminary geotechnical report prepared for this EIR by Ninyo & Moore, which is included in **Appendix K**, and review of other relevant studies and reports. A discussion of cumulative impacts is provided at the end of the section.

Public and agency comments received during the public scoping period in response to the Notice of Preparation are summarized in **Appendix A, Scoping Report**. No comments were received related to geology, soils, and seismicity.

4.8.2 Environmental Setting

The geologic and soils study area extends from the northern Marina area southwest to the Pacific Grove area in the Monterey Peninsula, and as far inland as Salinas. The Proposed Project components are located in three general areas that have relatively distinct geologic and topographic characteristics. The northeastern area includes a large area of low-lying agricultural fields in the floodplain of the Salinas River. Proposed Project components in northern Marina are located within approximately 2 miles of the coast, and project components in Salinas are located within approximately 10 miles of the coast. The central portion of the project area includes rolling hills extending inland from the coast comprised of windblown eolian deposits. This area includes the urbanized developments of Seaside and Marina, as well as the former Fort Ord military base. The southwestern portion of the project area includes rolling hills extending inland and generally west of Canyon Del Rey into the Monterey Peninsula.

4.8.2.1 Regional Geologic Setting

Geologic Setting

The project area is located within the Coast Ranges physiographic province which is characterized by a series of northwest-trending mountain ranges and valleys that are generally fault controlled. The Coast Ranges are chiefly composed of thick Mesozoic- and Cenozoic-age sedimentary strata. The northern and southern parts of the ranges are separated by a depression containing the San Francisco Bay. Faults juxtapose blocks of different origins. The majority of the Monterey area is underlain by the Salinian block, which is generally bounded by the San Andreas fault zone to the northeast and the San Gregorio fault zone to the southwest (Rosenberg, 2001h referenced in Ninyo & Moore, 2014). The Salinian block is comprised of Mesozoic granitic rock and Paleozoic to Mesozoic meta-sedimentary rock (Norris & Webb, 1990 as referenced in Ninyo & Moore, 2014). During Quaternary time, the region has been uplifted to its current elevation and a combination of tectonic and geomorphic processes have shaped the present landscape, including the exposure of marine terraces, deposition of eolian sand, alluvial deposition, and landsliding.

The northeastern portion of the project area extends north of the active Salinas River channel and generally consists of a relatively broad low-lying, alluvial floodplain. The central area of the project consists of eolian deposits that form a zone of moderately elevated, rolling hills extending several miles inland from the coastline and south from the Salinas River channel to Canyon del Rey. The southwestern area of the project extends generally west along the coastline from the Canyon del Rey into elevated terrain of the Monterey Peninsula, which is the coastal expression of a northwesterly trending mountain range uplifted by faulting. The uplifted peninsula includes a variety of geologic units that includes a core of Cretaceous-age granitic rocks, Tertiary-age sedimentary rocks, Pleistocene-age terrace deposits, landslides and alluvial sediments.

Geologic Units

Based on geologic literature review, the geologic units anticipated within the project study area include fill, alluvium, eolian deposits, terrace deposits, Tertiary-age Monterey Formation, and Cretaceous-age poryphyritic granodiorite of Monterey. The distribution of the various geologic units is shown on the regional geology map in **Figure 4.8-1A, Regional Geology Map** along with the existing wastewater conveyance pipelines and Proposed Project components. The regional geology map symbols are described on **Figure 4.8-1B, Explanation of Regional Geology**. A brief summary of these geologic units and characteristics are presented below.

Alluvium

Alluvial materials are generally mapped in the northeast and southwest portions of the project study area. Alluvium is generally comprised of unconsolidated sediments deposited in alluvial fans, along active stream and river channels, and in floodplains. Project components in the northeastern area are mapped as being underlain by Holocene-age flood-plain deposits, Holocene basin deposits, Holocene alluvial deposits, and Holocene stream channel deposits (Rosenberg, 2001a as referenced in Ninyo & Moore, 2014). The alluvium in the northeastern portion of the project area is anticipated to generally consist of interbedded silts, clays, sands, and gravels. The northeastern area is largely agricultural and relatively flat, with relatively poor drainage features. Groundwater is anticipated to be within 10 feet of the ground surface (and shallower) in the low-lying areas.

Portions of the project components in the southwestern area are mapped as being underlain by Holocene basin deposits and Holocene alluvial deposits Alluvial materials in the southwestern project area are anticipated to be more variable due to the complex geologic conditions and terrain associated with the Monterey Peninsula and may include moist to wet, loose/soft clays, silts, and sands.

Eolian Deposits

The central portion of the project area between the Salinas River and Canyon del Rey is mapped as being underlain by Pleistocene-age eolian deposits. Some eolian (windblown) deposits are also present in the southwestern portion of the project area (Rosenberg, 2001a as referenced in Ninyo & Moore, 2014). These deposits are described as being weakly to moderately consolidated, moderately to well-sorted silt and fine- to medium-grained sand deposited in an extensive coastal dune field. Shallow groundwater is not anticipated within the elevated eolian deposits, except for localized low-lying areas along the coastline (Rosenberg, 2001d as referenced in Ninyo & Moore, 2014). The soil erosion hazard within the eolian deposits in the central portion of the project area is mapped as moderate, except along the coast where the soil erosion hazard is mapped as high (Rosenberg, 2001f as referenced in Ninyo & Moore, 2014). Eolian deposits may also be collapsible. Collapsible soil is broadly defined as loose and cemented soil with low moisture content that is susceptible to a large and sudden reduction in volume upon wetting, with no increase in vertical stress.

Terrace Deposits

Pleistocene-age coastal terrace deposits are mapped within the southwestern portion of the project area, and are described as semiconsolidated, moderately well-sorted marine sand containing thin, discontinuous gravel-rich layers. These deposits can locally include some terrace surfaces and debris flow deposits resting on terrace surfaces. In general, the soil erosion hazard is mapped as moderate in areas underlain by coastal terraces (Rosenberg 2001f as referenced in Ninyo & Moore, 2014).

Monterey Formation

The Tertiary-age Monterey Formation is mapped in the southwestern portion of the project along the margins of Lake El Estero, and is described as light brown to white, hard, brittle, and platy siliceous mudstone. Bentonite beds are present within the Monterey Formation, which are prone to landsliding in sloped areas.

Poryphyritic Granodiorite of Monterey

The Poryphyritic Granodiorite of Monterey is mapped in the southwestern portion of the project area. This Cretaceous-age granitic rock is light gray to moderate pink, and medium-grained (Clark et al., 1997 as referenced in Ninyo & Moore, 2014).

Fill

Artificial fill materials are mapped along the proposed CalAm Distribution System Pipelines and at the Lake El Estero Source Water Diversion site in the southwest portion of the project study area, and are anticipated to be encountered elsewhere throughout the study area. Fill materials are generally derived from local natural soils, and may also include imported materials or other non-engineered soils or construction debris.

4.8.2.2 Faulting and Seismicity

Regional Faults

The Project area is located in the Coast Ranges geomorphic province of California, an area considered seismically active, as are most areas of California. The Coast Ranges are comprised of a series of parallel, northwest-trending mountain ranges and valleys generally controlled by faults. Faults juxtapose blocks of geologic units of different origins called belts. The Monterey area is located within the Salinian block which is a northwest-trending belt bounded to the east by the San Andreas Fault, and to the west by the San Gregorio (Sur) fault. A regional fault map is presented on **Figure 4.8-2, Regional Fault Map**.

San Andreas Fault

The San Andreas Fault system is the most active fault system in California. In its entirety, it runs 800 miles down the California coastline, including 30 miles in the southeastern portion of Monterey County. To the north and south of the County, the fault appears to be currently locked with no detectable movement. Between these locked sections, within the County, the San Andreas Fault creeps. From San Juan Bautista to Parkfield, the creeping section produces numerous small to moderate (mostly magnitude 6.0 and smaller) earthquakes but no large ones. The stretch of the fault between Parkfield and Gold Hill defines a transition zone between the creeping and locked behavior of the fault.

Historically, most of the earthquakes that have occurred in Monterey County have originated from movement along the San Andreas Fault system, which runs through the southeastern portion of the county. It is the source of the area’s earliest recorded great earthquake event, which occurred in June 1838 with an estimated magnitude 7.0 to 7.4. The next large earthquake in Monterey County occurred almost 20 years later on January 9, 1857 on the southern segment of the San Andreas Fault, northwest of the unincorporated community of Parkfield with an estimated magnitude of 8.3. The San Francisco earthquake on April 18, 1906 had a magnitude of 7.7–7.9. In Monterey, Hotel Del Monte was nearly destroyed, and four or five people were killed. Available data suggest that between five to ten small earthquakes have been felt each year in Monterey County and one moderate earthquake has been felt along the San Andreas Fault near Parkfield every 22 years (1857, 1881, 1901, 1922, 1934, 1966, and 2004) over the past 150 years. However, the next large earthquake did not occur for over 80 years, from 1906 until 1989. On October 17, 1989, the Loma Prieta earthquake occurred in neighboring Santa Cruz County with a magnitude 6.9 to 7.1. In Moss Landing, liquefaction destroyed the marine laboratory and seriously damaged a power plant.

Geologic studies show that over the past 1,400 to 1,500 years large earthquakes have occurred at about 150-year intervals on the southern segment of the San Andreas Fault (south of Parkfield). As the last large earthquake on the southern San Andreas Fault segment occurred in 1857, that section of the fault is considered a likely location for an earthquake within the next few decades. The northern segment of the fault (north of San Juan Bautista) has a slightly lower potential for a great earthquake. However, as noted above, Monterey County experiences several small detectable earthquakes every year. Also, moderate-sized, potentially damaging earthquakes could occur in this area at any time. Recent research by the USGS shows that the San Andreas Fault has a 21% probability and the San Gregorio–Palo Colorado Fault zone has a 10% probability of a magnitude 6.7 or greater earthquake by 2032.

San Gregorio Fault

The San Gregorio Fault Zone is a complex of faults that skirt the coastline north of Big Sur, run northwestward across Monterey Bay, briefly touching the shoreline of the San Mateo County coastline at Point Ano Nuevo and at Seal Cove, just north of Half Moon Bay. This fault is an active fault that has been recently recognized as capable of producing large earthquakes. Recent studies have shown Holocene displacement on the San Gregorio Fault, as recently as 1270 AD to 1400. Additionally, a 1929 earthquake with Richter Magnitude above 6.0, thought to have occurred on the Monterey Fault, may have actually ruptured an offshore segment of the San Gregorio Fault Zone. According to the USGS Working Group on earthquake probabilities, the San Gregorio Fault has a 10% chance of producing one or more magnitude 6.7 earthquakes in the next 30 years.

Local Faults

Several active and potentially active faults have been mapped within or close to the study area. As defined by the California Geological Survey, an "active" fault is one that has exhibited seismic activity or has evidence of fault displacement within Holocene time (roughly during the last 11,000 years). "Potentially active" faults are those which show evidence of displacement during Quaternary time (roughly during the last 1.6 million years), but for which evidence of Holocene movement has not been established. The approximate locations of the major faults in the region and their geographic relationship to the project area are shown on **Figure 4.8-2** and in greater detail on **Figure 4.8-3, Detailed Fault Map**.

Table 4.8-1, Principal Active and Potentially Active Faults lists principal active and potentially active faults near the Proposed Project component sites, the estimated maximum moment magnitude of each fault, and the estimated slip rate for each fault. The distances to each fault are based on estimated distances from the closest Proposed Project component. The distances to each fault are based on estimated distances from the southwestern end of the proposed CalAm Distribution System Pipelines, the Tembladero Slough diversion site, or the Reclamation Ditch diversion site.

Table 4.8-1
Principal Active and Potentially Active Faults

Fault	Fault to Proposed Project Area Distance (Range in Miles)	Maximum Moment Magnitude (M_{max})	Slip Rate (mm/yr)
Monterey Bay – Tularcitos Fault Zone	0-11	7.3	0.5
Rinconada Fault Zone	0-7.5	7.5	1.0
San Andreas (Santa Cruz Mtn Section)	12-26	7.0	17.0
Source: Ninyo & Moore, 2014			

The Reliz fault zone is the northward extension of the Rinconada fault zone which trends to the northwest along the base of the mountains at the southwest side of the Salinas River valley. The northernmost known indication of Quaternary movement along this fault zone is the steeply dipping Paso Robles Formation beds near the Spreckels area. The Reliz fault has been projected northwest from Spreckels crossing through the central portion of the project area in the Marina vicinity; this portion of the fault passes beneath eolian deposits and the location is uncertain. This fault system has displaced materials of late Quaternary age (11,000 to 750,000 years old) and is considered potentially active (Rosenberg, 2001c as referenced in Ninyo & Moore, 2014).

The Monterey Bay-Tularcitos fault zone crosses through the Monterey-Seaside area and extends offshore. The onshore portion in the project vicinity includes the Ord Terrace, Seaside, Chupines, and Navy faults. These faults create an approximately 5 to 9 mile wide zone of short northwest-striking faults that are related. The activity and locations of these faults are not well defined. Geologic data indicates Holocene displacement at some locations and these faults should be considered active for planning purposes.

The northernmost Ord Terrace fault is mapped beneath eolian deposits in the central portion of the project area, and is a steeply southwest-dipping reverse fault. There is evidence for Pleistocene activity in the northward extension of the fault into Monterey Bay, where it cuts Pleistocene strata and off-sets the sea floor (Rosenberg, 2001h as referenced in Ninyo & Moore, 2014). Rosenberg (2001c as referenced in Ninyo & Moore, 2014) shows displacement on the Ord Terrace fault within Quaternary time but prior to the middle Pleistocene.

The Seaside fault is mapped beneath eolian deposits in the central portion of the project area. The Seaside fault is a steeply southwest-dipping reverse fault and well data suggests that its trace connects to a splinter of the Chupines fault near Highway 68. Well logs on either side of the fault show an approximate 275 foot vertical offset of Pleistocene continental deposits, but evidence for Holocene movement is lacking (Rosenberg, 2001h as referenced in Ninyo & Moore, 2014). Rosenberg (2001c) shows displacement along the Seaside fault within Quaternary time but prior to the middle Pleistocene.

The Chupines fault is mapped within the southwestern edge of the central portion of the project area. At locations where the fault orientation is measurable, its dip ranges from 50 degrees southwest to near-vertical. A probable offshore extension of the Chupines fault cuts Holocene deposits and seafloor deposits (Rosenberg, 2001h as referenced in Ninyo & Moore, 2014). Thus the portion of the fault within the project area is considered active.

The Navy fault is mapped through the proposed CalAm Monterey Pipeline alignment within the southwestern portion of the project area. Its northwest-striking alignment is consistent with the Tularcitos fault zone and extends from Carmel Valley to Monterey Bay. The Navy fault dips steeply to the southwest and geomorphic features along its trace such as linear drainages and aligned benches indicate predominantly strike-slip movement. Clark (Clark et al., 1997 as referenced in Ninyo & Moore, 2014) reports Holocene activity on the Navy fault based on Holocene displacements of offshore strata and earthquake epicenter plots near the fault trace. Rosenberg (2001c) however shows displacement within Quaternary time but prior to the middle Pleistocene. The Fault Activity Map of California (Jennings & Bryant, 2010 as referenced in Ninyo & Moore, 2014) indicates that displacement along the onshore portion of the Navy fault within the study area dates to late Quaternary and pre-Holocene time.

Seismic Hazards

Seismic hazards that could potentially affect improvements within the study area include surface fault rupture, ground shaking, soil liquefaction and dynamic settlement, lateral spreading, tsunamis and landsliding.

Fault Rupture

Evaluation of fault rupture hazard is based on the historic activity and recurrence of faulting along existing faults. Faults of known historic activity during the last 200 years, as a class, have a greater probability for future activity than faults classified as Holocene age (last 11,000 years), and a much greater probability of future activity than faults classified as Quaternary age (last 1.6 million years). However, certain faults have recurrent activity measured in tens or hundreds of years whereas other faults may be inactive for thousands of years before being reactivated. The magnitude, sense, and nature of fault rupture also vary for different faults or along different strands of the same fault.

Faults in the vicinity of the project have demonstrated Quaternary movement and can be considered at least potentially active. The Chupines fault and the Navy fault have demonstrated Holocene movement and can be considered active. As such, there is potential for fault rupture within the project area, and these faults cross proposed and existing pipeline alignments. The Reliz, Seaside, Chupines, and Navy faults cross the proposed CalAm Distribution System Monterey Pipeline alignment. The Ord Terrace fault potentially crosses the proposed CalAm Distribution System Monterey Pipeline alignment, and traces are located very near the proposed Injection Well Facilities. The approximate locations of these faults and their geographic relationship to the proposed improvements are shown on **Figure 4.8-3.**

Ground Shaking

Strong ground shaking may occur due to earthquake events along active faults nearby or distant to the study area. Disregarding local variations in ground conditions, the intensity of shaking at different locations within the area can generally be expected to decrease with distance away from an earthquake source. The California Geologic Survey Ground Motion Interpolator (California Geological Survey, 2008 as referenced in Ninyo & Moore, 2014) based on the 2008 Probalistic Seismic Hazard Assessment by the United States Geological Survey (Petersen et al, 2008 as referenced in Ninyo & Moore, 2014), indicates that the peak ground acceleration with a 2% probability of exceedance in 50 years ranges between 0.60g and 0.65g over the study area for an assumed shear wave velocity of 270 meters per second.

Soil Liquefaction and Dynamic Settlement

Liquefaction is a phenomenon in which soil loses its shear strength for short periods of time during an earthquake. Ground shaking of sufficient duration results in the loss of grain-to-grain contact, due to a rapid increase in pore water pressure, causing the soil to behave as a fluid for short periods of time. The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of structure slabs due to sand boiling, and buckling of deep foundations due to liquefaction-induced ground settlement. Dynamic settlement may also occur in loose, dry sands above the water table.

In general, a relatively high potential for liquefaction exists in loose, sandy soils that are within 50 feet of the ground surface and are saturated (below the groundwater table). The alluvial materials in the southwestern portion of the Project area are mapped as having high liquefaction susceptibility, and the alluvial materials in the northeastern floodplain area of the project are mapped as having moderate to high liquefaction susceptibility (Rosenberg, 2001d as referenced in Ninyo & Moore, 2014). The eolian deposits are generally mapped as having low liquefaction susceptibility, except where shallow groundwater may be present in localized low-lying areas (Rosenberg, 2001d as referenced in Ninyo & Moore, 2014). The liquefaction hazard and landslide seismic hazard are mapped as low in areas underlain by coastal terrace deposits (Rosenberg 2001b and 2001d as referenced in Ninyo & Moore, 2014).

Some locations within the project study area, including the floodplain of the Salinas River, low-lying coastal areas, and alluvial river-bottom areas such as Canyon del Rey (Highway 68) and other drainages within the southwestern portion of the project have a moderate to high liquefaction potential (**Figure 4.8-4, Liquefaction Hazards**). Separate locations of historical liquefaction incidents have been documented within the project area, the majority of which were located within the northeastern project area. There may be a moderate potential for dynamic settlement of dry, loose sands within the elevated dune sand deposits.

Lateral Spreading

Lateral spreading is horizontal earth movement associated with soil liquefaction. Lateral spreading generally occurs in shallow groundwater areas with unsupported embankments including natural creek banks, fill slopes, levees, etc. Areas that have a potential for lateral spreading within the study area are low-lying areas near river channels, sloughs, or other drainages.

Earthquake-Induced Landslides

Relatively shallow surficial sliding may occur throughout the project area where steep slope gradients are present and/or loose soil conditions exist (such as eolian sands, loose topsoil, and fill slopes). The project study area is generally considered to be in an area of low susceptibility to earthquake-induced landsliding (Rosenberg, 2001b as referenced in Ninyo & Moore, 2014).

Tsunami

Tsunamis are open sea tidal waves generated by earthquakes. Tsunami damage is typically confined to low-lying coastal areas. A majority of the coastline along Monterey Bay is mapped within a tsunami inundation area (see **Figure 4.11-8, Tsunami Inundation Areas in the Proposed Project Area**, in **Section 4.11, Hydrology and Water Quality: Surface Water**), which includes the areas in which some project components are located in the southwestern part of the project area (the CalAm Distribution System: Monterey and Transfer Pipeline and the Lake El Estero Diversion sites) and in the northeastern part of the project area in the vicinity of the Salinas River floodplain (the Tembladero Slough and Blanco Drain Diversions sites) (California Geological Survey, 2009a,b,c as referenced in Ninyo & Moore, 2014).

4.8.2.3 Soil Conditions

Expansive Soils

Some clay minerals undergo volume changes upon wetting or drying. Unsaturated soils containing those minerals will shrink/swell with the removal/addition of water. The heaving pressures associated with this expansion can damage structures, flatwork, and pipelines.

Clayey soils may be encountered throughout the project area in fill, alluvial, and formational materials.

Soil Collapse Potential

Collapsible soil is broadly defined as loose and cemented soil with low moisture content that is susceptible to a large and sudden reduction in volume upon wetting, with no increase in vertical stress. The process of soil collapse upon wetting is referred to as hydro-collapse. Another type of collapse can occur in saturated soil bearing soluble minerals when subjected to continuous leaching. Some common soluble soil minerals include calcium chloride, magnesium chloride, sodium chloride, potassium chloride, gypsum, anhydrite, dolomite, and calcium carbonate (Mansour et al., 2008 as referenced in Ninyo & Moore, 2014). The composition of minerals dissolved in leaching water will affect the soil mineral dissolution rate.

The most common types of collapsible soil include alluvial soils, eolian deposits, and residual soils formed by extensive weathering of parent materials such as granitic rock (Mansour et al, 2008 as referenced in Ninyo & Moore, 2014). Within the project area alluvial materials, eolian deposits, and residual soil over granodiorite are present. Settlement may occur where these materials are loose, relatively dry, and subjected to a significant increase in moisture content.

Erosion Potential and Sea Level Rise

Surface soils tend to erode under the wearing action of flowing water, waves, wind, and gravity. Factors influencing erosion include topography, soil type, precipitation and other environmental conditions. In general, granular soils with relatively low cohesion and soils located on relatively steep topography have relatively high erosion potential. Within the project area, coastal areas north of Lake El Estero and the slopes on the southern side of the Salinas River have a high potential for erosion (Rosenberg, 2001f as referenced in Ninyo & Moore, 2014). The coastal terrace and eolian deposits inland from the coastline with less steep topography are considered to have a moderate potential for erosion. The relatively flat areas within the Salinas River valley have a low potential for erosion. The Proposed Project sites are located within areas identified as having a moderate to low erosion hazard; see **Figure 4.8-5, Soil Erosion Hazard Areas**.

The shoreline of south Monterey Bay (from the Salinas River south to Del Monte Beach in the City of Monterey) includes an 11-mile stretch of continuous sandy beach that changes seasonally, with beaches generally being wider and gently sloping in summer and narrower and steeper in winter. Locally severe erosion problems in the south Monterey Bay area has been reported, mainly due to highly erosive windblown sand and particularly in the incorporated and unincorporated areas around Marina, Sand City, Monterey, and Fort Ord. In this area, the coastline is one of low relief, with sand dunes present from the Pajaro River southward to Carmel, and much of the erosion is due to movement of unstable, windblown sand—especially where vegetation has not been established. Much beachfront property is also lost from high surf and wave action that is concentrated during winter storms. This sand may be redistributed along the coast in a process known as long-shore or littoral drift. When sand is depleted or cut off by an obstruction, the result is often severe; with no new sand to reform the beach, a major retreat of the coastline occurs. In the Marina State Beach area, bluffs and dunes retreated at an average rate of 5 to 7 feet per year from 1937 to 1983, and Fort Ord experienced major retreat after a former wastewater/drainage outfall was constructed in 1962, where the beach retreated 175 feet in 21 years (ESA-PWA, 2014).

Coastal shoreline retreat is affected by long-term erosion, sea level rise, and storm events, and is forecast to worsen based on some projections of global warming causing the sea level to rise (ESA-PWA, 2014). Coastal erosion in the southern Monterey Bay, including the project area, is expected to increase with accelerating sea level rise. The only Proposed Project component within the areas considered at risk due to this southern Monterey Bay coastal erosion is the Monterey Pipeline portion of the CalAm Distribution System. All other Proposed Project components are outside the project 100-year coastal retreat boundary. See **Figure 4.8-6, Coastal Erosion Hazard Zones** for a map of the Coastal Erosion Hazard Zones near the Monterey Pipeline component and the Lake El Estero Source Water diversion component. (ESA-PWA, 2014).

4.8.2.4 Geology and Soils Characteristics at Project Sites

As previously indicated, the Proposed Project area consists of three general regions with relatively distinct geologic and topographic characteristics, which are summarized below. Specific geologic, seismic and/or soils characteristics associated with each Proposed Project component site are then presented

The northeastern area includes the following project source water diversion and storage sites: Tembladero Slough, Reclamation Ditch, Salinas Pump Station, Salinas Treatment Facility, and the eastern portion of the Blanco Drain source water diversion site. This area includes the low-lying, relatively flat, alluvial plains of the Salinas River and the relatively narrow flood plains of the Tembladero Slough. Ground surface elevations in the portion of the project area that is within the Salinas River valley generally range from approximately 10 to 45 feet above mean sea level (MSL). Ground surface elevations near the Tembladero Slough source water site range from approximately 4 to 10 feet above MSL.

The central portion of the study area includes the following project sites: the existing Regional Treatment Plant, the western portion of the Blanco Drain source water diversion site, the Product Water Conveyance system, the Injection Well Facilities, and the eastern portion of the proposed CalAm Distribution System Transfer Pipeline. The central area includes gently to moderately rolling dunes with elevations ranging from approximately 10 feet above MSL near the Salinas River to approximately 350 feet above MSL along the southernmost portion of the proposed Product Water Conveyance pipeline alignment. Elevations at the proposed Injection Well Facilities site range from approximately 330 to 425 feet above mean sea level (MSL).

The southwestern portion of the study area includes the Lake El Estero Source Water Diversion site and the western portion of the proposed CalAm Distribution System Monterey Pipeline. The topography in the southwestern area is variable and includes the relatively low-lying coastal area between Canyon del Rey and Lake El Estero, gently sloping terraces beginning several blocks west of Lake El Estero and inland, and undulating coastal bluffs on portions of the coastline. Elevations range from approximately 10 feet above MSL between Canyon Del Rey and Lake El Estero to approximately 220 feet above MSL at the western terminus of the proposed CalAm Distribution System Monterey Pipeline.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion

The Salinas Pump Station Source Water Diversion site is mapped as being underlain by Holocene basin, including unconsolidated, plastic clay and silty clay containing organic material and locally containing interbedded thin layers of silt and silty sand.

Salinas Treatment Facility, Reclamation Ditch Diversion, Tembladero Slough Diversion, and Blanco Drain (Eastern Portion) Diversions

These sites are mapped as being underlain by Holocene alluvial deposits. The low-lying floodplain areas are underlain by Holocene alluvial deposits. These deposits include unconsolidated layers that generally consist of interbedded silts, clays, sands, and gravels. The alluvial materials in the northeastern floodplain area are mapped as having moderate to high liquefaction susceptibility (Rosenberg, 2001d as referenced in Ninyo & Moore, 2014). Portions of the Salinas River floodplain and the Tembladero Slough source water locations are mapped within a tsunami inundation area.

Lake El Estero Diversion

The proposed Lake El Estero source water location is mapped as being underlain by Holocene basin and alluvial deposits. Within the project area, coastal areas north of Lake El Estero and the slopes on the southern side of the Salinas River have a high potential for erosion (Rosenberg, 2001f as referenced in Ninyo & Moore, 2014). Additionally, the proposed Lake El Estero Source Water Diversion site location is mapped within a tsunami inundation zone. This area of the Proposed Project is one of the closest to areas shown at risk of damage during a major (i.e., 100-year) storm event, considering sea level rise scenarios through 2060; however, the Proposed Project facilities are outside of the risk area (ESA-PWA, 2014).

Blanco Drain Diversion Source Water (Western Portion), Treatment Facilities at the Regional Treatment Facility, Product Water Conveyance Pipelines and Booster Pump Station sites

The central portion of the Proposed Project area between the Salinas River and Canyon del Rey is mapped as being underlain by Pleistocene-age eolian deposits. The eolian deposits are generally mapped as having low liquefaction susceptibility, except where shallow groundwater may be present in localized low-lying areas (Rosenberg, 2001d as referenced in Ninyo & Moore, 2014). Shallow groundwater is not anticipated within the elevated eolian deposits, except for localized low-lying areas along the coastline. The soil erosion hazard within the eolian deposits in the central portion of the project area is mapped as moderate, except along the coast where the soil erosion hazard is mapped as high (Rosenberg, 2001f as referenced in Ninyo & Moore, 2014). Eolian deposits may also be collapsible.

Injection Well Facilities site

The Injection Well Facilities site is east of Seaside, along the eastern side of General Jim Moore Boulevard and south of Eucalyptus Road. This location is underlain by eolian deposits that are anticipated to consist of weakly to moderately consolidated, moderately to well-sorted silt and fine- to medium-grained sand. Groundwater is known to be very deep at approximately 400 feet below ground surface (see **Section 4.10, Hydrology and Water Quality: Groundwater**). The northernmost Ord Terrace fault is mapped beneath eolian deposits in the central portion of the project area approximately ¼ mile south of the proposed Injection Well Facilities (see **Figure 4.8-3, Detailed Fault Map**).

CalAm Distribution System Pipelines

The proposed location for the CalAm Distribution System Monterey Pipeline is underlain by Holocene alluvial deposits where it intersects drainage courses. The alluvial materials in the southwestern area of the project are mapped as having high liquefaction susceptibility

(Rosenberg, 2001d as referenced in Ninyo & Moore, 2014). Artificial fill materials are mapped along the proposed CalAm Monterey and Transfer pipeline alignments in the southwest portion of the project study area.

Pleistocene-age coastal terrace deposits are mapped within the southwestern portion of the proposed CalAm Distribution System Monterey Pipelines from Sand City to the City of Monterey, as are the Tertiary-age Monterey Formation and the Poryphyritic Granodiorite of Monterey (Rosenberg 2001a as referenced in Ninyo & Moore, 2014). The Monterey Formation unit is present at the surface where the Monterey Pipeline crosses Del Monte Avenue at Del Monte Lake in the southeastern corner of Seaside next to Monterey, The granodiorite is present at the surface on the Monterey Peninsula, and this bedrock unit could be encountered during installation of the southwestern portion of the proposed Monterey Pipeline alignment.

In general, the liquefaction hazard and landslide seismic hazard are mapped as low in areas underlain by coastal terrace deposits (Rosenberg 2001b & 2001d as referenced in Ninyo & Moore, 2014); the soil erosion hazard is mapped as moderate in areas underlain by coastal terraces (Rosenberg 2001f as referenced in Ninyo & Moore, 2014). Soils are characterized as having a moderate potential for pipe corrosion.

The on-land portion of the Monterey Bay-Tularcitos fault zone, including the Ord Terrace, Seaside, Chupines, and Navy faults, is mapped through the proposed CalAm Distribution System Monterey Pipeline alignment. There is evidence for recent (less than 11,000 years) displacement on the individual faults of the Monterey Bay-Tularcitos Fault Zone, and therefore, considering the proximity of these active strands to project components, these faults should be considered active for planning purposes (see **Figure 4.8-3**).

A majority of the coastline along Monterey Bay is mapped within a tsunami inundation, which includes portions of the proposed CalAm Monterey Pipeline alignment and the Lake El Estero Source Water Diversion site. Certain areas of CalAm Monterey Pipeline alignment are shown as being at risk of damage during major episodic storm and high wave events and this risk will be exacerbated as sea level rise continues. See **Figure 4.8-6, Coastal Erosion Hazard Zones** for a map of the Coastal Erosion Hazard Zones near these components. (ESA-PWA, 2014).

4.8.3 Regulatory Framework

4.8.3.1 Federal

The Federal Disaster Mitigation Act of 2000 (Public Law 106-390), which was adopted by Congress in October 2000, requires state and local governments to develop hazard mitigation plans in order to apply for federal grant assistance for disaster relief. Monterey County, in coordination with all of its incorporated municipalities, is preparing a comprehensive update to its Multi-Jurisdictional Hazard Mitigation Plan. The plan, which was initially developed and adopted in 2007, is intended to identify local policies and actions to reduce the risk and future losses from natural hazards such as flooding, severe storms, earthquakes, and wildland fires. The plan also serves to meet key federal planning regulations which require local governments to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for hazard mitigation projects.[1] The County of Monterey and the cities of Carmel-by-the-Sea, Del Rey Oaks, Gonzales, Greenfield, King City, Marina, Monterey, Pacific Grove, Salinas, Sand City, and Soledad have each adopted the plan by resolution. A revised draft Multi-Jurisdictional Hazard Mitigation Plan was prepared in 2014 and is available for review at the County's website at http://www.co.monterey.ca.us/oes/documents/Main_Plan_Body.pdf (Monterey County Office of Emergency Services, 2014).

4.8.3.2 State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the State Geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Because many active faults are complex and consist of more than one branch, each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace.

Title 14 of the California Code of Regulations (CCR), Section 3601(e), defines buildings intended for human occupancy as those that would be inhabited for more than 2,000 hours per year. The Proposed Project does not cross an Alquist-Priolo Earthquake Fault Zone and does not include buildings that meet this criterion for human occupancy within the vicinity of any mapped fault trace. Therefore, these provisions of the act do not apply to the Project.

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (Public Resources Code [PRC] Sections 2690 to 2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong groundshaking, liquefaction and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act. The State is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards. Cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been conducted and measures to reduce potential damage have been incorporated into the development plans. There are no jurisdictions within Monterey County that are included within the State Seismic Hazards Mapping Act.

[1] Monterey County. "Monterey County Hazard Mitigation Plan Update Planning for a Safer Future." Online at: http://www.co.monterey.ca.us/oes/hazard-mitigation.asp.

Building Codes

The California Building Code (CBC), which is codified in CCR Title 24, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, egress facilities, and general building stability. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all building and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The 2013 CBC is based on the 2006 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments that are based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for determining earthquake loads, as well as other loads (e.g., flood, snow, wind) for inclusion in building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

Storm Water Pollution Prevention Plan

Construction activity that disturbs one or more acres of soil, or less than 1 acre but is part of a larger common plan of development that in total disturbs one or more acres, must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Program (SWPPP). The SWPPP includes construction mitigation measures such as desilting basins, silt fences, hydroseeding of slopes, and monitoring and clean-up requirements.

4.8.3.3 Regional and Local

In addition to the general requirements of CEQA and California laws and regulations, geologic, seismic and soils issues are addressed in General Plans and municipal codes of local jurisdictions within the Proposed Project area. **Table 4.8-2, Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Geology, Soils & Seismicity** summarizes state, regional, and/or local plans, policies and regulations pertaining to geology, soils, and seismicity that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. **Table 4.8-2** provides a review of project consistency and/or conflicts with such plans, policies, and regulations. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulation, the finding and rationale is noted. In some cases, a potential inconsistency or conflict would be avoided with implementation of mitigation measures included in this EIR, which is explained. In addition to the above policies, the local jurisdictions have adopted grading and erosion control ordinances that mitigate many of the potential geology, soils, and seismicity impacts when projects comply with these ordinances. These ordinances supplement the regulations from the California Building Code, which also addresses standards for all grading during construction of buildings.

Monterey County Plans and Codes

The Monterey County General Plan (Monterey County, 2010) contains policies related to geology, soils, and seismicity in the Safety Element, Chapter 4. Policies are also included in the North County Land Use Plan that is part of the County's certified Local Coastal Program. Policies pertinent to the Proposed Project are summarized in **Table 4.8-2**. The Proposed Project components within unincorporated Monterey County would comply with the following County Code chapters, when applicable, which require the implementation of specific construction-related and site design best management practices to minimize soil erosion and soil loss from construction sites. No construction is proposed on slopes of greater than 30%.

Chapter 16.08 (Grading) of the Monterey County Code sets rules and regulations to control grading, including excavations, earthwork, road construction, fills and embankments; establishes the administration procedure for issuance of permits; and provides for approval of plans and inspections of grading construction. The County Grading Ordinance generally regulates grading activities that involve more than 100 cubic yards of excavation and fill. An excavation which does not exceed 100 cubic yards and which is less than two feet in depth, or which does not create a cut slope greater than five feet in height and steeper is exempt from grading regulations. The Monterey County Grading Ordinance requires a soil engineering and engineering geology report (Section 16.08.110: Permit – Soil Engineering and Engineering Geology Reports [Ordinance 4029, 1999; Ordinance 2534, Section 110, 1979], unless waived by the Building Official because information of record is available showing such data is not needed.

Chapter 16.12 (Erosion Control) of the Monterey County Code sets forth required provisions for project planning, preparation of erosion control plans, runoff control, land clearing, and winter operations; and establishes procedures for administering those provisions. The Code requires that specific design considerations be incorporated into projects to reduce the potential of erosion and that an erosion control plan be approved by the County prior to initiation of grading activities.

City of Marina Codes

The Proposed Project components within the City of Marina would comply with the following Municipal Code chapters, when applicable, which require the implementation of specific construction-related and site design best management practices to minimize soil erosion and soil loss from construction sites (See http://www.ci.marina.ca.us/DocumentCenter/Home/View/4 for full text):

- Chapter 15.46 (Digging And Excavation On The Former Fort Ord)
- Chapter 15.48 (Flood Damage Prevention)

City of Seaside Codes

The Proposed Project components within the City of Seaside would comply with the following Municipal Code chapters, when applicable, which require the implementation of specific construction-related and site design best management practices to minimize soil erosion and soil loss from construction sites (See http://www.codepublishing.com/ca/seaside/#!/seaside15/Seaside1534.html#15.34 for full text):

- Chapter 15.32 (Standards To Control Excavation, Grading, Clearing And Erosion)
- Chapter 15.34 (Digging And Excavation On The Former Fort Ord)

City of Monterey Codes

The Proposed Project components within the City of Monterey would comply with the following Municipal Code chapters, when applicable, which require the implementation of specific construction-related and site design best management practices to minimize soil erosion and soil loss from construction sites (See http://www.codepublishing.com/ca/monterey/ for full text):

- Chapter 9, Article 7 (Flood Damage Prevention)
- Chapter 9, Article 8 (Digging And Excavation On The Former Fort Ord)
- Chapter 31.5 (Storm Water Management)

Plans and Policies Consistency Analysis

Table 4.8-2 describes the state, regional, and local land use plans, policies, and regulations pertaining to geology, soils, and seismicity that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.8-2** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.8.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

Table 4.8-2
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Geology, Soils, and Seismicity

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
Monterey County	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-1.1:** Land uses shall be sited and measures applied to reduce the potential for loss of life, injury, property damage, and economic and social dislocations resulting from ground shaking, liquefaction, landslides, and other geologic hazards in the high and moderate hazard susceptibility areas.	**Consistent:** The Proposed Project has been sited to reduce potential loss of life, injury, or property damage due to geologic and seismic hazards, and no significant impacts have been identified with regard to these issues based on the findings of preliminary geotechnical evaluations.
Monterey County	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-1.3:** Site-specific geologic studies may be used to verify the presence or absence and extent of the hazard on the property proposed for new development and to identify mitigation measures for any development proposed. An ordinance including permit requirements relative to the siting and design of structures and grading relative to seismic hazards shall be established.	**Consistent:** The Proposed Project has been sited to reduce potential loss of life, injury, or property damage due to geologic and seismic hazards, and no significant impacts have been identified with regard to these issues based on the findings of preliminary geotechnical evaluations.
Monterey County	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-1.5:** Structures in areas that are at high risk from fault rupture, landslides, or coastal erosion shall not be permitted unless measures recommended by a registered engineering geologist are implemented to reduce the hazard to an acceptable level.	**Consistent:** The Proposed Project has been sited to reduce potential loss of life, injury, or property damage due to potential fault rupture or other geologic or seismic hazards, and no significant impacts have been identified with regard to these issues based on the findings of preliminary geotechnical evaluations.
Monterey County	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-1.6:** New development shall not be permitted in areas of known geologic or seismic hazards unless measures recommended by a California certified engineering geologist or geotechnical engineer are implemented to reduce the hazard to an acceptable level. Areas of known geologic or seismic hazards include: a. Moderate or high relative landslide susceptibility. b. High relative erosion susceptibility. c. Moderate or high relative liquefaction susceptibility. d. Coastal erosion and sea cliff retreat. e. Tsunami run-up hazards.	**Consistent:** The Proposed Project has been sited to reduce potential loss of life, injury, or property damage due to potential fault rupture or other geologic or seismic hazards, and no significant impacts have been identified with regard to these issues based on the findings of preliminary geotechnical evaluations. There are no areas of mapped landslide potential.
Monterey County	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-1.7:** Site-specific reports addressing geologic hazard and geotechnical conditions shall be required as part of the planning phase and review of discretionary development entitlements and as part of review of ministerial permits in accordance with the California Building Standards Code as follows: a. Geotechnical reports prepared by State of California licensed Registered Geotechnical Engineers are required during building plan review for all habitable structures and habitable additions over 500 square feet in footprint area. Additions less than 500 square feet and non-habitable buildings may require geotechnical reports as determined by the pre-site inspection. b. A Registered Geotechnical Engineer shall be required to review and approve the foundation conditions prior to plan check approval, and if recommended by the report, shall perform a site inspection to verify the foundation prior to approval to pour the footings. Setbacks shall be identified and verified in the field prior to construction. c. All new development and subdivision applications in State- or County designated Earthquake Fault Zones shall provide a geologic report addressing the potential for surface fault rupture and secondary fracturing adjacent to the fault zone before the application is considered complete. The report shall be prepared by a Registered Geologist or a Certified Engineering Geologist and conform to the State of California's most current guidelines for evaluating the hazard of surface fault rupture. d. Geologic reports and supplemental geotechnical reports for foundation design shall be required in areas with moderate or high landslide or liquefaction susceptibility to evaluate the potential on- and off-site impacts on subdivision layouts, grading, or building structures. e. Where geologic reports with supplemental geotechnical reports determine that potential hazards affecting new development do not lead to an unacceptable level of risk to life and property, development in all Land Use Designations may be permissible, so long as all other applicable General Plan policies are complied with. f. Appropriate site-specific mitigation measures and mitigation monitoring to protect public health and safety, including deed restrictions, shall be required.	**Consistent**: The Proposed Project would comply with the California Building Standard Code and all other county and state requirements for geologic hazards and geotechnical conditions. See Section 4.8~~X~~, Geology, Soils, and Seismicity for a discussion of seismic hazards and potential mitigation. Also see **Appendix K**, (Preliminary Geotechnical Evaluation Groundwater Replenishment Project EIR, Ninyo and Moore, December 2014~~January 2015~~)
Monterey County	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion	**Policy S-1.8:** As part of the planning phase and review of discretionary development entitlements, and as part of review of ministerial permits in accordance with the California Building Standards Code, new development may be approved only if it can be demonstrated that the site is physically suitable and the development would	**Consistent:** The Proposed Project would comply with the California Building Standard Code and all other county and state requirements for geologic hazards and geotechnical conditions. See **Appendix K**, (Preliminary Geotechnical Report). The

Table 4.8-2
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Geology, Soils, and Seismicity

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
			Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	neither create nor significantly contribute to geologic instability or geologic hazards.	preliminary geotechnical review has been conducted to investigate geologic and seismic hazards, and with compliance with building codes and recommendations of site-specific geotechnical reports, the exposure to seismic hazards related to these Proposed Project components would be minimized.
Monterey County	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-1.9:** A California licensed civil engineer or a California licensed landscape architect can recommend measures to reduce moderate and high erosion hazards in the form of an Erosion Control Plan.	**Consistent:** Best Management Practices and an Erosion Control Plan will be developed in accordance with state and local regulations.
Monterey County	North County Land Use Plan	Geologic Hazards	Tembladero Slough Diversion	**Policy 2.8.3.A1**: All development shall be sited and designed to conform to site topography and to minimize grading and other site preparation activities.	**Consistent:** The Proposed Project components in this planning area (Tembladero Slough Diversion) improvements are sited on relatively flat terrain with minimal grading required.
Monterey County	North County Land Use Plan	Geologic Hazards	Tembladero Slough Diversion	**Policy 2.8.3.A2:** All structures, with the exception of utility lines where no alternative route is feasible, shall be sited a minimum of 50 feet from an active fault or potentially active fault. Greater setbacks may be required where it is warranted by local geologic conditions.	**Consistent:** The Proposed Project (Tembladero Slough Diversion) is not located within 50 feet of an active or potentially active fault.
Monterey County	North County Land Use Plan	Geologic Hazards	Tembladero Slough Diversion	**Policy 2.8.3.A5:** Where soils and geologic reports are required, they should include a description and analysis of the following items: a. geologic conditions, including soil, sediment, and rock types and characteristics in addition to structural features, such as bedding, joints, and faults; b. evidence of past or potential landslide conditions, the implications of such conditions for the proposed development, and the potential effects of the development on landslide activity; c. impact of construction activity on the stability of the site and adjacent area; d. ground and surface water conditions and variations, including hydrologic changes caused by the development (i.e., introduction of sewage effluent and irrigation water to the groundwater system; alterations in surface drainage); e. potential erodibility of site and mitigating measures to be used to minimize erosion problems during and after construction (i.e., landscaping and drainage design). f. potential effects of seismic forces resulting from a maximum credible earthquakes; g. any other factors that might affect slope stability.	**Consistent**: The Proposed Project has been evaluated for soils and geologic hazards and conditions. See **Appendix K**. The preliminary geotechnical review has been conducted to investigate geologic and seismic hazards, and with compliance with building codes and recommendations of site-specific geotechnical reports, the Proposed Project (Salinas Pump Station Diversion) exposure to seismic hazards would be minimized.
City of Salinas	City of Salinas General Plan	Safety Element	Salinas Pump Station Diversion	**S-4.1:** During the review of development proposals, investigate and mitigate geologic and seismic hazards, or require that development be located away from such hazards, in order to preserve life and protect property.	**Consistent:** The preliminary geotechnical review has been conducted to investigate geologic and seismic hazards, and with compliance with building codes and recommendations of site-specific geotechnical reports, the Proposed Project (Salinas Pump Station Diversion) exposure to seismic hazards would be minimized.
City of Marina	City of Marina General Plan		RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	**4.99 (MarGP):** New development shall be permitted in areas of high seismic risk only when adequate engineering and design measures can be implemented in accordance with a geotechnical investigation and report.	**Consistent**: The preliminary geotechnical review has been conducted to investigate geologic and seismic hazards, and with compliance with building codes and recommendations of site-specific geotechnical reports, the Proposed Project's exposure to seismic hazards would be minimized.
City of Marina	City of Marina General Plan	Public Health and Safety	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	**Policy 4.102.2:** Require that new development be sited and designed to conform to site topography and to minimize grading wherever possible. Recommendations to developers as to how to mitigate geologic or seismic hazards should include mention of the need to avoid massive grading or excavation or structures that might require substantial alteration of natural landforms.	**Consistent:** The Proposed Project design would not require massive grading. The Product Water Conveyance Pipelines and Pump Station would be constructed to conform to site topography and would only require grading to create a level work area. Pipeline installation would generally occur within existing road rights-of-way, not requiring extensive grading.
City of Marina	Marina General Plan	Public Health and Safety	Coastal Alignment Option	**Policy 4.102.4:** Where new development is proposed within 300 feet of active dune fields, require that the geotechnical report include an assessment of dune migration rates and recommend appropriate setbacks.	**Consistent:** The Coastal alignment of the Product Water Conveyance would be constructed within the vicinity of an active dune area. Most facilities would be constructed below ground, and these locations would not be exposed in the future due to coastal retreat caused by sea level rise, thus affecting dune migration rates. This issue is addressed further Impact GS-5.
City of Marina	Marina General Plan	Soils and Mineral Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	**4.124 (MarGP):** To conserve soil and mineral resources within the Marina Planning Area, the following policies and conditions shall be established: 1. The City shall continue to require erosion-control and landscape plans for all new subdivisions or major projects on sites with potentially high erosion potential. Such plans should be prepared by a licensed civil engineer or other appropriately certified professional and approved by the City Public Works Director prior to issuance of a grading permit. All erosion control plans shall incorporate Best Management Practices to protect water quality and minimize water quality impacts and shall include a schedule for the completion of erosion and sediment-control structures, which ensures that all such erosion-control structures are in place by mid-October of the year that construction begins. Site monitoring by the applicant's erosion-control specialist should be undertaken, and a follow-up report should be prepared that documents the progress and/or completion of required erosion-control measures both during and after construction is completed. *[Note: This policy is truncated due to portions being not applicable to Geology, Soils, and Seismicity, and included in this EIR in analysis of agricultural resources and mineral resources issues.]*	**Consistent:** The Proposed Project would be subject to the state Construction General Permit and would comply with the Marina Excavations and Encroachment Ordinance, which require the implementation of specific construction-related BMPs to prevent concentrated storm water run-on/runoff, soil erosion, and release of construction site contaminants.
City of Seaside	Seaside General Plan	Conservation / Open Space	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option	**COS-4.2.2 Local Coastal Program**: Require public and private development projects to comply with Seaside's certified Local Coastal Program, which protects natural features within the beachfront areas in the City, including the Laguna Grand/Roberts Lake Areas Assess development proposals for potential seismic and	**Consistent**: The preliminary geotechnical review has been conducted to investigate geologic and seismic hazards, and with compliance with building codes and recommendations of site-specific geotechnical reports, the Proposed Project's

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Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
		Element	Injection Well Facilities Transfer Pipeline Monterey Pipeline	geologic hazards pursuant to the California Environmental Quality Act (CEQA). Require studies of soil and geologic conditions by state licensed Engineering Geologists and Civil Engineers where appropriate. When potential geologic impacts are identified, require project applicants to mitigate the impacts per the recommendations contained within the soil and geologic studies. If substantial geologic/ seismic hazards cannot be mitigated, require the development to be relocated or redesigned to avoid the significant hazards.	exposure to seismic hazards would be minimized.
City of Seaside	Seaside General Plan	Safety Element	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities Transfer Pipeline Monterey Pipeline	**S-1.1:** Reduce the risk of impacts from and seismic and geologic hazards.	**Consistent:** The Proposed Project would be constructed in compliance with the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the project registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical assessments would be completed prior to final pipeline design. In addition, the proposed pipelines would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed Project is consistent with this policy.
City of Monterey (coastal zone)	Monterey Harbor Land Use Plan	Natural Hazards	Monterey Pipeline	***Policy 3.a:*** Site-specific geotechnical studies shall be required prior to project filing to determine the extent and nature of geologic hazards at the site. These studies shall specifically include an analysis of seismic hazards, such as ground shaking, liquefaction, ground rupture, and lateral spreading. Site specific geotechnical studies shall comply with the report guidelines of the State Board of Geologists and geophysicists. Such reports shall be signed by a licensed Certified Engineering geologist (CEG) or Geotechnical Engineer (GE), working within areas of his/her professional responsibilities, and should contain recommendations for mitigation measures for any hazards that are identified. Said reports are subject to review and approval by the city engineer.	**Consistent:** The Monterey Pipeline would be constructed in compliance with the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical investigations would be completed prior to final pipeline design. In addition, the Monterey Pipeline would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed Project is consistent with this policy.
City of Monterey (coastal zone)	Monterey Harbor Land Use Plan	Natural Hazards	Monterey Pipeline	***Policy 3.b:*** New residential, commercial, and industrial structures and facilities shall be constructed in a manner that will minimize risks to life and property from geologic, flood, and fire hazard; such development shall be sited and designed to not require a shoreline protection structure during the life of the development. Applicants for development are required to accept a deed restriction to waive all rights to protective devices associated with development on coastal dunes.	**Consistent, with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
City of Monterey (coastal zone)	Monterey Harbor Land Use Plan	Natural Hazards	Monterey Pipeline	***Policy 3.c:*** For bayfront properties, site specific geotechnical studies submitted as part of the application shall be conducted to determine storm wave reach and tsunami runup, based on an engineering analysis for each project. Wave runup shall be analyzed for an eroded shoreline, combined with a 100-year storm event. Tsunami runup may be analyzed on an average beach profile, with consideration for, at a minimum, the 100-year event.	**Consistent, with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
City of Monterey (coastal zone)	Monterey Harbor Land Use Plan	Natural Hazards	Monterey Pipeline	***Policy 3.d:*** New residential, commercial, and industrial development shall not be allowed in tsunami (seismic sea wave) runup or storm wave inundation areas. Exceptions would include … public utilities that cannot be feasibly located elsewhere.	**Consistent, with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Section B. Natural Hazards	Monterey Pipeline	***Policy 3.1:*** New development shall be constructed in a manner that will reduce risks to life and property from geologic, flood, and fire hazards; such development shall be sited and designed to not require a shoreline protection structure during the life of the development. Applicants for new development are required to accept a deed restriction to waive all rights to protective devices associated with development on coastal dunes.	**Consistent, with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Section B. Natural Hazards	Monterey Pipeline	***Policy 3.2:***Site-specific geotechnical studies shall be required prior to project filing to determine the extent and nature of geologic hazards at the site. These studies shall specifically include an analysis of seismic hazards, such as ground shaking, liquefaction, ground rupture, and lateral spreading. Site specific geotechnical studies shall comply with the report guidelines of the State Board for Geologists and Geophysicists. Such reports shall be signed by a licensed Certified Engineering Geologist (CEG) or Geotechnical Engineer (GE), working within areas of his/her professional responsibilities, and should contain recommendations for mitigation measures for any hazards that are identified. Said reports are subject to review and approval by the City engineer. To assist in the preparation of these studies by qualified professionals, the City shall maintain a database of information derived from previous studies.	**Consistent:** The Monterey Pipeline would be constructed in compliance with the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the project registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical investigations would be completed prior to final pipeline design. In addition, the Monterey Pipeline would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed Project is consistent with this policy.
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Section B. Natural Hazards	Monterey Pipeline	***Policy 3.3:*** New development and utilities shall be set back from the eroding coastal dunes at a sufficient distance to assure safety to life and property during the expected 100-year economic life of the property. New development shall not be allowed in tsunami (seismic sea wave) runup or storm wave inundation areas. An exception would include coastal dependent marine installations requiring locations near the water, which are constructed to withstand tsunami and/or wave runup inundations, and public access improvements. No	**Consistent with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures

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Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
				additions or demolitions/rebuilds are allowed for existing structures within tsunami run-up or storm wave inundation areas, with the exception of those additions or demolitions/rebuilds allowable consistent with takings law, and public utilities that cannot be feasibly located elsewhere.	whose implementation would minimize or avoid this potential inconsistency.
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Section B. Natural Hazards	Monterey Pipeline	***Policy 3.4***: For bayfront properties, site specific geotechnical studies submitted as part of the application, shall be conducted to determine storm wave reach and tsunami runup and to ensure accurate determination of coastal erosion rates. Such studies shall reflect current known factors attributable to erosion, the recent cessation of sand mining in upcoast Sand City, and other current known technical factors used in the science of coastal erosion. Wave runup shall be analyzed for an eroded shoreline, combined with a 100-year storm event. Tsunami runup may be analyzed on an average beach profile, with consideration for, at a minimum, the 100-year event.	**Consistent, with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Section B. Natural Hazards	Monterey Pipeline	***Policy 3.5***: No development shall be allowed which would increase the rate at which erosion is occurring. Development located in or adjacent to coastal dunes shall be sited and constructed in a manner that minimizes disturbance to the foredunes and to dune vegetation, and shall include an analysis of wind direction and orientation of proposed development to avoid adverse wind impacts to the dune system.	**Consistent:** All structures in dune areas would be located below the ground surface and would not increase erosion or affect wind impacts.
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Section B. Natural Hazards	Monterey Pipeline	***Policy 3.7***: Siting and design of new shoreline development and shoreline protective devices shall take into account anticipated future changes in sea level. In particular, an acceleration of the historic rate of sea level rise shall be considered. Development shall be set back a sufficient distance landward and elevated to a sufficient foundation height to eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100-year economic life of the structure. No new lots shall be created within areas of high water hazard.	**Consistent, with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Section B. Natural Hazards	Monterey Pipeline	***Policy 3.11***: Siting and design of new development in dunes shall take into account the extent of landward migration of the foredunes that can be anticipated over the life of the development. This landward migration shall be determined based upon historic dune erosion, storm damage, anticipated sea level rise, and foreseeable changes in sand supply. Development shall be set back a sufficient distance from the frontal dunes and shall be elevated to a sufficient foundation height to eliminate, or minimize to the maximum extent feasible, hazards from waves and inundation, combined with anticipated sea level rise over the expected 100-year economic life of the structure.	**Consistent, with Mitigation:** The Monterey Pipeline would be buried below the ground surface along Del Monte Avenue. In one area of the pipeline route identified within a coastal erosion hazard zone, the pipeline could become exposed in the future due to coastal retreat caused by sea level rise and subject to wave and erosion damage. This is addressed in Impact GS-5, which identifies mitigation measures whose implementation would minimize or avoid this potential inconsistency.
City of Pacific Grove (inland area)	Pacific Grove Municipal Code	Title 18 - Buildings and Constructio n	Monterey Pipeline	***Section 18.040.050: Engineering reports.*** *a.* ***Preparation of Reports.*** Building owners shall employ a civil or structural engineer to prepare the investigation and engineering report outlined below. *b.* ***Purpose.*** To investigate, in a thorough and unambiguous fashion, a building's structural systems that resist the forces imposed by earthquakes and to determine if any individual portion or combination of these systems is inadequate to prevent a structural failure (collapse or partial collapse). ***c. General.*** Each building shall be treated as an individual case without prejudice or comparison to similar type or age buildings which may have greater or lesser earthquake resistance. Generalities or stereotypes are to be avoided in the evaluation process by focusing on the specifics of the structural system of the building in question and the local geology of the land on which the building is constructed. *d.* ***Level of Investigation.*** Some buildings will require extensive testing and field investigation to uncover potential structural deficiencies, while others will allow the same level of overall evaluation by a less complicated process due to simplicity of design or the availability of original or subsequent alteration design and construction documents. It is the responsibility of the engineer performing the evaluation to choose the appropriate level of investigation which will produce a report that is complete and can serve as a sound basis for a conclusion on the collapse hazard the building may present.	**Consistent:** The Monterey Pipeline would be constructed in compliance with applicable requirements of the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the project registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical assessments would be completed prior to final pipeline design. In addition, the Monterey Pipeline would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed Project is consistent with this section.
City of Sand City (coastal zone & inland area)	Sand City Local Coastal Program Land Use Plan	Building Code	Transfer Pipeline, and Monterey Pipeline	***Section 15.09.010:*** For the purposes of prescribing regulations governing conditions to the development of better building construction and greater safety to the public by uniformity in building laws, that certain code known as the 2007 California Building Code and Appendix Chapter J promulgated by the State of California, being particular of the 2007 Edition thereof and the whole thereof, save and except such portions as they are deleted, modified, or amended in the Ordinance codified in this Chapter, a copy of which is now on file in the office of the City Clerk, and the same are adopted and incorporated as fully as if set out at length in this chapter, and from the date on which the Ordinance codified in this chapter shall take effect, the provisions thereof shall be controlling within the limits of the City.	**Consistent:** The Transfer Pipeline and Monterey Pipeline would be constructed in compliance with the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the project registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical assessments would be completed prior to final pipeline design. In addition, the proposed pipelines would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed Project is consistent with this section.
City of Sand City (coastal zone)	Sand City Local Coastal Program Land Use Plan	Natural Hazards	Transfer Pipeline, and Monterey Pipeline	***Section 4.3.9: Require preparation of geologic and soils reports for all new developments located in the coastal zone.*** The report should address existing and potential impacts, including ground shaking from earthquakes, direct fault offset, liquefaction, landslides, slope stability, coastal bluff and beach erosion, and storm wave and tsunami inundation. The report shall identify appropriate hazard setbacks or identify the need for shoreline protective devices to secure long-term protection of Sand City's shoreline, and shall recommend mitigation measures to minimize identified impacts. The reports shall be prepared by qualified individuals in accordance with guidelines of the California Division of Mines and Geology, the California Coastal Commission, and the City of Sand City.	**Consistent:** The Transfer Pipeline and Monterey Pipeline would be constructed in compliance with the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the project registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical assessments would be completed prior to final pipeline design. In addition, the proposed pipelines would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed

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Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
					Project is consistent with this section.
City of Sand City (coastal zone)	Sand City Local Coastal Program Land Use Plan	Natural Hazards	Transfer Pipeline, and Monterey Pipeline	***Section 4.3.14:*** Require all new developments to be designed to withstand expected ground shaking during a major earthquake.	**Consistent:** The Transfer Pipeline and Monterey Pipeline would be constructed in compliance with the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the project registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical assessments would be completed prior to final pipeline design. In addition, the proposed pipelines would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed Project is consistent with this section.
City of Seaside (coastal zone)	City of Seaside Local Coastal Program Land Use Plan	Natural Hazards	Transfer Pipeline, and Monterey Pipeline	***Policy NCR-CZ 5.2:*** **Protection from Natural Hazards:** All new development in areas of high geotechnical, flood, and fire hazard shall be sited, designed, and sized to minimize risk to life, property, and the environment from natural disaster.	**Consistent:** The Transfer Pipeline and Monterey Pipeline would be constructed in compliance with the California Building Code (CCR Title 24), which requires projects to adhere to specific structural and seismic design criteria, as deemed necessary by the project registered geotechnical engineer, to reduce the risk of substantial damage and collapse in the event of an earthquake. Preliminary and final geotechnical assessments would be completed prior to final pipeline design. In addition, the proposed pipelines would be constructed in accordance with the industry-accepted AWWA Standards for Proposed Pipelines. Compliance with California regulations and application of the AWWA pipeline construction standards would ensure the Proposed Project is consistent with this policy.

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4.8.4 Impacts and Mitigation Measures

4.8.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, the project would result in significant impacts related to geology, soils, and seismicity if it would:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.
    - Strong seismic ground shaking.
    - Seismic-related ground failure, including liquefaction.
    - Landslides
b. Result in substantial soil erosion or the loss of topsoil.
c. Be located on a geologic unit or soils that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse creating substantial risks to life or property.
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property.
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available of the disposal of wastewater.

No additional significance criteria are needed to comply with the CEQA-Plus[2] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

[2] To comply with applicable federal statutes and authorities, EPA established specific “CEQA-Plus” requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

4.8.4.2 Impact Analysis Overview

Approach to Analysis

The potential for impacts related to geology, soils, and seismicity are evaluated according to the significance criteria listed above. Each Proposed Project component site has been evaluated with respect to existing published data, mapping and research and the analysis of project effects is based upon the preliminary geotechnical evaluation by Ninyo & Moore provided in **Appendix K**, the Coastal Erosion Analysis report by ESA-PWA, and a preliminary geotechnical review of the CalAm Distribution System Monterey Pipeline for the CalAm Monterey Peninsula Water Supply Project EIR (URS Corporation, 2014).

The preliminary geotechnical evaluations identify seismic, geologic and geotechnical hazards and constraints at the project sites and identify the types of measures and engineering criteria that can be incorporated into project designs to prevent damages to facilities or properties or injury to people. The preliminary geotechnical investigations both concluded that construction of the project is feasible from a geotechnical perspective, provided appropriate design, engineering and construction considerations are incorporated into the project once detailed design information is developed. The following details the rationale for the geotechnical feasibility determination.

The proponent of the Proposed Project would have site-specific geotechnical investigations completed for all facilities requiring foundations and specialized soils engineering work. Geotechnical studies are essential for facility and pipeline design because it is the information that informs the structural design of foundations and determines whether the geologic materials underlying the proposed facilities are capable of supporting the proposed uses without risk of detrimental effects from potential hazards associated with problematic soils, liquefaction, or excessive seismic shaking. Geotechnical investigations are required under the California Building Code for most structures intended for human occupancy and by the Monterey County and most municipal grading ordinances. Based on field observation and laboratory testing, the geotechnical engineer can assess whether the soils are adequate to support the structure under static (non-earthquake) or seismic conditions. If corrective work is necessary to remedy the problem soils or otherwise unstable ground condition, the geotechnical engineer would recommend approaches to correct the condition. Geotechnical engineering recommendations are typically standard engineering practices that have been proven elsewhere to increase the geotechnical performance of an underlying soil or bedrock material. This impact analysis assumes that the applicant would incorporate all geotechnical recommendations set forth by the project geotechnical engineer.

Pipelines are constructed to various industry standards. The American Water Works Association (AWWA) is a worldwide nonprofit scientific and educational association that, among its many activities, establishes recommended standards for the construction and operation of public water supply systems, including standards for pipe and water treatment facility materials and sizing, installation, and facility operations. While the AWWA's recommended standards are not enforceable code requirements, they nevertheless can dictate how pipelines for water conveyance are designed and constructed. CalAm would require its contractors to incorporate AWWA Standards into the design and construction of the proposed CalAm Distribution System pipelines. Other components of the Proposed Project would also apply AWWA Standards, as applicable.

Pipeline Geotechnical Considerations

The engineering consultants for the proposed pipelines, have indicated that they would apply a two-fold geotechnical design approach for the proposed pipelines that includes a preliminary geotechnical investigation followed by a site-specific geotechnical design investigation. The analysis in this section incorporates the preliminary findings and takes into consideration that the finalized engineering design criteria for the pipeline would be developed during the final stage of geotechnical evaluation.

The previously completed preliminary geotechnical assessment relied on published data available through federal and state agencies and previous local geotechnical investigations. The purpose of the preliminary investigation was to provide a characterization of the geologic, seismic, and subsurface conditions along the pipeline alignments and at locations where above-ground facilities are planned. The preliminary investigation evaluated the potential geologic and seismic hazards as well as geotechnical engineering considerations. The information gathered through the preliminary investigation included geologic setting, subsurface soil and geologic conditions, general groundwater conditions, potential geologic hazards (i.e. ground motion, corrosive soils, and liquefaction), and pipeline construction considerations. The findings of the preliminary geotechnical investigation did not indicate site conditions that would preclude the planned improvements (URS Corporation, 2014).

Final geotechnical evaluations of all Proposed Project components would be completed following project approval and prior to obtaining final County and/or applicable city building permits. The final geotechnical study builds off of the previously completed preliminary assessment and focuses on the specific geologic conditions for each pipeline segment. The final study would involve additional soil sampling and soil laboratory analysis, field reconnaissance, and geotechnical engineering analysis to develop the final design criteria for the project. The recommendations developed under the final level of geotechnical study provides designers and construction contractors with necessary engineering details needed for all aspects of the final design such as seismic criteria considerations, maximum allowable displacements for settlement, excavation characteristics, trench stability, temporary shoring, dewatering, backfill requirement, traffic surcharge loading, and pipe bedding. The project proponents would incorporate the recommendations developed by the final geotechnical study into the pipeline design. The recommendations can include soil conditioning, compaction, removal of problematic soils, installation of foundation piers, and special trench backfilling. These standard engineering practices are applied at construction sites throughout California.

Seismic Considerations

In California, an earthquake can cause injury or property damage by: (1) rupturing the ground surface, (2) violently shaking the ground, (3) causing the underlying ground to fail due to liquefaction, or (4) causing enough ground motion to initiate slope failures or landslides, any of which could damage or destroy structures. The checklist items in Appendix G of the CEQA Guidelines, which provide the basis for most of the significance criteria in Section 4.8.4.1, above, reflect the potential for large earthquakes to occur in California and recommend analysis of the susceptibility of the project sites to seismic hazards and the potential for the Proposed Project to exacerbate the effects of earthquake-induced ground motion at the project sites and surrounding areas. Impacts associated with seismic hazards would be considered significant if the potential effects of an earthquake on a particular site could not be mitigated by an engineered solution. The significance criteria do not require elimination of the potential for structural damage from seismic hazards. Rather, the criteria require an evaluation of whether significant seismic hazards could be minimized through engineering design solutions that would reduce the associated risk of loss, injury, or death.

State and local code requirements ensure buildings and other structures are designed and constructed to withstand major earthquakes, thereby reducing the risk of collapse and the associated risks to human health and safety and private property. The code requirements have been developed through years of study of earthquake response and the observed performance of structures during significant local earthquakes (e.g. the 1989 Loma Prieta Earthquake) and others around the world. As discussed in **Section 4.2.2, Regulatory Framework**, the Proposed Project would comply with federal, state, and local laws regulating construction. The laws ensure that proposed development sites are adequately investigated and that seismic hazards are evaluated and addressed in the project design and construction. These laws include the Seismic Hazards Mapping Act, the California Building Code, and Monterey County and City ordinances/codes pertaining to excavation, grading, and site development in geologic hazard zones (described in **Section 4.8.3.3**, above). The California Geological Survey Guidelines for Evaluating and Mitigating Seismic Hazards (Special Publication 117A) (California Geologic Survey, 2008) provides guidance for evaluating and mitigating seismic hazards as required by Public Resources Code Section 2695(a).

Site-specific geotechnical investigations are conducted to determine the presence of problematic soils and identify seismic hazards on a subject site. These investigations identify the geologic and seismic setting of a subject site and provide feasible engineering recommendations to remedy potentially adverse soil and seismic conditions.

Site-specific geotechnical investigations also provide the necessary soil information required by structural engineers to ensure structures and buildings are designed appropriately to withstand earthquake ground motion. Grading plans, foundation designs, and structural designs are prepared based on the geotechnical recommendations presented in the site-specific geotechnical investigation and other pertinent requirements of the CBC.

Coastal Retreat Study

The Proposed Project would place infrastructure along the Monterey Bay coastline. Sea level is predicted to rise over the next century and, in response, coastal erosion is expected to accelerate. The rise in sea level and increased coastal erosion rate could result in impacts to certain project components. To evaluate coastal erosion impacts associated with project components proposed in the coastal zone, a project-specific coastal retreat study — Analysis of Historic and Future Coastal Erosion with Sea Level Rise — was conducted by a team of licensed coastal engineers and coastal geomorphologists (ESA-PWA, 2014). The findings and recommendations of the study inform the analysis of Impact GS-5, below.

The coastal retreat study focused on six locations within the project area and examined the coastal processes at these locations to determine the likelihood for project components to become exposed before the end of their usable lifespan. The study estimates coastal retreat both laterally and vertically. The lateral extent of erosion was evaluated using coastal erosion hazard zones; the vertical extent was evaluated using coastal profiles. Both of these methods are described in more detail below.

Coastal Erosion Hazard Zones (Lateral Erosion Estimates)

A coastal erosion hazard zone represents an area where erosion (caused by coastal processes) has the potential to occur over a certain time period. Within any area of such a zone, there is a risk of damage due to erosion during a major storm event. Actual location of erosion during a particular storm depends on the unique characteristics of that storm (e.g. wave direction, surge, rainfall, and coincident tide). The coastal hazard zones are developed from three components: historic erosion, additional erosion due to sea level rise, and the potential erosion impact caused by a large storm wave event (e.g. 100-year). As sea level rises, higher mean sea level will increase the frequency of wave run-up, thereby undercutting the dune toe and increasing erosion.

The most important variables in the coastal erosion model are: the historic erosion trend, backshore toe elevation, and the total water level. The historic erosion rate was applied to the planning horizon (2010 through 2060 at 10 year increments) to determine the erosion rates that would occur without the project. The erosion model does not account for shore management actions, such as sand placement, that could potentially mitigate future shore recession. In this region, where beaches are controlled in part by sand mining, the study assumed there would be no changes to existing sand mining practices.

The potential for shoreline retreat caused by sea level rise and the impact from a large storm event was estimated using a geometric model of dune erosion and applied with different slopes to make the model more applicable to sea level rise. This method is consistent with the Federal Emergency Management Agency (FEMA) Pacific Coast Flood Guidelines. The potential shoreline retreat estimates account for uncertainty in the duration of future storm events. Instead of predicting storm-specific characteristics and response, the method assumes that the coast would erode or retreat to a maximum storm wave event with unlimited duration. This is a conservative approach to estimating the impact of a 100-year storm event.

Coastal Profile (Vertical Erosion Estimates)

The coastal profile analysis developed a set of representative profiles that show how the shoreline is likely to evolve from the present to 2040 and 2060, and shows the locations of selected project components relative to those profiles. As previously discussed, the Monterey Bay shoreline is affected by seasonal changes, localized erosion (rip currents), long-term erosion, and sea level rise. Each of these factors is important in defining the profile shape and location at a given time. For this reason, the analysis identified a projected future profile and an extremely eroded profile (lower envelope) for each future time horizon. The future profile is the current profile eroded at the historic rate, with added erosion caused by sea level rise. The lower profile envelope represents a highly eroded condition, which could occur from a combination of localized erosion (rip currents), a large winter storm, and seasonal changes. The upper envelope (a highly accreted profile) was not analyzed because the key concern for the project is that buried project components would become exposed over time. There are two profile/envelope combinations for each time step: one to represent long term profile evolution (historic erosion and accelerated erosion from sea level rise) and another that adds potential erosion from a 100-year storm event, which could be as high as much as 100 feet.

The high and low rates of sea level rise were estimated for each year from 2012 to 2073, the time period for which input data was needed by the groundwater modeling efforts discussed in **Section 4.10, Groundwater Resources**. The coastal erosion hazard zones maps delineate the estimated areas along the coast expected to be at or below sea level by the years 2030, 2040, 2050, 2060, and 2100, and thus subject to erosive wave action. Coastal profiles were then prepared at six locations to show the current (2010) profile and estimate the coastal profiles in 2040 and 2060, where project components would be close to the coastline and potentially subject to the damage that would be the result of coastal retreat.

Areas of No Project Impact

Some of the significance criteria outlined above are not applicable to the Proposed Project or the Proposed Project would not result in impacts related to these criteria, as explained below. Construction of the Proposed Project components would be temporary and, as such, would not expose people or structures to a substantial risk due to fault rupture, seismic shaking or seismically-induced ground failure, liquefaction, or landslides (criterion a), although effects of seismic hazards on people and structures after construction is evaluated below under Impact GS-2.

- *Septic System Soil Suitability.* The Proposed Project consists of wastewater collection, treatment, and water supply facilities improvements and does not propose use of septic tanks. Thus, criterion e is not applicable to the Proposed Project during construction or operation.

Summary of Impacts

Table 4.8-3, Summary of Impacts – Geology, Soils, and Seismicity provides a summary of potential impacts related to geology, soils, and seismicity and significance determinations for each Proposed Project component.

Table 4.8-3
Summary of Impacts – Geology, Soils, and Seismicity

Impact Title	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	
GS-1: Construction-Related Erosion or Loss of Topsoil	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
GS-2: Construction-Related Soils Collapse and Soil Constraints during Pipeline Trenching	LS	LS	NI	NI	LS	LS	NI	LS	LS	LS	LS	LS	LS
GS-3: Operation - Exposure to Fault Rupture	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	LS	LS
GS-4: Operation - Exposure to Seismic Ground Shaking and Liquefaction	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
GS-5: Operation - Exposure to Coastal Erosion and Sea Level Rise	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	LSM	LSM
GS-6: Operation - Hydro-Collapse of Soils from Well Injection	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	LS
GS-7: Operation - Exposure to Expansive and Corrosive Soils	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Cumulative Geology, Soils, and Seismicity Impact	LS: There would be no significant construction or operational cumulative geology, seismicity or soils impacts.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.8.4.3 Construction Impacts and Mitigation Measures

Impact GS-1: <u>Construction-Related Erosion or Loss of Topsoil.</u> Construction of the Proposed Project would not result in substantial soil erosion or the loss of topsoil. (Criterion b) (Less than Significant)

Construction at all Proposed Project sites would involve ground disturbance including site preparation, grading, and/or trenching for installation of utilities, although ground disturbance at some sites would be minimal. Most of the Proposed Project area is identified as being within areas of moderate erosion hazard, except for northern areas that are identified as having a low erosion hazard. Some areas along the coast are identified as having a high erosion hazard. The potential for erosion or loss of topsoil impacts at each of the Proposed Project sites is discussed below.

Potential erosion that may result from grading, pipeline trenching, and other soil disturbance during construction would generally be controlled during construction with implementation of erosion control plans as required by local jurisdictions prior to issuance of easements, grading, and building permits. Additionally, standard construction practices to prevent and minimize construction-related erosion would be included in contract documents and Storm Water Pollution Prevention Plans (SWPPP) that are required pursuant to federal and state National Pollutant Discharge Elimination System regulations and permits for construction on one acre or more. (See **Section 4.11, Hydrology/Water Quality-Surface Water**, for further explanation of SWPPP requirements). The SWPPP would include Best Management Practices (BMPs) to prevent erosion, such as: use of silt fences or other physical barriers to prevent erosion and sedimentation into water bodies, use of desilting basins, limitations on work during storm events and control of runoff; and post-construction revegetation and drainage requirements, including low impact development standards.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion

Construction at the Salinas Pump Station Diversion site consists of four new underground diversion structures, modifications to one existing structure, and installation of short pipeline segments (four measuring no more than approximately 150 feet long). As shown on **Tables 2-19, Proposed Project AWT Facility Process Design Flow Assumptions** and **2-20, Construction Areas of Disturbance and Permanent Footprint** in **Chapter 2, Project Description**, the construction area would be less than 0.25 acres (less than 10,000 square feet) with an estimated 100 cubic yards in excess graded material. The site is located within an area of low erosion hazard (see **Figure 4.8-5, Soil Erosion Hazard Areas**). Given the limited area of disturbance and the identified low potential for erosion, ground disturbance and construction at this site would not result in significant erosion or loss of topsoil impacts.

Salinas Treatment Facility Storage and Recovery

Development at the Salinas Treatment Facility site consists of construction of two new pump stations and pipelines. In addition, an existing 6,000-foot long, 33-inch diameter pipeline between the Salinas Pump Station and the Salinas Treatment Facility would be slip-lined for recovery of stored pond water back to the Salinas Pump Station. As shown on **Tables 2-19** and **2-20** in **Chapter 2, Project Description**, the construction area would encompass approximately 3.0 acres with an estimated 1,200 cubic yards in excess graded material. The site is located within an area of low erosion hazard (see **Figure 4.8-5**). However, given the amount of potential disturbance, and the site's proximity to the Salinas River, grading, pipeline installation and ground disturbance could result in potentially significant erosion impacts. The site is located within the unincorporated area of Monterey County, and may be subject to approval of a grading permit as construction involves more than 100 cubic yards of excavated soil. Since the construction site would be greater than one acre in size, implementation of a SWPPP also would be required at this site that would insure erosion and loss of topsoil impacts would be less than significant.

Reclamation Ditch Diversion

Construction at the Reclamation Ditch Diversion site consists of installation of an intake structure, lift station (manhole) and a short pipeline segment (approximately 60 feet long) that would involve minor grading. As shown on **Tables 2-19** and **2-20** and described in **Chapter 2-Project Description**, the construction area would be approximately 0.15 acres (approximately 6,000 square feet) with an estimated 20 cubic yards in excess graded material. The site is located within an area of low erosion hazard (see **Figure 4.8-5**). Given the limited area of disturbance and the identified low potential for erosion during ground disturbance, the limited construction at this site would not result in significant erosion or loss of topsoil impacts.

Tembladero Slough Diversion

Construction at the Tembladero Diversion site consists of installation of an intake structure, lift station (manhole) and a short pipeline segment (approximately 100 feet long). As shown on **Tables 2-19** and **2-20** in **Chapter 2-Project Description**, the construction area would be less than 0.25 acres (approximately 10,000 square feet) with an estimated 20 cubic yards in excess graded material. The site is located within an area of low erosion hazard (see **Figure 4.8-5**). Given the limited area of disturbance and the identified low potential for erosion and ground disturbance, the construction at this site would not result in significant erosion or loss of topsoil impacts.

Blanco Drain Diversion (Pump Station and Pipeline)

Construction at the Blanco Drain Diversion site consists of construction of a new pump station that would involve minor grading and installation of approximately 8,500 linear feet of new pipeline using trenching and directional drilling to cross the Salinas River. As shown on **Tables 2-19** and **2-20** and described in **Chapter 2, Project Description**, the construction area for the pump station would be under 0.15 acres (approximately 2,500 square feet) and approximately 5.0 acres would be disturbed for pipeline installation with an estimated 1,500 cubic yards in excess graded material. The site is located within an area of low erosion hazard (see **Figure 4.8-5**). Given the site's proximity to the Salinas River, proposed pipeline installation beneath the Salinas River, and the amount of grading, trenching, and other ground disturbance, construction of this component could result in potentially significant erosion or loss of topsoil impacts without regulatory controls. The site is located within the unincorporated area of Monterey County, and may be subject to approval of a grading permit as construction involves more than 100 cubic yards of excavation. Since the construction site would be greater than one acre in size, implementation of a SWPPP would also be required for construction at this project component site. Implementation of the SWPPP would ensure that potential erosion and loss of topsoil impacts would be less than significant.

Lake El Estero Diversion

Improvements at the Lake El Estero Diversion site would result in minor land disturbance within an existing paved area. As shown on **Tables 2-19** and **2-20** in **Chapter 2, Project Description**, the construction area would be less than 1,000 square feet with an estimated 10 cubic yards in excess graded material. The site is located within an area of moderate erosion hazard (see

Figure 4.8-5). However, the construction would be within an existing flat, paved area that would require only 10 cubic yards of excavation. Construction at this site would not result in substantial erosion or loss of topsoil, therefore, the impact would be less than significant.

Treatment Facilities at Regional Treatment Plant

Development at the Regional Treatment Plant site would consist of construction of a new advanced water treatment facility that would be constructed on approximately 3.5 acres of land within the existing MRWPCA Regional Treatment Plant site and modifications to the existing Salinas Valley Reclamation Plant at the same plant site. As shown on **Table 2-20** in **Chapter 2, Project Description**, construction is estimated to result in approximately 700 cubic yards in excess graded material. The site is located within an area of moderate erosion hazard (see **Figure 4.8-5**), and grading and site disturbance could result in erosion and topsoil loss. This erosion and loss of topsoil would be reduced because the site is located within the unincorporated area of Monterey County, and may be subject to approval of a grading permit as construction involves more than 100 cubic yards of excavation. In addition, the construction site would be greater than one acre in size, and implementation of a SWPPP would be required at this site. Implementation of the SWPPP would ensure potential erosion and loss of topsoil impacts would be less than significant.

Product Water Conveyance

Development the Product Water Conveyance component of the Proposed Project consists of construction of a new pipeline and booster pump station along one of two alternate alignments. The estimated area of disturbance is 15-16 acres. As shown on **Table 2-20** in **Chapter 2-Project Description**, construction is estimated to result in approximately 8,300 to 8,600 cubic yards in excess graded material. Most of the alignment segments are located within an area of moderate erosion hazard, except for the southern portion of the Coastal Alignment that is within an area of high erosion hazard (see **Figure 4.8-5**), Some segments of the Product Conveyance Pipeline alignment (both options) are sited on gently sloping terrain, and some of the soils are classified as having moderate to high erosion hazards. Grading and site disturbance could in potentially result in significant erosion impacts. The sites are located within the unincorporated area of Monterey County, and within incorporated city limits of Marina and Seaside, and may be subject to approval of a grading permit from each applicable jurisdiction. Since the construction site would be greater than one acre in size, implementation of a SWPPP would be required at this site. Implementation of the SWPPP would ensure potential erosion and loss of topsoil impacts would be less than significant.

Injection Well Facilities

Construction of the Injection Well Facilities would consist of installation of new wells, appurtenant facilities, and an access road. As shown on **Tables 2-19** and **2-20** in **Chapter 2-Project Description**, the total construction area would involve approximately 7.5 acres with nearly 9,750 cubic yards in excess graded material. The site is located within an area of moderate erosion hazard (see **Figure 4.8-5**), and grading and site disturbance could result in potentially significant erosion impacts. The site is located within the City of Seaside, and may be subject to city requirements and standards to control excavation, grading, clearing and erosion (pursuant to Chapter 15.32 of the Seaside Municipal Code). Since the construction site would be greater than one acre in size, implementation of a SWPPP would be required at this site. Implementation of the SWPPP would ensure potential erosion and loss of topsoil impacts would be less than significant.

CalAm Distribution System Pipelines

The CalAm Distribution System components include construction of a new 3-mile long Transfer Pipeline from the Injection Well Facilities site located primarily within the City of Seaside and a new 5.4-mile long Monterey pipeline, which together comprise the CalAm Distribution System Pipelines. As described **Chapter 2, Project Description**, the area of disturbance for these facilities would total up to approximately 30 acres. The pipeline alignments are located within an area of moderate erosion hazard (see **Figure 4.8-5**), and grading and site disturbance could result in potentially significant erosion impacts. Since the construction site would be greater than one acre in size, implementation of a SWPPP would be required at this site. Implementation of the SWPPP would ensure potential erosion and loss of topsoil impacts would be less than significant.

Impact Conclusion

The Proposed Project construction could result in soil erosion or loss of topsoil due to ground disturbance and construction at all Proposed Project sites. However, state requirements for implementation of a SWPPP would ensure this impact would be less than significant. No mitigation measures are required.

Impact GS-2: <u>Construction-Related Soil Collapse and Soil Constraints during Pipeline Trenching</u>. Construction of some Proposed Project pipeline components would be located on geologic units or soils that are unstable, or that may become unstable during project construction, and potentially result in soil instability or collapse; however, this exposure would not result in a substantial risk to people or structures. (Criterion c) (Less than Significant)

Impact GS-2 applies to Proposed Project components that include installation of underground pipelines located in areas with soil stability concerns. Construction of short segments of pipelines at the following project sites would not result in construction-related impacts associated with soil collapse because the sites are not located on areas with unstable geologic units or soils: the Tembladero Slough and Reclamation Ditch Source Water Diversion sites, and the Treatment Facilities at the Regional Treatment Plant. No geotechnical issues have been identified for these locations that could result in soil collapse during pipeline trenching activities, and exposure to or creation of soil stability hazards is not expected to be significant at these locations. Potential for soil instability or collapse during pipeline trenching at other project sites are discussed below.

Project facilities would be designed in accordance with recommendations of site-specific geotechnical investigations prepared by a California-licensed geotechnical engineer, or engineers. Design-level geotechnical investigation would be prepared for all project components to inform final design and construction that address seismic hazards and expansive soils, and the best means for complying with all applicable state and local code requirements and other protective standards. The investigations would include soil sampling and laboratory testing of materials in order to provide design criteria and recommendations applicable to foundation design, earthwork, backfill, site preparation, trenching, tunneling, materials, and other factors related to all project components. All recommendations of the preliminary geotechnical investigations would be incorporated into the final design and construction specifications for each project component, and would be implemented as specified by the construction contractors. Project construction would comply with applicable codes and requirements of the California Building Code with California additions (CCR Title 24), and applicable City and

County construction and grading ordinances. Temporary construction slopes may range up to 1.5:1 or 3:1 (horizontal:vertical) inclinations.

In accordance with requirements of state and local agencies and professional engineering standards, the contractor would use continuous shoring as necessary to protect existing improvements, where temporary slopes are not feasible. Where flowing sand conditions warrant special excavation and shoring procedures, trench shields and limited open trench conditions would be used to protect adjacent improvements and existing utilities. Given these considerations, the Proposed Project components described in more detail below would result in a less-than-significant impact due to soil instability or collapse during pipeline trenching.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion and Salinas Treatment Facility

Construction activities within the northeastern low-lying areas of the Salinas Valley (in the vicinity of the proposed Salinas Pump Station and Salinas Treatment Facility Source Water Diversion sites) are anticipated to encounter areas of shallow groundwater and soft soil conditions. Drainage conditions are relatively poor and the subsurface is anticipated to consist of moist to saturated soils. Trench excavations may encounter groundwater, moist to wet soils, and soft ground conditions, and trench dewatering may be required. Soft ground may require overexcavation and stabilization with crushed rock/filter fabric to provide suitable pipe bedding support. However, no geotechnical issues have been identified for these locations that could result in soil collapse during construction, and exposure to, or creation of, soil stability hazards would not result in a significant impact at these construction sites.

Blanco Drain Diversion

The central areas of the Proposed Project area are anticipated to encounter friable dune sands that may cave continuously in some areas. Pipeline trenching in the central area would generally encounter eolian deposits and fill materials. The eolian deposits are anticipated to consist of weakly to moderately consolidated, moderately to well-sorted silt and fine- to medium-grained sand. Excavation in eolian deposits may encounter flowing sands and caving. This is a potential hazard for the installation of the Blanco Drain component of the Proposed Project. Although there is the potential for soil collapse during pipeline trenching in this location, compliance with the requirements of state and local agencies and professional engineering standards, would ensure that this impact would be less than significant.

Lake El Estero Diversion

The southwestern edge of Lake El Estero is mapped as being underlain by the Monterey Formation. Excavation may be difficult in areas where strongly cemented layers of the Monterey Formation are encountered and where granodiorite is present. Proposed improvements at the Lake El Estero Source Water Diversion site would consist of a pumping system, consisting of a new column pump installed in the wet well of the existing lake management pump station or a gravity system, consisting of a new headwall and screened intake pipe, both of which would be entirely underground or within existing pump dry and wet well structures. Depending on the extent of excavation, specialized excavation equipment, such as ripper teeth or chipper attachments may be appropriate for trenching in these deposits. However, no geotechnical issues have been identified for these locations that could result in soil collapse during construction, and exposure to, or creation of, soil stability hazards would not be a significant impact at this location.

Product Water Conveyance

As indicated above, construction activities in the central areas of the Proposed Project area are anticipated to encounter friable dune sands that may cave continuously in some areas. Pipeline trenching in the central area would generally encounter eolian deposits and fill materials. The eolian deposits are anticipated to consist of weakly to moderately consolidated, moderately to well-sorted silt and fine- to medium-grained sand. Fill materials are generally anticipated to consist of compacted silts and sands generated locally from the natural eolian deposits. Fill materials may also include imported soils and miscellaneous debris (particularly in older developed areas and along the former Fort Ord military base). The preliminary geotechnical investigation anticipates well-drained conditions and relatively deep groundwater, although shallow groundwater may be present along low-lying coastal areas.

The preliminary geotechnical investigation indicates that trenching conditions can vary depending on presence/absence of cementation and/or groundwater. Excavation in eolian deposits may encounter flowing sands and caving. This is a potential hazard for the installation of the Product Water Conveyance Pipeline component of the Proposed Project. Temporary construction slopes may range from up to 1.5:1 to 3:1 (horizontal:vertical) inclinations. Continuous shoring may be appropriate to protect existing improvements, where temporary slopes are not feasible. Flowing sand conditions may warrant special excavation and shoring procedures to protect adjacent improvements and existing utilities, such as trench shields placed during excavation and limited open trench conditions. Thus, there is a potential for soil instability or collapse during construction of the Product Water Conveyance pipeline; however, compliance with the requirements of state and local agencies and professional engineering standards, would ensure that this impact would be less than significant.

CalAm Distribution Pipelines

The soil conditions in the southwestern areas of the project area (including the CalAm Distribution Pipelines) will vary and may include soft wet soil conditions in canyon areas to difficult excavation in granodiorite and potentially strongly cemented zones of the Monterey Formation. Variable geologic conditions are present within the area where the western segment of the CalAm Distribution System is proposed. Alluvium along canyon bottoms and drainages is anticipated to include moist to wet, loose/soft clays, silts, and sands. Shallow groundwater may be encountered along lower canyon and drainage areas. Flat and sloped areas throughout the southwestern portion of the study area contain coastal terrace deposits anticipated to be comprised of semi-consolidated, moderately well-sorted marine sand containing thin, discontinuous gravel-rich layers. Construction activities in the western portion of the proposed CalAm Monterey Pipeline would be anticipated to encounter granodiorite in several locations.

Trench excavations in the low-lying alluvial areas may encounter some soft, wet, alluvium with a potential for caving and unstable trench bottoms. Dewatering may be required. Moist to wet soil conditions along lower elevations may require drying/mixing prior to trench backfill compaction. Soft ground may require overexcavation and stabilization with crushed rock/filter fabric to provide suitable pipe bedding support. Trenches excavated in coastal terrace deposits may experience variable stability due to potential zones where debris flow deposits locally overlie the terrace deposits. Monterey Formation and granodiorite materials are anticipated to be relatively stable in trench excavations. Difficulties in excavating may be encountered in granodiorite and strongly cemented layers of the Monterey Formation. Specialized excavation equipment, such as ripper teeth or chipper attachments may be appropriate for trenching in these deposits. Although there is a potential for soil instability or collapse during construction of the segments of the CalAm Distribution pipelines located in sandy soils, compliance with the requirements of state and local agencies and professional engineering standards, would ensure that this impact would be less than significant.

Impact Conclusion

Construction of the Proposed Project pipeline segments at the Blanco Drain Diversion and Product Water Conveyance sites could result in exposure to unstable soils due to presence of friable dune sands that may cave continuously in some areas. Construction at these sites may require temporary shoring to protect construction workers from injury due to potential soil collapse. There also is a potential for soil instability or collapse during construction of the segments of the CalAm Distribution pipelines located in sandy soils. Although there is the potential for soil collapse during pipeline trenching, compliance with the requirements of state and local agencies and professional engineering standards would ensure that this impact would be less than significant. No mitigation measures are required.

4.8.4.4 Operation Impacts and Mitigation Measures

Impact GS-3: Exposure to Fault Rupture. The Proposed Project would be located in a seismically active area, and portions of the Proposed Project may be affected by fault rupture from an earthquake on local faults; however, this exposure would not result in a substantial risk to people or structures. (Criterion a) (Less than Significant)

The project would be located in an area of relatively high seismicity. Some active and potentially active faults cross the project area; although no faults in the project area are mapped on the Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist. Specifically, segments of the proposed CalAm Distribution System Pipelines cross potentially active fault traces. No other Proposed Project components are located in the vicinity of known, active or potentially active fault traces or zones.

The proposed CalAm Distribution Pipeline-Monterey Pipeline would cross the Chupines Fault Zone in the City of Seaside and the trace of the Navy Fault in the City of Monterey. These faults are not mapped as active by the State of California because they do not display evidence of recent displacement. However, past studies have indicated that certain segments of certain faults do exhibit Holocene-age displacement leading to the conclusion that certain segments could be considered active. The Chupines and Navy Faults are concealed along Del Monte Avenue, and there is no reported evidence of recent fault displacement in this area (URS, 2014). In the event of an earthquake along the Navy or Chupines Faults, ground shaking could occur, but because there has not been historic (less than 200 years) or Holocene (less than 11,000 years) activity on these faults, the active traces would be buried beneath sand and marine terrace deposits. In addition, because the faults segments are comparatively short (in comparison to an active fault such as the San Andreas Fault), any surface expression of fault movement would be minor if it would occur at all (URS Corporation, 2014).

In the unlikely event that the Navy or Chupines Faults generated earthquake activity or surface fault displacement along the Monterey Pipeline, the pipeline would likely accommodate the lateral movement and not be damaged (URS Corporation, 2014). Potential damage could include a break to a pipe segment and possibly leakage that would be readily repaired. Documented municipal water system pipe breaks due to fault rupture during large-magnitude earthquakes are not typically the cause of substantial risks of loss of life or property. While it is possible that these local faults could generate an earthquake and rupture at the surface, the potential for such an occurrence to expose people or structures to substantial adverse effects related to fault rupture is low because the faults are either concealed beneath sediments or at a sufficient distance from the project components. In the unlikely event that one of the faults crossing the project components did generate an earthquake and cause surface rupture, the rupture area would be localized, resulting in a minor offset associated with low level groundshaking. Damage could include localized pipeline leaks that would be immediately repaired. Considering the low potential for fault rupture on the project area faults, this impact is considered less than significant (URS Corporation, 2014).

Potential design features proposed to minimize effects to off-site properties due to pipeline breakage include: 1) installation of isolation valves on either side of a pipeline fault crossing to reduce water loss in case of rupture, 2) oversize trench excavation and backfill with select compressible materials, and 3) open channel construction and/or flexible couplings.

Impact Conclusion

The Proposed Project operation would not expose people or structures to substantial risk of adverse effects due to fault rupture. The risk of fault rupture along the CalAm Distribution Pipeline would result in a less-than-significant impact. No impacts would result from fault rupture at any other Proposed Project components. No mitigation measures are required.

Impact GS-4: <u>Exposure to Seismic Ground Shaking and Liquefaction.</u> The Proposed Project would be located in a seismically active area; however, Proposed Project operations would not expose people or structures to a substantial risk of loss, injury, or death involving exposure to seismic groundshaking and liquefaction. (Criteria a and c) (Less than Significant)

All of the Proposed Project components would be located within a seismically active region. An earthquake on local or regional faults could result in damage to structures and pipelines due to seismic shaking and/or liquefaction. The intensity would be dependent on the magnitude of the earthquake and distance of facilities from the earthquake epicenter. The primary effects of groundshaking would be potential damage to project buildings, including foundations, and/or breaks in water pipelines. Structures would be designed in accordance with requirements of the California Building Code regarding seismic design criteria, which would help minimize damages and would not result in substantial adverse risks to people or structures.

Broken pipelines could result in localized soil washout that could damage nearby non-project facilities; repairs to broken lines could result in a temporary cessation of operation of the project facilities until repairs are complete. However, any such breaks would be localized and would be repaired, thus avoiding substantial adverse effects. Design features proposed to minimize pipeline breakage include: 1) installation of isolation valves on either side of a pipeline fault crossing to reduce water loss in case of rupture, 2) oversize trench excavation and backfill with select compressible materials, and 3) open channel construction and/or flexible couplings.

There is a strong potential for seismically induced soil liquefaction and dynamic settlement at some locations within the project area, which may damage some Proposed Project facilities (including wells, structures and pipelines). The alluvial materials in the northeastern floodplain area of the Proposed Project area are mapped as having moderate to high liquefaction susceptibility. The eolian deposits in the central portion of the Proposed Project area are generally mapped as having low liquefaction susceptibility, except where shallow groundwater may be present in localized low-lying areas, including in the floodplain of the Salinas River (near the Salinas Pump Station Diversion site and the Blanco Drain Diversion Pump Station and Pipeline), low-lying coastal areas (i.e., near Lake El Estero), and alluvial river-bottom areas such as Canyon del Rey (Highway 68) and other drainages within the southwestern portion of the project area (see **Figure 4.8-4, Liquefaction Hazards**). Low-lying alluvial areas along segments of the CalAm Distribution Pipeline may be considered to have a relatively high susceptibility to liquefaction and dynamic settlement. There may be a moderate potential for dynamic settlement of dry, loose sands within the elevated dune sand deposits; dynamic settlement of loose dry sands may be a potential hazard to pipelines.

Project locations within areas of high liquefaction susceptibility include:

- All source water diversion and storage areas except for Lake El Estero diversion, and
- Some segments of the CalAm Distribution Pipelines.

Prior to design of facilities, detailed geotechnical evaluations would be performed for Proposed Project sites, including pipeline alignments, with geology and soils hazards in order to develop and incorporate appropriate seismic design parameters into new structural development. Geotechnical evaluation of liquefaction potential and dynamic settlement, including subsurface exploration, would be performed during the design phase for project sites with planned new structural development constructed in accordance with local requirements and the California Building Code. Appropriate measures to protect structures and other improvements would be developed based on the site specific geotechnical conditions. Adherence to existing regulations and standards, including the California Building Code, would minimize harm to people and structures from adverse geologic events and conditions. Buildings would be designed in accordance with the latest edition of the California Building Code, which sets forth structural design parameters for buildings to withstand seismic shaking without substantial structural damage.

In comparison to above-ground structures, underground pipelines, and buried structures are generally less susceptible to liquefaction damage because they are imbedded in compacted backfill that can tolerate more seismic wave motion. While this practice would not completely eliminate the potential for damage to the facilities, it would ensure that the resultant improvements would have the structural fortitude to withstand anticipated groundshaking and seismically induced ground failures without significant damage (URS Corporation, 2014).

Impact Conclusion

Upon completion of construction, all of the Proposed Project facilities would be subject to seismic shaking during an earthquake, and all the source water diversion sites, except for Lake El Estero Diversion, and some segments of the CalAm Distribution Pipeline could be subject to liquefaction. Generally, damages to facilities would be localized and minimized with adherence to local regulations, building codes, and recommendations of site-specific geotechnical reports. The application of proven seismic design criteria as standard engineering practices that are recommended in geotechnical reports would ensure that the facilities would be designed and built to minimize risk of damage. Damage from an earthquake could result in temporary cessation of project operations until repairs are completed, but the effects of seismic groundshaking and liquefaction would not result in a substantial risk of loss, injury, or death resulting in a significant impact. No mitigation measures are required.

Impact GS-5: <u>Exposure to Coastal Erosion and Sea Level Rise.</u> The Proposed CalAm Distribution System Monterey Pipeline would be exposed to substantial soil erosion as a result of sea level rise. (Criterion b) (Less than Significant with Mitigation)

Coastal areas are subject to coastal erosion, which may be exacerbated by sea level rise which is predicted to occur throughout the century. It is possible that coastal erosion exacerbated by sea level rise may affect segments of the proposed CalAm Distribution Pipeline. The sea level in Monterey Bay is projected to continue to rise over the next several decades, and the Monterey Bay coastline is expected to retreat inland due to the rising sea level and the resulting erosion (ESA-PWA, 2014).

A technical memorandum prepared by ESA-PWA shows selected coastal zones at risk of damage during a major storm event, considering sea level rise scenarios through 2060 (ESA-PWA, 2014). The memorandum includes a longitudinal profile spanning between Lake El Estero and Monterey Bay, with the approximate location of the proposed CalAm Monterey Pipeline plotted within the envelope of erosion for a 100-year storm at the estimated predicted sea levels in the years 2040 and 2060. The Lake El Estero Source Water Diversion site is located outside the identified coastal erosion hazard area, specifically outside the year 2100 envelope for coastal erosion as shown on **Figure 4.8-6, Coastal Erosion Hazard Zones**; therefore it would not be subject to coastal erosion or retreat impacts during its lifetime representing no impact. All other areas of the Proposed Project are located farther inland and/or are behind large dunes that would not be expected to erode as a result sea level rise within the lifetime of the project (beyond the year 2100).

CalAm Distribution Pipelines

The coastal erosion hazard zone assessment completed as part of coastal retreat study found that the portion of the Monterey Pipeline along Del Monte Avenue, adjacent to Lake El Estero, could be close enough to the ocean to succumb to coastal erosion during the operational life of the project (ESA-PWA, 2014). The study concluded that a portion of the Monterey Pipeline was within the 2030 to 2050 coastal erosion hazard zone. The coastal profile on **Figure 4.8-6** shows that the Monterey Pipeline would be within the 2060 100-year lower profile envelope meaning that there would be a potential for this pipeline section to become undermined and exposed after a significant coastal storm event sometime around 2060. This possible future condition represents a significant impact of the project because in accordance with the significance criteria, the exposure of the Monterey Pipeline along Del Monte Avenue could accelerate and/or exacerbate natural rates of coastal erosion and scour resulting in damage to adjoining properties or a substantial change in the natural coastal environment.

Impact Conclusion

Upon completion of construction, a segment of the CalAm Distribution Pipeline (Monterey Pipeline) along Del Monte Boulevard could become exposed due to projected sea level rise and associated coastal erosion. This could occur during the operational life of the project. The exposure of the Monterey Pipeline in this area could result in damage to adjoining properties from excessive bayshore erosion and scour, which is considered a significant impact. Implementation of Mitigation Measure GS-5 (Monterey Pipeline Deepening) would reduce the impact to less than significant because the pipeline in this area would be buried at the time of initial construction below the level of the 2060, 100-year lower profile envelope.

Mitigation Measure

Mitigation Measure GS-5: Monterey Pipeline Deepening. (Applies to CalAm Distribution System: Monterey Pipeline only)

CalAm shall bury the Monterey Pipeline segment that is within the pre-determined coastal erosion hazard zone to a depth of five feet below the depth of the 2060, 100-year lower profile envelope. The extent of the coastal erosion hazard zone, length of affected pipeline section, and lower profile envelope for this pipeline segment shall be determined as per the Analysis of Historic and Future Coastal Erosion with Sea Level Rise (ESA-PWA, 2014).

Impact GS-6: Hydro-Collapse of Soils from Well Injection. Proposed Project operation would not create a substantial risk to life or property due to its facilities being located on a geologic unit or soils that are unstable, or that would become unstable as a result of hydro-collapse. (Criterion c) (Less that Significant)

Injection Well Facilities

The Proposed Project includes the construction of Injection Well Facilities, which would include both deep injection wells and vadose zone (shallow) wells. The vadose zone wells would inject water into the unsaturated soils overlying the uppermost aquifer (the unconfined Paso Robles Aquifer), and the deeper wells would directly replenish the confined Santa Margarita Aquifer. The eolian deposits that underlie the proposed location for the Injection Well Facilities could be susceptible to hydro-collapse if large quantities of water are injected into the ground in the surficial soils at the site. The vadose zone wells would be screened below 100 feet, so the upper 100 feet of surficial sediment would not be wetted by the Proposed Project's vadose zone wells. Wetting of the eolian deposits at 100 feet or deeper, and mounding beneath the vadose zone wells is not expected to create a substantial risk to life or property due to the size and storativity of the unsaturated zone. Based on the depth to groundwater and minor groundwater mounding that is expected with the Proposed Project, the preliminary geotechnical report in **Appendix K** indicates that the risk of hydro-collapse due to the injection of water into the Seaside Groundwater Basin would be less than significant.

The only project component that would wet the upper sediments is the back-flush basin, a 5-foot deep shallow dug-out basin (three feet water depth plus two feet free board) where water would be discharged for several hours ~~four~~ three times per week for injection well maintenance (assuming one well is in standby mode during any one week). Water percolated through the basin would recharge the Paso Robles aquifer. The overall basin depth would be five feet. The embankment of the basin would have 3:1 side slopes and 12-foot wide perimeter access road, and it would not contain structures (except a discharge pipe) or other features that would be negatively impacted from settlement or hydro-collapse. The basin would not be located adjacent to the wells. The proposed back-flush basin may cause wetting of the shallow eolian deposits. However, the back-flush basin is only expected to receive pumped water for ~~a few~~3 to 4 hours approximately three times per week so settlement due to hydro-collapse is anticipated to be relatively minor and limited to the footprint of the back-flush basin which can accommodate minor settlement. As such, the impact of hydro-collapse resulting from use of the back-flush basins would be less than significant.

Impact Conclusion

The risk of hydro-collapse resulting from injection of water into the Seaside Groundwater Basin and from use of the back-flush basin for well maintenance during Proposed Project operations would constitute a less-than-significant impact. No mitigation measures are required.

Impact GS-7: Exposure to Expansive and Corrosive Soils. The Proposed Project would not result in substantial risks to the public or other facilities due to location on expansive or corrosive soil types. (Criterion d) (Less than Significant)

The Proposed Project facilities may be impacted by expansive soils in locations containing clays including the Salinas River Valley, southwestern alluvial areas, and potential locations containing clayey fills. Proposed Project elements could be damaged due to settlement of weak or saturated subsurface soils. The expansion characteristics of clayey soils may vary locally, and thus, should be considered during detailed project design on a site-specific basis. Clayey soils are potentially corrosive and/or expansive.

The Proposed Project facilities may also be impacted by corrosion of ferrous metals or sulfate attack on concrete due to corrosive/deleterious soils. The potential for corrosivity depends on the material type and the proximity to saltwater. In general, clay deposits in the alluvium of the Salinas River Valley, southwestern alluvial areas, or coastal marine areas may constitute a corrosive or deleterious environment. Over time, pipe corrosion could lead to pipeline failure, resulting in localized surface flooding and/or soil settlement, although no substantial adverse risks to life or property at offsite properties would result from this potential occurrence during Proposed Project operations.

The conductivity of soils may be high enough in the project study area to corrode underground metal pipes and electrical conduits. Over time, pipe corrosion could lead to pipeline failure, resulting in localized surface flooding of water or localized settlement of surface soils in the location of the failure. Failed subsurface electrical conduits could result in electrical short-circuiting. This would reduce power temporarily to the facility and possibly result in temporary shutdown of operations.

Many of the project sites have been previously studied and developed and the underlying soils replaced with engineered fill; in addition, previous geotechnical evaluations have been prepared for some sites. Detailed site-specific geotechnical engineering studies, including subsurface exploration and laboratory testing, should be performed during project design to further assess site soils. These engineering studies will determine whether site soils will be expansive and corrosive, and to analyze other geotechnical constraints at the Proposed Project so that appropriate geotechnical design and construction recommendations can be prepared.

Impact Conclusion

Although there is the potential for soil types at the project sites to exhibit expansive and corrosive properties, detailed site-specific geotechnical engineering studies, including subsurface exploration and laboratory testing, would be performed during project design to further assess site soils. As indicated in **Section 4.8.4.2** above, these studies would provide design details for facility plans in response to soils conditions present. Implementation of recommendations in the geotechnical studies, which is applicable to all Proposed Project components, would ensure this impact is less than significant. No mitigation measures are required.

4.8.4.5 Cumulative Impacts and Mitigation Measures

The geographic scope for cumulative impact analysis on geology, soils, and seismicity consists of each Proposed Project component site and the immediate vicinity around each of these sites. Geologic and seismic impacts are generally site-specific, because they result from the local geology and soil conditions at a given site and do not have additive effects with activities/projects beyond the immediate vicinity. Based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis** (see **Section 4.1, Introduction**), there are no other proposed or planned developments within the immediate vicinity of the Proposed Project facilities, except for the proposed CalAm Transmission Main that is adjacent to the Product Water Conveyance: Coastal alignment. The Transmission Main is a component of the Monterey Peninsula Water Supply Project (MPWSP) with the smaller, 6.4 mgd desalination plant.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects identified on **Table 4.1-2**:

- *Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):*[3] The CalAm MPWSP includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The overall estimated construction schedule would be from June 2016 through March 2019 for the combined projects and construction could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects:* This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPWSP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPWSP (with the 6.4 mgd Desalination Plant). **Table 4.6-6, Summary of Impacts – Cultural Resources**, above provides a summary of impacts of the Proposed Project for construction-related impacts of erosion, soils collapse

[3] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

during trenching. These impacts were found to be less-than-significant with compliance with the requirements of state and local agencies and professional engineering standards during construction. GWR operational impacts from exposure to fault rupture, ground shaking, liquefaction, expansive soils and hydro-collapse of soils from well injection were also found to be less than significant. The MPSWP would have similar impacts from erosion and corrosive soils and potential to expose people or structures to substantial adverse effects related to fault rupture, ground shaking, liquefaction, expansive soils and hydro-collapse of soils as the Proposed Project.

Segments of the MPWSP Transmission Main would be in a similar location as segments of the Proposed Project's Product Water Conveyance Coastal Alignment Pipeline. The construction of the two pipelines would be in proximity to each other, but would not be located within the same alignment trenches, and would not exacerbate soil instability issues related to the projects' individual impacts. Therefore, construction and operation of the combined facilities would not result in a significant cumulative impact.

Overall Cumulative Impacts. This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (Also see **Figure 4.1-2** in **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects could result in impacts that combine with the impacts of the Proposed Project. The Proposed Project would not be within the same location as any other known projects, with the exception of the MPWSP as discussed above and the City of Salinas Solar Project. The City of Salinas Solar Project would be constructed starting in 2015 and ending in 2016, which would not completely coincide with construction of the Proposed Project at the Salinas Pump Station Diversion site. Should an overlap of construction schedules occur, it is likely that the installation of the solar panels would be nearing completion, and construction of the two projects would not create a combined geologic, soil or seismicity impacts.

Because of the localized nature of the anticipated individual project impacts, the projects listed in **Table 4.1-2** would not combine with those of the Proposed Project to cause or contribute to potential cumulative geologic, soil, or seismic impacts. Construction of all projects would be subject to applicable codes and requirements of the California Building Code with California additions (CCR Title 24), and applicable City and County construction and grading ordinances.

Cumulative Impact Conclusion

With compliance with applicable regulations overseeing construction of both MPWSP and GWR facilities and implementation of mitigation measures for each project, the exposure to seismic or soils hazards would not result in a significant cumulative impact. Because of the localized nature of the anticipated impacts or other cumulative projects listed in **Table 4.1-2**, the cumulative projects, including the Proposed Project, would not result in cumulative geologic, soil, or seismicity impacts.

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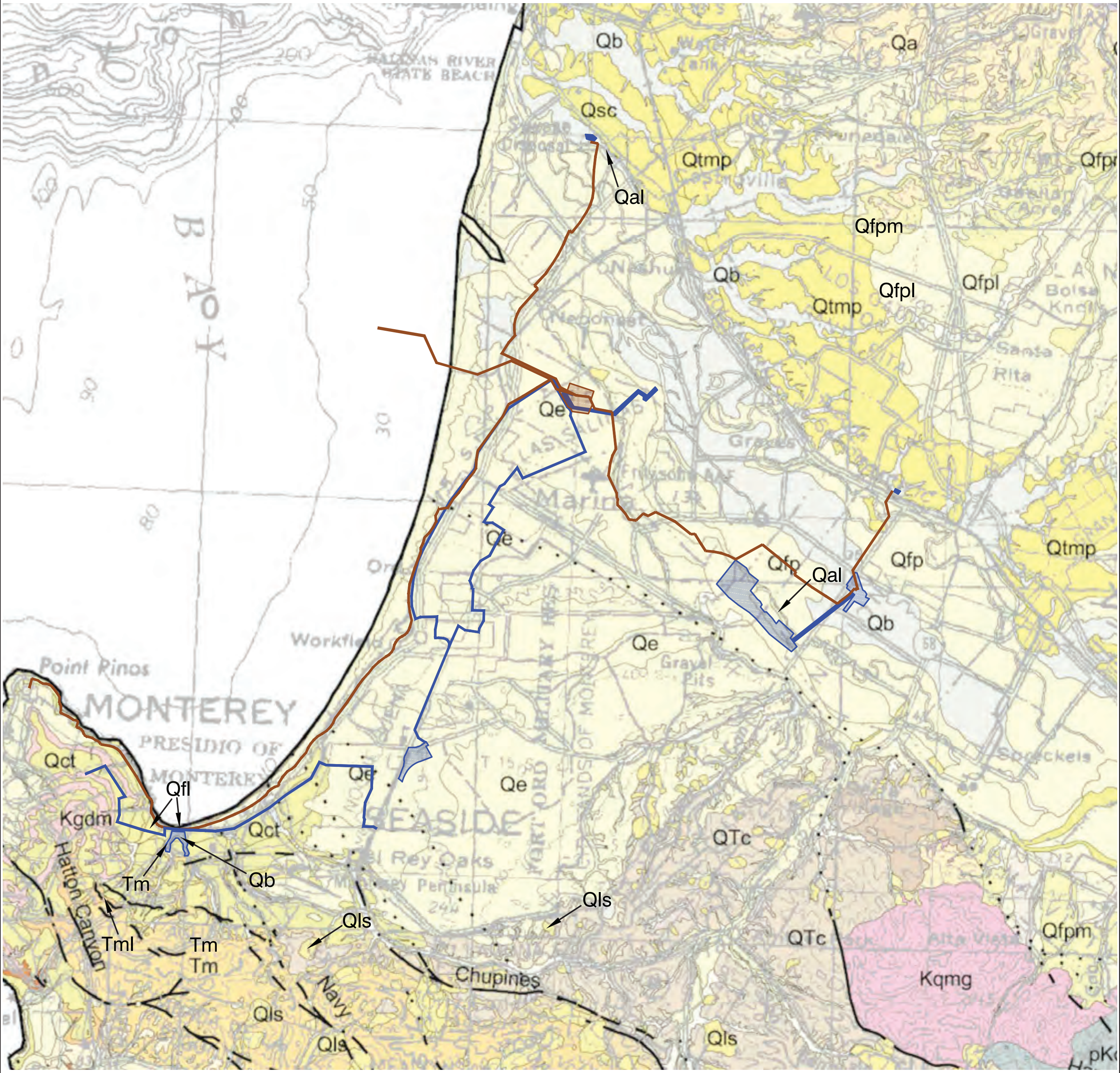

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N

SCALE IN MILES

0 2.5 5

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

EXISTING WASTEWATER FACILITIES

PROJECT COMPONENT

DD&A

Regional Geology Map

April 2015

Source: Ninyo and Moore, 2014

Pure Water Monterey GWR Project
Draft EIR

Figure 4.8-1A

Qf	**Artificial fill (Historic)**—Deposits of fill resulting from human construction or mining activities ranging from well-compacted sand and silt to poorly compacted sediment high in organic content; only locally delineated
Qbs	**Beach sand (Holocene)**—Unconsolidated, well-sorted, medium- to coarse-grained sand; local layers of pebbles and cobbles
Qb	**Basin deposits (Holocene)**—Unconsolidated, plastic clay and silty clay containing much organic material; locally contains interbedded thin layers of silt and silty sand
Qal	**Alluvial deposits, undifferentiated (Holocene)**—Unconsolidated, heterogeneous, moderately sorted silt and sand with discontinuous lenses of clay and silty clay
Qf	**Alluvial fan deposits, undifferentiated (Holocene)**—Unconsolidated, moderately to poorly sorted sand, silt, and gravel, with layers of silty clay
Qfp	**Flood-plain deposits, undifferentiated (Holocene)**—Unconsolidated, relatively fine-grained, heterogeneous deposits of sand and silt; commonly includes relatively thin, discontinuous layers of clay
Qsc	**Stream channel deposits, undifferentiated (Holocene)**—Modern stream channels and channel deposits of the Salinas River and principal tributaries. Loose, moderately- to well-sorted gravel, coarse- to fine-grained sand and silt
Qls	**Landslide deposits (Quaternary)**—Heterogeneous mixture of deposits ranging from large block slides of indurated bedrock to debris flows in semiconsolidated sand and clay
Qe	**Eolian deposits, undifferentiated (Pleistocene)**—Weakly to moderately consolidated, moderately to well-sorted silt and fine-to medium-grained sand deposited in extensive coastal dune field
Qfpl	**Alluvial fans (late Pleistocene)**—Weakly consolidated, moderately to poorly sorted sand, silt, and gravel
Qfpm	**Alluvial fans (middle Pleistocene)**—Moderately consolidated, deeply weathered, moderately to poorly sorted sand, silt, and gravel, capped with moderately well drained, maximally developed soils
Qtlp	**Fluvial terrace deposits (late Pleistocene)**—Semi-consolidated, moderately to poorly sorted silt, sand, silty clay, and gravel
Qtmp	**Fluvial terrace deposits (middle Pleistocene)**—Semi-consolidated, moderately well to poorly sorted sand, silt, and clay with interbedded gravel
Qct	**Coastal terraces, undifferentiated (Pleistocene)**—Semiconsolidated, moderately well-sorted marine sand containing thin, discontinuous gravel-rich layers. Locally includes some terrace surfaces and debris flow deposits resting on terrace surfaces
QTc	**Continental deposits, undifferentiated (Pleistocene-Pliocene?)**—Semiconsolidated, relatively fine-grained, oxidized sand and silt. Probably equivalent to Paso Robles Formation
Tm	**Monterey Formation, siliceous mudstone (Miocene)**—Light brown to white, hard, brittle, platy; Mohnian Stage. Mapped as McLure Shale Member northeast of San Andreas fault.
Tml	**Monterey Formation, semi-siliceous mudstone (middle Miocene)**—Semi-siliceous mudstone and siltstone (Sandholdt Shale Member of Durham, 1968; 1974)
Kgdm	**Porphyritic granodiorite of Monterey (Ross, 1976) (Cretaceous)**
———	**Contact**—Accuracy ranges from well-located to approximately located. Most sedimentary units are well-located and most igneous and metamorphic units are approximately located at main mapping scale of 1:62,500
— — —?—····?··	**Fault**—Solid where accurately located; dashed where approximately located; dotted where concealed; queried where location or existence uncertain. Includes strike-slip, normal and reverse dip-slip, oblique-slip, and thrust faults

Source: Ninyo and Moore, 2014

Explanation of Regional Geology

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.8-1B

SOURCE: Fault Activity Map of California, 2010, Jennings, C.W., and Bryant, W.A., California Geological Survey.

APPROXIMATE SCALE

0 20 40 MILES

LEGEND

CALIFORNIA FAULT ACTIVITY

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- STATE/COUNTY BOUNDARY
- QUATERNARY (POTENTIALLY ACTIVE)
- LATE QUATERNARY (POTENTIALLY ACTIVE)

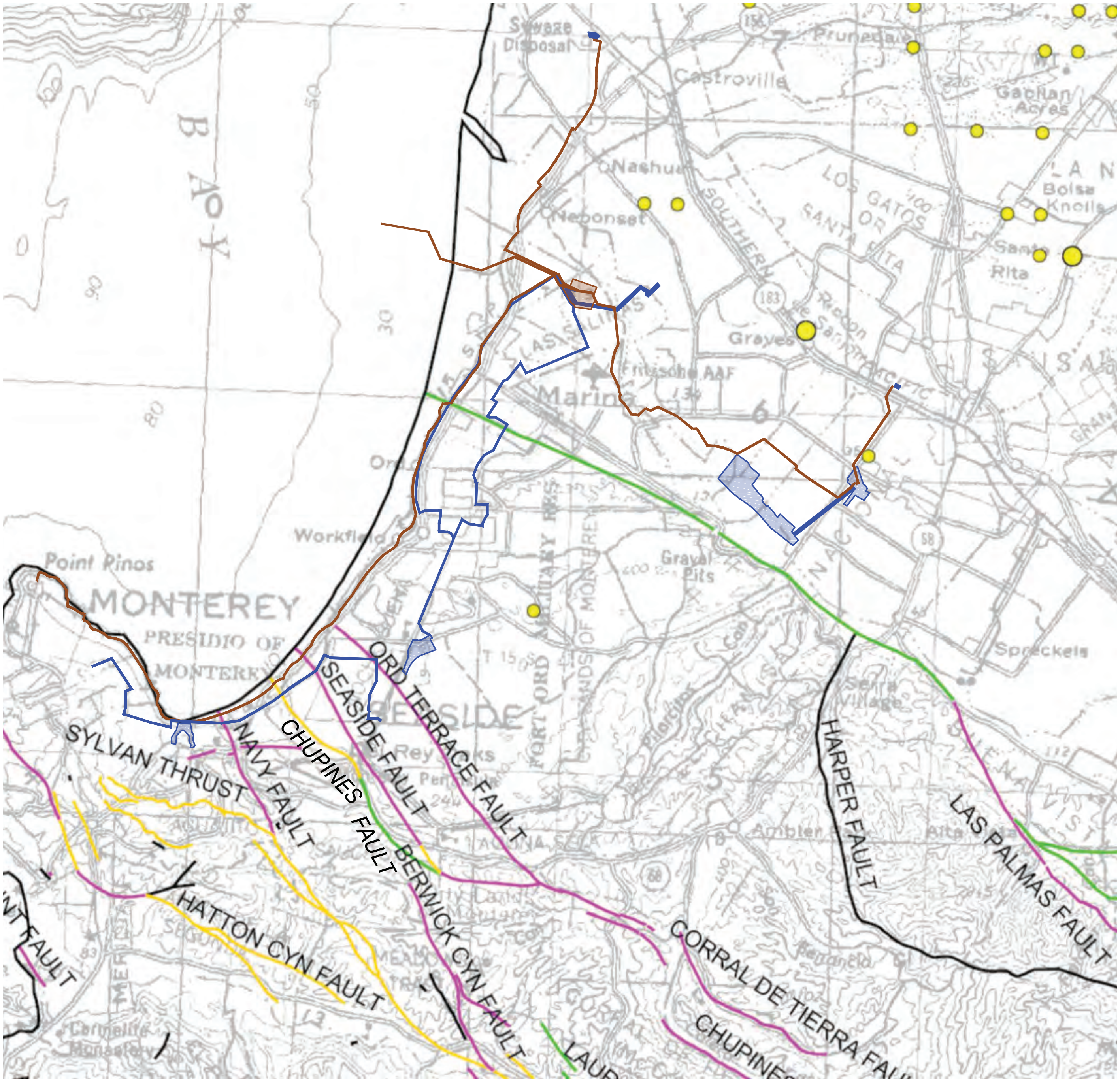
DD&A

Regional Fault Map

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.8-2



REFERENCE: ROSENBERG, L.I., 2001, DIGITAL MAP SHOWING RELATIVE FAULT HAZARDS OF MONTEREY COUNTY, CALIFORNIA, SCALE 1:250,000.

N

SCALE IN MILES

0 2.5 5

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

EXISTING WASTEWATER FACILITIES — PROJECT COMPONENT

Historic (younger than 200 years before present)—Displacement during historic time (1906 San Andreas fault earthquake)

Holocene (younger than 11,000 years before present)—Fault offsets Holocene deposits as dated by radiocarbon methods; delineated by well-developed geomorphic features such as deflected stream channels, linear drainages, saddles, notches, and troughs; aligned with historic seismicity recorded by the UCB/USGS Northern California Earthquake Data Center

Late Quaternary (750,000 to 11,000 years before present)—Fault cuts middle Pleistocene or younger deposits. Marine terrace age estimates based on correlations by McKittrick (1988) and Dupré (1990). Alluvial fan age estimates based on correlations by Tinsley (1975), Dupré and Tinsley (1980), and Klaus (1999)

Undivided Quaternary (younger than 1,600,000 years before present)—Offset of Quaternary deposits not otherwise determined to be younger than middle Pleistocene

Pre-Quaternary (older than 1,600,000 years before present)—Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.

Earthquake epicenter (magnitude 3.0-3.9)
Earthquake epicenter (magnitude 5.0-5.9)
Earthquake epicenter (magnitude 4.0-4.9)
Earthquake epicenter (magnitude 6.0-6.9)

DD&A

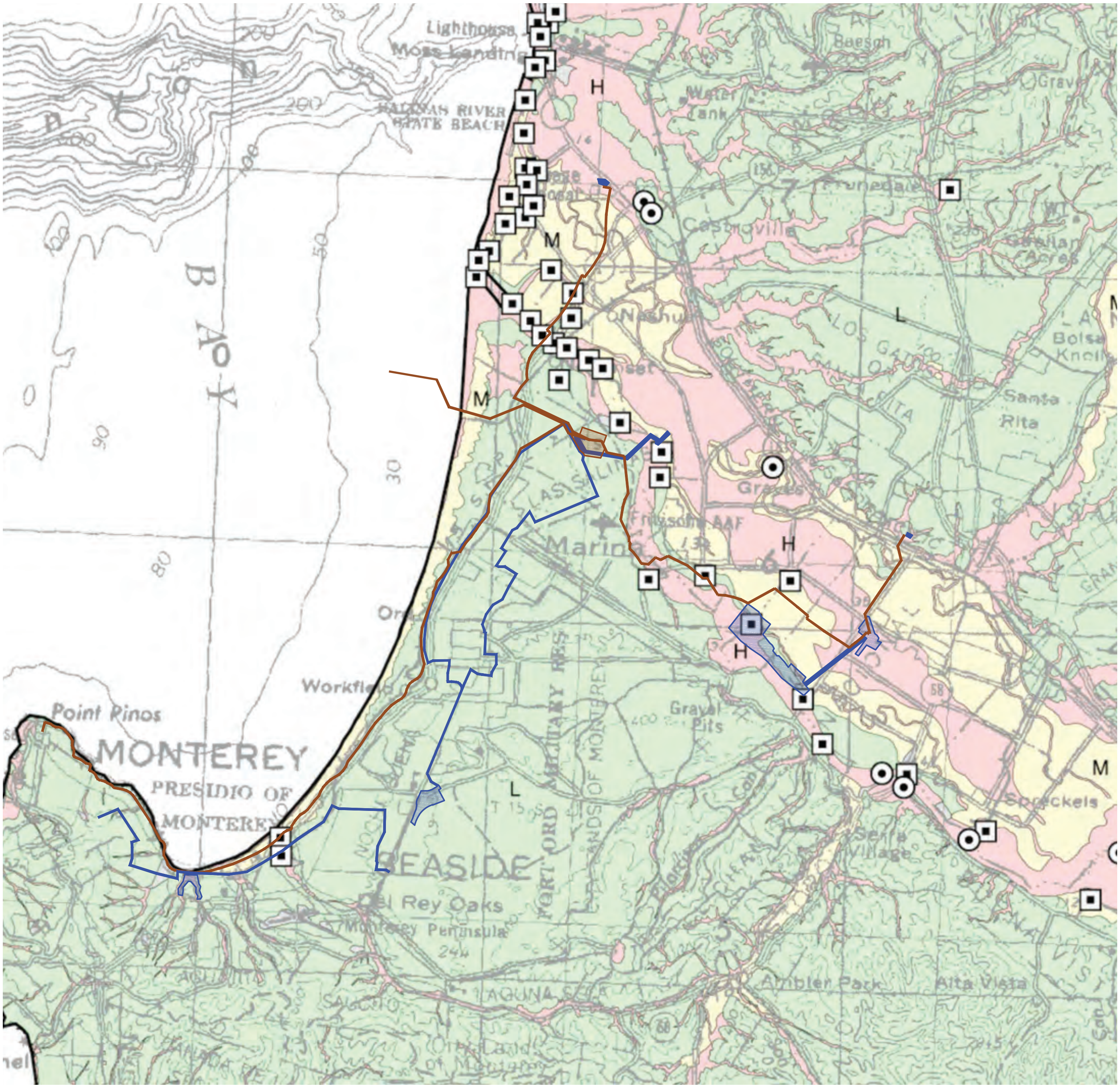
Detailed Fault Map

April 2015

Source: Ninyo and Moore, 2014

Pure Water Monterey GWR Project
Draft EIR

Figure
4.8-3



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N

SCALE IN MILES

0 2.5 5

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

EXISTING WASTEWATER FACILITIES

PROJECT COMPONENT

H **High liquefaction susceptibility**—Engineering tests and shallow ground water, the local presence of free faces, or historical evidence of liquefaction-induced ground failure in the 1906 San Francisco or 1989 Loma Prieta earthquakes. Mainly latest Holocene (0-500 years before present) younger flood-plain deposits and most Holocene basin deposits, undivided alluvial deposits, and abandoned channel-fill deposits. Sediments are likely to liquefy in a nearby major earthquake

M **Moderate liquefaction susceptibility**—Historical evidence of liquefaction-induced ground failure absent, although high susceptibilities calculated in engineering tests. Includes late Holocene (500-5,000 years before present) older flood-plain deposits, colluvium, and some late Pleistocene-Holocene eolian deposits. May liquefy in a nearby major earthquake

L **Low liquefaction susceptibility**—Includes almost all Pleistocene deposits and pre-Quaternary deposits, and Holocene deposits where the historical high ground water table is at least 30 feet below the ground surface (e.g., most alluvial fan deposits). Unlike to liquefy, even in a nearby major earthquake

V **Variable liquefaction susceptibility**—Areas of mapped artificial fill. Depending on the type of material and method of placement, the suceptibility may range from high to low

Historical liquefaction present in 1906 San Francisco or 1989 Loma Prieta earthquakes

Historical liquefaction absent in 1906 San Francisco or 1989 Loma Prieta earthquakes

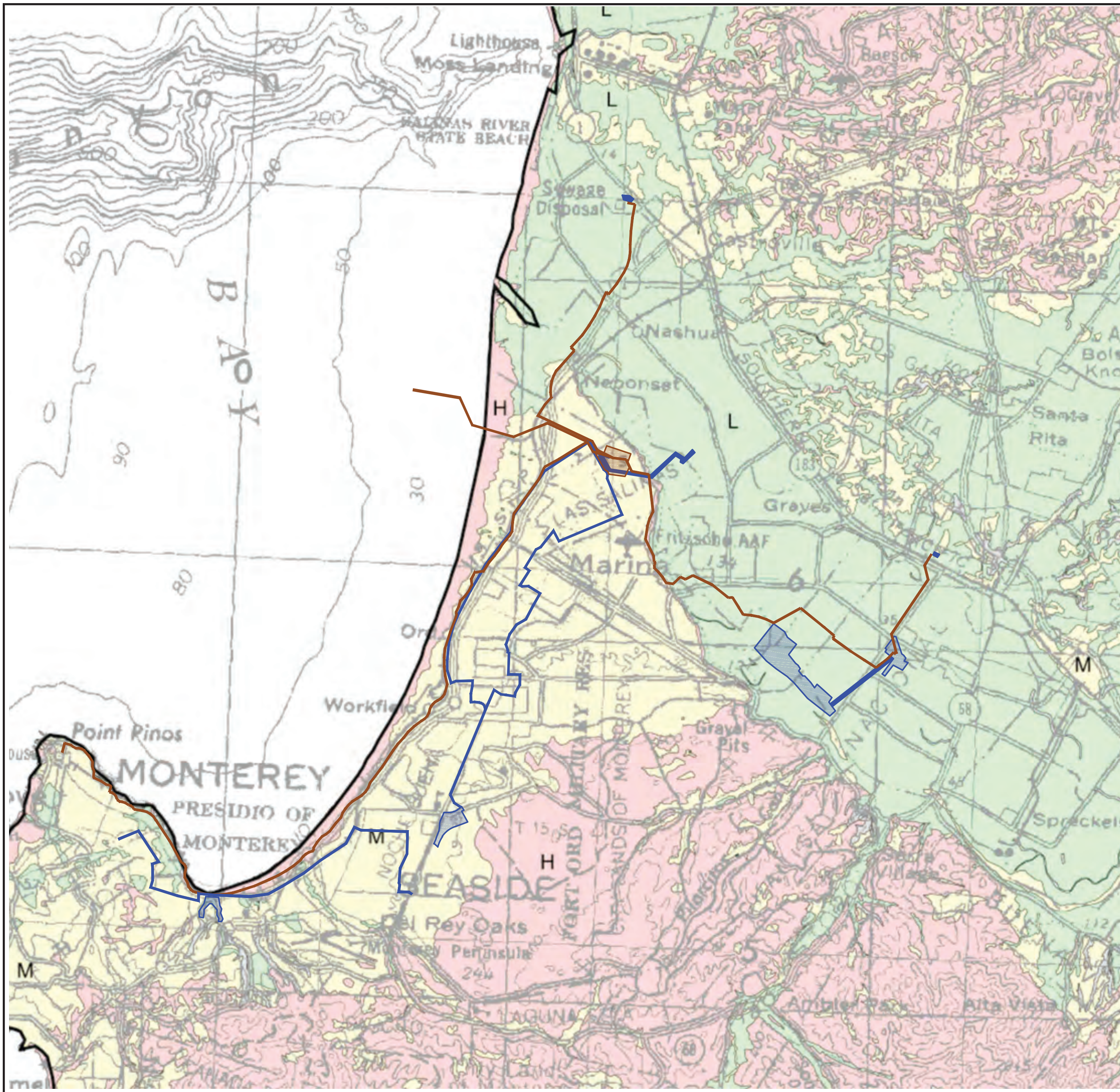
Liquefaction Hazards

April 2015

Source: Ninyo and Moore, 2014

Pure Water Monterey GWR Project
Draft EIR

Figure
4.8-4



REFERENCE: ROSENBERG, L.I., 2001, DIGITAL MAP SHOWING RELATIVE SOIL EROSION HAZARDS OF MONTEREY COUNTY, CALIFORNIA, SCALE 1:250,000.

N

SCALE IN MILES

0 2.5 5

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

- EXISTING WASTEWATER FACILITIES
- PROJECT COMPONENT
- H — **Area of high erosion hazard**—Includes areas classified by Cook (1978) as high and very high, high or very high, high to very high, moderate to high, slight to high, very high, and high
- M — **Area of moderate erosion hazard**—Includes areas classified by Cook (1978) as moderate, and slight to moderate
- L — **Area of low erosion hazard**—Includes areas classified by Cook (1978) as minimal, minimal to slight, none, and slight
- V — **Area of variable erosion hazard**—Includes areas classified by Cook (1978) as variable

Source: Ninyo and Moore, 2014

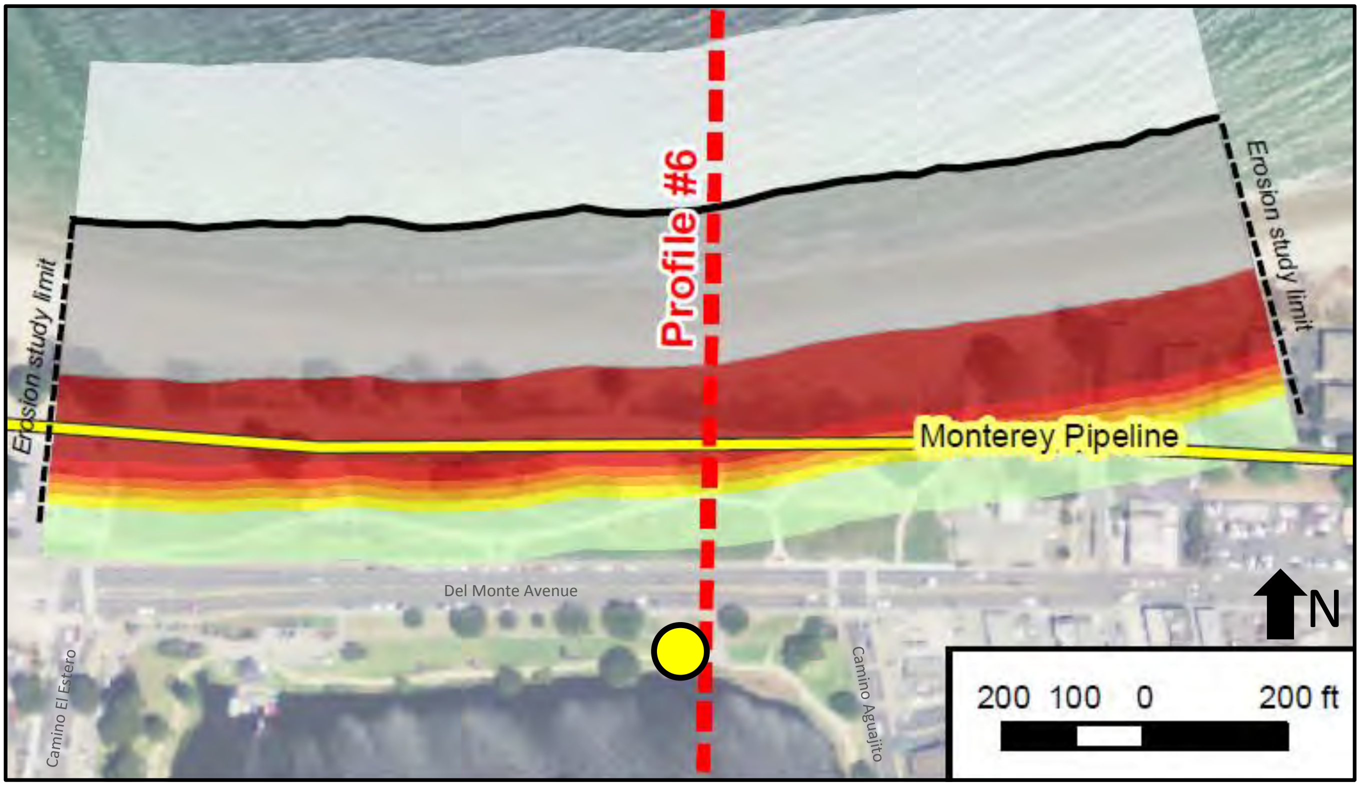
DD&A

Soil Erosion Hazard Areas

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.8-5



Lake El Estero Diversion Site

Monterey Pipeline

Erosion Reference Line

Offset to backshore toe

Coastal Erosion Hazard Zones

2010

2030

2040

2050

2060

2100

Note: Existing infrastructure locations are approximate. Proposed infrastructure Locations are shown for reference and were developed prior to this study. Proposed infrastructure locations were provided by the California American Water Company/MRWPCA and are included her for reference.

Source: ESA/PWA, 2014. Modified by DDA to add Lake El Estero site.

Source: ESA / PWA, 2014

DD&A

Coastal Erosion Hazard Zones

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.8-6

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4.9 HAZARDS AND HAZARDOUS MATERIALS

Sections	Tables	Figures
4.9.1 Introduction 4.9.2 Environmental Setting 4.9.3 Regulatory Framework 4.9.4 Impacts and Mitigation Measures 4.9.5 References	4.9-1 Hazardous Materials Release Sites Identified within 0.25-Mile of a GWR Facility Site Construction Area, By Component 4.9-2 Groundwater Analyses for Explosives and Associated Metals 4.9-3 Applicable State, Regional, and Local land use Plans and Policies Relevant to Hazards and Hazardous Materials 4.9-4 Summary of Impacts Hazards and Hazardous Materials 4.9-5 Schools in the Vicinity of Project Components 4.9-6 Chemicals to be utilized at the Advanced Water Treatment Facility 4.9-7 Additional Chemicals to be utilized at the Salinas Valley Reclamation Plant	4.9-1 Hazardous Materials Release Sites (Northern) 4.9-2 Hazardous Materials Release Sites (Southern) 4.9-3 Location of Existing Groundwater Plumes 4.9-4 Fire Hazard Responsibility Zones

4.9.1 Introduction

This section provides the setting, regulatory framework, and impacts analysis related to hazards, including exposure to and release of hazardous materials associated with the Proposed Project. The section is based on review of regulatory agency databases and other published reports to identify potential hazardous materials releases that may affect the Proposed Project including workers and the public. The assessment of hazards and hazardous materials focuses on the following issues:

- The potential for encountering hazardous substances in soil and groundwater during construction at any of the project sites;
- Potential public safety hazards associated with project construction;
- Potential hazards associated with the use of chemicals during construction and operation of the Proposed Project; and
- Whether the Proposed Project would result in, or be subject to, adverse effects related to the use, transportation, disposal, or release of hazardous materials or wastes during construction, operation, or maintenance.

Public and agency comments related to hazards and hazardous materials that were received during the public scoping period in response to the Notice of Preparation are summarized below.

- Concern was expressed regarding public communication, identification, record keeping, reporting, “out-gassing,” and clean-up/remediation of chemicals and pesticides at very low levels in training areas at the former Fort Ord military base, including Site #39.
- Concern was expressed regarding Army’s evaluation of presence of pesticides in prior clean up documents, and other chemicals potentially leaching out of

ordnance into the ground as well as residual chemicals from weapons/ordnance training and pyrotechnics.

- Concern was expressed that the detection equipment used to clear site OE-50 and OE-53 (also called MRS-50 and MRS-53) (located north and east of the Injection Well Facilities sites) is incapable of detecting nonmetallic and deeply buried munitions. The commenter stated munitions found onsite may not be reliably detected lower than 4 feet below the surface.
- The Lake El Estero Diversion site is within the Monterey Airport Influence Area (AIA) and therefore construction at this site must be referred to the ALUC for a determination of consistency under the 1987 Comprehensive Land Use Plan (CLUP) for the Monterey Peninsula Airport.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report**.

For the purposes of this analysis, the term “hazardous materials” refers to both hazardous substances and hazardous wastes.[1] Under federal and state law, materials and wastes may be considered hazardous if they are specifically listed by statute or if they are toxic, ignitable, corrosive, or reactive. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater, or air. The four basic exposure pathways through which an individual can be exposed to a chemical agent include: inhalation, ingestion, bodily contact, and injection. Exposure can come as a result of an accidental release during transportation, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transportation of soils contaminated by hazardous materials from previous spills or leaks. Public health issues related to the quality of product water from the Advanced Water Treatment Facility and water supply system adequacy are addressed in **Chapter 3, Regulatory and Water Quality Technical Report** and **Section 4.10, Hydrology and Water Quality: Groundwater Resources.**

Past and present hazardous materials use and storage has the potential to contaminate the groundwater resources in the area. Leaking underground storage tanks, munitions, lead, and asbestos could potentially leach in to the Seaside or Salinas Groundwater Basin. This section addresses the known contaminants and contaminated soil and groundwater as it is listed in the state and federal databases. The existing groundwater quality (particularly at the proposed Injection Well Facilities, where it is most relevant) and groundwater quality with implementation of the Proposed Project are addressed in detail in **Section 4.10, Hydrology and Water Quality: Groundwater Resources**.

[1] The California Health and Safety Code defines a hazardous material as “a material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment” (Health and Safety Code, Section 25501).

4.9.2 Environmental Setting

This section discusses the potential presence of existing contamination at sites in the project vicinity, and the existing hazard conditions related to airports, schools, hazardous building materials, and fire danger.

4.9.2.1 Hazardous Materials in Soil and Groundwater

Hazardous Material Release Sites in the Proposed Project Vicinity

A number of historic and current land uses have occurred within the vicinity of Proposed Project sites that are associated with the use, generation, or disposal of hazardous materials. In some cases, past industrial or commercial activities on a site could have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials and released during building demolition activities or may be naturally present in soils such as naturally occurring asbestos found in serpentine minerals.

Within the Proposed Project area, the following are potential sites where hazardous materials are associated with the current or historic land uses:

- Certain industrial and/or commercial land uses involve storage of large quantities of fuel or hazardous materials in above-ground or underground storage tanks. Examples are gasoline stations, dry cleaners, manufacturing facilities, and bulk fuel terminals.
- Rural land uses, such as farming and ranching, typically use petroleum fuels, pesticides, and fertilizers. Historical agricultural land uses often leave behind residual pesticides and herbicides in soils.
- The former Fort Ord Military Base contaminated areas include: munitions response sites; the Fritzsche Airfield Fire Drill Pit (Operable Unit[2] [OU] 1); the Fort Ord landfill (OU2); motor pools; vehicle maintenance areas; dry cleaners; firing ranges; hazardous waste storage areas; and unregulated disposal areas. The former Fort Ord military base site is discussed in more detail below.

In addition to the aforementioned sources, the new and modified Treatment Facilities at the Regional Treatment Plant would be proximate to the Monterey Regional Waste Management District landfill and the MRWPCA Regional Treatment Plant.

Regulatory agency databases were reviewed to identify hazardous materials releases within 0.25-mile of the Proposed Project.[3] Other regulatory data bases include the following:

- Leaking Underground Storage Tank List
- Cortese (Cal/EPA List)

[2] An Operable Unit is a discrete portion of remedial response that manages migration, or eliminates or mitigates a pathway of exposure.
[3] California State Water Resources Control Board (SWRCB) GeoTracker database (SWRCB, 2014) and the California Department of Toxic Substances Control (DTSC) EnviroStor database (DTSC, 2013).

- CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System).

These lists are described in more detail in **Section 4.9.3, Regulatory Framework**. Regulatory lists were searched in February and March 2014 (except for the Source Water Diversion and Storage sites which occurred in November 2014). Open environmental cases and their distance from Proposed Project components are identified in **Table 4.9-1, Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component**. A 0.25-mile search radius from the each project component site area was utilized to appropriately consider the potential for migration of shallow groundwater contaminant plumes from existing contaminated sites cases to adversely affect groundwater in the project area. **Figures 4.9-1, Hazardous Materials Release Sites (Northern)** and **4.9-2, Hazardous Materials Release Sites (Southern)** show the location of environmental cases identified within this area. Leaking underground storage tank (LUST) sites that have been closed by the regulatory agencies are not listed in **Table 4.9-1** because site closure indicates that the regulatory agency considers these sites to pose a low threat to human health and groundwater quality. The following terms are used in **Table 4.9-1** to explain the cleanup status of the sites:

Open–Inactive: No regulatory oversight activities are being conducted by the Lead Agency.

Open–Remediation: An approved remedy or remedies has/have been selected for the impacted media at the site and the responsible party is implementing one or more remedy under an approved cleanup plan for the site. This includes any ongoing remedy that is either passive or active, or uses a combination of technologies. For example, a site implementing only a long term groundwater monitoring program, or a “monitored natural attenuation” remedy without any active groundwater treatment as part of the remedy, is considered an open case under remediation until site closure is completed.

Open–Site Assessment: Site characterization, investigation, risk evaluation, and/or site conceptual model development are occurring at the site. Examples of site assessment activities include, but are not limited to, the following: 1) identification of the contaminants and the investigation of their potential impacts; 2) determination of the threats/impacts to water quality; 3) evaluation of the risk to humans and ecology; 4) delineation of the nature and extent of contamination; 5) delineation of the contaminant plume(s); and 6) development of a site conceptual model.

Open–Verification Monitoring: Remediation phases are essentially complete and a monitoring/sampling program is occurring to confirm successful completion of cleanup at the Site. No “active” remediation is considered necessary or no additional “active” remediation is anticipated as needed. Active remediation system(s) has/have been shut-off and the potential for a rebound in contaminant concentrations is under evaluation.

Open–Eligible for Closure: Corrective action at the site has been determined to be completed and any remaining petroleum constituents from the release are considered to be low threat to human health, safety, and the environment. The case in GeoTracker is going through the process of being closed.

Open-Operating: A land disposal site that is accepting waste. These sites have been issued waste discharge requirements by the appropriate Regional Water Board.

As seen on **Table 4.9-1**, former and existing contaminated sites are located within a 0.25-mile radius of Proposed Project component sites, except for the Salinas Pump Station Source Water Diversion and Storage site, the Salinas Treatment Facility, the Tembladero

Slough Diversion, and the Blanco Drain Diversion. A number of the sites related to commercial or industrial uses are undergoing remediation or are eligible for case closure. Further review of contaminated sites at the former Fort Ord is provided below.

Table 4.9-1
Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component

Site Name/Address	Distance From Proposed Project Component	Type of Cleanup Site	Cleanup Status	Site History/Substances Released
Applicable to Product Water Conveyance Pipelines and Booster Pump Stations (both alignment options) and Injection Well Facilities				
Former Fort Ord U.S. Army Garrison	Contiguous	Superfund	See Below	In 1990, the United States Environmental Protection Agency (EPA) placed the former military base on the National Priorities List (NPL). The site contained leaking petroleum underground storage tanks, unexploded ordnance, small arms target ranges, a fire range, and a landfill (United States Environmental Protection Agency, 2013). Investigations regarding the locations of munitions and explosions of concern were initiated by the U.S. Army in 1993. These investigations resulted in the delineation of Munitions Response sites and Munitions Response Areas that include approximately 12,000 acres of the former Fort Ord (U.S. Army, 2012a). Cleanup at the former Fort Ord is the responsibility of the U.S. Army, which is conducting ordnance cleanup for 8,000 acres. Approximately 3,500 acres of the former military base is undergoing a privatized cleanup; the U.S. Army has entered into an Environmental Services Cooperative Agreement (ESCA) with the Fort Ord Reuse Authority (FORA) for munitions and explosives of concern remediation and transfer of the remaining 3,340 acres. FORA and their contractors are working with regulatory agencies including the Department of Toxic Substances Control and the EPA to conduct munitions remediation activities, scheduled for completion by 2015 (United States Environmental Protection Agency, 2012; Fort Ord Reuse Authority, 2013). For details on specific sites located within the larger Fort Ord area, see entries below for Fort Ord Operable Unit (OU)1, Fort Ord OU 2 (landfill), Fort Ord Sites 2/12, and Fort Ord site OU carbon tetrachloride plume (CTP), Fort Ord Seaside Munitions Response Area (Site #39)
Salinas Pump Station Diversion site				
There are no sites listed within 0.25-mile of the Salinas Pump Station				
Salinas Treatment Facility (including 33 inch pipeline)				
There are no sites listed within 0.25-mile of the Salinas Treatment Facility				
Reclamation Ditch Diversion site				
West Market Valero 633 Market Street W	0.19 mile Figure 4.9-2	LUST Cleanup Site	Open - Site Assessment	The site contained leaking petroleum underground storage tanks.
Tembladero Slough Diversion site				
There are no sites listed within 0.25-mile of the Tembladero Slough Diversion site				
Blanco Drain Diversion site (including pipeline)				
There are no sites listed within 0.25-mile of the Blanco Drain Diversion site				

Table 4.9-1
Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component

Site Name/Address	Distance From Proposed Project Component	Type of Cleanup Site	Cleanup Status	Site History/Substances Released
Lake El Estero Diversion Site				
Tosco #0424 400 Fremont Street	0.23 mile Figure 4.9-2	LUST Cleanup Site	Open - Eligible for Closure	Originally, four fueling station sites were involved in this remediation for a comingled groundwater plume. One of the cases, Arco #0365, closed in April 2014. The underground storage tank release was discovered in 1989. Groundwater remediation started in 2000 with groundwater capturing and treatment. Additional corrective action alternatives were proposed in 2007, using augmented bioremediation to expedite the cleanup. The revised Corrective Action Plan was approved in 2007 and is being implemented. Potential Contaminants of Concern: Gasoline (SWRCB GeoTracker, 2014).
BP #11166 401 Fremont Street	0.23 mile Figure 4.9-2	LUST Cleanup Site	Open - Remediation	
Chevron #91060 351 Fremont Street	0.22 mile Figure 4.9-2	LUST Cleanup Site	Open - Remediation	
Russo's Marine Fueling Station Del Monte Blvd	0.20 mile Figure 4.9-2	Cleanup Program Site	Open - Remediation	A former fueling station. Underground storage tanks and product piping were removed in 1993 and 1994. A high vacuum extraction system was installed in 1998. Due to reaching asymptotic levels with high vacuum extraction, current remediation is using passive skimmers. Product removal activities are ongoing in five wells. Potential Contaminants of Concern: Benzene, diesel, gasoline, toluene (California State Water Resources Control Board GeoTracker, 2013)
Washington Mutual Bank 468 Washington Street	0.17 mile Figure 4.9-2	Cleanup Program Site	Open- Verification Monitoring	Low concentrations of VOCs. Five areas were excavated on the property (which is currently a paved parking lot) in Dec. 2010. ~451 tons of soil were excavated and disposed at Clean Harbors in Buttonwillow. Prior to backfilling, a hydrogen release compound was intermixed with clean soil and spread in the bottom of all 5 excavations to encourage reductive dechlorination in groundwater. In accordance with their Remedial Action Work Plan, subsequent correspondence, and their plans, they will install 4 vapor probes and sample them by March 2011, and semiannually thereafter for at least 1 year. They will also monitor groundwater quarterly for at least 1 year, and report all monitoring semiannually. Potential Contaminants of Concern: Tetrachloroethylene and Trichloroethylene (State Water Resources Control Board GeoTracker, 2013).
Sudden Service Vapor Cleaners 915 Del Monte Avenue	0.1 mile Figure 4.9-2	Cleanup Program Site	Open- Site Assessment	Former dry cleaning facility with soil and groundwater pollution including: dry cleaning solvent, non-chlorinated solvent, and petroleum hydrocarbons. Potential Contaminants of Concern: heating oil/fuel oil, Stoddard solvent/mineral spirits/distillates, tetrachloroethylene
Treatment Facilities at the Regional Treatment Plant				
Monterey Peninsula Class III Landfill	500 feet Figure 4.9-1	Land Disposal Site	Open- Operating	Non-hazardous waste has been deposited since 1966 in both unlined and lined areas of the landfill. On-going monitoring includes groundwater, surface water, leachate, and landfill gas. Groundwater flow in the 35-foot aquifer is generally to the northeast, while flow direction in the 2-foot aquifer is influenced by the Salinas River (downgradient or cross-gradient of the project area). Trace detections of volatile organic compounds (VOCs) are occasionally detected in groundwater (RMC Geoscience, Inc., 2013).

Table 4.9-1
Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component

Site Name/Address	Distance From Proposed Project Component	Type of Cleanup Site	Cleanup Status	Site History/Substances Released
Product Water Conveyance (Coastal Alignment) between the Treatment Facilities and Booster Pump Station				
Don's 1 Hour Dry Cleaners 215 Reservation Road	475 feet Figure 4.9-1	Cleanup Program Site	Open- Verification Monitoring	Former Dry Cleaning operation resulted in PCE in soil and shallow groundwater. Shallow soil and groundwater contamination from chlorinated hydrocarbons and PCE (up to 499 microgram per liter (ug/L)). Groundwater is approximately 15 feet below ground surface (State Water Resources Control Board Geotracker, 2013).
Beacon Station #730 3144 Del Monte Boulevard	100 feet Figure 4.9-1	LUST Cleanup Site	Open- Eligible for Closure	The site is an operating service station with three 10,000-gallon underground storage tanks. Land use in the immediate vicinity of the site is predominantly commercial, with interspersed residential developments. Lock Paddon Park is located approximately 500 feet north of the site. Three groundwater monitoring wells were installed at the site in February and May 1988. An un-measurable sheen was observed prior to developing well MW-1. Elevated concentrations of total Petroleum Hydrocarbons as gasoline and benzene were detected in selected soil samples collected from MW-1. Groundwater monitoring has been performed since 1992 on the three existing monitoring wells. Methyl tert -butyl ether was added to the monitoring program in 1996. Based on the available soil and groundwater data, impacts to soil and groundwater appear to be limited to the area to the northwest of the tank pit, surrounding monitoring well MW-1. A Corrective Action Plan was submitted in April 2008 and has been implemented since June 2008. An iSOC unit has been installed in well MW-1. Significant decrease of petroleum hydrocarbon concentrations has occurred since the system operation. Removal of the iSOC unit is recommended in July 2010 for potential rebound monitoring (State Water Resources Control Board Geotracker, 2013)
US Army Fort Ord Site 2/12	425 feet Figure 4.9-1	Cleanup Program Site/Military Cleanup Site	Open- Remediation	A former truck and auto maintenance facility in the current location of "The Dunes on Monterey Bay" shopping center south of Imjin Parkway and directly east of Highway 1 caused groundwater contamination from improperly disposed solvents. Contaminated soil was removed in the 1990s. TCE and PCE are the main chemicals of concern and groundwater extraction and treatment with granular activated carbon began in 1999. Treated water is re-injected into the aquifer through injection wells and infiltration galleries. Recently, a soil gas investigation was completed for this site. (State Water Resources Control Board Geotracker, 2013)
US Army Fort Ord University Villages VCA 8th Street / First Avenue	800 feet Figure 4.9-1	National Priorities List DTSC Cleanup Site Program	Active	Voluntary Cleanup Agreement for removal of soil impacted by lead-based paint (California Department of Toxic Substances Control, Envirostor, 2013).
Fort Ord State Park MOU with State Parks Dept. Hwy 1 & 8th Street	0.21 miles Figure 4.9-1	National Priorities List DTSC Cleanup Site Program	Inactive- Action Required	Voluntary Cleanup Agreement for removal of soil impacted by lead bullet slugs
Product Water Conveyance (RUWAP Alignment) between the Regional Treatment Plant and Booster Pump Station				
Fort Ord Operable Unit (OU)1 (off-site plume)	500 feet Figure 4.9-1	Military Cleanup Site	Open- Remediation	Groundwater plume (primarily TCE) and some source area soil contamination (primarily TCE). The soil contamination has been successfully remediated, leaving only the groundwater plume.

Table 4.9-1
Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component

Site Name/Address	Distance From Proposed Project Component	Type of Cleanup Site	Cleanup Status	Site History/Substances Released
Marina Coast Water District Corporation Yard (Marina, CA)	100 feet Figure 4.9-1	DTSC School Investigation	Inactive- Needs Evaluation as of 5/19/2011	The site is located in the Main Garrison area on land purchased by the Army in 1938 and developed between 1940 and 1943 for administrative purposes. Twenty-four (24) buildings currently exist on the site which were originally used by the Army as confinement facilities (11), warehouses (2), lavatories (2), general instruction building (1), exchange (retail store) (1), administration building (1), recreation building (1), self-service supply center (1), heat plant (1) and storage sheds (2). Historical topographic maps show the site as undeveloped land in 1913, and developed for years after 1947. Two of the structures are no longer present in a 1998 aerial photograph. Most of the buildings apparently remain in their original locations and orientations until the present. Lead-based paints and asbestos-containing building materials (ACM) are known to be on the buildings. One pole mounted transformer is located on-site. Pesticides were used over the past 40 years. One UST was removed and 2 or 3 AST are unused and remain on-site. Two landfills have been identified to be within 0.5 miles of the site, the former Fort Ord landfill (distance unknown) and CSU Monterey Bay Material Recovery Facility (located approx 900 feet south of the site). The groundwater beneath the site has been impacted by the OU-2 Plume originating from the former Fort Ord landfill. Groundwater is approximately 120 feet below ground surface. The closest ordnance and explosives (OE) reported to be nearby is Site OE-2 (Pete's Pond approx 900 feet southeast of site) (California Department of Toxic Substance Control, 2014).
Fort Ord OUCTP	4,000 feet Figure 4.9-1	Military Cleanup Site	Open-Remediation	Groundwater located north of the corner of Imjin Parkway and Abrams Road and along Reservation Road in Marina was contaminated from a suspected chemical spill site. Carbon tetrachloride is the main chemical of concern and groundwater remediation includes enhanced in-situ bio-remediation (A -Aquifer), groundwater extraction and treatment with granular activated carbon (Upper 180 -Foot Aquifer), and monitored natural attenuation with wellhead treatment contingency (Lower 180-Foot Aquifer). Remediation began in 2009 for the A-Aquifer (and is now complete) and in 2011 for the Upper and Lower 180-Foot Aquifers
Fort Ord Operable Unit 2 (landfill)	0.23 miles Figure 4.9-1	Military Cleanup Site	Open-Remediation	See discussion Site OU2, below. Former Fort Ord Sites 2 and 12, OU 2, and OUCTP groundwater and soil analysis report (United States Department of Army, 2010).
Injection Well Facilities				
Fort Ord Military Base Seaside Munitions Response Area (Site #39)	Co-located with project area	National Priorities List	Open-Remediation	Potential for unexploded ordnance hazards and munitions debris. See additional discussion above in Section 4.9.2.1 and below in Section 4.9.4.4 under Impact HH-3.
Cal-Am Water Distribution System: Monterey and Transfer Pipelines				
Economy Cleaners 840 Playa Avenue, Sand City	500 feet	Cleanup Program Site	Open- Site Assessment	Shallow soil contamination from PCE. A work plan for soil vapor extraction has been prepared (State Water Resources Control Board GeoTracker, 2015).

Table 4.9-1
Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component

Site Name/Address	Distance From Proposed Project Component	Type of Cleanup Site	Cleanup Status	Site History/Substances Released
Rod and Ros Gas Mart 1898 Fremont Boulevard	50 feet	Leaking Underground Storage Tank Cleanup Site	Open- Eligible for Closure	Inactive service station with petroleum hydrocarbon contamination. Total petroleum hydrocarbons-gasoline concentrations of up to 3,900 ug/L have been detected in groundwater at the southern portion of the site; contamination has not detected along La Salle Avenue. (State Water Resources Control Board GeoTracker, 2015)
Diaz Property 1561, 1563, and 1569 Del Monte Boulevard, Seaside	100 feet	Cleanup Program Site	Open- Site Assessment	Fuel leak reported in 2009; no further investigation or cleanup activities have occurred (State Water Resources Control Board GeoTracker, 2013).
Embassy Suites Hotel 1441 Canyon del Rey, Seaside	500 feet	DTSC Cleanup Site	Certified Operations and Maintenance	A portion of the site was occupied by an automobile junkyard from 1959 to 1964. In 1964, junk cars, scrap, and debris were removed and a retail plumbing, electrical, and sheet metal shop and lumber yard were built in the former junkyard area. A lumber and hardware store and a furniture store once occupied the eastern and southern portions of the site. Redevelopment plans for the site called for the construction of the Embassy Suites Laguna Grande Seaside Hotel, a 225-room hotel tower with ancillary commercial facilities designated in the building plan totaling 59,400 square feet. The remainder of the site was planned to be a 162,500 square foot parking lot. The Redevelopment Agency of Seaside, in a letter dated February 28, 2003, indicated that a Reciprocal Parking and Easement Agreement would be executed by the Redevelopment Agency of Seaside, John Q. Hammons Hotels Two, L.P., and the City of Seaside, to use the site for additional overflow parking for a restaurant. The deed restriction states that no activities will be allowed that disturb the remedy and monitoring systems without approval (California Department of Toxic Substances Control, 2014)
Fort Ord Military Base Seaside Munitions Response Area (Site #39)	Adjacent to project area	National Priorities List	Open- Remediation	Potential for unexploded ordnance hazards and munitions debris. See additional discussion above in Section 4.9.2.1 and below in Section 4.9.4.4 under Impact HH-3.
Former Chevron Bulk Plant 205 Ramona Avenue, Monterey	150 feet	Leaking Underground Storage Tank Cleanup Site	Open- Verification Monitoring	Soil and groundwater contamination primarily by benzene, diesel, and gasoline.
Former Texaco Bulk Terminal , Del Monte Dunes Lower Dunes Area, Monterey	150 feet	Leaking Underground Storage Tank Cleanup Site	Open- Eligible for Closure	Soil and groundwater contamination by crude oil and other oils, diesel, and gasoline.
Monterey Naval Postgraduate School 1 University Circle, Monterey	1,100 feet	DTSC Cleanup Site: Military Evaluation	Active base military evaluation. Referred to RWQCB, 3/14/2011	The Del Monte Properties Company acquired the hotel and developed the Del Monte as a “sports empire” until 1942, when it was taken over by the U.S. Navy and used as a pre-flight school for aviators. This development was referred to the Waterboard in 1995. Potential for soil contamination. Potential contaminants of concern include radioactive isotopes (California Department of Toxic Substances Control Envirostor, 2014a).

Table 4.9-1
Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component

Site Name/Address	Distance From Proposed Project Component	Type of Cleanup Site	Cleanup Status	Site History/Substances Released
Former Vapor Sudden Service Cleaners 951 Del Monte Avenue, Monterey	30 feet	Cleanup Program Site	Open- Site Assessment	Soil and groundwater contamination associated with former dry cleaning facility, including heating oil, fuel oil, solvent, mineral spirits, distillates, and PCE. The most recent site investigation report from 2005 identified concentrations of up to 47,000 ug/L of PCE and 63 ug/L of total petroleum hydrocarbons-solvents in groundwater (Remediation Testing and Design, 2005). The RWQCB has recently reinitiated enforcement efforts (State Water Resources Control Board, 2013).
Russo's Marine Fueling Station Del Monte Avenue and Figueroa Street, Monterey	20 feet	Cleanup Program Site	Open- Remediation	Soil and groundwater contamination from former Leaking Underground Storage Tanks. Contaminants of concern include benzene, diesel, gasoline, and toluene. In June 2013, free petroleum product was present in several site wells. (State Water Resources Control Board, 2013).
Pacific Gas and Electric (PG&E), Manufactured Gas Plant Southwest Corner of Figueroa Street & Del Monte Avenue, Monterey	20 feet	Voluntary Cleanup	Active	Potential contaminants of concern include metals, petroleum hydrocarbons, polychlorinated biphenyls, and polynuclear aromatic hydrocarbons. Known contaminants remain in place beneath Del Monte Avenue.
Former Washington Mutual (now Chase) Bank at 468 Washington Street, Monterey	500 feet	Cleanup Site Program	Open- Verification Monitoring	Groundwater sampling in July 2013 detected PCE and TCE at concentrations up to 3.8 ug/L and 0.52 ug/L, respectively. Cis-1,2-dichloroethylene was reported at 11 ug/L (State Water Resources Control Board, 2013).
O'Neal Property 456 Pine Street, Monterey	500 feet	Leaking Underground Storage Tank Cleanup Site	Open- Eligible for Closure	Soil and groundwater contamination from former dry cleaning facility. Stoddard solvent, mineral spirits, and distillates have been detected in soil and groundwater. The most recent groundwater sampling performed in 2008 detected concentrations of up to 4,200 ug/L of total petroleum hydrocarbons -stoddard solvent, 4,100 ug/L of total petroleum hydrocarbons-gasoline, and low concentrations of VOCs (State Water Resources Control Board GeoTracker, 2015).
One Hour Martinizing 724 Lighthouse Avenue	1,200 feet southeast of project area	Cleanup Site Program	Open- Verification Monitoring	PCE & TCE groundwater contamination from dry cleaners. Groundwater sampling in 2009 detected the presence of up to 770 ug/L of PCE & 190 ug/L of TCE at the dry cleaners site. No offsite contamination has been detected (State Water Resources Control Board GeoTracker, 2015).

Hazardous Materials Near Proposed Project Sites

Former Fort Ord Military Base

The U.S. Army established Fort Ord in 1917. Fort Ord occupies approximately 28,000 acres and was used as training and staging facilities for U.S. Army infantry troops. Fort Ord was a basic training center from 1945 to 1975. In 1990, the United States Environmental Protection Agency (EPA) placed the military base on the National Priorities List (NPL). The site contained leaking petroleum underground storage tanks, unexploded ordnance, small arms target ranges, a fire range, and a landfill (EPA, 2013). Investigations regarding the locations of munitions and explosions of concern were initiated by the U.S. Army in 1993. These investigations resulted in the delineation of Munitions Response Sites and Munitions Response Areas that include approximately 12,000 acres of the former Fort Ord (United States Department of Army, 2012). Cleanup at the former Fort Ord is the responsibility of the U.S. Army, which is conducting ordnance cleanup for 8,000 acres. Approximately 3,500 acres of the site is undergoing a privatized cleanup; the U.S. Army has entered into an Environmental Services Cooperative Agreement (ESCA) with the Fort Ord Reuse Authority (FORA) for remediation of munitions and explosives of concern and transfer of the remaining 3,340 acres. FORA and their contractors are working with regulatory agencies including the Department of Toxic Substances Control and the EPA to conduct munitions remediation activities, scheduled for completion by 2015 (United States Environmental Protection Agency, 2012; Fort Ord Reuse Authority, 2013).

Site 39

For purposes of environmental investigation and cleanup, the area east of General Jim Moore Boulevard and south of Eucalyptus Road has been designated as Site 39 (**Figure 4.9-2**). Site 39 contained at least 28 ranges that were used for small arms and high explosive ordnance training using rockets, artillery, mortars and grenade. Expended and unexploded ordnance have been documented in various areas of Site 39.[4] Beginning in 1984, environmental investigation and remediation activities have occurred in Site 39. During these investigations, metals and compounds have been detected in soil. FORA and their contractors are working with regulatory agencies including the Department of Toxics Substances Control and the EPA to conduct munitions remediation activities that are scheduled to be completed by 2015. According to the Record of Decision (EPA Superfund Record of Decision; EPA ID CA7210020676, dated 4/6/05), there remains some chance of discovery of munitions and explosives of concern associated with the former firing ranges during construction activities. All construction workers are required to receive an unexploded ordnance/munitions and explosives of concern safety briefing prior to starting construction and, as needed, thereafter.

The majority of former Fort Ord buildings contain some type of asbestos and lead-based paint as most construction occurred from the 1940s to the 1960s when these materials were commonly used in construction. However, the Proposed Project does not include any demolition

[4] The specific ordnance types include rounds from shotguns, mortars, M74 rockets, recoilless rifles, aircraft, grenades, artillery, howitzers, mines, anti-tank (bazooka), bombs, naval, Bangalore torpedoes, C-4, TNT, military dynamite, and shaped charges. Functions for these items included high explosives, heat generating, armor piercing, white phosphorous, smoke tracer, illumination, incendiary, photo flash, ball and inert devices. As a result of the spontaneous ignition of a white phosphorous grenade in August 2009, a munitions and explosives of concern sweep was conducted at Range 48. This surface sweep removed munitions and explosives of concern or MEC-like items using physical and demolition methods.

or renovation of existing Fort Ord facilities; therefore, neither of these potential hazards are further discussed in this section.

Existing Groundwater Quality at Injection Well Facilities Site

As part of the Proposed Project planning, groundwater samples were collected from a recently constructed monitoring well in the Paso Robles (upper) aquifer within the Seaside Groundwater Basin near the proposed Injection Well Facilities site. These groundwater samples were then tested to understand and document existing groundwater quality conditions. In addition, the Proposed Project planning process included a review of existing baseline data from previous investigations, groundwater sampling, and monitoring in the vicinity, including historical groundwater quality data for the project area provided by the Monterey Peninsula Water Management District and CalAm and supplemental data collected by Todd Groundwater in association with studies for the Proposed Project (Todd Groundwater, 2015). The full groundwater assessment report is included in **Appendix L**; additional detailed information about groundwater quality and potential impacts to groundwater as a result of the Proposed Project is included in **Section 4.10, Hydrology and Water Quality: Groundwater Resources**.

Groundwater

In addition to characterization of general groundwater chemistry, the drinking water quality database was reviewed to identify potential constituents of concern, including constituents regulated by the State to prevent their occurrence within drinking water systems. Given the historical land use of the former Fort Ord lands, MRWPCA's consultants analyzed six groundwater samples for 17 explosive compounds (nitroaromatics and nitramines) and two metals associated with explosive compounds (beryllium and lead). The sampling results are summarized in **Table 4.9-2, Groundwater Analyses for Explosives and Associated Metals**.

As shown, an explosive compound (26-DNT (dinitrotoluene)) was detected in three wells (FO-7 Shallow, FO-7 Deep, and ASR MW-1) and low concentrations of another explosive compound (2-nitrotoluene) was detected in one of the ASR monitoring wells (ASR MW-1). The only explosive constituent detected in groundwater samples, 2,6-DNT (dinitrotoluene), was also detected in laboratory blank samples, which are samples of laboratory water (not groundwater) analyzed for quality assurance/quality control (QA/QC) purposes. Detections of this constituent at similar levels in the laboratory blank sample indicate that 2,6-DNT is likely a laboratory contaminant and not actually present in groundwater. Although the constituent may be present in several groundwater samples, the laboratory blank data suggest that it was introduced into the samples in the laboratory. Further, detections of 2,6-DNT in FO-7 Shallow, FO-7 Deep, and ASR MW-1 were below the laboratory reporting level (RL), meaning that the concentration of 2.6-DNT in samples is too low to be quantified. Given the laboratory QA/QC data for 2,6-DNT, the low levels of the detections, and the absence of additional explosives in groundwater, data indicate that groundwater has not been impacted locally from explosives associated with former Fort Ord activities (Todd Groundwater, 2015).

With regard to metals, beryllium was detected in groundwater collected from three of the wells (ASR-2, FO-7 Shallow, and MRWPCA MW-1), although all of the detections met the California Primary MCL for drinking water. Other wells in the database did not detect beryllium above the laboratory reporting limits (Todd Groundwater, 2015).

Table 4.9-2
Groundwater Analyses for Explosives and Associated Metals

Constituent	Wells with Detections*	Minimum Reporting Limit (RL)	Detected or Reported Concentration	California Primary Maximum Contaminant Level	California Notification Level	Comments
		µg/L				
Explosives*						
HMX (cyclotetramethylene tetranitramine)	None	0.099-0.12	ND	None	350	
RDX (cyclotrimethylene trinitramine) (cyclonite)	None	0.099-0.12	ND	None	0.3	
1,3,5- TNB (trinitrobenzene)	None	0.20-0.22	ND	None	None	
1,3-dinitobenzene	None	0.098-0.12	ND	None	None	
3,5-dinitoaniline	None	0.098-0.30	ND	None	None	
TETRYL (2,4,6 trinitro-phenylmethyl-nitramine)	None	0.10-0.12	ND	None	None	
nitrobenzene	None	0.099-0.12	ND	None	None	
4-Amino-2,6-dinitrotoluene	None	0.098-0.11	ND	None	None	
2-amino-4,6-dinotrotoluene	None	0.098-0.11	ND	None	None	
2,4,6-trinitrotoluene (TNT)	None	0.098-0.11	ND	None	1	
2,6-DNT (dinitrotoluene)	FO-7 Shallow	0.20	0.070***	None	None	high turbidity
	FO-7 Deep	0.23	0.064***	None	None	slightly turbid
	ASR MW-1	0.10	0.037***	None	None	
2,4-DNT (dinitrotoluene)	None	0.10	ND	None	None	
2-nitrotoluene	None	0.11	ND	None	None	
4-nitrotoluene	None	0.098-0.12	ND	None	None	
3-nitrotoluene	None	0.098-0.12	ND	None	None	
NG (nitroglycerine) (triniroglycerol)	None	0.99-1.2	ND	None	None	
pentaerythritol tetranitrate	None	0.49-0.56	ND	None	None	
Metals**						
Beryllium (Be)	ASR-2	0.050	0.7	4.0		
	FO-7 Shallow	0.020	0.68			high turbidity
	MRWPCA MW-1	0.020	0.044			turbid
Lead (Pb)	ASR-1	0.020	0.78	15.0		
	ASR-2	0.010	3.0			
	FO-7 Shallow	0.020	42.0			high turbidity
	FO-7 Deep:	0.080	1.3			slightly turbid
	PRTIW: Mission Memorial	0.020	0.061			
	MRWPCA MW-1	0.020	1.3			turbid
	Paralta	0.001	3.0			

NOTES: * Nitroaromatics and nitramines by EPA Method 8330B: Samples received and submitted by Alpha Analytical Laboratory, Ukiah, CA to ALS Environmental (ALS), Kelso, WA on February 5, 2014; analyzed by ALS on February 8, 2014.
** Metals by EPA Method 200.8 analyzed by Alpha Analytical Laboratory, Ukiah, CA, February 5-11, 2014.
***Constituent also detected in laboratory blank indicating a laboratory contaminant that may not be present in groundwater. All detections were below Reporting Limits (J values) and are not quantifiable.
ug/L = micrograms per liter or parts per billion (ppb)
MCL = Maximum Contaminant Level for drinking water
ND = Not detected above the method detection level for any of the samples from the six wells.
SOURCE: Todd Groundwater, November 2014

Lead was detected in groundwater collected from seven wells (ASR-1, ASR-2, FO-7 Shallow, FO-7 Deep, Mission Memorial PRTIW, MRWPCA MW-1, and Paralta). The detection in FO-7 Shallow (42 ug/L) was above the MCL (15 ug/L), but appears anomalous with respect to other detections of lead in the database. The concentration of 42 ug/L is the highest concentration in the database by an order of magnitude, which included lead analyses from 13 wells sampled from 2011 through 2014. The second highest concentration was detected in ASR-2 at 3.0 ug/L (also included on **Table 4.9-2**). Except for FO-7 Shallow, all of the detections were below the MCL for lead.

The 2014 sampling of FO-7 Shallow was the first time that this small-diameter monitoring well had been sampled for water quality since its original sampling upon well completion. Sampling produced a highly turbid sample, likely relating to the inability to properly develop the well when installed in 1994 as a water level monitoring well. As such, the metals analytical data are likely the result of particle interference and are not likely representative of dissolved lead concentrations in groundwater (Todd Groundwater, 2015).

Given the absence of explosives and the relatively low levels of beryllium and lead (with the exception of FO-7 Shallow where data appear to be inaccurate as explained above), the data do not indicate that former Fort Ord activities have impacted groundwater in the existing wells near the Proposed Project site (Todd Groundwater, 2015).

Contaminant Plumes

A search of the study area was conducted on the California Department of Toxic Substances Control (DTSC) *EnviroStor* website (www.envirostor.dtsc.ca.gov) and the California State Water Resources Control Board (SWRCB) *Geotracker* website (http://geotracker.waterboards.ca.gov). The goal of the search was to identify any potential industrial sites or activities that could contribute to groundwater contamination from previous site uses, spills, and/or chemical releases. Both *EnviroStor* and *Geotracker* listed the 28,016-acre Fort Ord Military Base as an active Federal Superfund site and listed munitions as the contaminant of primary concern. **Figure 4.9-3, Location of Existing Groundwater Plumes** shows the location of the groundwater plumes with respect to the Proposed Project Product Water Conveyance pipelines and Injection Well Facilities; the Injection Well Facilities are located over two miles south of the existing documented plumes and are separated by a groundwater flow divide that forms a hydrogeologic boundary between the Seaside and Salinas Valley groundwater basins. Additionally, *Geotracker* identified two adjacent sites on the former Fort Ord lands as gasoline contamination sites: (1) the 14th Engineers Motor Pool and (2) Building 511. These active sites are currently undergoing investigations and cleanup and are located about 1.8 miles northeast of the Injection Well Facilities site. Both sites are outside of the Seaside Groundwater Basin and are not a threat to groundwater quality in the Proposed Project area.

Other contaminated sites have been identified in the Seaside Basin, including numerous leaking underground storage tank sites, but none were in locations that could be affected by Proposed Project operations. Specifically, there were no contaminated sites identified in the area between the proposed Injection Well Facilities and downgradient extraction wells.

Operable Units

Organic compounds have been found in the groundwater beneath the former Fort Ord, specifically, in areas lying in groundwater below the land on which the Product Water Conveyance Pipeline (RUWAP alignment option) would be located. Groundwater sampling performed for the U.S. Army clean-up activities at the former Fort Ord found trichloroethylene (TCE) in the vicinity of the former Fritzsche Army Airfield Fire Drill Area and the former Fort Ord landfill. These two remediation sites, called "operable units," have undergone considerable investigation and remediation, including continued operation of groundwater treatment systems. Another 41 sites of concern (Remedial Investigation Sites) at Fort Ord have been investigated and many remediation actions have been completed. **Figure 4.9-3** shows the location of these sites. These sites are over 1.8 miles northeast of the Proposed Project Injection Wells and more than one mile north of the boundary of the Seaside Groundwater Basin (see basin boundaries in **Figure 2-3 rev, Seaside Groundwater Basin Boundaries**, in **Chapter 2, Project Description**). Details on the two operable units are as follows (see also OU-CTP and Sites 2/12 described in **Table 4.9-1**):

- **Fort Ord Landfill – OU1**. Operable Unit 1 (OU1) is the Fritzsche Army Airfield Fire Drill Area site. It originally consisted of a groundwater plume (primarily TCE) and some source area soil contamination (primarily TCE). The soil contamination has been successfully remediated, leaving only the groundwater plume. Since identification of an off-site (outside the former Fort Ord boundaries) portion of the groundwater plume in 2005, this plume is typically defined as consisting of two parts: the on-site and off-site portions. The EPA, the California Regional Water Quality Control Board, and the Department of Toxic Substances Control (DTSC) have overseen this project. See **Table 4.9-1** for status summary.[5]
- **Fritzsche Army Airfield – OU2**. Marina Municipal Airport, formerly Fritzsche Army Airfield, was converted to civilian use as part of the initial Fort Ord Base Reuse Plan, approved in 1993. The airport is located to the south of the Regional Treatment Plant and approximately 0.75-mile to the east of the Proposed Project's Product Water Conveyance pipeline (RUWAP alignment option). The aquifer that lies below this area is known to be contaminated with organic compounds including trichloroethene (TCE). This aquifer is also impacted by saltwater intrusion. In addition, there are also hazards present related to unexploded ordnance and military munitions.

4.9.2.2 *Airports*

Monterey Regional Airport

The Monterey Regional Airport is located between Highway 68 and SR 218 just east of Del Rey Oaks, and south of Seaside (See **Figure 4.9-1**). The Monterey County Airport Land Use Commission adopted an Airport Land Use Plan in 1987. The plan identifies areas impacted by aircraft operations and includes policies to allow for the continued operation of county airports, while protecting the public safety.

The Injection Well Facilities site is located approximately two miles from the Monterey Regional Airport; however, it is not situated within an Approach Protection Zone or a Runway Protection Zone and therefore construction and operations on the site would not interfere with Airport operations, nor is the site subject to any development limitations.

Marina Municipal Airport

The Marina Municipal Airport lies within 2 miles of the Proposed Project (See **Figure 4.9-1**). The airport Comprehensive Land Use Plan was adopted in 1996 by the Monterey County Airport Land Use Commission. The plan is designed to ensure that surrounding land uses and

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[5] Monitoring report for the site is available on the SWRCB GeoTracker database: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=DOD100220600

development are compatible with airport operations and do not cause a hazard to aircraft in flight. In addition, the plan includes an Approach Protection Zone and a Runway Protection Zone, which limit development to low density land uses. Armstrong Ranch is within the Approach Protection Zone.

Salinas Municipal Airport

Salinas Municipal Airport is located approximately 3 ½ miles east of the closest Proposed Project component site.

4.9.2.3 Fire Hazards

Fire Threat in Wildland Urban Interface Zones

Fire threat is a combination of two factors: fire frequency, or the likelihood of a given area burning; and the potential fire behavior, or hazard. Components of these two factors include surface fuels, topography, fire history, and weather conditions. Rugged topography, dry summers, and an abundance of fuel combine to make much of Monterey County susceptible to wildland fire hazards during the warmer seasons of the year.

The Monterey County Community Wildfire Protection Plan (Monterey Fire Safe Council, 2010) serves as an advisory plan to guide wildfire prevention and preparation activities in the county. In 2006, the Monterey Fire Safe Council contracted with California Department of Forestry and Fire Prevention (CAL FIRE's) Fire and Resource Assessment Program, to more thoroughly evaluate wildfire threat and risk in Monterey County. Based on historical fire perimeter data (California Department of Fire and Forestry, 2007a and 2007b),[6] portions of the county are more susceptible to wildfires, with some areas having burned up to six times during the recorded fire history period. A number of notable fires have occurred in the wildland-urban interface zones in Monterey County. For example, the Fort Ord Escape Fire (2003) that was originally ignited as a prescribed burn on 500 acres, escaped the primary containment line and burned 1,470 acres; the fire occurred under normal Monterey County weather conditions. The greatest threat to the wildland-urban interface in Monterey County occurs under extreme fire weather conditions.

The regional topographic conditions within Monterey County have considerable effect on wildland fire behavior, as well as on the ability of firefighters to access and respond to wildfires. Steep slope and canyon alignments are conducive to channeling, deflecting, concentrating, or dispersing winds, and creating extremely erratic wildfire conditions, especially during wind-driven fire events.[7]

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[6] Based on polygon GIS data for CAL FIRE and USFS- fires measuring 10 acres and greater between 1950 and 2007.

[7] Davis, F.W., & Borchert, M.I., 2006. Central Coast Bioregion. In: Sugijara, N.G., Van Wagtendonk, J.W., Shaffer, K.E., Fites-Kaufman, J., and Thode, A.E., eds. Fire in California's ecosystems. University of California Press, Berkeley, pp. 321-349.

Hanson & Usner 1993. The Natural History of Big Sur. University of California Press, Berkeley, pp. 232-238. U.S. Department of Agriculture, Forest Service (USDA FS). 2000. "Policy Implications of Large Fire Management: A Strategic Assessment of Factors Influencing Costs." A Report by the Strategic Overview of Large Fire Costs Team. Washington, DC: Forest Service, U.S. Department of Agriculture. 43 pp.

The following communities in or around the Proposed Project area meet the definition of an at-risk community: Del Rey Oaks, Former Fort Ord, Marina, Monterey, Pacific Grove, Salinas, Sand City, and Seaside (i.e., they are on the list published in the Federal Register; are at risk of wildfire; and are within or adjacent to Federal land), per 16 USC 6511(A)(i).[8]

Former Fort Ord[9]

Due to the distribution of flammable maritime chaparral and sage fire fuel types and rapidly fluctuating winds and relative humidities in combination with solar preheating, Fort Ord presents a unique and challenging fire threat. Of concern is the capability of a fire to leave the Fort Ord property, affecting adjacent properties and assets. Uncontrolled wildland fires originating at former Fort Ord could threaten properties within the Highway 68 corridor of Monterey County, Del Rey Oaks, Monterey, Seaside, and the land along Reservation Road. Uncontrolled wildfire hazards are identified in the countywide fire threat assessment, which documents the at-risk community fire threat profile. Modeling results indicate this potential under moderate and severe weather conditions. The Former Fort Ord Lands are encircled with wildland-urban interface boundaries of Monterey, Del Rey Oaks, Seaside, Marina, East Garrison, Toro Park/Serra Village, Los Laureles, Laguna Seca, Pasadera, Ryan Ranch, Hidden Hills, and Highway 68. These undeveloped lands may present the single greatest hazardous fuel and fire threat to wildland-urban interface in Monterey County.

The presence of Unexploded Ordnance in substantial portions of the Fort Ord maritime chaparral fuel beds presents a danger to direct attack suppression and the deployment of tactical air support in those areas, most significantly at Del Rey Oaks, where Unexploded Ordnance is present proximate to the development boundary. Unexploded Ordnance fragmentation distance can be up to 1,701 feet. A comprehensive system of fuel breaks and prescribed burns is maintained as indicated in the fire management plans.

Local and State Responsibility Areas

CAL FIRE maps identify fire hazard severity zones in the state and local responsibility areas. Wildland fire protection in California is the responsibility of either the state, local government, or the federal government. Local responsibility areas (LRA) include incorporated cities, cultivated agricultural lands, and portions of the desert. LRA fire protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government. Portions of the Proposed Project area are situated within either a very high fire hazard severity zone (some areas of Monterey, Seaside and Sand City) or a high fire hazard severity zone such as parts of Marina (CAL FIRE, 2007b). Marina, Seaside, Sand City, Monterey, and Salinas are all designated as Incorporated LRA. Within the Local Responsibility Areas, the only component of the Project that is located within a Very High Fire Hazard Severity Zone is the Injection Well Facilities site (CAL FIRE, 2007b).

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[8] These communities meet the definition of an at-risk community in the Healthy Forests Restoration Act (i.e., they are on the list published in the Federal Register; are at risk of wildfire; and are within or adjacent to Federal land), per 16 USC 6511(A)(i).

[9] This section is based on information from Appendix H- Special Study Areas: FRAP fire behavior modeling and threat assessment protocol (Monterey Fire Safe Council, 2010). Three representative areas within Monterey County were selected for special study: Fort Ord, Carmel Valley, and the North County. Due to its relative proximity to a number of Proposed Project components, only the Fort Ord study was included.
Also see, http://frap.cdf.ca.gov/projects/population/sra_definition.html.

A Designated State Responsibility Area (SRA) is the area "in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the state" (PRC section 4125).[10] Most of Monterey County is within SRA; however **Figure 4.9-4, Fire Hazard Responsibility Zones** shows that only certain areas within the Proposed Project area are designated as SRA, and most areas are Local or Federal Responsibility Areas.

The Monterey County Office of Emergency Services (OES) is responsible for initiating and coordinating disaster and emergency preparation, response, recovery, and mitigation operations within Monterey County.

4.9.3 Regulatory Framework

4.9.3.1 Federal

Comprehensive Environmental Response, Compensation, and Liability Act, Superfund Amendments and Reauthorization Act of 1986 (42 USC Section 9601 et seq.)

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as CERCLA or Superfund, provides for the response and cleanup of hazardous substances that may endanger public health or the environment. The Superfund Amendments and Reauthorization Act (SARA) amended Superfund to increase state involvement and required Superfund actions to consider state environmental laws and regulations. SARA also established a regulatory program for the Emergency Planning and Community Right-to-Know Act. Title III of SARA requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous substances present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous substances. Key provisions require notification when extremely hazardous substances are present above their threshold planning quantities, immediate notification to the local emergency planning committee and the state emergency response commission when a hazardous material is released in excess of its reportable quantity, and that material safety data sheets for all hazardous materials or a list of all hazardous materials be submitted to the state and local emergency planning agencies and local fire department.

EPA placed the 27,827-acre Fort Ord site on the National Priorities List (Superfund) in 1990. Approximately 3,484 acres of Fort Ord is undergoing a "privatized" cleanup. Fort Ord Reuse Authority is responsible for the privatized cleanup.

[10] Also see, http://frap.cdf.ca.gov/projects/population/sra_definition.html.

U.S. Department of Transportation Hazardous Materials Transport Act (49 USC 5101)

The U.S. Department of Transportation, in conjunction with the EPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the U.S. Department of Transportation to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. CFR 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

During construction of the Proposed Project and operations at the Regional Treatment Plant, hazardous materials would be transported on public roadways.

Federal Aviation Administration

The Federal Aviation Administration has jurisdiction over airspace in the United States. The Federal Aviation Regulations provide criteria for evaluating the potential effects of obstructions on the safe and efficient use of navigable airspace within approximately two to three miles of airport runways. The Federal Aviation Administration requires notification of proposed construction that meets specific height requirements.

There are two airports in the vicinity of the Proposed Project: Monterey Regional Airport and Marina Municipal Airport.

4.9.3.2 State

Underground Storage Tanks

Federal and state laws governing Underground Storage Tanks specify requirements for permitting, monitoring, closure and cleanup of Underground Storage Tanks (CFR 208-281; CCR Title 23). Regulations set forth construction and monitoring standards for existing tanks, release reporting requirements, and closure requirements. The Monterey County Environmental Health Department’s Local Oversight Program also has regulatory authority for permitting, inspection and removal of underground storage tanks. A closure plan for each underground storage tank to be removed must be submitted to the County prior to tank removal. Upon approval of the underground storage tank closure plan, the County will issue a permit, oversee removal of the underground storage tank, require additional subsurface sampling if necessary, and issue a site closure letter when the appropriate removal and/or remediation has been completed.

Construction of the Proposed Project would take place in the vicinity of areas where there are currently, or have been formerly, underground storage tanks.

Hazardous Materials Release Response Plans and Inventory Act- Health and Safety Code, Section 25500 et seq.

The Hazardous Materials Release Response Plans and Inventory Act of 1985, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a Hazardous Materials Business Plan that describes their facilities, inventories, emergency response plans, and training programs. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed. This code and the related regulations in 19 California Code of Regulations 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials

Business Plan to their local Certified Unified Program Agency and to report releases to their Certified Unified Program Agency and the State Office of Emergency Services. The California Office of Emergency Services is responsible for implementing the accident prevention and emergency response programs established under the Act and implementing regulations.

Under the Proposed Project, hazardous materials would be temporarily stored and used during construction activities; in addition, hazardous materials would be stored and used on-site at certain Proposed Project components.

Hazardous Waste Control Act – Health and Safety Code, Section 25100 et seq.

The Hazardous Waste Control Act of 1972 created the State hazardous waste management program, which is similar to but more stringent than the Federal Resource Conservation and Recovery Act program. The Act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling treatment, storage and disposal facilities; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

Under the Proposed Project, hazardous materials would be temporarily stored and used during construction activities; in addition, hazardous materials would be stored and used on-site at certain Proposed Project components.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) – Health and Safety Code Sections 25404 et seq.

This program requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency. The following Program Elements are consolidated under the Unified Program:

- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (a.k.a. Tiered Permitting)
- Above-ground Petroleum Storage Tanks
- Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or "Community-Right-To-Know")
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Uniform Fire Code Plans and Inventory Requirements

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by Certified Unified Program Agencies. Most Certified Unified Program Agencies have been established as a function of a local environmental health or fire department. Some Certified Unified Program Agencies have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the Certified Unified Program Agency.

Hazardous Materials Management Services is designated as the local Certified Unified Program Agency (CUPA) in Monterey County and is responsible for inspecting facilities in the County to verify proper storage, handling and disposal of hazardous materials and hazardous wastes. As the CUPA, Hazardous Materials Management Services staff are responsible for permitting and conducting inspections of underground storage tanks and above-ground petroleum storage tanks. Additionally, Hazardous Materials Management Services staff provide 24/7 emergency response, oversee hazardous material spill site cleanup activities, and operate the pesticide exposure reporting program.

California Occupational Safety and Health Act – California Labor Code, Section 6300 et seq.

The California Occupational Safety and Health Act of 1973 addresses California employee working conditions, enables the enforcement of workplace standards, and provides for advancements in the field of occupational health and safety. The Act also created the California Occupational Safety and Health Administration (Cal OSHA), the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal OSHA's standards are generally more stringent than federal regulations. Under the former, the employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

At sites known or suspected to be contaminated by hazardous materials, workers must have training in hazardous materials operations and a Site Health and Safety Plan must be prepared. The Health and Safety Plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

Under the Proposed Project, construction and operations activities would follow all Health and Safety requirements for workers who use, transport, store, or dispose of hazardous materials.

License to Transport Hazardous Materials – California Vehicle Code, Section 32000.5 et seq.

A valid Hazardous Materials Transportation License, issued by the California Highway Patrol, is required by the State of California Vehicle Code Section 32000.5 for transportation of hazardous materials shipments for which the display of placards is required by State regulations; or hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the California Highway Patrol under the authority of the State Vehicle Code Sections 32100 – 33002. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (Title 14, CCR, Chapter 6, Article 1, Sections 1150-1152.10). Inhalation hazards face similar, more restrictive rules and regulations (Title 13, CCR, Chapter 6, Article 2.5, Sections 1157-1157.8).

During construction of the Proposed Project, hazardous materials would be transported on public roadways.

Prohibited Activities in Forests, Forestry and Range and Forage Lands – California Public Resources Code, Section 4411 et seq.

The California Public Resources Code section 4411 et seq. restricts the use of internal combustion engines in forest-, brush-, and grass-covered land unless the engine is equipped with a spark arrester.[11] In addition, the engine must be maintained for the prevention of fire (PRC Section 4442). Additional statutory requirements are as follows:

- Appropriate fire suppression equipment must be maintained during the highest fire danger period—from April 1 to December 1 (PRC Section 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor must maintain the appropriate fire suppression equipment (PRC Section 4427).
- On days when a burning permit is required, use of portable tools powered by gasoline-fueled internal combustion engines are prohibited within 25 feet of any flammable materials (PRC Section 4431).

Proposed Project construction that occurs in or around grass-covered lands would comply with all fire suppression requirements.

California Fire Code, Title 24, Part 9, Chapters 33, 50 and 57

The 2013 California Fire Code (CFC), written by the California Building Standards Commission, is based on the 2012 International Fire Code. The International Fire Code (IFC) is a model code that regulates minimum fire safety requirements for new and existing buildings, facilities, storage and processes. The IFC addresses fire prevention, fire protection, life safety, and safe storage and use of hazardous materials in new and existing buildings, facilities, and processes.

Chapter 33 outlines general fire safety precautions for all structures during construction and demolition operations. In general, these requirements seek to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. Features regulated include fire protection systems, fire fighter access to the site, hazardous materials storage and use, and temporary heating equipment and other ignition sources. Chapter 50 contains the general requirements for all hazardous chemicals in all occupancies. The Chapter 57 requirements are intended to reduce the likelihood of fires involving the storage, handling, use, or transportation of flammable and combustible liquids. Chapter 49 outlines construction methods and requirements for hazardous vegetation and fuel management in “High or Very-high Fire Hazard Severity Zones.” Chapter 50 includes general provisions for the prevention, control, and mitigation of dangerous conditions related to storage, dispensing, use, and handling of hazardous materials.

Uniform Fire Code

The Uniform Fire Code, Article 80 (Section 80.103 of the Uniform Fire Code as adopted by the State Fire Marshal pursuant to Health and Safety Code Section 13143.9), includes specific requirements for the safe storage and handling of hazardous materials. These requirements are intended to reduce the potential for a release of hazardous materials and for mixing of incompatible chemicals and specify the following specific design features to reduce the potential for a release of hazardous materials that could affect public health or the environment:

- Separation of incompatible materials with a noncombustible partition;

[11] A spark arrester is a device that prevents exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap is commonly used to retain carbon particles from the exhaust.

- Spill control in all storage, handling, and dispensing areas; and
- Separate secondary containment for each chemical storage system. The secondary containment must hold the entire contents of the tank, plus the volume of water needed to supply the fire suppression system for a period of 20 minutes in the event of catastrophic spill.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government and private entities. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services, which coordinates the responses of other agencies. The Monterey County Environmental Health Department's Emergency Response Team provides the capabilities for hazardous materials emergencies within the project area. Emergency Response Team members respond and work with local fire and police agencies, California Highway Patrol, California Department of Fish and Wildlife, California Department of Transportation, U.S. Coast Guard and National Marine Sanctuary personnel.

4.9.3.3 Regional and Local

Portions of the project would be located within the Cities of Marina, Monterey, Pacific Grove, Sand City, and Seaside and in the northern part of Monterey County. Some of these jurisdictions have general plan policies that address hazards and hazardous materials. This section, including **Table 4.9-3, Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Hazards and Hazardous Materials,** summarizes regional and local hazards/hazardous materials policies and regulations that may be relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Specific regulations, i.e., municipal codes, that were considered to be adopted for the purpose of mitigating an environmental effect and that may be enforced upon this type of project are also discussed below.

City of Seaside

The City of Seaside Municipal Code Chapter 15.34 contains the "Ordnance Remediation District Regulations of the City" (Ordinance 924 (part)) and establishes special standards and procedures for digging and excavation on those properties in the former Fort Ord military base which are suspected of containing ordnance and explosives (also called munitions and explosives of concern). This ordinance requires that a permit be obtained from the City for any excavation, digging, development, or ground disturbance of any type involving the displacement of ten cubic yards or more of soil. The permit requirements include providing each site worker a copy of the Ordnance and Explosives Safety Alert; complying with all requirements placed on the property by an agreement between the City, FORA, and DTSC; obtaining ordnance and explosives construction support; ceasing soil disturbance activities upon discovery of suspected ordnance and notifying the Seaside Police department, the Presidio law enforcement, the Army and DTSC; coordinating appropriate response actions with the Army and DTSC; and reporting of project findings.

City of Marina

The City of Marina Municipal Code Chapter 15.56 establishes special standards and procedures for digging and excavation on those properties in the former Fort Ord which are suspected of containing ordnance and explosives. This ordinance requires that a permit be obtained from the

City for any excavation, digging, development or ground disturbance of any type involving the displacement of ten cubic yards or more of soil. The permit requirements include providing each site worker a copy of the notice; complying with all requirements placed on the property by the Army and DTSC; obtaining ordnance and explosives construction support; ceasing soil disturbance activities upon discovery of suspected ordnance, and reporting of project findings.

City of Monterey

The City of Monterey Municipal Code Chapter 13 defines standards for fire protection, hazardous substances clean up, and the establishment of fire hazard severity zones within the City of Monterey. The City of Monterey has adopted the 2013 California Fire Code, with amendments. The Fire Chief may require that fire hydrants be installed on private property if the Chief determines that development of the property creates an additional fire hazard that cannot be adequately served by publicly maintained fire hydrants.

Section 13-6 of the City of Monterey Municipal Code defines hazardous substances and establishes responsibility for the cleanup of any unauthorized discharge, spill, or release of these substances within the City. Any person, firm, or corporation responsible for the production, storage, handling, or transportation of hazardous substances is required to institute and complete all actions necessary to remedy the effects of any sudden or gradual unauthorized release, spill, or discharge, and the Monterey Fire Department is required to mitigate hazardous material release incidents which endanger the public or create a public nuisance.

Plans and Policies Consistency Analysis

Table 4.9-3 describes the state, regional, and local land use plans, policies, and regulations pertaining to hazards and hazardous materials that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.9.3** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.9.4, Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

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Table 4.9-3
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Hazards and Hazardous Materials

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
Monterey County	Monterey County General Plan	Safety	Reclamation Ditch Diversion site Salinas Treatment Facility and Pipeline Blanco Drain Pump and Pipeline Diversion site Tembladero Slough Diversion site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-4.11**: The County shall require all new development to be provided with automatic fire protection systems (such as fire breaks, fire-retardant building materials, automatic fire sprinkler systems, and/or water storage tanks) approved by the fire jurisdiction.	**Consistent**: Project plans would demonstrate Fire Code conformance and local fire jurisdiction approval would be obtained prior to building permit issuance. The construction contractor would comply with the Public Resources Code and any additional requirements imposed by CAL FIRE, and the local fire protection departments.
Monterey County	Monterey County General Plan	Safety		**Policy S-4.26**: When public facilities and above-ground utilities are located in high or very high fire hazard areas, special precautions shall be taken to mitigate the risks from wildfire and to ensure uninterrupted operation.	**Consistent**: Some Proposed Project facilities would be located in or near areas that are designated as High or Very High Fire Hazard. State law, including Title 24 Chapter 7A, requires special fire-retardant treatment of building materials to certain standards of quality to assure adequate fire protection for structures in moderate to very high fire hazard severity zones. In accordance with State law, the project would implement the above measures, which would ensure project conformity with this policy.
Monterey County	Monterey County General Plan	Safety		**Policy S-4.31**: A zone that can inhibit the spread of wildland fire shall be required of new development in fire hazard areas. Such zones shall consider irrigated greenbelts, streets, and/or Fuel Modification Zones in addition to other suitable methods that may be used to protect development. The County shall not preclude or discourage a landowner from modifying fuel within the Fuel Modification Zone, or accept any open space easement or other easement over land within a Fuel Modification Zone that would have that effect.	**Consistent**: All necessary and required firebreak and fire suppression modifications will be incorporated into the site design review process.
Monterey County	Monterey County General Plan	Safety		**Policy S-4.32**: Property owners in high, very high, and extreme fire hazard areas shall prepare an overall Fuel Modification Zone plan in conjunction with permits for new structures, subject to approval and to be performed in conjunction with the California Department of Forestry and Fire Protection and/or other fire protection agencies in compliance with State Law.	**Consistent**: Project plans would demonstrate Fire Code conformance and local fire jurisdiction approval would be obtained prior to building permit issuance. The construction contractor would comply with the Public Resources Code and any additional requirements imposed by CAL FIRE, and the local fire protection departments.
Monterey County	Monterey County General Plan	Safety		**Policy S-4.22**: Every building, structure, and/or development shall be constructed to meet the minimum requirements specified in the current adopted state building code, state fire code, Monterey County Code Chapter 18.56, and other nationally recognized standards.	**Consistent**: Proposed Project building plans would conform to applicable State and County standards, including the California Building Code and California Fire Code, as adopted and amended by the County. As part of the building permit review process, County Building Services would review such plans for completeness and compliance with applicable codes and standards. By obtaining a building permit, the project would be consistent with this policy.
City of Marina	City of Marina General Plan	Community Design and Developme nt	RUWAP Alignment Option Coastal Option RUWAP Booster Pump Station Option	**Policy 4.103**: To protect the public from heath threats posed by hazardous materials, the following policies shall be adhered to: …3.All uses involving the handling of significant amounts of hazardous materials shall be subject to discretionary approval. Hazardous materials management and disposal plans shall be prepared in accordance with the requirements of the Monterey County Health Department for all such projects prior to the granting of any entitlements by the City.	**Consistent**: The Proposed Project would be subject to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (California Health and Safety Code Section 25500 et seq.) and California requirements for hazardous materials storage and handling (CCR Title 24, Part 9, Section 2700 et seq). Preparation of and adherence to plans prepared as required under these regulations would be required. Compliance with these regulations would reduce potential impacts to the public and the environment resulting from exposure to uncontrolled release of hazardous materials. As noted in Section 4.X, Land Use, Agricultural and Forest Resources, all pipelines would be compatible with adjacent land uses.
City of Seaside	Seaside General Plan	Safety	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities Transfer Pipeline Monterey Pipeline	**Policy S-2.2**: Minimize the risk to community associated with hazardous materials.	**Consistent**: The Proposed Project would be subject to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (California Health and Safety Code Section 25500 et seq.) and California requirements for hazardous materials storage and handling (CCR Title 24, Part 9, Section 2700 et seq) as amended by Seaside. Preparation of and adherence to plans prepared under these regulations would be required. Compliance with these regulations reduce potential impacts to the public and the environment resulting from exposure to uncontrolled release of hazardous materials.
City of Seaside	Seaside General Plan	Safety	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities site Transfer Pipeline Monterey Pipeline	**Implementation Plan S-2.2.1**: Hazardous Materials. Minimize public health risk and environmental risks from the use, transport, storage, and disposal of hazardous materials by: Cooperating with federal, State, and County agencies to effectively regulate the management of hazardous materials and hazardous waste, especially on the former Fort Ord; Cooperating with the County of Monterey to reduce the per capita production of household hazardous waste in accordance with the County Hazardous Waste Management Plan; Identifying roadway transportation routes for conveyance of hazardous materials (the City does not exercise jurisdiction over transportation of freight along railroad right-of-way or state highways); Implementing a Multihazard Emergency Plan for accidents involving hazardous materials; and Cooperating with the Certified Unified Program Agency (CUPA) for Seaside (the County of Monterey, Environmental Health Division) and the Seaside Fire Department to administer Risk Management Plans for businesses within the City.	**Consistent**: The Proposed Project would be subject to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (California Health and Safety Code Section 25500 et seq.) and California requirements for hazardous materials storage and handling (CCR Title 24, Part 9, Section 2700 et seq) as amended by Seaside. Preparation of and adherence to plans prepared under these regulations would be required. By preparing these required plans the Proposed Project would be cooperating with federal, state, and local regulating agencies. No household hazardous waste would be produced by the Proposed Project. The inventory, storage, and location information contained in these plans would support the City of Seaside in implementing emergency plans involving hazardous materials. These are the plans required for the CUPA and the Seaside Fire Department. Compliance with these regulations would reduce potential impacts to the public and the environment resulting from exposure to uncontrolled release of hazardous materials.
Sand City	Sand City General Plan	Public Safety and Noise	Transfer Pipeline Monterey Pipeline	**Policy 6.4.1**: Require that all new development and redevelopment of older projects meet state and local standards for fire protection.	**Consistent**: The construction contractor would comply with the Public Resources Code and any additional requirements imposed by CAL FIRE, and the local fire protection departments. Proposed underground potable water pipelines within Sand City would not pose a fire hazard during project operation.

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4.9.4 Impacts and Mitigation Measures

4.9.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, the project would have a significant impact relating to hazards and hazardous materials if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

e. Be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area.

f. Be located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

No additional significance criteria are needed to comply with the CEQA-Plus[12] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

4.9.4.2 Impact Analysis Overview

Approach to Analysis

This impact analysis addresses the potential to encounter hazardous substances in soil and groundwater during construction and/or operation, as well as potential use and disposal of hazardous materials or waste during operation and maintenance of the Proposed Project. The above significance criteria are assessed in this section as the basis for determining the significance of impacts related to hazards and hazardous materials. If necessary, mitigation

[12] To comply with applicable federal statutes and authorities, EPA established specific “CEQA-Plus” requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

measures are proposed to reduce significant impacts to less-than-significant. Impacts are analyzed for all project components for both construction and operation/maintenance.

The evaluation is based on review of hazardous materials use or release sites databases, the types of chemicals and hazardous materials that may be used during construction or operation of the Proposed Project, and the location of the project area in relationship to schools, airports, and fire hazard zones. In addition, groundwater sampling, testing, and modeling was conducted by engineers (reports can be found in the **Appendix L** of this EIR) to determine whether groundwater would be impaired as a result of the Proposed Project. Each potential impact is assessed in terms of the applicable regulatory requirements, such as mandatory compliance with various federal, state, and local regulations that would serve to prevent significant impacts from occurring.

Areas of No Project Impact

Some of the significance criteria outlined above are not applicable to the Proposed Project or the Proposed Project would not result in impacts related to these criteria, as explained below.

Hazardous Emissions Near Schools (criterion "c"). Operation of the Proposed Project would not result in hazardous emissions within 0.25 miles of an existing or proposed school. The following schools are located within 0.25-miles of the Proposed Project (specifically, the Product Water Conveyance system): Olson Elementary School, 261 Beach Road, Marina; Marina Del Mar Elementary School, 3066 Lake Drive, Marina; Los Arboles Middle School, 294 Hillcrest Avenue, Marina; Marina Vista Elementary School, 390 Carmel Avenue, Marina; Crumpton Elementary School, 460 Carmel Avenue, Marina; Stillwell Elementary School, 225 Normandy Road, Seaside; Fitch Middle School, 999 Coe Avenue, Seaside; and California State University at Monterey Bay (CSUMB). Of those schools, only one would be located within 0.25 of any above-ground facility where project operations may involve handling hazardous or acutely hazardous materials, substances, or waste. Specifically, CSUMB is located adjacent to and within the sites proposed for the Booster Pump Station options. All GWR Facilities would be operated in compliance existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials, during operation. The only routine use of hazardous materials would be the use of lubricants at the Booster Pump Station site (both the Coastal and RUWAP options). Periodic use of lubricants at the Booster Pump Station site would not result in any additional risk due to hazardous materials and thus no impact on students, faculty, visitors, or staff at CSUMB.

Location Near Airport. This element of significance (criterion "e") would not represent an impact of Proposed Project based on the following:

- The Monterey Regional Airport is within two miles of the Injection Well Facilities, Lake El Estero Source Water Diversion site, and the Cal-Am Water Distribution System: Monterey and Transfer Pipelines. The Lake El Estero Source Water Diversion site is within the Monterey Airport Influence Area (AIA). All of the proposed upgrades at the Lake El Estero Diversion site would be entirely underground and therefore would have no effect on the AIA. The airport's land use plan shows the boundary for its Approach Protection Zone and Runway Protection Zone, both of which do not coincide with any of the aforementioned facilities. Therefore, the construction and operation of the Injection Well Facilities, Lake El Estero Source Water Diversion and Storage site, and the Cal-Am Water Distribution System: Monterey and Transfer Pipelines would not interfere with Monterey Regional Airport, nor would any of the facilities be subject to any development limitations (Monterey Peninsula Airport District, 1987).

- The Marina Municipal Airport lies within 2 miles of the proposed Treatment Facilities at the Regional Treatment Plant. The airport adopted a Comprehensive Land Use Plan in 1996 to ensure that surrounding land use development is compatible and does not cause a hazard to aircraft in flight. In addition, the plan includes an Approach Protection Zone and a Runway Protection Zone, which limit development to low density land uses. An approximately 2,000-foot long portion of the Product Water Conveyance Pipeline is within the Approach Protection Zone and an approximately 50-foot long portion is within the Runway Protection Zone (Monterey County Airport Land Use Commission, 1996). Construction activities within this area would last only approximately five days since the construction of the pipeline through open space areas is estimated to proceed at a rate of approximately 400 feet per day. No proposed buildings or structures are located within these zones, and therefore, Proposed Project facilities would not result in a safety hazard for people working in the project area due to its proximity to the Marina Municipal Airport.

Location Near Private Airstrip. This element of significance (criterion “f”) is not applicable to the Proposed Project because none of the project components are located within the vicinity of a private airstrip.

Impair Emergency Access. This element of significance (criterion “g”) is not applicable to the Proposed Project. The Monterey County Emergency Operations Plan provides an overview of agency roles and responsibilities during emergencies (Monterey County Office of Emergency Services, 2011). Project operations would not interfere with the designated agency responsibilities and reporting in the event of an emergency, and no impact would result. Although construction activities temporarily could impede access for emergency response vehicles, measures to avoid interference with emergency access are addressed in **Section 4.17, Traffic and Transportation**.

Wildland Fire Hazard. This element of significance (criterion “h”) is not applicable to operations of the Proposed Project. The Proposed Project would not increase the risk of wildland fire during operations. Operation of the project would not introduce potentially flammable activities in fire-prone areas. Project facilities that would be located within high fire hazard areas consist of underground water pipelines. Accordingly, there would be no increased risk of wildland fire hazards from project operations. Potential impacts from project construction are discussed below.

Summary of Impacts

Table 4.9-4, Summary of Impacts – Hazards and Hazardous Materials provides a summary of potential impacts related to hazards and hazardous materials, and significance determinations at each Proposed Project component site.

Table 4.9-4
Summary of Impacts – Hazards and Hazardous Materials

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System		
Impact Title	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain Diversion (Pump Station and Pipeline)	Lake El Estero	Treatment Facilities at Regional Treatment Plant	RUWAP Alignment Option	Coastal Alignment Option	Injection Well Facilities	Transfer Pipeline	Monterey Pipeline	Project Overall
HH-1: Use and Disposal of Hazardous Materials during Construction	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
HH-2: Accidental Release of Hazardous Materials During Construction	LS	LS	LS	LS	LS	LSM	LS	LSM	LSM	LSM	LSM	LSM	LSM
HH-3: Construction of Facilities on Known Hazardous Material Site	NI	NI	NI	NI	NI	NI	NI	LS	LS	LS	LS	LS	LS
HH-4: Use of Hazardous Materials During Construction Within 0.25-Miles of Schools	NI	NI	NI	NI	NI	NI	LS	LS	LS	LS	NI	NI	LS
HH-5: Wildland Fire Hazard During Construction	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
HH-6: Use and Disposal of Hazardous Materials During Operation	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
HH-7: Operation of Facilities on Known Hazardous Material Site	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Cumulative Impacts	LS: There would be no significant construction or operational cumulative impacts related to hazards or hazardous materials.												

NI – No Impact
LS – Less-than-significant
LSM – Less-than-significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.9.4.3 Construction Impacts and Mitigation Measures

Impact HH-1: Use and Disposal of Hazardous Materials During Construction. Proposed Project construction would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction. (Criterion a) (Less-than-significant)

All Project Components

Construction of the Proposed Project components would involve use of hazardous materials, primarily petroleum products, such as gasoline, diesel fuel, lubricants and cleaning solvents that would be utilized to fuel and maintain construction vehicles and equipment. The transportation of hazardous materials and wastes is regulated by the California Department of Transportation and the California Highway Patrol, which regulates container types and packaging requirements as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. All vendors must comply with existing and future hazardous materials laws and regulations for the transport of hazardous materials; therefore, the risk of accidental releases of hazardous materials during normal (routine) transport operations would not constitute a significant hazard.

Because the Proposed Project proponents and their contractors would be required to comply with existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials, the impacts associated with the potential to create a significant hazard to the public or the environment would be less-than-significant.

Impact Conclusion

Proposed Project construction would result in a less-than-significant impact due to the routine transport, use, or disposal of hazardous materials during construction; therefore, no mitigation measures would be required.

Impact HH-2: Accidental Release of Hazardous Materials During Construction. Proposed Project construction would potentially cause upset and accident conditions involving the release of hazardous materials into the environment. (Criterion b) (Less-than-Significant with Mitigation)

There are typically two types of releases that could occur during construction: (1) the accidental release of hazardous materials that are routinely used during construction activities; and (2) the potential for construction activities to encounter and excavate contaminated soil or groundwater that are already present at the construction site and thus release it to expose new receptors to the hazard.

Hazardous materials that could be used during construction activities include fuels, lubricants, paints, and solvents. Storage and use of hazardous materials at construction sites and staging areas could potentially result in the accidental release of small quantities of hazardous materials, which could pose a risk to construction workers and the environment, such as degradation of soil and groundwater quality and/or surface water quality. However, as discussed in **Section 4.11**, **Hydrology and Water Quality: Surface Water**, the construction contractor would be required to prepare a Storm Water Pollution Prevention Plan for construction activities in accordance with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit requirements. The Storm Water Pollution Prevention Plan would list the hazardous materials (including petroleum products) proposed for use and describe measures for preventing spills, inspecting equipment and fuel storage, and providing immediate response to spills. Through compliance with applicable hazardous materials storage and storm water permitting regulations, the impacts from potential releases of hazardous materials or petroleum products during construction would be less-than-significant for all project components.

The greatest potential for encountering contaminated soil and groundwater during construction would be in areas where past or current land uses have resulted in leaking fuel or chemical storage tanks or other releases of hazardous materials. Properties with known soil and/or groundwater contamination are referred to as "hazardous materials release sites," as identified in **Section 4.9.1, Table 4.9-1, Hazardous Materials Release Sites Identified within 0.25-Mile of a Proposed Project Component Site Construction Area, By Component**. Thirty-one environmental cases were identified, pursuant to Government Code Section 65962.5 that may have potentially affected soil or subsurface conditions at project sites. Encountering unanticipated soil or groundwater contamination could result in exposures to construction workers, the public, or the environment, resulting in a potentially significant impact. Potential impacts associated with encountering hazardous materials and/or military munitions (or unexploded ordnance) at Fort Ord are discussed separately under Impact HH-3. The potential for construction at each component to encounter contaminated soil or groundwater is discussed further, below.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion

The proposed grading, demolition, and installation of pipeline segments at the Salinas Pump Station would result in disturbance of approximately 0.75 acres. Key existing and proposed facilities at this site are shown in **Figure 2-14, Salinas Industrial Wastewater System Location Map.** The database search did not identify any hazardous materials release sites within 0.25 miles of the Salinas Pump Station, although unknown contaminants could be encountered during construction. Construction at the Salinas Pump Station Diversion site would have a less-than-significant impact due to the potential the release of hazardous materials into the environment.

Salinas Treatment Facility

The proposed grading, demolition, and installation of pipeline segments at the Salinas Treatment Facility would result in disturbance of approximately 281 acres. The database search did not identify any hazardous materials release sites within 0.25 miles of the Salinas Treatment Facility, although unknown contaminants could be encountered during construction. Construction at the Salinas Treatment Facility site would have a less-than-significant impact due to the potential the release of hazardous materials into the environment.

Reclamation Ditch Diversion

The proposed Reclamation Ditch Diversion would disturb approximately 0.15 acres of land. The closest hazardous materials release site undergoing remediation is West Market Valero, 0.19 mile away. There is no known contamination where the Proposed Project grading, trenching, and construction activities would occur. Given the condition of the site as a drainage channel and the small and shallow amount of ground disturbance at the site, it is considered unlikely (i.e., not reasonably foreseeable) that soil or groundwater contamination would be encountered that would create a significant hazard to the public or the environment through upset and accident conditions involving the release of hazardous materials into the environment. The construction at the Reclamation Ditch Diversion component site would have a less-than-significant impact due to the potential for release of hazardous materials into the environment.

Tembladero Slough Diversion

The proposed grading, demolition, and installation of pipeline segments at the Tembladero Slough Diversion site would result in disturbance of approximately 0.25 acres. The database search did not identify any hazardous materials release sites within 0.25 miles of the Tembladero Slough Diversion site, although unknown contaminants could be encountered during construction. Construction at the Tembladero Slough Diversion site would have a less-than-significant impact due to the potential the release of hazardous materials into the environment.

Blanco Drain Diversion

The proposed grading, demolition, and installation of pipeline segments at the Blanco Drain Diversion site would result in disturbance of approximately 0.15 acres of land at the pump station, including the Blanco Drain banks and channel bottom, and approximately 5 acres along the pipeline alignment including the excavation pits for constructing the pipeline under the Salinas River. The database search did not identify any hazardous materials release sites within 0.25-mile of the Blanco Drain Diversion site, although unknown contaminants could be encountered during construction. Construction at the Blanco Drain Diversion site would have a less-than-significant impact due to the potential the release of hazardous materials into the environment.

Lake El Estero Diversion

The proposed 0.2 acres of disturbance at Lake El Estero would occur entirely within the paved area of the existing pump station at that site. The closest hazardous materials release site undergoing remediation would be the former Sudden Service Vapor Cleaners, 0.1 mile away. Within 0.25 miles of the site there are other ongoing remediation activities that are described in **Table 4.9-1**. There is no known contamination where the Proposed Project grading, trenching, and construction activities would occur. However due to the proximity and number of known sites that are undergoing remediation, encountering unanticipated soil or groundwater contamination could result in a substantial risk to the public or the environment due to hazardous materials release and this potential impact would be considered significant. Implementation of Mitigation Measures HH-2a (Environmental Site Assessment), HH-2b (Health and Safety Plan), and HH-2c (Materials Disposal Plan) would reduce the impact to a less-than-significant level.

Treatment Facilities at the Regional Treatment Plant

At present, the regular monitoring and reporting program reports have not shown any known contamination where construction would occur at the Regional Treatment Plant. Construction of the Treatment Facilities at the Regional Treatment Plant would have a less-than-significant impact due to the potential for release of hazardous materials into the environment.

Product Water Conveyance

Several locations along the Product Water Conveyance System alignments and at the Booster Pump Station locations are identified as having soil and/or groundwater contamination, which could potentially impact subsurface conditions at these locations. **Table 4.9-1** identifies two contaminated sites along the RUWAP alignment option (see **Section 4.9.2.1** under “Operable Units” for discussions about OU1 and OU2 that underlie this alignment), five sites along the Coastal alignment option, and four sites at the Booster Pump Stations that lie within 0.25 mile of project construction locations. Typical contaminants associated with these sites are due to releases from gasoline service stations, dry cleaners, volatile organic compounds, metals, and pesticides. A majority of the sites listed in **Table 4.9-1** are undergoing remediation and are located only in deeper soil layers than where proposed construction would occur. Regarding these remediation sites, the Proposed Project would have a less-than-significant impact. Portions of the RUWAP alignment are within 0.25 mile of a site that is identified to have shallow soil and groundwater contamination from chlorinated hydrocarbons and tetrachloroethylene, and one site that has an open case and is eligible for closure after groundwater remediation was performed from 2008 to 2012.

Soil disturbance during construction could further disperse existing contamination into the environment and expose construction workers and the public to contaminants. If substantial hazardous materials are present in excavated soils, health and safety risks to workers and the public could occur. Such risks could occur from stockpiling, handling, or transportation of soils that have been contaminated by hazardous materials from previous spills or leaks. The dewatering of contaminated groundwater could also present risks to public health and safety, and the environment, if the contaminated groundwater is not handled properly. The potential for contaminated soil and groundwater to be released to or to create a substantial risk to the public or the environment during project construction is considered a potentially significant impact. Implementation of Mitigation Measures HH-2a (Environmental Site Assessment), HH-2b (Health and Safety Plan), and HH-2c (Materials Disposal Plan) would reduce the impact to a less-than-significant level.

Injection Well Facilities

Construction of the Injection Well Facilities at the former Fort Ord Military facility could result in exposure to unexploded ordnance; this is discussed separately under Impact HH-3, below.

As identified in **Table 4.9-1**, both EnviroStor and Geotracker listed the 28,016-acre Fort Ord Military Reservation as an active Federal Superfund site and listed munitions as the contaminant of primary concern. Additionally, Geotracker identified two nearby sites on the former Fort Ord lands as gasoline contamination sites: (1) the 14th Engineers Motor Pool and (2) Building 511. In addition, sites OU 1, OU 2, OUCTP, and 2/12 discussed above are ongoing remediation sites within the former Fort Ord. These are active sites currently undergoing investigations and are located about 1.8 miles or more to the northeast. All of these sites are outside of the Seaside Groundwater Basin and are not a threat to groundwater in the Proposed Project area or to construction workers employed to build the project. Other environmental sites have been identified in other parts of the basin, including numerous leaking underground storage tank sites, but none of the other environmental sites were found to be located in the Proposed Project area and thus none of these would result in release of hazardous materials due to construction of the proposed project Injection Wells. (Todd Groundwater, 2015)

Soil disturbance during construction could disperse unknown contaminants at the Injection Well Facilities site if discovered during construction into the environment and expose construction workers and the public to hazards. If substantial hazardous materials are present in excavated soils, health and safety risks to workers and the public could occur. Such risks could occur from the stockpiling, handling, or transportation of soils that have been contaminated by hazardous materials from previous spills or leaks. Dewatering of contaminated groundwater could also present risks to public health and safety, and the environment, if the contaminated groundwater is not handled properly. The potential for contaminated soil and groundwater to be released into the environment during project construction is considered a potentially significant impact. Implementation of Mitigation Measures HH-2a (Environmental Site Assessment), HH-2b (Health and Safety Plan), and HH-2c (Materials Disposal Plan) would reduce the impact to a less-than-significant level.

CalAm Distribution System

There are several locations along the proposed Monterey Pipeline (none near the Transfer Pipeline) where contamination from nearby facilities extends into the proposed alignment. These areas are adjacent to the former bulk fuel facilities (the former Chevron and Texaco facilities), a cluster of open and closed leaking underground storage tank sites near Del Monte Avenue (former Vapor Sudden Service Cleaners and Russo's Marine Fueling Station) in Monterey, and the former PG&E manufactured gas plant, discussed above in **Section 4.9.2** and shown on **Figure 4.9-1**. **Table 4.9-1** identifies 14 contaminated sites along the pipeline alignment that lie within 0.25 miles of project construction locations. Typical contaminants anticipated to be encountered during project construction activities are related to releases from gasoline service stations, dry cleaners, volatile organic compounds, metals, and pesticides. A majority of the sites listed in **Table 4.9-1** are undergoing remediation and therefore, represent a low potential for impacts, in particular because pipeline construction would occur only in the surface soils.

Soil disturbance during construction could further disperse existing contamination into the environment and expose construction workers and the public to contaminants. If substantial hazardous materials are present in excavated soils, health and safety risks to workers and the public could occur. Such risks could occur from stockpiling, handling, or transportation of soils that have been contaminated by hazardous materials from previous spills or leaks. Dewatering of contaminated groundwater could also present risks to public health and safety, and the environment, if the contaminated groundwater is not handled properly. The potential for contaminated soil and groundwater to be released into the environment during project construction is considered a potentially significant impact. Implementation of Mitigation Measures HH-2a (Environmental Site Assessment), HH-2b (Health and Safety Plan), and HH-2c (Materials Disposal Plan) would reduce the impact to a less-than-significant level.

Impact Conclusion

The impact is considered significant for the following components: the Lake El Estero Diversion, Product Water Conveyance (RUWAP and Coastal Alignments), the Injection Well Facilities, and the CalAm Distribution System. Implementation of Mitigation Measures HH-2a (Environmental Site Assessment), HH-2b (Health and Safety Plan), and HH-2c (Materials Disposal Plan), would reduce the impact to a less-than-significant level.

Mitigation Measures

Mitigation Measure HH-2a: <u>Environmental Site Assessment.</u> (Applies to the Lake El Estero Diversion, Product Water Conveyance RUWAP and Coastal Alignment Options, Injection Well Facilities and the CalAm Distribution System)

If required by local jurisdictions and property owners with approval responsibility for construction of each component, MRWPCA and CalAm shall conduct a Phase I Environmental Site Assessment in conformance with ASTM Standard 1527-05 to identify potential locations where hazardous material contamination may be encountered. If an Environmental Site Assessment indicates that a release of hazardous materials could have affected soil or groundwater quality at a project site, a Phase II environmental site assessment shall be conducted to determine the extent of contamination and to prescribe an appropriate course of remediation, including but not limited to removal of contaminated soils, in conformance with state and local guidelines and regulations. If the results of the subsurface investigation(s) indicate the presence of hazardous materials, additional site remediation may be required by the applicable state or local regulatory agencies, and the contractors shall be required to comply with all regulatory requirements for facility design or site remediation.

Mitigation Measure HH-2b: Health and Safety Plan. (Applies to the Lake El Estero Diversion, Product Water Conveyance RUWAP and Coastal Alignment Options, the Injection Well Facilities, and the CalAm Distribution System)

The construction contractor(s) shall prepare and implement a project-specific Health and Safety Plan (HSP) for each site on which construction may occur, in accordance with 29 CFR 1910 to protect construction workers and the public during all excavation, grading, and construction. The HSP shall include the following, at a minimum:

- A summary of all potential risks to construction workers and the maximum exposure limits for all known and reasonably foreseeable site chemicals (the HSP shall incorporate and consider the information in all available existing Environmental Site Assessments and remediation reports for properties within ¼-mile using the EnviroStor Database);
- Specified personal protective equipment and decontamination procedures, if needed;
- Emergency procedures, including route to the nearest hospital;
- Procedures to be followed in the event that evidence of potential soil or groundwater contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and specifically include, but are not limited to, the following: immediately stopping work in the vicinity of the unknown hazardous materials release, notifying Monterey County Department of Environmental Health, and retaining a qualified environmental firm to perform sampling and remediation; and
- The identification and responsibilities of a site health and safety supervisor.

Mitigation Measure HH-2c: Materials and Dewatering Disposal Plan. (Applies to the Lake El Estero Diversion, Product Water Conveyance RUWAP and Coastal Alignment Options, the Injection Well Facilities, and the CalAm Distribution System)

MRWPCA and CalAm and/or their contractors shall develop a materials disposal plan specifying how the contractor will remove, handle, transport, and dispose of all excavated material in a safe, appropriate, and lawful manner. The plan must identify the disposal method for soil and the approved disposal site, and include written documentation that the disposal site will accept the waste. For areas within the Seaside munitions response areas called Site 39 (coincident with the Injection Well Facilities component), the materials disposal plans shall be reviewed and approved by FORA and the City of Seaside.

The contractor shall develop a groundwater dewatering control and disposal plan specifying how the contractor will remove, handle, and dispose of groundwater impacted by hazardous substances in a safe, appropriate, and lawful manner. The plan must identify the locations at which potential contaminated groundwater dewatering are likely to be encountered (if any), the method to analyze groundwater for hazardous materials, and the appropriate treatment and/or disposal methods. If the dewatering effluent contains contaminants that exceed the requirements of the General WDRs for

Discharges with a Low Threat to Water Quality (Order No. R3-2011-0223, NPDES Permit No. CAG993001), the construction contractor shall contain the dewatering effluent in a portable holding tank for appropriate offsite disposal or discharge (see **Section 4.11, Hydrology and Water Quality: Surface Water**, for more information regarding this NPDES permit). The contractor can either dispose of the contaminated effluent at a permitted waste management facility or discharge the effluent, under permit, to the Regional Treatment Plant.

Impact HH-3: <u>Construction of Facilities on Known Hazardous Materials Site.</u> Proposed Project construction would occur on a known hazardous materials site pursuant to Government Code Section 65962.5; however, the Proposed Project would not result in a significant hazard to people or the environment. (Criterion d) (Less-than-Significant)

Product Water Conveyance Pipeline Options

As discussed above in **Section 4.9.2.1**, **Hazardous Materials in Soil and Groundwater**, small portions of the Product Water Conveyance Pipeline (RUWAP and Coastal Alignment Options) would be located within 0.25 miles of the former Fort Ord Seaside Munitions Response Area. For a more detailed description of this area, see the below discussion of the Injection Well Facilities site.

The RUWAP and Coastal Pipeline would traverse General Jim Moore Boulevard and Eucalyptus Road, where it would connect to the Injection Well Facilities. The pipeline would cross a parcel (identified as “MRS-15 SEA 04,” a 70-acre parcel) that is a munitions response site (MRS) that is part of the Seaside Munitions Response Area for the Superfund National Priority List cleanup (see **Figure 4.9-1**). This parcel is part of an area that is also referred to as “Group 1” in Department of Army technical reports. For a more detailed description of the Group 1 site, see the below discussion of the Injection Well Facilities site. Compliance with existing regulations for construction work at the former Fort Ord would reduce the potential impact of encountering unexploded ordnance by construction workers to less-than-significant.

Segments of the proposed Product Water Conveyance Pipeline within the former Fort Ord are located above known contaminated groundwater plumes, specifically, OU1, OU2, OUCTP and Site 2/12 (described above). However, these contaminated groundwater plumes are located hundreds of feet below ground surface and construction activities would only occur within the top 30 feet of soil. Therefore, the impact associated with the siting of these facilities on a known hazardous materials site, specifically the groundwater contamination sites, would be less-than-significant.

Injection Well Facilities

As discussed above in **Section 4.9.2.1**, **Hazardous Materials in Soil and Groundwater**, the Injection Well Facilities would be located within the former Fort Ord Seaside Munitions Response Area. This is a known hazardous materials site that is identified on the National Priorities List (see **Table 4.9-1**). Construction within the Former Fort Ord could result in exposure to various organic substances, metals, and petroleum products. Soil disturbance during construction could further disperse existing contamination into the environment and expose construction workers or the public to contaminants. The State Water Resources Control Board’s EnviroStor and Geotracker listed the 28,016-acre Fort Ord Military Reservation as an active Federal Superfund site and listed munitions as the contaminant of primary concern. Additionally, Geotracker identified two adjacent sites on the former Fort Ord lands as gasoline contamination sites: (1) the 14th Engineers Motor Pool and (2) Building 511. These are active sites currently undergoing investigations and are located about 1.8 miles to the northeast. However, both sites are outside of the Seaside groundwater basin and are not a threat to groundwater in the Injection Well Facilities site; the public and/or environment would not be exposed to any risks during construction of the Injection Well Facilities.

Construction activities within this area have the potential to encounter unexploded ordnance which, if not identified and properly handled, could cause injury or death to construction workers. The Injection Well Facilities would be located within parcels (MRS-15 SEA 03, a 50-acre parcel and MRS-15 SEA 02, an 86-acre parcel) that are part of the Seaside Munitions Response Area for the Superfund National Priority List cleanup (see **Figure 4.9-1**). This area is also referred to as "Group 1" in Department of Army technical reports. In 2008, the Seaside Munitions Response Area (Phase II) removal action was completed in accordance with the Environmental Services Cooperative Agreement. This included significant grubbing and clearing in order for the land to be deemed suitable. Therefore, the parcels on which the Injection Well Facilities are sited have already undergone remediation actions.

Nevertheless, in order for any ground disturbance activities to commence, MRWPCA and its contractors must comply with the Fort Ord Reuse Authority Right-of-Entry process and the City of Seaside Municipal Code Chapter 15.34 (i.e., the "Ordnance Remediation District Regulations of the City" in Ordinance 924). This ordinance establishes special standards and procedures for digging and excavation on those properties in the former Fort Ord military base which are suspected of containing ordnance and explosives (also called munitions and explosives of concern). This ordinance requires that a permit be obtained from the City for any excavation, digging, development, or ground disturbance of any type involving the displacement of ten cubic yards or more of soil. The permit requirements include providing each site worker a copy of the Ordnance and Explosives Safety Alert; complying with all requirements placed on the property by an agreement between the City, FORA, and DTSC; obtaining ordnance and explosives construction support; ceasing soil disturbance activities upon discovery of suspected ordnance and notifying the Seaside Police department, the Presidio law enforcement, the Army and DTSC; coordinating appropriate response actions with the Army and DTSC; and reporting of project findings. Compliance with existing regulations for construction work at the former Fort Ord would reduce the potential impact of encountering unexploded ordnance by construction workers to less-than-significant.

CalAm Distribution System

As discussed above in **Section 4.9.2.1**, **Hazardous Materials in Soil and Groundwater**, the Transfer Pipeline would be located within 0.25 miles of the former Fort Ord Seaside Munitions Response Area. For a more detailed description of this area, see the above discussion of the Injection Well Facilities site.

A small portion of the Transfer Pipeline would be within the Seaside Munitions Response Area, approximately 1 mile southwest of the Injection Well Facilities site. The pipeline would then cross General Jim Moore Boulevard to the west. The pipeline would be within a parcel (MRS-15 SEA 01, a 295-acre parcel) that is part of the Seaside Munitions Response Area for the Superfund National Priority List cleanup (see **Figure 4.9-1**). This parcel is part of an area is also referred to as "Group 1" in Department of Army technical reports. For a more detailed description of the Group 1 site, see the discussion of the Injection Well Facilities site, above. Compliance with existing regulations for construction work at the former Fort Ord would reduce the potential impact of encountering unexploded ordnance by construction workers to less-than-significant.

All Other Project Components

None of the other project components would be located on designated known hazardous materials sites pursuant to Government Code Section 65962.5 as shown in **Figure 4.9-3, Location of Existing Groundwater Plumes.** Therefore, construction of the other components of the Proposed Project would have no impact associated with the siting of these facilities on a known hazardous materials site and no mitigation measures would be required.

Impact Conclusion

Compliance with existing regulations for construction work at the former Fort Ord would reduce the potential impact of encountering unexploded ordnance by construction workers at the Injection Well Facilities and Transfer Pipeline sites to less-than-significant. Some project components (both alignments of the Product Water Conveyance Pipelines) are proposed to be located above identified contaminated groundwater. However, these contaminated groundwater plumes are located hundreds of feet below ground surface and construction activities would occur no lower than the top 30 feet of soil. Therefore, no impact associated with the siting of these facilities on known groundwater contamination sites at the former Fort Ord would occur. None of the other project components would be located on designated known hazardous materials sites pursuant to Government Code Section 65962.5. Therefore, the Proposed Project would have no significant impact associated with the siting of these facilities on a known hazardous materials site and no mitigation measures would be required.

Impact HH-4: <u>Use of Hazardous Materials During Construction Within 0.25-Miles of Schools.</u> Proposed Project construction would not result in nor create a significant hazard to the public or the environment due to handling of hazardous materials or hazardous emissions within 0.25 mile of a school during construction. (Criterion c) (Less-than-Significant)

All Proposed Project Facilities

Schools and daycare facilities are considered sensitive receptors for hazardous materials because children are more susceptible than adults to the effects of many hazardous materials. Components of the Proposed Project that are located within 0.25 -miles of a school are shown in **Table 4.9-5, Schools and Daycare Facilities in the Vicinity of Project Components**.

As discussed above under Impact HH-1, project construction could require the use of fuel, lubricants, paints, and solvents. These materials are commonly used during construction, are not acutely hazardous, and would be used in small quantities. Numerous laws and regulations ensure the safe transportation, use, storage, and disposal of hazardous materials (see **Section 4.9.3.2**, **Regulatory Framework**). Construction of Proposed Project facilities would occur within 0.25 miles of schools; however, the hazardous materials storage and storm water permitting requirements discussed under Impact HH-1, above, impose performance standards on the construction activities that would ensure the risk of release of hazardous materials during construction would be low. Although construction activities could result in the inadvertent release of small quantities of hazardous construction chemicals, a spill or release is not expected to endanger individuals at nearby schools given the nature of the materials and the small quantities that would be used.

Table 4.9-5
Schools and Daycare Facilities in the Vicinity of Project Components

Project Component	Schools within 0.25-Mile of Project Components
Source Water Diversion and Storage sites: Salinas Pump Station, Salinas Treatment Plant, Reclamation Ditch, Tembladero Slough, Blanco Drain	**Schools** None
	Daycare Facilities None
Lake El Estero Diversion site	**Schools** San Carlos Private School, 450 Church Street, Monterey
	Daycare Facilities None
Treatment Facilities at the Regional Treatment Plant	**Schools** None
	Daycare Facilities None
Product Water Pipelines (Coastal and RUWAP)	**Schools** Olson Elementary School, 261 Beach Road, Marina Marina Del Mar Elementary, 3066 Lake Drive, Marina Los Arboles Middle School, 294 Hillcrest Avenue, Marina Marina Vista Elementary School, 390 Carmel Avenue, Marina Crumpton Elementary School, 460 Carmel Avenue, Marina Stillwell Elementary School, 225 Normandy Road, Seaside Fitch Middle School, 999 Coe Avenue, Seaside California State University at Monterey Bay
	Daycare Facilities Marina Children's Center, 261 Beach Road, Marina
Product Water Booster Pump Station (both Options)	**Schools** California State University at Monterey Bay, Seaside
	Daycare Facilities None
Injection Well Facilities	**Schools** None
	Daycare Facilities None
CalAm Distribution Pipelines	**Schools** Monterey Adult School/Cabrillo Family Center, 1295 La Salle Avenue, Seaside Monterey Bay Christian Middle School, 1395 La Salle Avenue, Seaside Ord Terrace Elementary, 1755 La Salle Avenue, Seaside International School of Monterey, 1720 Yosemite Street, Seaside King Elementary School, 1713 Broadway Avenue, Seaside Highland Elementary, 1650 Sonoma Avenue, Seaside Bayview Elementary School, 680 Belden Street, Monterey Monterey High School, 101 Herrmann Drive, Monterey Pacific Grove Middle School, 835 Forest Avenue, Pacific Grove Robert Down Elementary School, 485 Pine Avenue, Pacific Grove
	Daycare Facilities Avondale Early Education Center, 1450 Elm Street, Seaside Highlands Early Education Center, 1650 Sonoma Avenue, Seaside Juan Cabrillo Head Start Center, 1295 La Salle Avenue, Seaside Kids at Play, 1664 Hilby Avenue, Seaside Ord Terrace State Preschool, 1755 La Salle Avenue, Seaside Seaside Children's Center, 1450 Elm Avenue, Seaside

In addition, hazardous air emissions are toxic air contaminants identified by the California Air Resources Board. Construction would result in the short-term emissions of diesel particulate matter (DPM), a toxic air contaminant, within 0.25-mile of schools. However, based on a screening-level analysis discussed in **Section 4.3, Air Quality**, diesel particulate emissions would be less than the Monterey Bay Unified Air Pollution Control District's increased cancer risk threshold. Thus, this would be a less-than-significant impact.

Therefore, because the Proposed Project proponents and their contractors would be required to comply with existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials, and because of the nature and quantity of the hazardous materials, the potential impact on schools related to the use of hazardous materials at these sites that are within 0.25-mile would be less-than-significant.

Impact Conclusion

Construction of Proposed Project facilities would not result in a significant impact related to the handling of hazardous materials or emitting hazardous emissions within 0.25 mile of a school; therefore, no mitigation is necessary.

Impact HH-5: Wildland Fire Hazard during Construction. Proposed Project construction would not increase the risk of wildland fires in high fire hazard areas. (Criterion h) (Less-than-Significant)

All Project Components

As illustrated in **Figure 4.9-4**, some Proposed Project facilities are located near areas that are designated by CAL FIRE and the Local Responsibility Areas as Very High Fire Hazard areas. Regulations governing the use of construction equipment in fire prone areas are designed to minimize the risk of wildland fires during construction activity. These regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided onsite for various types of work in fire prone areas. The construction contractor must comply with the Public Resources Code and any additional requirements imposed by CAL FIRE, and the local fire protection departments; therefore, potential impacts related to wildland fires due to construction activities would be less-than-significant.

Impact Conclusion

Proposed Project construction would not result in a significant impact from the increase of risk of wildland fires during construction in high fire hazard areas; therefore, mitigation measures would not be required.

4.9.4.4 Operation Impacts and Mitigation Measures

Impact HH-6: Use and Disposal of Hazardous Materials During Operation. Proposed Project operations would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Criterion a) (Less-than-Significant)

Proposed Project components that would involve the storage and use of hazardous materials are discussed below.

Treatment Facilities at the Regional Treatment Plant

Advanced Water Treatment Facility

The Proposed Project would involve the storage and use of hazardous materials. The types and amounts of chemicals that would be utilized at the Advanced Water Treatment Facility are listed in **Table 4.9-6, Chemicals to be Utilized at the Advanced Water Treatment Facility**. Bulk storage of these chemicals would be located in tanks within the Regional Treatment Plant site.

Table 4.9-6
Chemicals to be Utilized at the Advanced Water Treatment Facility

Chemical	Application	Annual Usage (pounds)
Liquid Oxygen (LOX)	Ozone Feed	1,900,000 (avg), 3,140,000 (max)
Calcium thiosulfate	Ozone Effluent	10,300 (max)
Sodium Hydroxide	Upflow BAF Feed	520,000 (avg), 1,500,000 (max)
Ammonium Hydroxide or Ammonium Chloride	Upflow BAF Effluent	39,000 (max)
Sodium Hypochlorite	MF Feed/Ozone feed	89,000
Sodium Hypochlorite	MF Cleaning	20,000
Sodium Hydroxide	MF Cleaning	180,000
Citric Acid	MF Cleaning	44,000
Sodium Bisulfite	MF Cleaning Reverse Osmosis Concentrate Dechlorination	2,700 10,000
Sulfuric Acid	Reverse Osmosis Feed	2,250,000
Antiscalant	Reverse Osmosis Feed	45,000
Hydrogen Peroxide	UV/AOP Feed	45,000 avg, 55,000 max
Carbon Dioxide Sodium Hydroxide	Product Water Product Water	122,000 avg, 610,000 max 410,000 avg, 705,000 max
Calcium chloride Slurry of Hydrated Lime	Product Water Product Water (optional)	575,000 avg, 975,000 max 380,000 avg, 655,000 max
Tri-Sodium Phosphate	Reverse Osmosis Cleaning	5,000
Sodium Dodecyl Benzene Sulfonate	Reverse Osmosis Cleaning	5,000
Citric Acid	Reverse Osmosis Cleaning	2,500
Source Alex Wesner, SPI, August 2014; John Kenny, January 2015.		

The use of treatment chemicals at the Advanced Water Treatment Facility would require chemical deliveries and indirectly result in an incremental increase in the potential for accidents during the routine transport of hazardous materials. The transportation of hazardous materials and wastes is regulated by the California Department of Transportation and the California Highway Patrol, which regulates container types and packaging requirements as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. All vendors would be required to comply with existing and future hazardous materials laws and regulations for the transport of hazardous materials; therefore, the risk of accidental releases of hazardous materials during normal transport operations does not constitute a significant hazard.

If accidentally released onsite, these chemicals could cause human health effects to plant personnel and surrounding populations and could cause adverse environmental effects. However, the chemical storage and handling systems at the Advanced Water Treatment Facility would be designed and constructed in accordance with specific requirements for the safe storage and handling of hazardous materials set forth in the Uniform Fire Code, Article 80. Requirements specifically applicable to the project include spill control in all storage, handling and dispensing areas, separate secondary containment for each chemical storage system, and separation of incompatible materials with a non-combustible partition. These requirements reduce the potential for a release of hazardous materials and for mixing of incompatible materials that could pose a public health or water quality risk.

MRWPCA is required to submit a Hazardous Materials Business Plan for the project facilities to the Monterey County Environmental Health prior to the start of project operations. The Hazardous Materials Business Plan is required to include information on hazardous material handling and storage, including containment, site layout, and emergency response and notification procedures in the event of a spill or release. In addition, the plan requires annual employee health and safety training. The project sites would be subject to compliance inspections by the local oversight agency.

With compliance with existing state and federal regulations regarding hazardous materials storage and management, the potential for environmental impacts due to the accidental release of hazardous materials associated with project operations is less-than-significant, and therefore, no mitigation measures are necessary.

Salinas Valley Reclamation Plant Modifications

The existing Salinas Valley Reclamation Plant uses a three-step chemical and filtration process. Secondary treated effluent from the Regional Treatment Plant is pumped to a flocculation basin where an alum polymer is introduced to bind together any remaining dissolved organic matter. This creates tiny clumps called floc. In the second step, the floc is removed in the tertiary filters. Treated water filters through a 6-foot bed of anthracite coal, sand and gravel in which the floc is trapped. After filtration, the water flows to the third step for disinfection in the chlorine contact basins. Disinfection destroys pathogens by maintaining a specific chlorine level in the water for at least one and one half hours.

Operation of the proposed modified facility would be similar to the current operational method. During the peak irrigation season, the plant would operate at full capacity with both chlorine contact basins used for disinfection and the 80 acre-foot pond used for tertiary-treated product water storage. During the off-peak, low demand months, normal low flow volumes would be sent to the plant, one or two coagulation/flocculation tanks would be used, between one and three filters would be active, and only one chlorine contact tank would be used for disinfection, while the other tank would provide product water storage. When the tertiary-treated product water has filled the storage basin, the flow to the Salinas Valley Reclamation Plant could be reduced or stopped until additional water is needed.

Although the operations at the Salinas Valley Reclamation Plant under the Proposed Project would be very similar to existing operations, there would be an incremental increase in the amount of some of the necessary chemicals due to the increase in feed water available to the plant. These chemicals are listed in **Table 4.9-7, Additional Chemicals to be Utilized at the Salinas Valley Reclamation Plant**. Compliance with existing state and federal regulations regarding hazardous materials storage and management would ensure that the potential for environmental impacts due to the accidental release of hazardous materials associated with project operations is less-than-significant, and therefore, no mitigation measures are necessary.

Table 4.9-7
Additional Chemicals to be Utilized at the Salinas Valley Reclamation Plant

Chemical	Application	Maximum additional amount required	Truck loads per year
Aluminum chlorohydrate/polymer mixture	Flocculant	89,000 pounds per year	2
Sodium hypochlorite	Disinfection	47,470 pounds per year	1
Chlorine	Disinfection	168 tons per year	14
Source: Bob Holden, MRWPCA, November 2014.			

Injection Well Facilities

Typical maintenance activities at the wells would require the use of several of the same vehicles and equipment used during construction. Similar to construction, petroleum products such as gasoline, diesel fuel, lubricants, and cleaning solvents could be utilized to fuel and maintain maintenance vehicles and equipment. If an accident occurs, conditions could result in inadvertent releases of small quantities of these hazardous materials. However, compliance with the various regulations regarding the safe transport, use, and storage of hazardous materials (see **Section 4.9.3**, **Regulatory Framework**) would ensure this impact is less-than-significant, and therefore, no mitigation measures are necessary.

CalAm Distribution System

Water recovered from the existing CalAm extraction wells would be chlorinated for disinfection prior to being conveyed into the distribution system. The existing disinfection system has sufficient capacity to treat groundwater, which would include GWR Project product water, that is extracted from all existing ASR injection/extraction wells (e.g., the four existing ASR injection/extraction wells [ASR-1, ASR-2, ASR-3, and ASR-4]) and other CalAm wells. The disinfection chemicals for the ASR wells would continue to be stored at the existing chemical/electrical control building at the Phase I ASR facilities site. The existing disinfection system includes a 5,000-gallon sodium hypochlorite tank with double containment, vent fume neutralizers, and a forced-air ventilation system. The Proposed Project would increase the annual quantity of sodium hypochlorite handled by the disinfection system, but the amount stored on-site would be the same.

All Other Project Components

Operation of the Source Water Diversion and Storage sites, the Product Water Conveyance System (pipelines and booster pump station), and the CalAm Distribution Pipelines would not involve the routine storage or use of hazardous materials, except for very small amounts of fuel and lubricants. Impacts related to the inadvertent release of hazardous materials during operation of these facilities would be less-than-significant.

Impact Conclusion

Proposed Project operations would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during project operations; therefore, no mitigation measures would be required.

Impact HH-7: <u>Operation of Facilities on Known Hazardous Materials Site.</u> Proposed Project facilities would be located on a known hazardous materials site; however, the Proposed Project would not result in a significant hazard to people or the environment. (Criterion d) (Less-than-Significant)

Injection Well Facilities

As discussed above under Impact HH-3, the Injection Well Facilities site is located on a portion of the former Fort Ord military base in an area of potential contamination. **Figure 4.9-3** shows the location of the groundwater plumes with respect to the Proposed Project Product Water Conveyance pipelines and Injection Well Facilities. As discussed in **Section 4.9.2**, groundwater analyses conducted for this EIR found no groundwater contamination or contaminant plumes in the vicinity of the Proposed Project Injection Well Facilities. There were no environmental contaminant sites identified in the area between Injection Well Facilities site and downgradient extraction wells. Thus, replenishment activities would not be expected to impact any contaminant plumes, even those located outside of this area. (Todd Groundwater, 2015; see **Appendix L**).

Proposed Project operations would not result in a significant impact to groundwater contamination due to its location on a known hazardous materials site. (Todd Groundwater, 2015). Proposed Project operations would not exacerbate existing groundwater contamination or cause plume of contaminants to migrate (Todd Groundwater, 2015).

All Other Project Components

None of the other project components would be located on designated known hazardous materials sites. Therefore, no impact associated with the siting of these facilities on a known hazardous materials site would occur. Compliance with relevant safety regulations would ensure the impact is less-than-significant. No further mitigation measures are required as a significant impact has not been identified.

Impact Conclusion

Proposed Project operations would not result in a significant hazard to the public or environment due to its location on or near a site that is listed as a hazardous materials site.

4.9.4.5 Cumulative Impacts

The geographic scope for the hazards and hazardous materials cumulative impact analysis consists of the Proposed Project component sites, and the immediate vicinity surrounding each of these sites, including roadways. Based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis** (**Section 4.1, Introduction**), and **Figures 4.1-1 rev, Cumulative Projects Location Map** and **4.1.2, Monterey Peninsula Water Supply Project Location Map**, no cumulative projects would be located sufficiently close to the Proposed Project construction sites such that a combined impact from hazards and hazardous material would occur except for the Monterey Peninsula Water Supply Project (MPWSP), with the small, 6.4 mgd desalination plant, the City of Salinas Solar Project, and projects within the City of Marina as discussed below.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[13] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a

[13] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR projects. The overall estimated construction schedule would be from June 2016 through March 2019 for the combined projects, during which time the construction schedules could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.

- Overall Cumulative Projects: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (**see Section 4.1, Introduction**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project

Combined Impacts of Proposed Project Plus MPWSP (with the 6.4 mgd Desalination Plant). The current construction schedules for the Proposed Project Facilities and the CalAm Facilities of the MPWSP (small desalination project) overlap for a period of approximately 18 months, and it is possible that construction locations would be in proximity to one another within portions of Marina and Seaside. Both the Monterey Peninsula Water Supply Project desalination plant and the Proposed Project Treatment Facilities at the Regional Treatment Plant would be located in the unincorporated area of Monterey within a distance of approximately 0.5 miles.

Table 4.9-4 provides a summary of potential impacts related to hazards and hazardous materials, and significance determinations at each Proposed Project component site. Accidental release of hazardous materials could occur during construction if unknown contaminated soil or groundwater were encountered during construction, especially at locations in proximity to known sites or sites undergoing remediation. Construction of both the Proposed Project and the MPSWP would involve transport and use of hazardous materials, but both projects would be required to comply with the existing and future laws and regulations governing the use, transport, and disposal of hazardous materials, and thus, potential cumulative impacts would not be significant.

Once constructed, the pipeline components of both the Proposed Project and the MPSWP would be underground and would have no impacts pertaining to hazards or hazardous materials. Thus, there would be no significant cumulative hazards and hazardous materials impacts resulting from the two projects.

Overall Cumulative Impacts. This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (Also see **Figure 4.1-2** in **Section 4.1, Introduction**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects could result in impacts that combine with the impacts of the Proposed Project.

Operation of the Proposed Project would not result in hazardous emissions, and thus, would not contribute to cumulative impacts pertaining to hazardous emissions within 0.25 miles of a school. Similarly, the Proposed Project would not result in new structural development that would result in airport hazards or safety issues. Thus, the Proposed Project would not contribute to potential cumulative impacts related to airport hazards. Finally, the Proposed Project operations would not increase wildland fire risks or impair implementation of an emergency access plan. Thus, cumulative impacts related to this topic are not further addressed as the Proposed Project would not contribute to a cumulative impact related to hazardous emissions, airport hazards, wildland fire hazards or emergency access.

The following identifies other projects by geographic area that may have overlapping construction activities.

- Salinas Area – Salinas Pump Station Diversion and Salinas Treatment Facility sites. The pump station site is located within the City of Salinas, and the treatment plant site is located nearby within the unincorporated area of the county. No cumulative projects have been identified in the vicinity of these two Proposed Project sites, except for several development projects along Highway 68 to the west of the project sites (#6,7,8) within the Monterey County area. The exact timing of construction is not known, but due to the distance from the Proposed Project sites (about three miles to #6 and #8 [Harper Canyon and Ferrini Ranch] as shown on **Figure 4.1-1 rev**[14]),and the other projects, there would be no overlapping cumulative impacts related to transport or use of hazardous materials during construction or operations. Furthermore, cumulative projects would be required to comply with the existing and future laws and regulations governing the use, transport, and disposal of hazardous materials.
- The City of Salinas Solar Project (#34) includes construction of solar panels on approximately 18 acres at the existing Salinas Treatment Facility. The project would be constructed starting in 2015 and ending in 2016, which would not completely coincide with construction at the Salinas Pump Station Diversion site, which is planned to begin in the summer of 2016. Should an overlap of construction schedules occur, it is likely that the installation of solar panels would be nearing completion. This type of project (solar panels and related facilities) does not regularly involve hazardous materials transport. Therefore, no significant cumulative construction or operational impacts would occur in this area.
- City of Monterey - Lake El Estero Diversion site and CalAm Distribution System Improvements. These two Project sites are located within the City of Monterey. No cumulative projects have been identified in the vicinity of these Proposed Project sites with construction schedules known to overlap with construction of the Proposed Project. There would be no overlapping cumulative impacts related to transport or use of hazardous materials during construction or operations.
- Unincorporated Monterey County – Treatment Facilities at the Regional Treatment Plant site and northern segment of the Product Water Conveyance Pipeline. Cumulative projects in the vicinity include:
    - The MPSWP Desalination Plant) (#1) would be located northwest of the existing Regional Treatment Plant site and is currently undergoing environmental review. Construction and operation of the CalAm Facilities combined with the Proposed Project would not result in a significant cumulative impact relating to transport, storage and use of hazardous materials because both projects would be governed by the same statutory and regulatory requirements for use, transport, and disposal of hazardous materials that reduce the risk of hazardous conditions to less than significant (individually and if both are implemented).

[14] See **Figure 4.1-1rev** at the end of Chapter 5

- The Salinas Valley Water Project Phase 2 (#2) would be located 1.6 miles from the Proposed Project Product Water Conveyance pipeline; the construction schedule for these proposed facility improvements would not coincide with the Proposed Project. Because the construction schedules do not coincide, no combined construction-related impacts would occur.
- East Garrison Specific Plan (#3) at the former Fort Ord consists of a mixed-used development project, consisting of residential, commercial and institutional uses, and construction started on this project in 2014 and will continue through 2020. The Proposed Project component closest to this project are facilities at the Regional Treatment Plant, which is located more than two miles from the East Garrison site. Due to the distance between the two sites, there would be no combined construction or operational impact relating to transport, storage and use of hazardous materials. Further, both projects would be governed by the same statutory and regulatory requirements that reduce the risk of hazardous conditions to less than significant (individually and if both are implemented).

- City of Marina – Segments of the Product Water Conveyance Pipeline and Booster Pump Station. Cumulative projects in the vicinity include:
  - Two water projects - The Regional Urban Water Augmentation Desalination and Recycled Water Projects, (#18,19) are both proposed by the Marina Coast Water District. Both projects would be located south of the Regional Treatment Plant and north of the City of Marina. The Desalination project would be located on the Armstrong Ranch property that is immediately adjacent to the RUWAP Product Water Conveyance alignment.
  - California State University Monterey Bay (CSUMB) Projects – Student housing (#16) and an academic building (#17) are planned at the CSUMB campus in proximity to the proposed RUWAP Booster Pump Station location.
  - Four development projects - The Dunes on Monterey Bay (#10) – a mixed-use residential, hotel, retail and office developments is scheduled for buildout in 2020 and an affordable housing project (#14) is estimated for construction in 2015. Another housing project (#15) and a mixed use project (#12) do not have an identified construction schedule.

  Segments of the Product Water Pipeline (RUWAP option) would be in proximity to the proposed Marina Coast Water District Regional Augmentation Water Projects: Desalination (#18) and Recycled Water Project (#19). However, the construction schedule has not been identified for either of these projects. Construction of segments of the proposed Product Water Conveyance Pipeline (RUWAP alignment option) and the RUWAP booster station would be in proximity to the planned CSUMB projects (#16, #17). According to the currently available information, the CSUMB housing project (#16) would be constructed prior to construction of the Proposed Project, and the timing of construction of the CSUMB academic building (#17) is not known. The Dunes on Monterey Bay (#10) is being constructed adjacent to a segment of the Proposed Project's Product Water Conveyance pipeline (RUWAP and Coastal Alignments). Although the projects may have overlapping construction schedules, or are in proximity, the projects when combined would not result in significant cumulative impacts related to hazards and hazardous materials because all of the projects would be required to comply with applicable federal and state standards pertaining to transport, use and storage of hazardous materials.

- City of Seaside – Segments of the Product Water Conveyance Pipeline, the Injection Well Facilities site and segments of the CalAm Distribution System Improvements' pipelines would be located in Seaside. The following cumulative projects would be in the vicinity of the Proposed Project within the City of Seaside: West Broadway Urban Village Specific Plan (#21); the Seaside Resort expansion (#22); Monterey Downs and Horse Park (#24), and the Seaside Groundwater Basin Aquifer Storage and Recovery Project (#27, #28) adjacent to the Injection Well Facilities, of which Phase 1 and Phase 2 were completed in 2014. The schedule for construction of the West Broadway Urban Village Specific Plan, the Seaside Resort expansion, and the Monterey Downs and Horse Park is unknown.
- The Fort Ord Dunes State Park Campground Project (#34) that is scheduled for construction in 2015 is also located in this vicinity. The southern segment of the Product Water Conveyance Pipeline (Coastal Alignment option) would be located approximately 1,000 feet east of the Fort Ord Dunes State Park Campground project site. Given this distance, any overlapping construction would not result in cumulative impacts related to transport and use of hazardous materials as the two sites are separated by distance and topographical changes. Upon completion of construction, there would be no cumulative impacts during operation of cumulative projects as none would use hazardous materials.

Cumulative Impact Conclusion

Construction of the MPWSP Transmission Pipeline and GWR Product Water Conveyance Pipeline Coastal Alignment may have overlapping or close construction schedules, but the two projects would not result in significant cumulative impacts related to hazards or hazardous materials. Construction-related transport and use of hazardous materials also would occur in the proximity to other cumulative projects, including the MPSWP desalination plant, the City of Salinas Solar Project and projects within the city of Marina. However, all projects would be subject to compliance with applicable federal and state laws, and the combined projects would not result in significant cumulative impacts.

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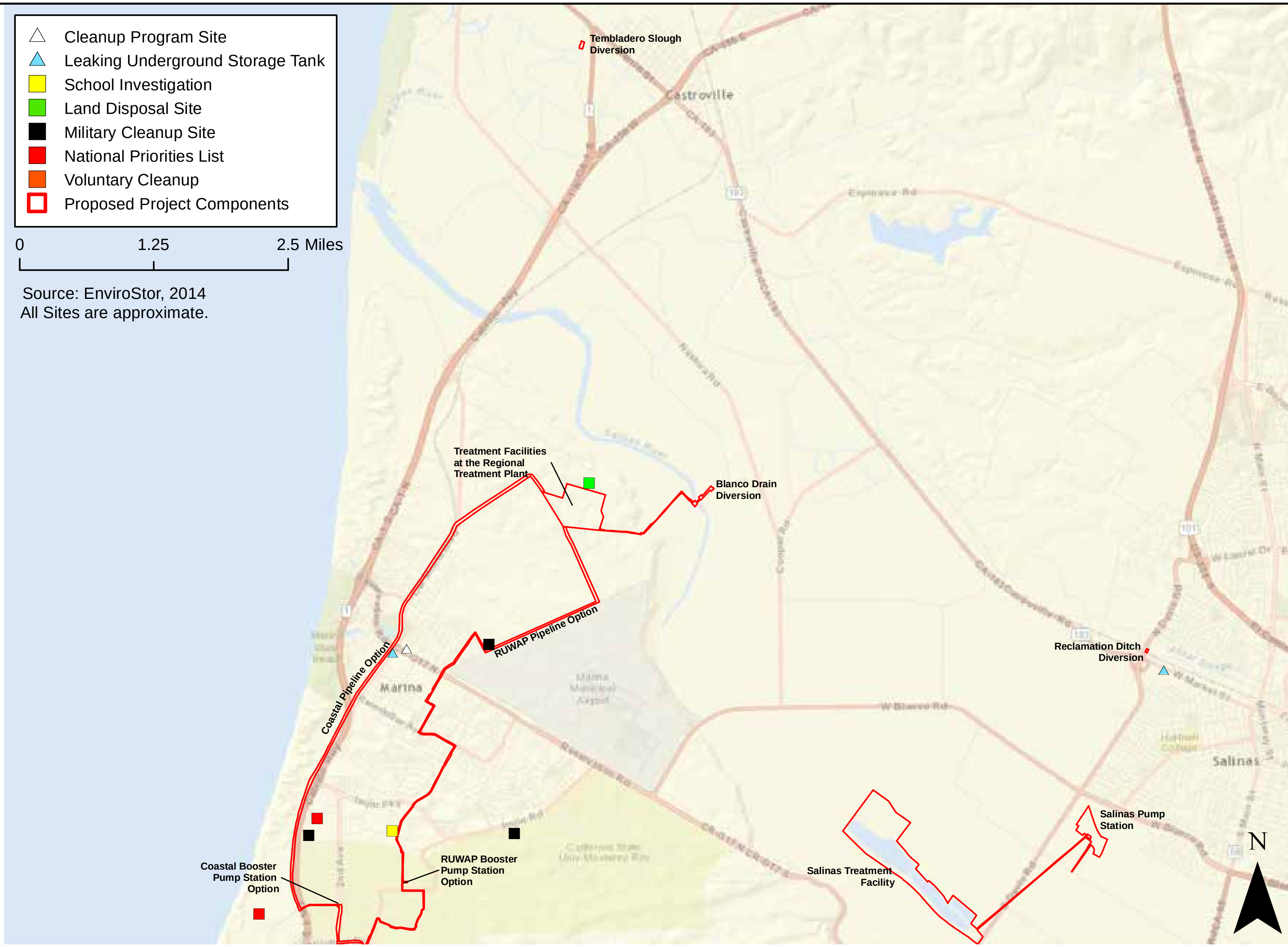


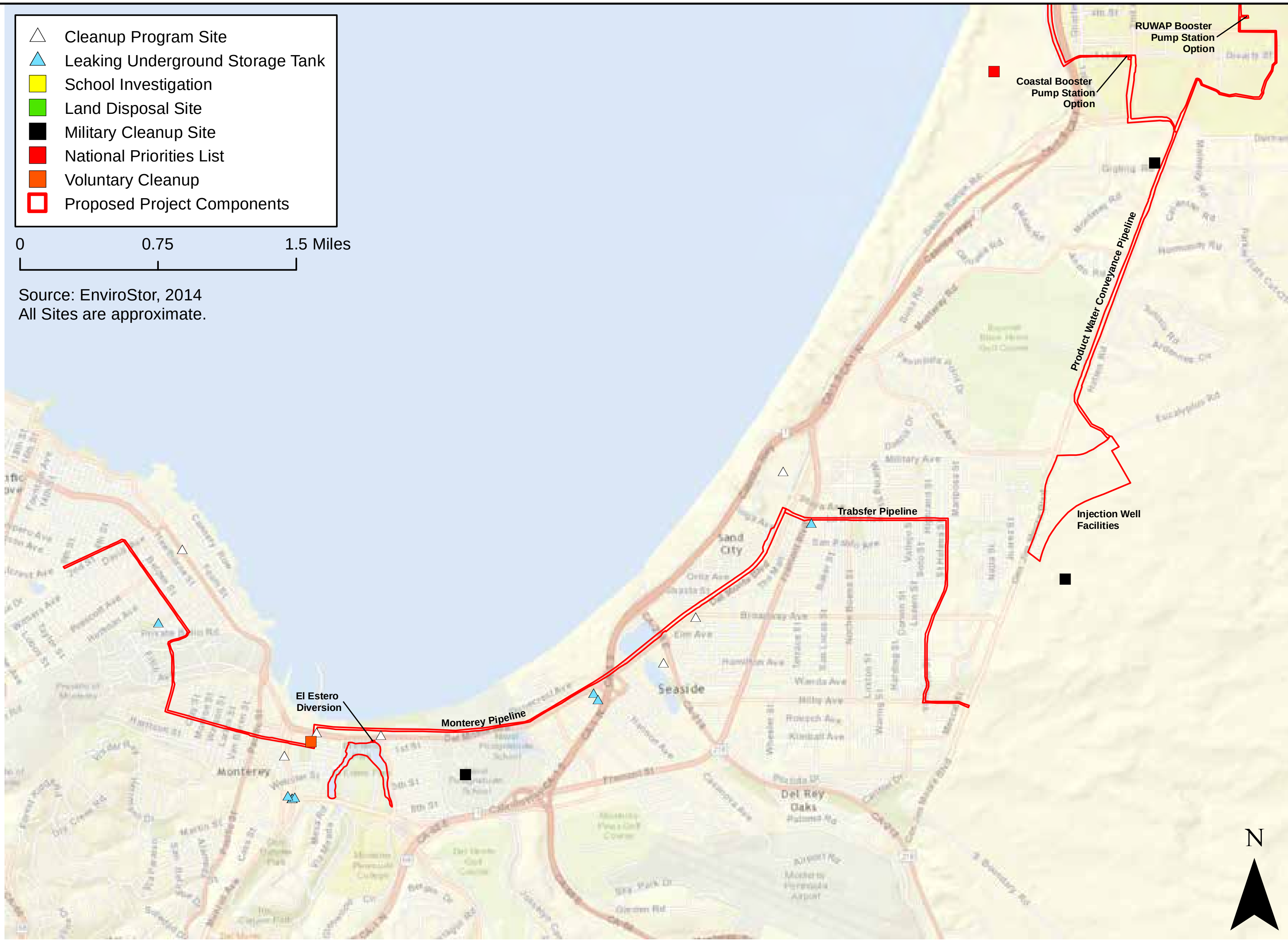
Source: EnviroStor Database, 2014

Hazardous Materials Release Sites (Northern)

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.9-1



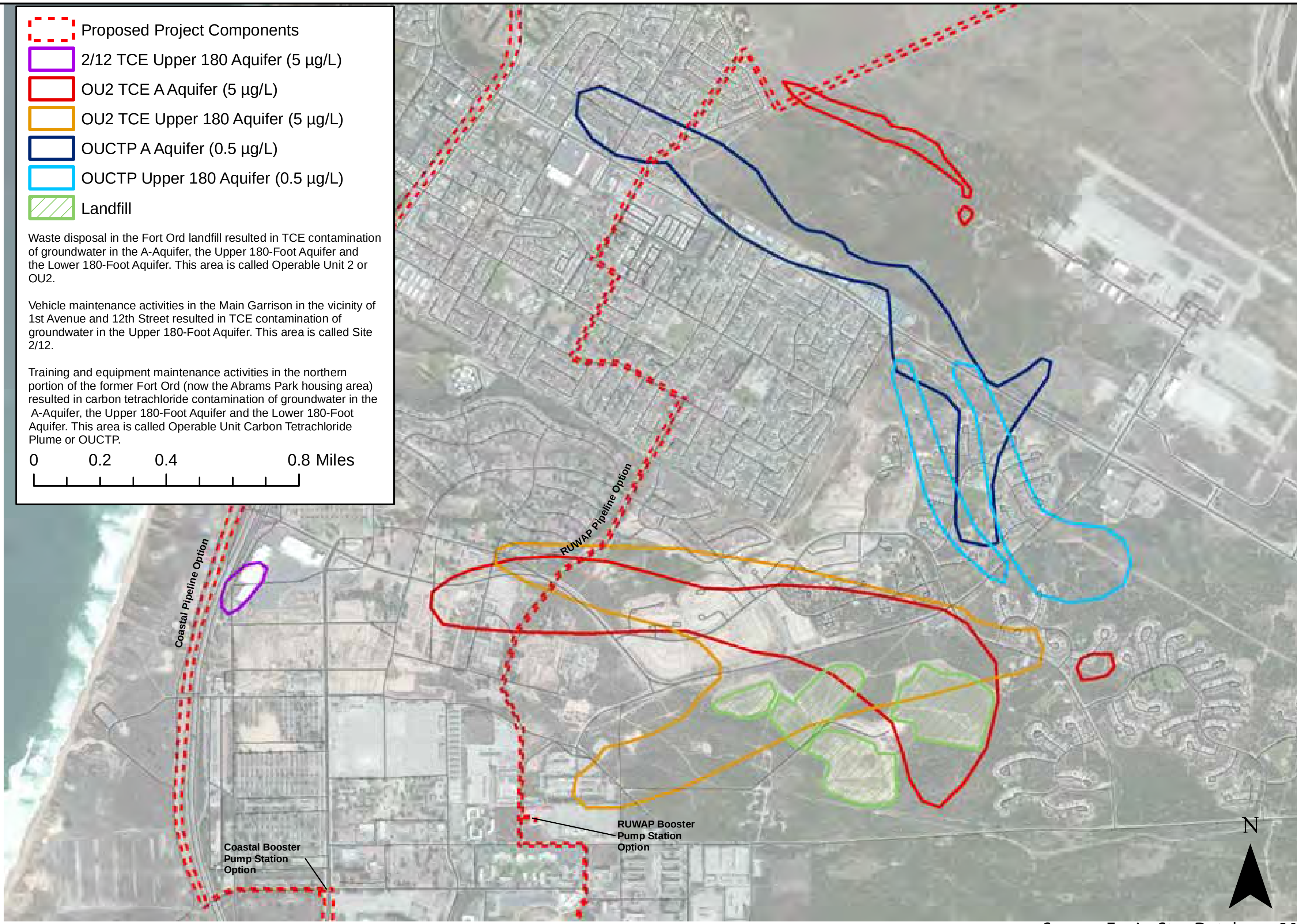
Source: EnviroStor Database, 2014

Hazardous Materials Release Sites (Southern)

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.9-2



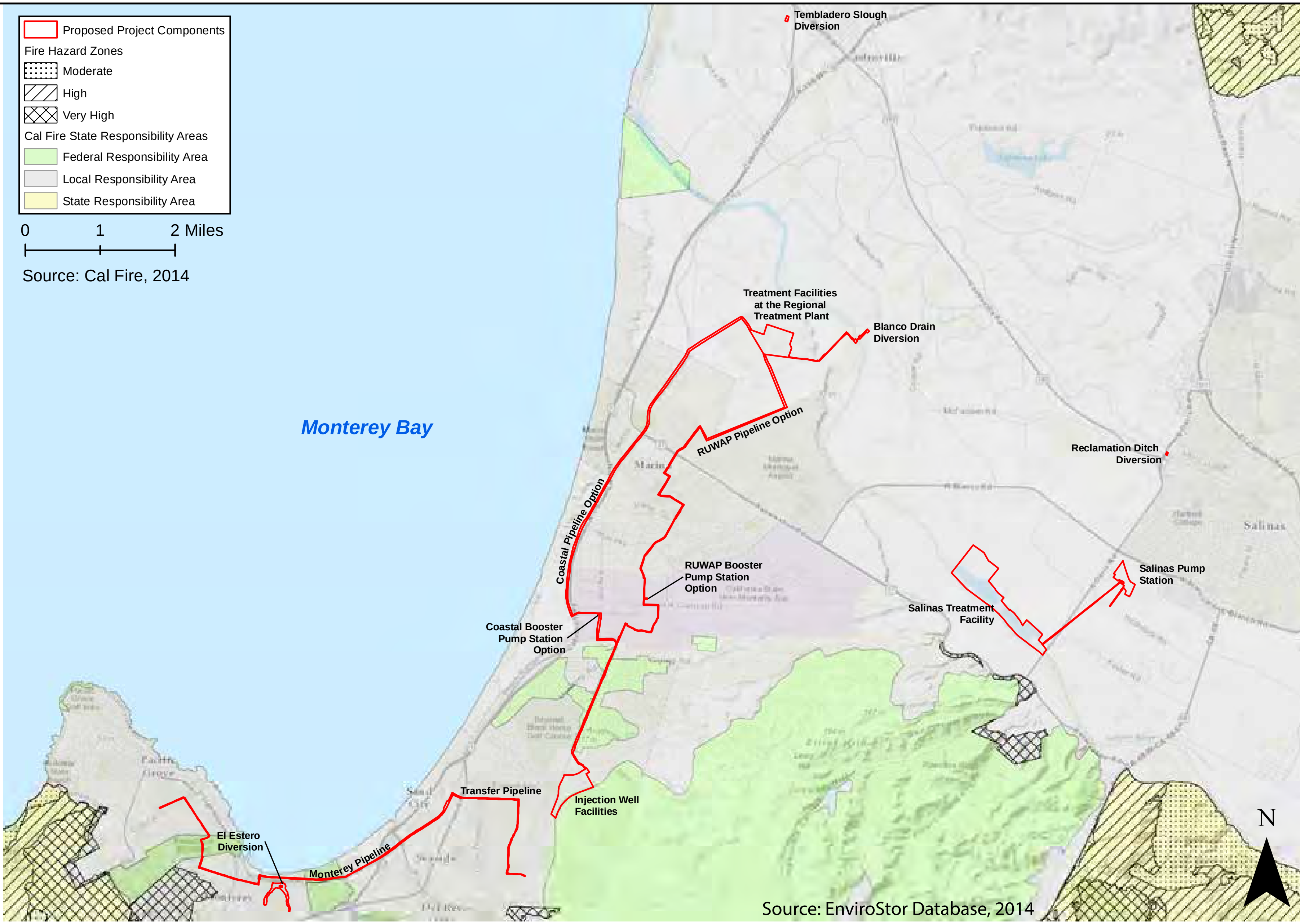
Source: EnviroStor Database, 2014

Location of Existing Groundwater Plumes

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 4.9-3



Fire Hazard Responsibility Zones

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.9-4

4.10 HYDROLOGY AND WATER QUALITY: GROUNDWATER

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4.10.3 Regulatory Framework	4.10-3 Monthly Baseline (No-Project, 2017) Salinas Treatment Facility Water Balance	4.10-3 Salinas Treatment Facility and Existing Vicinity Wells
4.10.4 Impacts and Mitigation Measures	4.10-4 Source of Groundwater Quality Data	4.10-4 Hydrogeologic Cross-Section of Salinas Treatment Facility
4.10.5 References	4.10-5 Wells Sampled in 2013-2014 Proposed Project Field Program	4.10-5 rev Seaside Groundwater Basin
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	4.10-16 Comparison of Water Quality in Salinas Treatment Facility Ponds and Groundwater	

4.10.1 Introduction

This section assesses the environmental impacts of the Proposed Project on groundwater resources, including on water quantity, storage, water levels, and water quality of the Salinas Valley Groundwater Basin and Seaside Groundwater Basin (hereafter referred to as "Seaside Basin"). A discussion of cumulative impacts is provided at the end of the section. The section is based on the following reports prepared as part of project development and EIR preparation:

- *Recharge Impacts Assessment Report, Pure Water Monterey Groundwater Replenishment Project* (Todd Groundwater, 2015a), included in **Appendix L**, which includes the following technical memoranda as appendices:
  - Appendix A: *Technical Memorandum, Selection of Recharge Location for Proposed Project, Seaside Basin* (Todd Groundwater, 2014)
  - Appendix B: *Technical Memorandum, Groundwater Replenishment Project Development Modeling* (HydroMetrics WRI, 2013)
  - Appendix C: *Technical Memorandum, Proposed Project EIR: Project Modeling Results* (HydroMetrics WRI, 2015)
- *Technical Memorandum for the Pure Water Monterey Groundwater Replenishment Project: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River* (Todd Groundwater, 2015b), included in **Appendix N**;
- *Hydrogeologic Field Investigation: MRWPCA Monitoring Well 1 (MW-1) Installation, Groundwater Quality Characterization, and Geochemical Assessment, Monterey Peninsula Groundwater Replenishment (GWR) Project* (Todd Groundwater, 2015c);
- *Pure Water Monterey Groundwater Replenishment Project Water Quality Statutory and Regulatory Compliance Technical Report* (Nellor Environmental Associates, February 2015), included in **Appendix D**; and
- *Cumulative Projects Modeling Results* (HydroMetrics WRI, 2015), included in **Appendix N.**

Public and agency comments related to groundwater resources were received during the public scoping period in response to the Notice of Preparation, and are summarized below:

- Address discharge rate and natural capacity of Seaside aquifer and flow rate between injection and extraction wells.
- Determine the current residence time of the recharged water as specified by the State.
- Complete groundwater modeling.
- Evaluate both the travel time and volume of water moved between injection and extraction sites in order to determine what portion of injected water can be safely extracted and when.
- Confirm with the State Water Resources Control Board (SWRCB), Division of Drinking Water (formerly, California Department of Public Health) the required residence time between injection and extraction for all proposed water sources prior to the publication of the Draft EIR.
- Confirm the capacity of the Seaside Basin is sufficient, within that predetermined residence time, for the injection of the Proposed Project purified recycled water.
- Confirm with the SWRCB, Division of Drinking Water (DDW) that the horizontal distance required between points of injection and extraction are adequate in the event those two modes of operation are simultaneously occurring.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report**.

4.10.2 Environmental Setting

This section describes the existing conditions of the Salinas Valley Groundwater Basin and the Seaside Basin relevant to the Proposed Project. **Figure 4.10-1**, **Regional Groundwater Basins and Subareas Map,** shows the relationship between the two groundwater basins and the Proposed Project components that overlie each basin. The components of the Proposed Project that overlie the Salinas Valley Groundwater Basin include the Source Water Diversion and Storage sites (all except the Lake El Estero Diversion site in the City of Monterey); the Treatment Facilities at the Regional Treatment Plant; and the northern portions of the Product Water Conveyance system, including both RUWAP and Coastal pipeline alignments and the Booster Pump Stations. The Proposed Project components that overlie the Seaside Basin include the Product Water Conveyance Pipeline along General Jim Moore Boulevard; the pipeline connection to and the entire Injection Well Facilities; the CalAm Distribution System: Transfer Pipeline: and a portion of the CalAm Distribution System: Monterey Pipeline. The Lake El Estero Diversion site does not overlie a groundwater basin from which water is extracted for municipal water supply uses. Specific components of the Proposed Project would have potential implications for these groundwater basins. The existing conditions related to specific Proposed Project components are described in detail in the following sections after the overview of the regional groundwater setting for each groundwater basin.

4.10.2.1 Terminology and Concepts

Groundwater is the water occurring beneath the earth's surface and hydrogeology refers to the study of how that water interacts with the underlying geologic units of rock and soil. Most groundwater occurs in material deposited by streams lakes, and oceans, generally called alluvium. Alluvium consists of sand and gravel deposits and finer-grained deposits such as clay and silt. Fluvial deposits, although commonly generically included with alluvium, more specifically refer to deposits laid down by rivers and streams as a result of bank erosion, where the material is transported and redeposited in the form of bars, points, and flood plains.

Coarse materials such as sand and gravel deposits usually provide the best storage capability for water and, when saturated with water, are termed aquifers. Finer-grained clay and silt deposits are relatively poor for water storage and use, and are referred to as aquitards, in that they restrict or impede the vertical migration of groundwater or infiltrated surface water. Aquifers can extend over many square miles and are referred to as basins. A groundwater basin is defined as an aquifer or a stacked series of aquifers with reasonably well-defined boundaries in a lateral direction and a definable bottom. California's groundwater basins typically include one aquifer or a series of aquifers with intermingled aquitards.

In general, groundwater basin boundaries are determined by physical attributes such as the lateral extent of aquifers, boundaries to flow such as bedrock, and groundwater divides. A groundwater divide, like a surface water divide, separates distinct groundwater flow regions within an aquifer. A divide is defined by a line on either side of which groundwater moves in divergent directions.

Depending on the continuity of the permeable layers, groundwater may be present under unconfined, semiconfined, or confined conditions. The water table in an unconfined aquifer is under the pressure exerted by the overlying water and atmospheric pressure, and groundwater under these conditions flows from areas of high groundwater elevation to areas of low groundwater elevation. Localized water tables, or perched aquifers, also have the ability to transmit and store groundwater within the groundwater basins due to the presence of impermeable and discontinuous layers that are present in the shallow alluvial deposits. Under semiconfined and confined conditions, vertical flow from or to the aquifer is restricted by overlying aquitards. Groundwater under confined or semiconfined conditions flows from areas of high pressure to areas of low pressure and is influenced by the pressure, weight, and confining nature of overlying sediments; water entering the aquifers from areas of recharge; and water leaving the aquifers through natural discharge or through the pumping of supply wells. The groundwater flow direction is measured by the potentiometric surface – an imaginary surface that is analogous to an actual water surface exposed to atmospheric pressure. When a well penetrating a confined aquifer is pumped, internal aquifer pressure is reduced, which can increase the flow of water towards the well.

4.10.2.2 Overview of Project Area Groundwater Basins and Aquifers

The California Department of Water Resources (DWR), in its Bulletin 118 (*California Groundwater*), has delineated the hydrogeologic boundaries of groundwater basins in California; both the Salinas Valley Groundwater Basin and the Seaside Basin are identified in Bulletin 118 (California DWR, 2015). These two groundwater basins are used for water supply and are located in the geographic area of the physical components of the Proposed Project and may be affected by the Proposed Project construction and/or operation. The hydrogeologic boundaries determined by the DWR have been subsequently refined and adjusted based on new information, groundwater basin management operations, and results of updated hydrogeologic studies. The DWR (2003), Kennedy/Jenks (2004), the Monterey County Water Resources Agency (MCWRA, 2006) and the Monterey Peninsula Water Management District (MPWMD) working with the Seaside Watermaster, each have provided updated interpretations of the basin boundaries, as well as the delineation of subareas or subbasins within some basins. In addition, recent studies have further adjusted basin boundaries and subdivided basins into subareas or subbasins based on groundwater flow patterns.

4.10.2.3 Salinas Valley Groundwater Basin and Study Area

The main part of the Salinas Valley Groundwater Basin ~~is~~ occupies about ~~560~~ 520 square miles beneath the floor of the Salinas Valley (MCWRA, 2006). The basin is a structural trough that ~~and~~ has been filled over geologic time with up to 10,000 to 15,000 feet of Tertiary[1] and Quaternary[2] period marine and terrestrial sediments (California DWR, 2004b). The main part of the Salinas Valley Groundwater Basin has been divided into four subareas referred to as the 180/400-Foot, East Side, Forebay, and Upper Valley Subareas or Subbasins, based on sources of recharge and stratigraphy (California DWR, 2003; MCWRA, 2006, 2013). The subbasins in the project area are shown on **Figure 4.10-1**. The DWR has redesignated the previously named “Pressure” Subarea as the “180/400-Foot Aquifer”

[1] Tertiary time is from 1.8~~6~~ to 65 million years ago.
[2] Quaternary time is from the present to 1.8~~6~~ million years ago.

Subbasin, and this EIR section uses this updated terminology (California DWR, 2003). The 180/400-Foot Aquifer Subbasin also includes shallower (Dune Sand Aquifer along the coast and Perched "A" Aquifer inland) and deeper (900-Foot Aquifer) aquifers, as discussed below. DWR (2003) recognizes four additional subbasins around the periphery of the main part of the basin. These include the Seaside and Corral de Tierra subbasins between Salinas and Monterey. The Seaside Basin as used in this report (see Section 4.10.2.4) corresponds to parts of DWR's Seaside and Corral de Tierra subbasins.

180/400 Foot Aquifer Subbasin and Aquifers

The 180/400-Foot Aquifer Subbasin encompasses approximately 130 ~~140~~ square miles, beginning at the coast and extending southeastward and inland to around the city of Gonzales. The hydrologic boundaries of the Subbasin are generally the East Side Subarea to the northeast, the Seaside Basin to the southwest, and the Pacific Ocean to the northwest at the coast. The northeastern boundary between the 180/400-Foot Aquifer Subbasin and East Side Subbasin is complex and is defined in recent studies as the transition from fluvial (180/400-Foot Aquifer Subbasin) to alluvial (East Side Subbasin) depositional environments (Kennedy/Jenks, 2004). As discussed in the groundwater flow section below, groundwater flow in the coastal area is currently eastward from the coast through the 180/400-Foot Aquifer Subbasin to the East Side Subbasin. This flow pattern has resulted in seawater intrusion in this area (MCWRA, 2012b).

The 180/400-Foot Aquifer Subbasin includes three primary aquifers: the 180-Foot Aquifer, the 400-Foot Aquifer, and the 900-Foot (Deep) Aquifer, named for the average depth at which they occur (Kennedy/Jenks, 2004; Geoscience, 2008). In addition, portions of the overlying Dune Sand deposits along the coast are saturated and are referred to as the Dune Sand Aquifer, although most of the water is saline[3] to brackish[4] due to proximity with the ocean and seawater intrusion (Kennedy/Jenks, 2004) and is consequently not used as a water supply. Also, the 180-Foot Aquifer is overlain by the Salinas Valley Aquitard, which is a fine-grained confining layer that extends fairly continuously throughout the 180/400-Foot Aquifer Subbasin. The Shallow Aquifer consists of relatively thin and locally discontinuous deposits of sand and silt overlying the Salinas Valley Aquitard.

Water-bearing geologic formations present within the 180/400-Foot Aquifers from shallow and younger to deeper and older include the Quaternary Alluvium (including the Dune Sands and Terrace Deposits), Aromas Sand, Paso Robles Formation, Purisima Formation, Santa Margarita Sandstone, and Monterey Formations. Not all geologic units are present in all areas.

The location of the 180-Foot Aquifer within the Salinas Valley Groundwater Basin is variable and spans more than one stratigraphic or geologic unit. Various interpretations have correlated the aquifer to different combinations of stratigraphic units depending on the investigator, the area under study, and the investigator's interpretation: lower Valley Terrace deposits and upper Aromas Sand by the DWR (2004a); the Paso Robles Formation by Kennedy-Jenks (2004); Valley Fill by Harding ESE (2001); and lower Valley Fill Upper Aromas Sands Formations by Green (1970). The 180-Foot Aquifer has been correlated with the lower portions of the Quaternary Alluvium and the upper portions of the Aromas Sand

[3] Saline water is water that has the approximate salinity of seawater, about 35 parts per thousand or 35,000 parts per million.
[4] Brackish water is water that has more salinity than fresh water, but not as much as seawater. Thus, brackish water covers a range of salinity regimes and is not considered a precisely defined condition. The salinity of brackish waters can vary considerably over space and/or time.

(California DWR, 2004b; Geoscience, 2008, 2013a, 2014a). The lenticular shapes of the sand and gravel bodies that make up the 180-Foot Aquifer indicate their fluvial (river) depositional origin with the more laterally extensive units representing fluvial channels that migrated and shifted over time (Kennedy/Jenks, 2004). The 180-Foot Aquifer has been geophysically mapped out into the Monterey Bay where the unit is open to the ocean several miles offshore (Green, 1970; Eittreim et al., 2000).

180/400-Foot Aquitard

As shown on **Figure 4.10-2, Salinas Valley Groundwater Basin Conceptual Cross-Section in Project Vicinity**, the 180- and 400-Foot Aquifers are separated by the 180/400-Foot Aquitard (Kennedy/Jenks, 2004). The unit is commonly 50 to 100 feet thick, is in some areas as much as 200 to 250 feet thick, and may be absent in some areas.

400-Foot and 900-Foot Aquifers

The underlying 400-Foot Aquifer has been correlated with the Aromas Sand and the upper Paso Robles Formation (Geoscience, 2008). A blue marine clay separates the 400-Foot Aquifer from the underlying 900-Foot (Deep) Aquifer (California DWR, 2004b; Geoscience, 2008). The 900-Foot Aquifer has been correlated with the Paso Robles Formation, Purisima Formation, and Santa Margarita Sandstone (Yates et al., 2005).

East Side Subbasin and Aquifers

The East Side Subbasin is located inland to the northeast of the 180/400 Foot Aquifer Subbasin and encompasses about 90 ~~125~~ square miles along the northeastern side of the Salinas Valley from Gonzales to east of Castroville. The hydrogeology and groundwater behavior is markedly different in the East Side Subbasin due to the different depositional environments and geology (Kennedy/Jenks, 2004). The transition zone between these subbasins has been defined based on the transition from predominantly alluvial deposits within the East Side Subbasin to the fluvial deposits that make up the 180- and 400-Foot Aquifers. The clay layers noted in the 180- and 400-Foot Aquifers pinch out moving inland into the East Side Subbasin. Although some previous investigators noted limited evidence for the designation of East Side Subbasin shallow and deep aquifer zones within the East Side Subbasin that generally correlated with the 180- and 400-Foot Aquifers, subsequent studies concluded that no evidence exists for a discrete confining layer that defines a deep and a shallow zone (Kennedy/Jenks, 2004). It is more likely that the degree of confinement increases with depth as a result of the interbedded nature of the stratigraphy. As noted above, the Salinas Valley Aquitard does not extend much into the East Side Subbasin (Durbin et al., 1978). Water-bearing formations present within the East Side Subbasin include Quaternary Alluvium (both alluvial fan and fluvial deposits), the Aromas Sand, and the Paso Robles and Purisima Formations (California DWR, 2004b).

The hydrologic boundaries of the East Side Subbasin are generally the 180- and 400-Foot Aquifers to the southwest, the Gabilan Range along the northeast, and a subarea referred to as the Forebay Subbasin to the south and southeast.

Salinas Valley Groundwater Basin Flow and Occurrence

~~A groundwater basin is much like a surface water reservoir. When water is removed from storage, the water level drops until the supply can be replenished by inflow or recharged by rainfall or stream flow. Recharge comes from the infiltration of water into the subsurface and the migration of water downward into the aquifers. Along the coast, recharge can also come~~

~~from the ocean, which in some cases, results in the intrusion of seawater into coastal aquifers. When water is extracted from the basin, some inflows, from head-dependent boundaries such as the ocean and the Salinas River, increase and thereby tend to counteract the water-level decline.~~

A groundwater basin functions as a large storage container with inflows and outflows. Unlike surface water reservoirs, however, flows into and out of a basin and flow within a basin are subject to physical and practical limitations. Because water must move through tiny pores between mineral grains that comprise the basin fill deposits, flows are much slower than in surface streams. Substantial amounts of recharge to water supply aquifers derive from downward percolation of rainfall and applied irrigation water that infiltrate through the ground surface. This source of recharge can be greatly reduced if extensive layers of clay are present, such as in the 180/400-Foot Aquifer subarea. If the water table is near the ground surface, groundwater can be hydraulically coupled vertically to surface water, with flow moving in either direction depending on the relative elevations of the stream surface and water table. Thus, groundwater pumping near the Salinas River lowers the water table and thereby increases the rate of percolation from the river. Similarly, groundwater pumping near the coast can lower groundwater levels to below sea level and cause saltwater in offshore parts of the aquifer to flow inland (seawater intrusion). Unlike the surface of a lake or reservoir, the water table (or potentiometric surface in deeper aquifers) is not flat. When a well pumps, it creates a local depression in that surface, which causes groundwater from surrounding areas to flow toward the well. A group of pumping wells can cause a regional water-level depression commonly referred to as a pumping trough. A large trough is present in the East Side subarea, for example. Another difference between groundwater basins and surface reservoirs is that aquifer permeability is neither uniform nor in some cases permanent. Alluvial textures within the Salinas Valley deposits range from clay to gravel, and most groundwater movement is through the relatively coarse-grained deposits. Also, fine-grained deposits can compress when groundwater levels are lowered by pumping from adjacent aquifers. This compaction yields a one-time release of stored water but also results in subsidence at the land surface. Seawater intrusion, subsidence, dry wells and desiccation of riparian vegetation impose practical limitations on the amount of groundwater that can be pumped from a basin. Whereas a surface reservoir can usually be drawn down to nearly empty without significant adverse effects, lowering of water levels in a groundwater basin is commonly limited to tens of feet or in favorable areas perhaps more than 150 feet before adverse effects become unreasonable.

Before extensive pumping began in the Salinas Valley, the regional groundwater flow was toward the coast from inland areas. Historical hydrogeologic studies have shown a regional decline in the groundwater table dating back to the 1920s, which resulted in a sea to land groundwater gradient in some coastal areas. Water-level data from existing wells within the 180-Foot Aquifer in the study area indicates that the direction of groundwater flow is from the ocean southeast toward the City of Salinas and when it reaches the City of Salinas area, groundwater in both the 180-Foot and 400-Foot Aquifers flows towards a groundwater depression north of Salinas (Geoscience, 2013).

Along the coast, flow in both the 180-Foot and 400-Foot Aquifers is inland and has resulted in seawater intrusion, as discussed in the section titled “Seawater Intrusion in the Salinas Valley Groundwater Basin” below.

Salinas Valley Groundwater Basin Recharge

Groundwater recharge in the Salinas Valley Groundwater Basin occurs due to percolation of rainfall, river and stream infiltration, and agricultural irrigation and other return flow, including enhanced groundwater recharge.[5] The capability of an overlying formation to provide a pathway for recharge depends on numerous factors. For example, recharge from direct percolation depends on the absence of near-surface confining and semiconfining clay layers that can impede the downward flow of water, as is the case in areas where the Salinas Valley Aquitard restricts the downward migration of water (see **Figure 4.10-2, Salinas Valley Groundwater Basin Conceptual Cross-Section**). Similarly, the amount of recharge from underflow depends on the hydrologic interconnections of the water-bearing formations, as well as groundwater extraction occurring in upgradient areas within the basins. Historically, groundwater withdrawal within the Salinas Valley Groundwater Basin has outpaced groundwater recharge of fresh water and has resulted in overdraft[6] and seawater intrusion conditions (Brown and Caldwell, 2014; California DWR, 2004b; MCWRA, 2012a, 2012b; Kennedy/Jenks, 2004; HydroMetrics WRI, 2013).

An accurate accounting of groundwater recharge for the Salinas Valley Groundwater Basin is difficult to compile due to its large size, variations of rainfall each season and the proactive management of recharge activities by the Monterey County Water Resources Agency (MCWRA, 2006). Using DWR basin boundaries, Bulletin 118 provided generalized estimates of groundwater recharge within the Salinas Valley Groundwater Basin and subbasins, of which the Seaside Area was considered a subbasin. DWR estimated the overall basin inflow at 532,000 acre-feet per year (AFY) in the mid-1990's (MCWRA, 2006). However, these estimates do not apply directly to the groundwater basins as they are currently defined and managed by Monterey County. The MCWRA has estimated that in the northern portions of the Salinas Valley, recharge is by infiltration along the channel of the Salinas River (30%) and its tributaries (20%), irrigation return water (40%), and infiltration and precipitation over the valley floor, subsurface inflow, and seawater intrusion (10%) (MCWRA, 2006).

Although many groundwater studies have been conducted throughout the Salinas Valley Groundwater Basin, a collective repository of annual groundwater recharge estimates for the Salinas Valley Groundwater Basin and subareas has not been developed. However, seawater intrusion has been a component of recharge since it was first detected in 1938. Landowners and local water and wastewater agencies have consistently responded to the problem over more than half a century with a series of measures, described below, designed to reduce or work around seawater intrusion:

- Constructing Lake Nacimiento (capacity 377,900 AF) in 1957 and Lake San Antonio (capacity 335,000 AF) in 1967 to augment groundwater recharge to the Salinas Valley Groundwater Basin. Reservoir releases in summer percolate through the Salinas River bed, which helps supply water for pumping and elevates groundwater levels in the Upper Valley and Forebay Subbasins and indirectly helps to repel seawater intrusion at the coast. The operation of the reservoirs increases groundwater recharge by about 30,000 AFY (RMC, 2003).
- Drilling deeper wells in the coastal area—first to the 400-Foot Aquifer and then to the Deep Aquifer.
- Constructing the Salinas Valley Reclamation and Castroville Seawater Intrusion Projects to deliver recycled water to coastal cropland in lieu of pumping groundwater.

[5] Enhanced recharge refers to projects that are intended to accelerate localized recharge such as infiltration basins.

[6] Groundwater overdraft occurs when the groundwater levels are lowered due to excessive pumping at a rate that is greater than natural recharge.

- Constructing the Salinas Valley Water Project to deliver surface water to coastal cropland in lieu of pumping groundwater. This project modified the operation of Nacimiento and San Antonio Reservoirs and installed an inflatable dam in the Salinas River near the coast to divert water for irrigation on nearby cropland.

The Castroville Seawater Intrusion Project (CSIP) is a program that has distributed recycled water from the MRWPCA service area since 1998 (MCWRA, 2006). Tertiary-treated recycled water is produced by the Salinas Valley Reclamation Plant at the MRWPCA Regional Treatment Plant, and delivered to agricultural users within the 180/400 Foot and East Side Subbasins of the Salinas Valley Groundwater Basin, thereby reducing groundwater extraction in those areas. This type of redistribution of water resources provides a form of in-lieu groundwater recharge by effectively reducing groundwater extraction in those areas of the basin that are part of the CSIP area. As of 2014, the CSIP was delivering approximately 15,300 AFY of recycled water to farm lands in the CSIP delivery area.

Additional measures to combat seawater intrusion will be needed in the future, and MCWRA is developing Phase II of the Salinas Valley Water Project, which will capture and use additional Salinas River flows.

Salinas Valley Groundwater Basin Extraction

Within Monterey County, groundwater is the primary source of water supply for municipal and agricultural use. Groundwater extraction is monitored closely and reported on an annual basis for groundwater basins. **Table 4.10-1, Groundwater Extraction Summary for the Salinas Valley Groundwater Basin** summarizes groundwater extraction within the northern Salinas Valley Groundwater Basin from 2008 to 2013.

Table 4.10-1
Groundwater Extraction Summary for the Salinas Valley Groundwater Basin

	2008	2009	2010	2011	2012	2013
180/400 Foot Aquifer Subbasin	130,139	121,165	103,544	105,172	113.898	117,242
Eastside Subbasin	108,696	98,988	91,300	89,052	95,543	97,622

All values in acre-feet (AF)
SOURCE: MCWRA, 2009, 2010, 2011, 2012, 2013, 2014

Salinas Valley Groundwater Basin Quality

In general, groundwater quality in the Salinas Valley Groundwater Basin is influenced by a number of factors including natural geochemical properties and flow within the different hydrogeologic formations, groundwater pumping and induced seawater intrusion, land use practices, and accidental releases of contaminants into the environment. For specific information regarding areas with contaminated soil and shallow groundwater see **Section 4.7, Hazards and Hazardous Materials**.

Seawater Intrusion in the Salinas Valley Groundwater Basin

Seawater intrusion is typically inferred when chloride concentrations detected in groundwater monitoring and production wells are greater than 500 milligrams per liter (mg/L) because these concentrations exceed the California Secondary Maximum Contaminant

Level (MCL) for drinking water.[7] In Monterey Bay, there are offshore ocean outcrops of the 180-Foot and 400-Foot Aquifers a few miles offshore, as identified by Greene (1970). These ocean floor outcrops facilitate the recharge of seawater into those aquifers along the coast when groundwater extraction exceeds onshore recharge. More recent work by Eittreim, et. al., (2000) maps the Purisima Formation farther offshore than the locations of the 180-Foot Aquifer and 400-Foot Aquifer outcrops mapped by Greene. However, Eittreim did not specify correlations, if any, to specific aquifers, and Greene did not specify correlations to specific geologic units. In any case, various reports have confirmed that the 180-Foot and 400-Foot Aquifers do have ocean floor outcrops in Monterey Bay.

The offshore recharge area was investigated in a study that evaluated the mechanisms of seawater intrusion into the Salinas Valley Groundwater Basin, as based on the physical setting of the coastal portions of the aquifer systems and previous groundwater studies on seawater intrusions (Kennedy/Jenks, 2004). The study concluded that the core condition for seawater intrusion into the groundwater basin is the direct hydraulic contact of the aquifers with the Monterey Bay. The secondary condition for seawater intrusion into the 180-Foot and 400-Foot Aquifers is that inland groundwater levels are below sea level in some areas and the normal landward to seaward gradient has been reversed in the 180-Foot and 400-Foot Aquifers since the early 20th century.

Figures 2-9 <u>Revised</u> illustrates the seawater intrusion areas as of 2011-2013 within the 180-Foot and 400-Foot Aquifers, respectively (MCWRA, 2014). The 2011 estimates of seawater intrusion within the 180-Foot and 400-Foot Aquifers indicate that seawater has intruded to a maximum of approximately eight miles and 3.5 miles inland, respectively, inferred from chloride concentrations greater than 500 mg/L. The seawater intrusion has resulted in the degradation of groundwater supplies, requiring urban and agricultural supply wells within the affected area to be abandoned or destroyed (MCWRA, 2001). Seawater intrusion in the Salinas Valley Groundwater Basin was first detected in 1938 and documented in 1946 when the State Department of Public Works (now known as DWR) published Bulletin 52 (California DWR, 2004b).

Additionally, as noted above, the Salinas Valley Groundwater Basin is hydrologically connected to the ocean, thus providing a constant source of both pressure and direct recharge of seawater. Because groundwater elevations along the coast and directly inland have been at or below sea level in the basin, a landward groundwater gradient has developed and induced groundwater recharge from the ocean. The consequence of the overdraft conditions has led to degradation of groundwater quality along the coast within the Salinas Valley Groundwater Basin.

Salinas Treatment Facility: Existing Operations and Groundwater Relationship

Existing operations and infrastructure relevant to the proposed Salinas agricultural wash water diversion is described in this section, along with how those operations interact with groundwater conditions in the area. The City of Salinas (hereafter, Salinas) operates an industrial wastewater conveyance and treatment system that serves approximately 25 agricultural processing and related businesses located east of Sanborn Road and south of U.S. Highway 101. This wastewater collection system is completely separate from the Salinas municipal wastewater collection system and includes 14-inch to 33-inch diameter gravity pipelines that flow to the Salinas Pump Station Diversion site, and then flow into a 42-inch gravity pipeline to the Salinas Industrial Wastewater Treatment Facility (Salinas

[7] This value represents the ~~Recommended~~<u>Upper Range</u> <u>Consumer Acceptance Contaminant Level</u> ~~Range~~ pursuant to Title 22 of the California Code of Regulation, Section 64449(a).

Treatment Facility). Over 80% of the wastewater flows in this system are from fresh vegetable packing facilities (typically, wash water used on harvested row crops). The remainder of flows originates from businesses associated with seafood processing, refrigerated warehousing, manufactured ice, preserves (frozen fruits, jams and jellies) and corrugated paper boxes. For purposes of this EIR, the wastewater is called agricultural wash water or wastewater. The agricultural wash water is conveyed in a pipeline that traverses near the Salinas Pump Station site to the Salinas Treatment Facility located adjacent to the Salinas River, downstream of the Davis Road crossing. The Salinas Treatment Facility consists of an influent pump station, an aeration lagoon, percolation ponds, drying beds, and rapid infiltration beds (or RIBs) to treat, percolate and evaporate the industrial wastewater.

All industrial wastewater entering the ponds passes through a bar screen at the influent pump station, which has a peak design flow of 6.8 mgd. The wastewater is treated using aeration then flows by gravity to three percolation ponds in series (from east to west, Ponds #1 through #3). Water levels must be maintained with no less than 1-foot of freeboard. These water levels are maintained by pumping to drying beds north of Pond 3 and to temporary rapid infiltration basins located between the ponds and the Salinas River. A conceptual process flow schematic of the Salinas Treatment Facility is shown in **Figure 2-13, Salinas Industrial Wastewater Treatment Facility Process Flow Schematic**, in **Chapter 2, Project Description,** and locations of existing infrastructure is shown in **Figure 2-14, Salinas Industrial Wastewater Treatment System Location Map**, in **Chapter 2, Project Description**. **Figure 4.10-3, Salinas Treatment Facility and Existing Vicinity Wells,** shows the locations of the ponds, rapid infiltration beds, drying beds, Salinas River, shallow monitoring wells at the Salinas Treatment Facility, and nearby irrigation wells.

The Salinas Treatment Facility operates year-round, with a peak monthly inflow during summer months of approximately 3.5 to 4.0 mgd. This summer peak corresponds with the peak agricultural harvesting season in the Salinas Valley. In recent years, substantial flows to the Salinas Treatment Facility have continued during the winter months due to the importation of agricultural products from Arizona for processing in the facilities that discharge wastewater to this system.

Baseline Conditions of the Salinas Treatment Facility related to Groundwater

The operating conditions and management of the Salinas Treatment Facility have shifted in recent years due to unusual conditions of high agricultural wash water flows in 2010 through 2013 and low and very low rainfall between 2012 and 2015. In addition, during 2014, the extreme drought and excess agricultural wash water flows led the City of Salinas, MCWRA, and MRWPCA to jointly pursue an emergency diversion (referred to as a "shunt") of the untreated agricultural wash water to the Regional Treatment Plant in lieu of treatment and disposal of that water at the Salinas Treatment Facility. The shunt was conducted between April 1, 2014 and October 31, 2014 and during that time, agricultural wash water was routed to the Regional Treatment Plant for treatment and recycling for delivery to the CSIP area for crop irrigation.[8] In late spring and summer 2014, with no inflows to the Salinas Treatment Facility, the City of Salinas pumped the remaining wash water from main percolation/evaporation ponds (#1, #2, and #3) to the rapid infiltration beds that are between the ponds and the Salinas River to completely empty the ponds by July 2014. Prior to 2014, the ponds had not been emptied for maintenance of the pond bottoms for more than twelve

[8] During this same period (April through July 22, 2014), a small volume of secondary effluent from the Regional Treatment Plant was evaluated as influent to the Advanced Water Treatment Facility demonstration facility.

years (i.e., since emergency repairs were completed in early 2002). As evidenced by the survey of the empty ponds in 2014, the ponds have accumulated silts from airborne particulate matter and waterborne suspended solids; the site is surrounded by agricultural operations that release particulate matter during periodic ploughing and other ground disturbance.

For the purpose of this section, the environmental setting for groundwater in the vicinity of the Salinas Treatment Facility is presented for two baseline scenarios or conditions, each of which is described and presented in full. One environmental baseline for this analysis is the existing conditions in 2013, which represents a reasonable estimate of conditions at the time of publication of the Notice of Preparation. Salinas Treatment Facility operations during 2013 differed from more typical conditions in two respects. First, 2013 was an extremely dry year, which resulted in atypical (i.e., greater than normal) pond evaporation. Second, inflows to the Salinas Treatment Facility have been increasing in recent years and the amount of agricultural wash water sent to the facility is projected to continue increasing in the future.

Another appropriate definition of baseline conditions for CEQA purposes would include agricultural wash water inflows anticipated at the time the Proposed Project goes on-line (assumed here to be 2017) and average rainfall and evaporation conditions. For these reasons, the second baseline scenario represents a condition that includes average rainfall and higher agricultural wash water flows that are reasonably assumed to occur in the year 2017 (the assumed first year of project operations).[9] In **Section 4.10.4**, the environmental impact analysis on groundwater resources of the Proposed Project is presented based on both of these baseline scenarios. That condition is described in the Approach to Analysis in **Section 4.10.4.2**, below. Both the 2013 existing conditions and the existing conditions on the first year of project operation (2017 existing conditions) are used in the analysis of operational impacts.

2013 Baseline Scenario for the Salinas Treatment Facility Water Balance

A diagram of flow routing among the Salinas Treatment Facility ponds is shown in **Figure 2-14, Diagram of Salinas Treatment Facility and Flows.** Salinas Treatment Facility operations interact with local groundwater and thus, a monthly water balance[10] of the existing Salinas Treatment Facility operations was conducted, using flows and storage changes during 2013 (Todd Groundwater, 2015c). Extra measurements of flow and quality in the Salinas River near the Facility during 2013 supported calculations related to the fate of water that currently percolates from the ponds.

In 2013, all agricultural wash water was sent to the Salinas Treatment Facility, and those flows were metered upon arrival. During the past ten or more years, the percolation ponds have been continuously full or nearly so, which has precluded normal maintenance activities such as drying and disking the pond bottoms. Consequently, percolation rates in Ponds #1, #2, and #3 have declined according to City staff. The ponds are approximately flat-bottomed and six to ten feet deep, which means that pond surface area remains relatively constant over most of the range of storage volumes.

Table 4.10-2, Monthly Salinas Treatment Facility Water Balance for 2013 presents a monthly water balance for the ponds and drying beds during 2013. Entries in the table are

[9] Projections of future flows of agricultural wash water flows were conducted based on a linear regression analysis by Bob Holden, MRWPCA, in January 2014, which is provided in **Appendix B rev**.

[10] A water balance is a detailed tabulation of inflows, outflows, and storage changes for a defined hydrologic system.

shown to three or four significant digits for arithmetic consistency. However, estimates of evaporation and percolation are probably accurate to only two significant digits. Accordingly, percolation and evaporation values extracted from the table are rounded in the text to two significant digits or the nearest ten acre feet (AF). Agricultural wash water inflow totaled 3,240 AF during 2013. Monthly rainfall is from the Salinas municipal airport station and is the same data used for urban runoff calculations in the Salinas River Inflow Impacts Report in **Appendix O rev**. Annual rainfall during calendar year 2013 was 3.3 inches, or 25% of the 1932 to 2013 average, making it the driest year in the 81-year period of record. The rainfall rate was multiplied by the combined area of all the ponds (118.4 acres, including the rapid infiltration beds) to obtain the volume of rainfall accretion to pond storage. Rainfall added about 50 AF to the ponds in 2013 but would add 200 AF in a year with normal rainfall. Evaporation was similarly estimated from reference evapotranspiration data.[11] Pond evaporation totaled 390 AF in 2013 and would be 360 AF in an average year.

The volumes of wastewater spread on the drying beds that are located north of Ponds #2 and #3 are not recorded. Due to poor drainage, 13 of the drying bed cells are not used, which corresponds to roughly ¼ of the 67-acre drying bed complex. Due to capacity constraints at the Salinas Treatment Facility, the remaining 75% of the drying bed area was more or less continuously wet throughout the year, and it was assumed that the per-area evaporation rate equaled the pond evaporation rate. Pond wastewater levels are also not routinely monitored. It was assumed that the net change in storage over the year was zero, given that the facility has been operating near capacity and that excess inflow is handled using the drying beds and rapid infiltration beds rather than by a long-term increase in pond storage. Finally, the overall percolation volume was obtained as the residual in the water balance and totaled 2,730 AF in 2013. The residual is the amount of percolation that, in combination with all other inflows and outflows, resulted in a no net change in pond storage between December 2012 and December 2013. The percolation rate from the ponds was assumed to be equal in all months.

[11] Reference evapotranspiration is typically about 75% of open-water evaporation from a Class A evaporation pan (Dunne and Leopold, 1979 as cited in Todd Groundwater, 2015c). However, evaporation from lakes is also less than pan evaporation because the larger surface area causes the adjacent air layer to become more saturated with moisture. The pan-to-lake coefficient is also typically about 75%, so evaporation from the ponds—which are the size of small lakes—can be approximated by reference evapotranspiration.

Table 4.10-2
Monthly Salinas Treatment Facility Water Balance for 2013[12]

Month	Agri-cultural Wash Water Inflow (AF)	Rainfall		Pond Evaporation		Drying Bed Evaporation (AF)	Pond + RIB + Drying Bed Percolation (AF)	Pond Storage (AF)
		Rate (in)	Volume (AF)	Rate (in)	Volume (AF)			
Dec-12								1,100
Jan-13	135	1.04	16	1.90	19	8	227	997
Feb-13	137	0.56	9	2.16	21	9	227	885
Mar-13	174	0.41	6	3.16	31	13	227	794
Apr-13	265	0.27	4	4.30	42	18	227	776
May-13	272	0.01	0	4.99	49	21	227	750
Jun-13	338	0.04	1	4.26	42	18	227	802
Jul-13	376	0.00	0	3.73	37	16	227	898
Aug-13	383	0.02	0	3.87	38	16	227	1,000
Sep-13	318	0.07	1	3.93	39	16	227	1,036
Oct-13	355	0.15	2	3.10	31	13	227	1,122
Nov-13	284	0.47	7	1.99	20	8	227	1,159
Dec-13	193	0.21	3	1.95	19	8	227	1,100
Total (AF):	3,231	3.26	50	39.34	388	165	2,729	
Percent of SIWTF outflow:					12%	5%	83%	

Notes: AF = acre-feet; RIB = rapid infiltration basin; Ponds 1-2-3 + RIB area = 106 acres; drying bed area = 67 acres; average percolation rate = 0.043 feet per day; aeration pond area = 12.4 acres, which is included in rain and evaporation but not percolation.

An important conclusion of the water balance analysis is that only 17% of Salinas Treatment Facility outflow was by evaporation at the ponds and drying beds during 2013. Therefore, it can be assumed that percolation is the primary means of wastewater disposal at this facility.

Water that percolates from the Salinas Treatment Facility ponds travels through the subsurface using two pathways: a short path from beneath the ponds to the Salinas River and a longer flow path into the shallow aquifer away from the river. These pathways are part of a complex three-dimensional groundwater flow system that interacts dynamically with water levels in the river and the Salinas Treatment Facility ponds. This system is portrayed in **Figure 4.10-4, Hydrogeologic Cross-Section of Salinas Treatment Facility**, which shows a cross-section through the Salinas Treatment Facility perpendicular to the river. In addition to water levels in the ponds and river, groundwater levels are shown for two of the eight monitoring wells located at the Facility. These wells monitor the shallow aquifer (A-Aquifer), which is discontinuously present and overlies the Salinas Valley Aquitard, which is

[12] Volumes in the table are shown in units of AF, which is customary for analysis of groundwater flow. The corresponding rates are acre-feet per month (AF/mo) or per year (AFY). Water and wastewater studies typically express volumes and rates in million gallons (mgal; 1 mgal = 3.069 AF) and million gallons per day (mgd). River flows are usually expressed in cubic feet per second (cfs; 1 cfs = 725 AFY = 0.65 mgd). This Draft EIR uses the units that are customary for the topic under discussion.

a fine-grained layer that restricts downward flow of water from the shallow aquifer to the 180-Foot Aquifer. The 180-Foot Aquifer is the shallowest aquifer used for water supply in the Salinas region. As its name implies, it is typically present at depths of approximately 180 feet below ground surface. It is underlain by the 400-Foot and Deep Aquifers, which are also used for water supply. Intervening fine-grained layers restrict flow between the aquifers. An average water level is shown on **Figure 4.10-4** for nearby wells that are screened in the 180-Foot Aquifer. The water surface elevations of the ponds are higher than the water surface of the river and shallow aquifer, and all three are higher than water levels in the 180-Foot Aquifer. Pond percolation creates a water-table mound that sends groundwater in all directions. The Salinas River is only 200 feet from the ponds along the entire 1.5-mile length of the Salinas Treatment Facility and has a much lower water surface; thus, a substantial percentage of percolated water is likely to flow subsurface to the river. Percolated water that disperses into the shallow aquifer is likely to percolate down to the 180-Foot Aquifer. Additional detailed analysis of this relationship is provided in **Appendix N**.

The subsurface flow of pond percolation into the Salinas River (also called seepage) is not routinely measured. However, two sets of measurements were made in October and November, 2013. These measurements used two different methods: (1) a water quality mixing model,[13] and (2) measurement of Salinas River flows upstream and downstream of the Salinas Treatment Facility during November 2013. The first estimate of pond seepage to the river (i.e., using a water quality mixing model) yielded a flow estimate of 3.67 cfs and the second (using river flow measurements) yielded 2.4 cfs. The average of the two estimates of seepage into the river was 3.0 cfs. If this rate were constant throughout the year (a reasonable assumption given the relatively constant surface area inundation of the ponds in 2013), it would amount to 2,170 AF of subsurface flow to the river, or 80% of total pond percolation during 2013. Percolation of water from the Salinas Treatment Facility to the shallow aquifer that does not seep to the Salinas River was determined to percolate downward and become recharge to the 180-Foot Aquifer by ruling out all other potential subsurface pathways. Therefore, 20% of percolated water from the Salinas Treatment Facility was estimated to recharge to the shallow (A-Aquifer) and ultimately to the180-Foot Aquifer and the amount of recharge in 2013 was estimated to be 550 AF. The assumptions and analysis of these estimates is provided in **Appendix N**.

2017 Baseline Scenario for the Salinas Treatment Facility Water Balance

As discussed previously, the 2013 water balance described in the previous section was not necessarily representative of normal existing conditions. Rainfall was extremely low that year, and inflows of agricultural wash water were less than the inflows expected at the time the Proposed Project operations would commence. Therefore, this EIR also includes a baseline scenario using a 2017 water balance reflecting normal climatic conditions and with the Salinas Treatment Facility inflows expected to occur when the Proposed Project operations would commence.

The 2017 baseline water balance is shown in **Table 4.10-3, Monthly Salinas Treatment Facility Water Balance for 2017**. Agricultural wash water inflows are expected to total

[13] MRWPCA personnel measured water quality in the Salinas Treatment Facility ponds and in the Salinas River at points upstream and downstream of the ponds on October 8, 2013. At that time, pond water was high in chloride relative to the river. Chloride is a conservative solute that tends to remain in solution without reacting, adsorbing or precipitating. It is commonly used in mixing model calculations. The amount of seepage from the ponds into the river was calculated by comparing the increase in chloride concentration in the river water along the Salinas Treatment Facility reach.

3,730 AF[14] in 2017. Monthly rainfall and evaporation rates are long-term averages from monitoring station data in Salinas. As in the 2013 water balance, it was assumed there would be no net increase in pond storage over the year. The assumed percolation rate was increased to achieve zero net storage change, and the relative proportions of seepage to the river and percolation to groundwater were assumed to be the same as in the 2013 water balance. The resulting estimate of seepage into the river is 2,730 AF (80% of 3,730 AF), and the estimate of percolation to the 180-Foot Aquifer is 680 AF (20% of 3,730 AF). In summary, more total percolation from the Salinas Treatment Facility would be expected to occur in 2017 than under 2013 conditions, due to the additional inflows (agricultural wash water and rainfall onto the site) to the facility (3,416 AF compared to 2,729 AF). Similarly, seepage to the river was estimated to be higher (2,730 AF in the 2017 baseline case, compared to 2,170 AF in the 2013 baseline case), and recharge to the groundwater basin was higher (680 AF in the 2017 baseline case compared to 550 in the 2013 baseline case).

Table 4.10-3
Monthly Salinas Treatment Facility Water Balance for 2017

Month	Agri-cultural Wash Water Inflow (AF)	Rainfall		Pond Evaporation		Drying Bed Evaporation (AF)	Pond + RIB + Drying Bed Percolation (AF)	Pond Storage (AF)
		Rate (in)	Volume (AF)	Rate (in)	Volume (AF)			
DEC								1,100
JAN	156	2.62	40	1.21	12	5	285	995
FEB	158	2.35	36	1.54	15	6	285	883
MAR	201	2.11	33	2.88	28	12	285	791
APR	307	1.10	17	4.08	40	17	285	773
MAY	311	0.30	5	4.56	45	19	285	740
JUN	391	0.08	1	5.16	51	22	285	775
JUL	435	0.02	0	4.47	44	19	285	863
AUG	444	0.04	1	4.30	42	18	285	962
SEP	367	0.17	3	3.20	32	13	285	1,002
OCT	410	0.57	9	2.75	27	12	285	1,098
NOV	329	1.41	22	1.50	15	6	285	1,143
DEC	223	2.35	36	1.23	12	5	285	1,100
Total (AF):	3,732	13.12	203	36.88	364	154	3,416	
Percent of Salinas Treatment Facility outflow:					9%	4%	87%	

Notes: AF = acre-feet; RIB = rapid infiltration basin; Ponds 1-2-3 + RIB area = 106 acres; drying bed area = 67 acres; wash water inflows are the expected amounts in 2017; rainfall and evaporation are long-term averages; percolation rate = 0.054 feet per day; aeration pond area = 12.4 acres, which is included in rain and evaporation but excluded from percolation.

4.10.2.4 Seaside Basin and Study Area

The Proposed Project Injection Well Facilities would be located within a portion of the Seaside Area Subbasin of the Salinas Valley Groundwater Basin as defined by DWR

[14] This is a rounded number compared to Source Water Spreadsheet analyses in Appendix B rev that assume 3,732 AFY.

Bulletin 118 (California DWR, 2004a). The boundaries of the Seaside Area Subbasin and delineation of four subareas within the subbasin have been redefined by Yates et al. (2005) based on a reinterpretation of geologic faulting and groundwater flow divides. For example, ~~T~~the northern boundary and southeastern boundary are ~~is~~ based on ~~a~~ groundwater dividesthat are ~~is~~ subject to movement with changing conditions in groundwater levels (Yates, et al., 2005; HydroMetrics WRI, 2009).

The revised subbasin covers about 20 square miles and is referred to as the Seaside Basin in this report. The boundaries of the Seaside Basin and four subareas are shown on **Figure 4.10-5 rev, Seaside Groundwater Basin**. Production and monitoring wells, including inactive wells, are also shown on the figure to illustrate areas of groundwater development.

The Proposed Project Injection Well Facilities would be located within the northeastern-most subarea of the Seaside Basin, referred to as the Northern Inland Subarea. The site is close to the Northern Coastal Subarea where most of the basin's groundwater pumping occurs (as indicated by the relatively large number of wells on **Figure 4.10-5 rev**). Groundwater production also occurs in the Southern Coastal Subarea and the Laguna Seca Subarea.

Historically, only minimal pumping has occurred within the Northern Inland Subarea. Of the three wells in the subarea shown on **Figure 4.10-5 rev**, only one well - the City of Seaside Reservoir well - has provided water supply. The other two wells in the Northern Inland Subarea are monitoring wells. The subarea has remained largely undeveloped as a result of its long-term use as a large firing range by the U.S. Army on the former Fort Ord military base, which closed in 1994.

The southern subareas are considered less hydraulically connected to the Proposed Project area due to geologic faulting and structure between the two areas, and are not included in the study area for the impact analysis. For the purposes of the environmental setting information and impact analysis of the operation of the Injection Well Facilities and associated CalAm extraction activities after the Proposed Project is implemented, the study area is defined as the Northern Inland and Northern Coastal subareas of the Seaside Basin shown on **Figure 4.10-5 rev**.

Seaside Basin Groundwater Extraction

Groundwater pumping in the Seaside Basin provides water supply for municipal, irrigation (primarily golf courses), and industrial uses. Historically, about 70 to 80% of the pumping has occurred in the Northern Coastal Subarea, with additional pumping occurring in the Laguna Seca Subarea supplemented by small amounts in the Southern Coastal Subarea. CalAm is the largest pumper in the basin accounting for about 79% of the groundwater pumped in water year (WY[15]) 2013 (Hydrometrics, WRI).

Annual pumping in the Coastal subareas and total basin production over the last 20 years are shown on **Figure 4.10-6, Coastal and Basin-wide Groundwater Production**. Over this time period, production in the Coastal subareas has averaged about 4,000 AFY and total basin production has averaged about 5,000 AFY.

Prior to basin adjudication in 2006, pumping exceeded sustainable yield and contributed to significant basin-wide water level declines. Over-pumping in the coastal subareas resulted in water levels declining below sea level at the coast, placing aquifers at risk of seawater

[15] For the purpose of management of the Seaside Groundwater Basin, Water Year (WY) 2013 begins October 1, 2012 and ends September 30, 2013.

intrusion. In particular, basin pumping increased after a 1995 order by the SWRCB placed constraints on out-of-basin supplies.

Since 2008, groundwater pumping in the basin has declined primarily due to mandatory triennial reductions. Pumping in coastal subareas averaged about 4,505 AFY from 1996 through 2008, but has decreased to about 3,288 AFY from 2009 through 2013 (Watermaster production records). For comparison purposes, a natural safe yield for the coastal subareas of between 1,973 AFY to 2,305 AFY was established as part of the Seaside Basin adjudication (California Superior Court, 2006).

The production data in **Figure 4.10-6** do not include injection and recovery from the nearby Monterey Peninsula Aquifer Storage and Recovery Project (ASR Project), where about 2,300 AF of water have been injected and recovered from 2010 through 2012. See **Section 2.5.5, Project Description**, Monterey Peninsula Aquifer Storage and Recovery Project, for a detailed description of the ASR project.

Relevant Seaside Groundwater Basin Aquifer Characteristics

The Seaside Basin consists of semi-consolidated to consolidated sedimentary units overlying relatively low permeability rocks of the Miocene Monterey Formation and older crystalline rocks. The sedimentary units consist of deep marine sandstones of Tertiary age overlain by a complex Quaternary-age sequence of continental deposits and shallow Quaternary-age dune deposits. In general, the sedimentary units dip northward and thicken into the Salinas Valley. For a detailed description of the geologic setting of the Seaside Basin, see **Section 4.8, Geology, Soils and Seismicity**. For a more detailed description of geologic deposits and results of boring samples, refer to **Appendix L** of this EIR. The following describes the aquifers within the Proposed Project study area of the Seaside Basin.

Paso Robles Aquifer

~~Beneath the Aromas Sand is t~~The Paso Robles Formation is of Pliocene age. The formation is heterogeneous and contains interbeds of sand, silt, and clay mixtures (Yates et al., 2005). These continentally-derived deposits are discontinuous and difficult to correlate from well to well in the basin. The formation is saturated in the proposed Injection Well Facilities area (and coastal areas) and forms the shallow aquifer in the basin (referred to as the Paso Robles Aquifer herein). Several production wells downgradient of the proposed Injection Well Facilities area are screened (i.e., perforated such that they can extract water in at specific depths) in permeable units in the Paso Robles aquifer.

Aquifer Recharge

The Paso Robles Aquifer is recharged mainly from surface infiltration of precipitation (HydroMetrics WRI, 2014). The soil formation that makes up this aquifer meets the ground surface in the eastern portion of the basin enabling rainfall to infiltrate directly into the aquifer units (Yates, et al., 2005). In the proposed Injection Well Facilities area, recharge occurs by percolation through the surficial deposits of the Aromas Sand.

Aquifer Production

The Paso Robles Aquifer is less productive than the deeper Santa Margarita Aquifer, but is screened in several production and monitoring wells near the proposed Injection Well Facilities area. In particular, the Paso Robles Aquifer is screened in five production wells (Paralta, Ord Grove, PRTIW, MMP, and Seaside 4, shown on **Figure 4.10-7 rev, Proposed Injection Wells and Existing Vicinity Wells**), all of which are located within about 1,000 feet west of General Jim Moore Boulevard. In addition, the Reservoir Well, located east of General Jim Moore Boulevard and north of Eucalyptus Road, is also screened in the Paso Robles Aquifer. The Paralta and Ord Grove Wells are also screened in the deeper Santa Margarita Aquifer.

The contribution of the Paso Robles Aquifer to Seaside Basin production is not known with certainty but has been estimated by previous investigators. Yates et al. (2005) reported that an average of about 40% of the coastal area production came from the Paso Robles Aquifer in 2000 through 2003. However, with additional wells in the Santa Margarita Aquifer and changes in production over time, the current contribution from the Paso Robles Aquifer is estimated to be less. Recent analysis indicates that only about 10 to 20% of the basin pumping is from the Paso Robles Aquifer (HydroMetrics WRI, 2013).

Water Levels

Water levels in the Paso Robles Aquifer (as measured in the well called “MSC Shallow”) have fluctuated between about minus three feet below mean sea level to about six feet above mean sea level over the last 24 years. <u>This well (MSC shallow) represents water levels near the coast.</u> Water levels declined below sea level in the mid-1990s in response to increases in groundwater extraction. Most of the subsequent groundwater extraction occurred in the deeper Santa Margarita Aquifer and water levels in the Paso Robles Aquifer rose near the coast. Since that time, water levels in the MSC Shallow well have stabilized at about three to five feet above mean sea level. However, water levels remain below mean sea level farther inland where a pumping depression persists.

Figure 2-4 <u>rev</u>, Seaside Groundwater Basin Groundwater Levels, in **Chapter 2, Project Description** shows the pumping depression by the closed contour of zero feet mean sea level (sea level) on the water level contour map (contours from HydroMetrics WRI, 2013). This map, representing water levels measured in July and August 2013, shows water levels below mean sea level covering an area of almost 1,000 acres (also covering about one-half of the Northern Coastal Subarea, see **Figure 2-4 <u>rev</u>**). Groundwater flow in both the Northern Coastal and Northern Inland subareas is controlled by the depression. Shallow groundwater beneath the proposed Injection Well Facilities area flows west toward the center of the depression where water levels are lower than minus 40 feet below mean sea level.

Figure 2-4 <u>rev</u> also shows that the water levels in the adjacent Southern Coastal Subarea are not significantly influenced by the pumping depression. In addition, groundwater flow patterns are altered near certain subarea boundaries where geologic faulting and other discontinuities have compartmentalized groundwater. In particular, the boundary between northern and southern subareas appears to impede groundwater flow. As pumping has lowered water levels in the northern subareas, changes in water levels and flow patterns across the boundary to the south have become more pronounced, with water levels in the southern subarea remaining higher and less influenced by pumping gradients.

Santa Margarita Aquifer

The Santa Margarita Sandstone of Pliocene/Miocene age underlies the Paso Robles Aquifer throughout most of the Seaside Basin. The aquifer consists of a poorly-consolidated marine sandstone approximately 250 feet thick in the Northern Coastal subarea of the basin. The unit has apparently been eroded near the southern basin boundary due to uplift from folding and faulting along the Seaside and Chupines Faults (Yates et al., 2005).

The Miocene/Pliocene Purisima Formation overlies the Santa Margarita Sandstone in some areas. This unit has been described in more detail along the coast and has been grouped with the Santa Margarita Aquifer in a layer of the basin groundwater model (HydroMetrics WRI, 2009). The Purisima Formation is difficult to delineate using subsurface data and is either thin or not present beneath the proposed Injection Well Facilities area.

The Santa Margarita Aquifer is shown on the cross section on **Figure 2-33, Injection Well Cross Section** in **Chapter 2, Project Description**. The Santa Margarita Aquifer has been documented to be more homogeneous in nature. The aquifer is approximately 280 feet thick in the proposed Injection Well Facilities area and contains about 74% sand (with the remainder containing sandy silt and minor clay). The aquifer is about 600 feet deep in the proposed Injection Well Facilities area as indicated on **Figure 2-33**.

Aquifer Recharge

Most of the recharge to the Santa Margarita Aquifer is assumed to occur by leakage from the overlying Paso Robles Aquifer, especially in areas where the lower part of the Paso Robles Aquifer is relatively permeable (Yates, et al., 2005; HydroMetrics WRI, 2009). Recharge also enters the Santa Margarita Aquifer from subsurface inflow from other subareas and north of the basin boundary. Although the Santa Margarita Aquifer meets the ground surface (i.e., crops out") east of the Seaside Basin, recharge occurring in the outcrop area has been interpreted to flow with groundwater toward the Salinas Valley away from the Seaside Basin.

Aquifer Production

Coastal pumping in the Santa Margarita Aquifer was estimated to average about 2,500 AFY from 1999 to 2003, or about 60% of the coastal subarea production. Recent changes in wells and production intervals indicate that this percentage has increased. Basin-wide, the total production from the Santa Margarita Aquifer is estimated to be about 80% (HydroMetrics WRI, 2013).

Water Levels

Water levels have declined in the Santa Margarita Aquifer at a much faster rate than in the Paso Robles Aquifer. The potentiometric surface of the semi-confined Santa Margarita Aquifer indicates a long-term decline in water levels in the MSC Well since the mid-1990s with only seasonal recovery. The high rate of decline is likely related to both the increase in Santa Margarita Aquifer pumping as well as the lower storage ability of the semi-confined aquifer compared to the overlying unconfined Paso Robles Aquifer. In general, the rate of decline has been less since about 2006 as a result of the adjudication of the groundwater basin and subsequent changes in pumping rates. Nonetheless, water levels have been below sea level in coastal wells since 1995, increasing the risk of seawater intrusion.

Water levels in the nearby Paralta Test Well are generally higher than in FO-7 (which is up gradient of the proposed Injection Well Facilities and existing production wells), likely due to the well screens installed in both the Paso Robles and the Santa Margarita Aquifers. Although the trends and fluctuations in the Paralta Test Well correlate better with the Santa Margarita Aquifer water levels, the higher water levels from the Paso Robles Aquifer compared to the Santa Margarita Aquifer create higher overall composite water levels in the Paralta Test Well. Water levels in the Paralta Test Well also show greater seasonal fluctuations than observed in FO-7 due to its proximity to large pumping wells.

Figure 2-4 rev shows the widespread area of water level declines on a recent water level contour map for the Santa Margarita Aquifer (contours from HydroMetrics WRI, 2013). The map shows that water levels are below mean sea level over almost all of the Northern Coastal Subarea and a large portion of the Northern Inland Subarea. The lowest water levels are below minus 40 feet mean sea level, similar to the low levels in the Paso Robles Aquifer. Water levels beneath the proposed Injection Well Facilities area range from about minus ten feet mean sea level to about minus 30 feet mean sea level.

Similar to groundwater conditions in the Paso Robles Aquifer, the Santa Margarita Aquifer water levels in the Southern Coastal Subarea do not appear to be controlled by the pumping depression to the north.

Seaside Basin Water Quality Characterization

This section presents information about ambient groundwater quality for the Seaside Basin. The water quality characterization was prepared by Todd Groundwater (see **Appendix L,** Section 7.3). The characterization is based on available data, previous investigations, and new geochemical evaluations of existing geologic sediments in the Seaside Basin. The geochemical evaluations are presented more fully in the MRWPCA field program report, called the *Hydrogeologic Field Investigation: MRWPCA Monitoring Well 1 Installation, Groundwater Quality Characterization, and Geochemical Assessment* (Todd Groundwater, February 2015).

As discussed previously, the study area for groundwater impacts includes the area of the Seaside Basin that may be affected by operation of the Proposed Project Injection Well Facilities, the Northern Inland and Northern Coastal subareas of the Seaside Basin shown on **Figure 4.10-5 rev, Seaside Groundwater Basin**. For the groundwater quality characterization, the focus of the study area is shown in **Figure 4.10-7 rev, Proposed Injection Well Facilities and Existing Vicinity Wells** based on the areas within the groundwater study area where water quality has been and will continue to be monitored upon implementation of the Proposed Project in accordance with regulations to protect groundwater quality.

Water Quality Data Sources Used

Previous investigations on groundwater quality in the Seaside Basin were reviewed, including Fugro (1998), Yates et al. (2005), and HydroMetrics (2009). Also reviewed were recent reports developed for the Seaside Basin Watermaster that contain evaluations of potential seawater intrusion (HydroMetrics WRI, 2013), and the Seaside Basin Salt and Nutrient Management Plan, which includes ambient groundwater quality data including concentrations of total dissolved solids, nitrate, and other constituents (HydroMetrics WRI, 2014). Recent and historical groundwater quality data for the Injection Well Facilities area were provided by MPWMD and CalAm. These data were supplemented with recent data collected by Todd Groundwater in association with the MRWPCA field program. **Table 4.10-4, Sources of Groundwater Quality Data** provides a summary of the data sources and the types of water quality constituents that were included in the groundwater characterization. Data from a total of 18 existing wells were used to characterize the existing groundwater quality in the part of the Seaside Basin that could be affected by Proposed Project Injection Well Facilities operations. Following the table is a description of the groundwater monitoring programs from which the data were supplied.

Table 4.10-4
Sources of Groundwater Quality Data

Categories of Water Quality Parameters	Data Sources		
	MPWMD	CalAm	MRWPCA
Number of Wells	14	8	6

Time Period	1990-2012	2010-2013	2014
Anions	X	X	X
Metals (including major cations)	X	X	X
Conventional Chemistry Parameters	X	X	X
Chlorinated Pesticides and Polychlorinated Biphenyls (PCBs)	X	X	X
Nitrogen and Phosphorus Pesticides	X	X	X
Organic Analytes (including 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane (EDB), diquat, endothall, glyphosate)	X	X	X
Chlorinated Acids	X	X	X
Carbamates *(organic compounds derived from carbamic acids)*		X	X
Volatile Organic Compounds (VOCs)	X	X	X
Semivolatile Organic Compounds		X	X
Haloacetic Acids		X	X
Herbicides		X	X
Nitroaromatics and Nitramines (explosives)			X
Other (i.e., isotopes)			X

MPWMD Groundwater Quality Monitoring Program

MPWMD conducts a basin-wide groundwater monitoring program with support from the Seaside Basin Watermaster. Components of the program also serve as the monitoring program for the existing ASR Project. The data used in the characterization for this EIR included the Watermaster monitoring program data along with historical groundwater quality data dating back to 1990; data from 14 wells were used.

CalAm Production Well Monitoring

CalAm monitors the water quality from their production wells in the Seaside Basin in compliance with drinking water requirements per the California Code of Regulation, Title 22. These data were provided for eight production wells in the Proposed Well Injection Facilities area and included samples from 2010 through 2013.

MRWPCA Field Program

From December 2013 through February 2014, Todd Groundwater conducted a field program for MRWPCA in support of the Proposed Project (Todd Groundwater, February 2015). The program included, among other activities, installation and sampling of a new monitoring well (MRWPCA MW-1), and groundwater sampling from five additional wells in the Injection Well Facilities area including two upgradient monitoring wells (FO-7 Shallow and FO-7 Deep) that had not previously been sampled for groundwater quality. Wells sampled during the MRWPCA field program are summarized in **Table 4.10-5, Wells Sampled in 2013-2014 MRWPCA Field Program**.

Table 4.10-5
Wells Sampled in 2013-2014 MRWPCA Field Program

Well	Well Type	Screened Aquifer	Well Depth (feet, bgs)	Screen Interval (feet, bgs)
MRWPCA MW-1	Monitoring	Paso Robles	521	421 - 446; 466 - 516
FO-7 Shallow	Monitoring	Paso Robles	650	600 - 640
FO-7 Deep	Monitoring	Santa Margarita	850	800 - 840
PRTIW	Irrigation	Paso Robles	460	345 - 445
ASR MW-1	Monitoring	Santa Margarita	740	480 - 590; 610 - 700
Seaside Muni 4	Production	Santa Margarita	560	330 - 350; 380 - 420; 430 - 470; 490 – 550

Notes: All wells sampled January/February 2014. bgs = below ground surface

.An expanded list of water quality constituents was analyzed in the MRWPCA field program samples, compared to the list of constituents and data available from monitoring at other basin wells and shown in **Table 4.10-5**, and included:

- chemicals (including explosives) associated with former Fort Ord activities
- constituents contained in the California Drinking Water Regulations, and those relevant to the SWRCB Recycled Water Policy and Anti-Degradation Policy
- constituents of emerging concern (CECs) included in the SWRCB Recycled Water Policy (see Section 4.10.3.2 for discussion of this Policy)
- water parameters that define chemistry (chemical speciation or isotopic characteristics) of various waters to support hydrogeologic quality analysis and to analyze the compatibility of the Proposed Project purified recycled water with ambient groundwater

Laboratory analyses of groundwater samples collected at these six wells are presented in **Appendix L** (as Tables D-1 through D-7).

Water Quality Database/Accuracy

Data sets from the sources described above were compiled into a database. This database was used to characterize groundwater quality and identify potential constituents of concern for the Proposed Project water quality impacts assessment. In addition, the available data representing general groundwater chemistry were checked for accuracy and then evaluated using various geochemical techniques, the assumptions, methodology, and results of which are summarized in Section 7.3.2 in the Todd Groundwater Report in **Appendix L**.

Water Quality Characterization Key Findings

The existing water quality of the Seaside Basin in the area potentially affected by Proposed Project Injection Well Facilities operations was characterized using the existing water quality monitoring data available from the sources identified above, along with the results of MRWPCA's field program sampling and analysis performed specifically for the Proposed Project. This characterization is summarized below by constituent. Where applicable, the relevant water quality regulatory standard or advisory level for the constituent is discussed.

General Groundwater Chemistry

The general chemistry of the groundwater in the Seaside Basin was characterized to evaluate subsurface interactions related to water chemistry, accuracy of other water sampling and analysis, and to understand possible sources of groundwater recharge and sources. The general chemistry parameters included cations (calcium, magnesium, sodium, potassium) and anions (chloride, sulfate, bicarbonate and carbonate). Various graphical representations are provided within **Appendix L** to demonstrate how different sources of water have different chemical properties. Regarding the evaluation of accuracy of the water quality analyses of groundwater samples, the evaluation of the general chemistry data found that most water quality samples had acceptable limits for both the cation/anion ratio and the charge balance; thus demonstrating good accuracy. Some wells resulted in data slightly outside of the accuracy limits (e.g., samples from Darwin, FO-7 Shallow, PRTIW Mission, ASR-2, ASR-3, Seaside Middle School, and Ord Grove) and one groundwater sample (from FO-7 Shallow) was associated with elevated turbidity that has likely interfered with the metals analytical data and has potentially impacted the accuracy of other water quality results from that well.

Total Dissolved Solids

The concentration of total dissolved solids (a measurement of salinity of water) in groundwater is used for identifying suitability of the groundwater for potable and irrigation uses, and for identifying the presence or potential for seawater intrusion to affect the use of groundwater in coastal basins. **Figure 4.10-8, Total Dissolved Solids in Groundwater near Injection Well Facilities,** shows a map of recent (2012 to 2014) total dissolved solids concentration ranges for the samples from the water quality characterization.

Figure 4.10-8 indicates that all of the total dissolved solids measurements in the wells were below the California Secondary MCL Upper Consumer Acceptance Contaminant Level Range of 1,000 mg/L, although some were above the Recommended Consumer Acceptance Contaminant Level Range of 500 mg/L. Total dissolved solids levels ranged from 190 mg/L in FO-7 Shallow (Paso Robles Aquifer) to 668 mg/L in ASR-2 (Santa Margarita Aquifer). In general, wells screened in the Paso Robles Aquifer have lower total dissolved solids concentrations than in the Santa Margarita Aquifer, with the 500 mg/L level serving as a reasonable dividing concentration for comparative purposes. For example, all wells screened only in the Paso Robles Aquifer are below 500 mg/L (green on **Figure 4.10-8**). Most of the Santa Margarita wells have recent concentrations above 500 mg/L (yellow on Figure **4.10-8**), except Paralta (screened in both aquifers), SMS Deep, ASR-3, and FO-7 Deep. The wells did not show a wide variation in total dissolved solids concentrations over time.

Constituents of Concern and Other Groundwater Analyses

The water quality database was reviewed for more than 300 constituents/parameters, which are defined for purposes of this EIR as regulated constituents (those with MCLs), those with drinking water advisory levels, and constituents associated with former military activities at Fort Ord.[16] In addition to regulated constituents and former Fort Ord constituents, the MRWPCA field program groundwater samples were also analyzed for constituents of emerging concern (CECs), as defined in the SWRCB Recycled Water Policy, and other constituents not previously monitored routinely in local groundwater. The following is a discussion of these constituents.

Constituents Exceeding California Primary MCLs

In general, the background sampling indicated high quality groundwater in the basin. Of the more than 300 constituents and parameters analyzed in each of the six wells for this monitoring event (a total of about 1,800 sample analyses), all met primary drinking water standards except for a few constituents in two monitoring wells. Specifically, all concentrations for 100 constituents analyzed with a primary MCL were found to meet the regulatory limit, except for eight constituents in two wells that were apparently impacted by sample turbidity as discussed below.

Table 4.10-6, Constituents Exceeding California Primary MCLs summarizes all of the constituents that appear to exceed the California primary drinking water MCLs. As shown in **Table 4.10-6**, only two wells contained any exceedances. These exceedances involved five metals and three radiogenic parameters (i.e., measurements of radioactivity), all naturally-occurring constituents associated with subsurface sediments. These constituents are also

[16] The current and intended use of the groundwater is for municipal supply, not agricultural supply as documented in the Salt and Nutrient Management Plant (HydroMetrics WRI, 2014). Based on this, the background groundwater quality assessment for the Seaside Basin was not extended to include agricultural objectives and guidelines.

the types most affected by elevated turbidity in groundwater samples. As shown on the table, the exceedances in samples from the two wells, FO-7 Shallow and MRWPCA MW-1, correlate to elevated turbidity values of 550 Nephelometric Turbidity Units (NTU) and 71 NTU, respectively. For comparison purposes, all other turbidity levels in the remaining wells were 10 NTU or less. Elevated turbidity in groundwater samples result from small particles of aquifer material (or pre-development solids from drilling fluids) being entrained into the sample, where they interfere with laboratory analysis. The elevated concentrations of metals and radiogenic parameters detected in these wells are likely being measured in the solids of the aquifer materials and not in dissolved groundwater.

Table 4.10-6
Constituents Exceeding California Primary MCLs

Analyte	Method	Units	MDL	FO-7 Shallow	MRWPCA MW-1	California Primary MCL
Turbidity	**SM2130B**	**NTU**	**0.040**	**550**	**71**	**5***
Aluminum (Al)	EPA 200.8	µg/L	8.0	3,700	2,700	1,000
Arsenic (As)	EPA 200.8	µg/L	0.28	210		10
Barium (Ba)	EPA 200.8	µg/L	0.12	1,200		1,000
Chromium (Cr) Total	EPA 200.8	µg/L	0.32	790		50
Lead (Pb) Total	EPA 200.8	µg/L	0.080	42		15
Gross Alpha	7110B	pCi/L	3.00	125 ±5		15
Gross Beta	7110B	pCi/L	4.0	114 ±2		50
Combined Radium	calculated	pCi/L	1.00	38.3 ±2.4		5

*5 NTU is a secondary MCL and is included on the table for comparison purposes
MDL = Method Detection Limit

Due to the relatively slow velocities within groundwater systems and the natural filtering associated with aquifer materials, groundwater does not typically contain solids, and as such, typically contains lower turbidity values than those in **Table 4.10-6** shown above. When aquifer particles or other solids are entrained in the groundwater samples (e.g., from a poorly-developed well), laboratory analyses typically indicate elevated metals, radiogenic parameters, or other constituents associated with these solids.

The 2014 sampling event represents the first time that either of these two wells had been sampled for water quality. For FO-7 Shallow, it was the first time that this small-diameter monitoring well had been sampled for water quality since its original sampling in 1994. Sampling produced a highly turbid sample (550 NTU), likely relating to the inability to properly develop the well when first installed as a water level monitoring well. As such, it is reasonable to expect that the analysis of some constituents would be compromised and not representative of actual groundwater concentrations.

The concentrations of certain metals and radiogenic parameters shown in the table are not representative of actual concentrations in groundwater. The small-diameter casings and deep water table have limited the ability to develop these three monitoring wells in order to produce a turbid-free groundwater sample for analysis. Accordingly, future sampling programs will incorporate standard techniques such as field filtering to minimize the effects of turbidity.

Former Fort Ord Constituents

Given the historical land use of the former Fort Ord lands, the MRWPCA field program included groundwater analyses for chemicals of concern associated with former Fort Ord activities. The six groundwater samples from the MRWPCA field program were analyzed for 17 explosive compounds (nitroaromatics and nitramines) by U.S. Environmental Protection Agency (EPA) Method 8330B. In addition, two metals associated with explosive compounds (beryllium and lead) were also analyzed. These data were compared to available California primary drinking water MCLs and California Notification Levels (NLs)[17] and are summarized in **Table 4.10-7, Groundwater Quality Results for Explosives and Associated Metals**.

Table 4.10-7
Groundwater Quality Results for Explosives and Associated Metals

Constituent	Wells with Detections*	Minimum Reporting Limit (RL)	Detected or Reported Concentration	California Primary MCL	California NL	Comments
		μg/L				
Explosives*						
HMX (cyclotetramethylene tetranitramine)	None	0.099-0.12	ND	None	350	
RDX (cyclotrimethylene trinitramine) (cyclonite)	None	0.099-0.12	ND	None	0.3	
1,3,5- TNB (trinitrobenzene)	None	0.20-0.22	ND	None	None	
1,3-dinitobenzene	None	0.098-0.12	ND	None	None	
3,5-dinitoaniline	None	0.098-0.30	ND	None	None	
TETRYL (2,4,6 trinitro-phenylmethyl-nitramine)	None	0.10-0.12	ND	None	None	
nitrobenzene	None	0.099-0.12	ND	None	None	
4-Amino-2,6-dinitrotoluene	None	0.098-0.11	ND	None	None	
2-amino-4,6-dinotrotoluene	None	0.098-0.11	ND	None	None	
2,4,6-trinitrotoluene (TNT)	None	0.098-0.11	ND	None	1	
2,6-DNT (dinitrotoluene)	FO-7 Shallow	0.20	0.070***	None	None	high turbidity
	FO-7 Deep	0.23	0.064***	None	None	slightly turbid
	ASR MW-1	0.10	0.037***	None	None	
2,4-DNT (dinitrotoluene)	None	0.10	ND	None	None	
2-nitrotoluene	None	0.11	ND	None	None	
4-nitrotoluene	None	0.098-0.12	ND	None	None	
3-nitrotoluene	None	0.098-0.12	ND	None	None	
NG (nitroglycerine) (triniroglycerol)	None	0.99-1.2	ND	None	None	
Pentaerythritol tetranitrate	None	0.49-0.56	ND	None	None	
Metals**						
Beryllium (Be)	ASR-2	0.050	0.7	4		
	FO-7 Shallow	0.020	0.68			high turbidity
	MRWPCA MW-1	0.020	0.044			turbid
Lead (Pb)	ASR-1	0.020	0.78	15		
	ASR-2	0.010	3.0			

[17] NLs are non-regulatory, health-based advisory levels established by the SWRCB Division of Drinking Water for contaminants in drinking water for which MCLs have not been established. A NL represents the concentration of a contaminant in drinking water that the Division of Drinking Water has determined does not pose a significant health risk, but warrants notification to the local governing body.

	FO-7 Shallow	0.020	**42.0**			high turbidity
	FO-7 Deep	0.080	1.3			slightly turbid
	PRTIW: Mission Memorial	0.020	0.061			
	MRWPCA MW-1	0.020	1.3			turbid
	Paralta	0.001	3.0			

Notes:
* Nitroaromatics and nitramines by EPA Method 8330B: Samples received and submitted by Alpha Analytical Laboratory, Ukiah, CA to ALS Environmental (ALS), Kelso, WA on February 5, 2014; analyzed by ALS on February 8, 2014.
****** Metals by EPA Method 200.8 analyzed by Alpha Analytical Laboratory, Ukiah, CA, February 5-11, 2014.
***Constituent also detected in laboratory blank indicating a laboratory contaminant that may not be present in groundwater. All detections were below Reporting Limits (J values) and are not quantifiable.
µg/L = micrograms per liter or parts per billion (ppb)
MCL = Maximum Contaminant Level for drinking water
ND = Not detected above the method detection level for any of the samples from the six wells.

As shown in **Table 4.10-7**, the only explosive constituent detected in groundwater samples was 2,6-DNT (dinitrotoluene). This constituent was also detected in laboratory blank samples, which are samples of laboratory water (not groundwater) analyzed for quality assurance/quality control (QA/QC) purposes. Detections of this constituent at similar levels in the laboratory blank sample indicate that 2,6-DNT is likely a laboratory contaminant and is not actually present in groundwater. Although the constituent may be present in several groundwater *samples*, the laboratory blank data suggest that it was introduced into the samples in the laboratory. Further, detections of 2,6-DNT in FO-7 Shallow, FO-7 Deep, and ASR MW-1 were below the laboratory reporting level (RL[18]), meaning that the concentration of 2,6-DNT in samples is too low to be quantified. Given the laboratory QA/QC data for 2,6-DNT, the low levels of the detections, and the absence of additional explosives in groundwater, data indicate that groundwater has not been impacted locally from explosives associated with former Fort Ord activities.

For the metals analysis, both beryllium and lead – as naturally occurring substances – were detected in several groundwater wells above the RLs. Beryllium was detected in groundwater collected from ASR-2, FO-7 Shallow, and MRWPCA MW-1, although all of the detections met the California Primary MCL for drinking water. Other wells in the database did not detect beryllium above the laboratory RLs.

Lead was also detected in groundwater collected from ASR-1, ASR-2, FO-7 Shallow, FO-7 Deep, Mission Memorial PRTIW, MRWPCA MW-1, and Paralta. The detection in FO-7 Shallow (42 µg/L) was above the MCL (15 µg/L), but appears anomalous with respect to other detections of lead in the database. The concentration in FO-7 Shallow of 42 µg/L is the highest concentration in the database by an order of magnitude, which included lead analyses from 13 wells sampled from 2011 through 2014. The second highest concentration was detected in ASR-2 at 3.0 µg/L (also included on **Table 4.10-7**). Except for FO-7 Shallow, all of the detections were below the MCL for lead.

As previously mentioned, the 2014 sampling of FO-7 Shallow was the first time that this small-diameter monitoring well had been sampled for water quality since its original sampling upon well completion. Sampling produced a highly turbid sample (550 NTU), likely relating to the inability to properly develop the well when installed in 1994 as a water level monitoring well. As such, the metals analytical data are likely the result of particle interference and are not likely representative of dissolved lead concentrations in groundwater. The general chemistry (geochemistry) provides additional evidence that particle interference resulted in accuracy problems in samples from this well.

[18] Also called the Minimum Reporting Level or MRL.

Given the absence of explosives and the relatively low levels of beryllium and lead (with the exception of FO-7 Shallow where data appear to be inaccurate as explained above), the data do not indicate that former Fort Ord activities have impacted groundwater in the existing wells near the Proposed Project Injection Well Facilities site.

Constituents of Emerging Concern

As defined in the SWRCB Recycled Water Policy, constituents of emerging concern (CECs) are chemicals in personal care products (PCPs), pharmaceuticals including antibiotics, antimicrobials, agricultural and household chemicals, hormones, food additives, transformation products and inorganic constituents. These chemicals have been detected in trace amounts in surface water, wastewater, recycled water, and groundwater. The Recycled Water Policy includes monitoring requirements for six CECs for subsurface application groundwater replenishment projects using recycled water, four of which are used as health-based indicators and others serving as performance-based indicators.

In addition to the Recycled Water Policy CECs, as part of the SWRCB regulations for groundwater replenishment projects with recycled water, a project sponsor must recommend CECs for monitoring in recycled water and potentially in groundwater in the project's Engineering Report. For injection projects that use recycled water that has been treated using reverse osmosis (RO) and an advanced oxidation process (AOP), like the Proposed Project, the monitoring requirements in the Recycled Water Policy only apply to recycled water prior to and after RO/AOP treatment (i.e., no groundwater sampling).

None of the CECs currently have regulatory limits. The Recycled Water Policy includes monitoring trigger levels (MTLs) for the four health-based CEC indicators and response actions to be taken by groundwater replenishment project sponsors based on monitoring results compared to the MTLs. The MTLs were based on Drinking Water Equivalent Levels (DWELs). A DWEL represents the amount of a CEC in drinking water that can be ingested daily over a lifetime without appreciable risk. The following CECs from the Recycled Water Policy are those with health-based indicators, treatment/performance based indicators, or both as indicated below in parentheses.

- 17-*β*-estradiol - steroid hormone (health-based indicator)
- Caffeine – stimulant (health-based and performance-based indicator)
- N-nitrosodimethylamine (NDMA) – disinfection byproduct (health-based and performance-based indicator) [Note: NDMA's current California NL is 0.01 μg/L]
- Triclosan – antimicrobial (health-based indicator)
- N,N-diethyl-metatoluamide (DEET) – ingredient in personal care products (performance-based indicator)
- Sucralose – food additive (performance-based indicator)

To provide baseline conditions for these CECs in the Seaside Basin, the six wells sampled in the MRWPCA field program were analyzed for the six CECs with advisory levels and other pharmaceuticals/PCPs included in EPA Laboratory methods 1625M and 1694 (APCI and ESI+). Groundwater samples were analyzed from ASR MW-1, City of Seaside 4, FO-7 Shallow, FO-7 Deep, PRTIW Mission Memorial, and MRWPCA MW-1. Full results are provided in **Appendix D**. Detections of the six CECs are summarized in **Table 4.10-8, Groundwater Sample Analyses for CECs**.

Table 4.10-8
Groundwater Sample Analyses for CECs

Constituent*	Wells with Detections**	Minimum Reporting Limit (RL)	Detected or Reported Concentration	Comments
		µg/L***		
NDMA (nitrosodimethylamine)	PRTIW (Mission Memorial)	0.002	0.0054	NL =0.01
17-β-estradiol	None	0.001	ND	
Triclosan	None	0.002	ND	
Caffeine	FO-7 Deep	0.001	0.0027	
	MRWPCA MW-1		0.0068	
DEET (n,n-diethyl-m-toluamide)	FO-7 Deep	0.001	0.0023	
	MRWPCA MW-1		0.0060	
Sucralose	None	0.005	ND	

Notes:
***** NDMA by EPA Method 1625M; 17-β-estradiol and triclosan by EPA Method 1694-APCI**;** caffeine, DEET, and sucralose by EPA 1694-ESI+.
****** Groundwater analyzed from wells ASR-1, City of Seaside 4, FO-7 Shallow, FO-7 Deep, PRTIW Mission Memorial, and MRWPCA MW-1.
*** Analyses reported on laboratory analytical data sheets in nanograms per liter (ng/L) or parts per trillion. Converted to micrograms per liter (µg/L) or parts per billion (ppb).
Samples received by Alpha Analytical Laboratory, Ukiah, CA; submitted to Weck Laboratories, Inc. (Weck), City of Industry, CA, on February 5, 2014; analyzed by Weck from February 11 to February 19, 2014.
MCL = Maximum Contaminant Level for drinking water.
ND = Not detected.
NL = Notification level.

As indicated in **Table 4.10-8**, NDMA was detected in groundwater collected from the PRTIW Well at 0.0054 µg/L (below the NL); caffeine was detected in FO-7 Deep and MRWPCA MW-1 at 0.0027 and 0.0068 µg/L, respectively (below the DWEL of 0.35 µg/L per Anderson et al., 2010). DEET was detected in FO-7 Deep and MRWPCA MW-1 at 0.0023 and 0.0060 µg/L, respectively (below the DWEL of 81 µg/L per Intertox, 2009). Estradiol (17-β), triclosan, and sucralose were not detected above RLs in groundwater collected from any of the six wells.

These data represent the first time that CECs have been analyzed in the Seaside Basin and serve as initial background data. The data will be confirmed through future groundwater sampling events that will support the monitoring program to be included in the Proposed Project's Engineering Report. Nonetheless, only a few constituents were detected at very low levels (all less than 0.01 µg/L) and the detected levels of these constituents meet advisory or safe health concentrations.

Local Anthropogenic Groundwater Contamination by Others

The California Department of Toxic Substances Control (DTSC) *EnviroStor* web site (www.envirostor.dtsc.ca.gov) and the SWRCB *Geotracker* web site (http://geotracker.waterboards.ca.gov) were searched to identify any potential industrial sites or activities that could contribute to groundwater contamination from previous site uses, spills, and/or chemical releases in the Injection Well Facilities area.

Both *EnviroStor* and *Geotracker* listed the 28,016-acre Fort Ord Military Reservation as an active Federal Superfund site and listed munitions as the contaminant of primary concern. Additionally, *Geotracker* identified two adjacent sites on the former Fort Ord lands as gasoline contamination sites: 1): the 14th Engineers Motor Pool, and 2) Building 511. These are active sites currently undergoing investigations and are located about 1.8 miles to the northeast of the proposed Injection Well Facilities site. However, both sites are outside of the Seaside Basin and are not a threat to groundwater in the Injection Well Facilities area.

Other contamination sites have been identified in the basin, including numerous leaking underground storage tank sites, but none were in the Proposed Project Injection Well Facilities area. Specifically, there were no existing contaminant sites identified in the area between Proposed Project injection locations and downgradient extraction wells. There are no existing groundwater contaminant plumes in the Seaside Groundwater Basin study area.

Seaside Basin Recharge and Overall Water Balance

The Salt and Nutrient Management Plan estimated the average rainfall to be 16.5 inches per year based on averaging measurements from the closest two climate stations (one in Salinas and one in Monterey) for Water Years 1959 through 2011. Runoff on the rolling hills collects in low areas and provides recharge to the Seaside Basin. The total amount of recharge due to deep percolation of rainfall is 2,258 AFY. The water balance for the Seaside Basin is presented in **Table 4.10-9, Seaside Basin Water Balance**, below (HydroMetrics WRI, 2014).

Table 4.10-9
Seaside Basin Water Balance

Water Balance Component	Northern Coastal	Northern Inland	Southern Coastal	Laguna Seca	Basin Total
Inflows (AFY)					
Precipitation	78	1,450	30	700	2,258
Groundwater Underflow					
From Onshore	2,850	0	450	180	180*
From Offshore	100	0	0	0	100
ASR Wells (Injection)	625	0	0	0	625
Water Distribution System Losses	411	0	21	46	478
Sewer Distribution System Losses	77	0	9	19	105
Septic Systems	0	0	5	22	27
Irrigation Infiltration					
Golf Courses	85	0	0	88	173
Landscaping	461	0	52	114	627
Recycled Water Irrigation	0	0	0	9	9
Storm Water	68	0	37	0	105
Total Inflow	***4,754***	***1,450***	***604***	***1,177***	***7,985***
Outflows (AFY)					
Groundwater Pumping	4,278	0	227	869	5,374
Groundwater Underflow					
To Onshore	0	2,060	790	450	0*
To Offshore	70	0	30	0	100
Total Outflow	***4,348***	***2,060***	***1,047***	***1,319***	***8,774***
Storage Change (Inflow - Outflow)	**406**	**-610**	**-443**	**-142**	**-789**

* This value is not equal to the sum of the four subarea columns; it is a summary for the entire basin which is made up of all four subareas combined. The subarea columns are a summary of the water balance for each subarea. The four subarea columns include exchanges of groundwater between subareas, as they are an important source of loading and removal of salts and nutrients for individual subareas. The basin-wide value, however, only considers inputs to or outputs from the entire basin. The net values (total groundwater inflow less total groundwater outflow) derived from each approach are equivalent.

Note: Water Balance combines annual average values from selected recent representative time periods as follows: Inflows (except Underflow) 2008 – 2012; Groundwater Underflow 2003 – 2007; Groundwater Pumping 2011 – 2012. (Source: Hydrometrics, WRI, 2014)

4.10.3 Regulatory Framework

4.10.3.1 Federal

Federal Safe Water Drinking Act

The Federal Safe Drinking Water Act allows the EPA to promulgate national primary drinking water standards specifying MCLs for each contaminant present in a public water system with an adverse effect on human health, taking into consideration cost and technical feasibility. Primary MCLs have been established for approximately 90 contaminants in drinking water. In cases where the maximum contaminant levels cannot be feasibly ascertained, the EPA may elect to identify and establish a schedule of "treatment techniques" preventing adverse effects on human health to the extent feasible. EPA also adopts secondary MCLs as non-enforceable guidelines for contaminants that may cause cosmetic or aesthetic effects. States have the discretion to adopt them as enforceable standards.

Primary drinking water MCLs are established in two steps. The EPA establishes maximum contaminant level goals. The maximum contaminant level goals have been historically set at zero for microbial and carcinogenic contaminants. Once the maximum contaminant level goal is established, the EPA determines the feasible maximum contaminant level or treatment technology level that may be achieved with the use of the best available technology and treatment techniques, and taking cost into consideration.

There are also a variety of chemicals of health concern whose occurrence is too infrequent in conventional drinking water sources to justify the establishment of national standards, but are addressed using advisory levels. The EPA establishes health advisories to address many of these latter chemicals.

Environmental Protection Agency Injection Well Registration

The EPA administers the Underground Injection Control (UIC) Program, which contains requirements for various classes of injection wells in the state. The Injection Well Facilities associated with the Proposed Project would be designated as Class V wells under the UIC program. Any injection project planned in California must meet the State Sources of Drinking Water Policy, which ensures protection of groundwater quality for drinking water supplies, and therefore an EPA UIC permit would not be necessary. Prior to operation, the Proposed Project wells must be registered on the UIC injection well database maintained by EPA.

4.10.3.2 State

Sustainable Groundwater Management Act

On September 16, 2014, Governor Edmund G. Brown Jr. signed three bills – Assembly Bill (AB) 1739 by Assembly member Roger Dickinson and Senate Bills (SB) 1168 and 1319 by Senator Fran Pavley -- which create a framework for sustainable, local groundwater management for the first time in California history. The legislation allows local agencies to tailor groundwater sustainability plans to their regional economic and environmental needs. The legislation has the following two principles: (1) groundwater is best managed at the local or regional level, and local agencies should have the tools they need to sustainably manage their resources, including the necessary authority, better technical information and financial resources; and (2) the state may intervene temporarily when local or regional agencies cannot or will not manage their groundwater sustainably to ensure the protection of the groundwater basin and its users from overdraft, subsidence, and other problems.[19] This recent legislation has potential implications for management of the Salinas Valley Groundwater Basin. The Seaside Basin is subject to a court-ordered adjudication; therefore, would not be subject to many provisions of the Sustainable Groundwater Management Act (aside from annual reporting requirements).

State Water Resources Control Board Policies Related to Groundwater

Anti-degradation Policies

California's anti-degradation policies are found in Resolution 68-16, Policy with Respect to Maintaining Higher Quality Waters in California, and Resolution 88-63, Sources of Drinking Water Policy.[20] They apply to both surface waters and groundwaters (and thus groundwater replenishment projects), protect both existing and potential beneficial uses of surface water and groundwater, and are incorporated into RWQCB Water Quality Control Plans (e.g., Basin Plans).

The Anti-degradation Policy requires that existing high water quality be maintained to the maximum extent possible, but allows lowering of water quality if the change is "consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated use of such water (including drinking), and will not result in water quality less than prescribed in policies." The Anti-degradation Policy also stipulates that any discharge to existing high quality waters will be required to "meet waste discharge requirements which will result in the best practicable treatment or control of the discharge to ensure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

Sources of Drinking Water Policy

The Sources of Drinking Water Policy (adopted as Resolution 88-63) designates the municipal and domestic supply (MUN) beneficial use for all surface waters and groundwater except for those waters: (1) with total dissolved solids exceeding 3,000 mg/L, (2) with contamination that cannot reasonably be treated for domestic use, (3) where there is insufficient water supply, (4) in systems designed for wastewater collection or conveying or holding agricultural drainage, or (5) regulated as a geothermal energy producing source. Resolution 88-63 addresses only designation of water as drinking water source; it does not establish objectives for constituents that threaten source waters designated as MUN.

Recycled Water Policy

The Recycled Water Policy was adopted by the SWRCB in February 2009. It was subsequently amended in 2013 with regard to CEC monitoring for groundwater replenishment projects. The Recycled Water Policy was a critical step in creating uniformity in how RWQCBs were individually interpreting and implementing the Anti-degradation Policy in Resolution 68-16 for water recycling projects, including groundwater replenishment projects such as the Proposed Project. The critical provisions in the Policy related to groundwater replenishment projects are discussed in the following subsections.

[19] See Groundwater Legislation Implementation Fact Sheet, at grac.org/documents/2014/**Groundwater-Fact-Sheet**.pdf.
[20] See http://www.swrcb.ca.gov/plans_policies/.

Salt/Nutrient Management Plans

In recognition that some groundwater basins in the state contain salts and nutrients that exceed or threaten to exceed Basin Plan groundwater objectives, and that some Basin Plans do not have adequate implementation measures to achieve compliance, the Recycled Water Policy includes provisions for managing salts and nutrients on a regional or watershed basis through development of Salt and Nutrient Management Plans (SNMP) rather than imposing requirements on individual recycled water projects (which had been the practice prior to adoption of the Recycled Water Policy). Unfavorable groundwater salt and nutrient conditions can be caused by natural soils, discharges of waste, irrigation using surface water, groundwater, or recycled water, and water supply augmentation using surface or recycled water (although treating the recycled water through reverse osmosis prior to application would typically prevent these unfavorable). The Recycled Water Policy recognizes that regulation of recycled water alone will not address these conditions.

SNMPs are to be developed for every groundwater basin/sub-basin by May 2014 (May 2016 with a RWQCB-approved extension). The SNMP must identify salt and nutrient sources; identify basin/sub-basin assimilative capacity and loading estimates; and evaluate the fate and transport of salts and nutrients. The SNMP must include implementation measures to manage salt and nutrient loadings in the basin on a sustainable basis and an anti-degradation analysis demonstrating that all recycling projects identified in the plan will collectively satisfy the requirements of Resolution No. 68-16. The SNMP must also include an appropriate cost effective network of monitoring locations to determine if salts, nutrients and other constituents of concern (as identified in the SNMPs) are consistent with applicable water quality objectives. The MPWMD and HydroMetrics prepared a SNMP specific to the Seaside Basin in 2014, but there has not been a SNMP prepared for the Salinas Valley Groundwater Basin (see **Section 4.10.3.3** for more information on the status and contents of the relevant SNMP).

Regional Water Quality Control Board Groundwater Requirements

The Recycled Water Policy does not limit the authority of a RWQCB to impose more stringent requirements for groundwater replenishment projects to protect designated beneficial uses of groundwater, *provided* that any proposed limitations for the protection of public health may only be imposed following regular consultation with the California DDW. The Recycled Water Policy also does not limit the authority of a RWQCB to impose additional requirements for a proposed groundwater replenishment project that has a substantial adverse effect on the fate and transport of a contaminant plume (for example those caused by industrial contamination or gas stations), or changes the geochemistry of an aquifer thereby causing the dissolution of naturally occurring constituents, such as arsenic, from the geologic formation into groundwater. These provisions require additional assessment of the impacts of a groundwater replenishment project on areas of contamination in a basin and/or if the quality of the water used for replenishment causes constituents, such as naturally occurring arsenic, to become mobile and impact groundwater.

Anti-degradation and Assimilative Capacity

Assimilative capacity is the ability for groundwater to receive contaminants without detrimental effects to human health or other beneficial uses. It is typically derived by comparing background ambient chemical concentrations in groundwater to the concentrations of the applicable Basin Plan groundwater quality objectives. The difference between the ambient concentration and groundwater quality objective is the available assimilative capacity.

The Recycled Water Policy establishes two assimilative capacity thresholds in the absence of an adopted SNMP. A groundwater replenishment project that utilizes less than 10% of the available assimilative capacity in a groundwater basin/sub-basin (or multiple projects utilizing less than 20% of the available assimilative capacity in a groundwater basin/sub-basin) are only required to conduct an anti-degradation analysis verifying the use of the assimilative capacity. In the event a project or multiple projects utilize more than the designated fraction of the assimilative capacity (e.g., 10% for a single project or 20% for multiple projects), the project proponent must conduct a RWQCB-deemed acceptable (and more elaborate) anti-degradation analysis. A RWQCB has the discretionary authority to allocate assimilative capacity to groundwater replenishment projects. There is a presumed assumption that allocations greater than the Recycled Water Policy thresholds would not be granted without concomitant mitigation or an amendment to the Basin Plan groundwater quality objective to create more assimilative capacity for allocation. Groundwater replenishment projects that utilize advanced treated recycled water will use very little to essentially none of the available assimilative capacity because of the high quality of the water.

Division of Drinking Water

California's drinking water program was originally created in 1915, when the California State Board of Health established the Bureau of Sanitary Engineering. In 1976, two years after the Safe Drinking Water Act was passed, California adopted its own safe drinking water act (contained in the Health and Safety Code) and adopted implementing regulations (contained in Title 22 California Code of Regulation). The state's act had two main goals: (1) to continue the state's drinking water program, and (2) to be the delegated authority (referred to as the "primacy") by the EPA for enforcement of the federal Safe Drinking Water Act. As required by the federal act, California's program must set drinking water standards that are at least as stringent as the EPA's standards. Each community water system also must monitor for a specified list of contaminants, and the findings must be reported to the state.

The DDW regulates public water systems, oversees water recycling projects, permits water treatment devices, supports and promotes water system security, and performs a number of other functions. DDW has adopted enforceable primary and secondary MCLs.[21] The MCLs are either based on the federal MCLs or as part of DDW's own regulatory process. For example, California has an MCL for perchlorate while there is no federal MCL. The MCLs take into account not only chemicals' health risks, but also factors such as their detectability and treatability, as well as costs of treatment. Health and Safety Code Section116365(a) requires a contaminant's MCL to be established at a level as close to its Public Health Goal (PHG) as is technologically and economically feasible, placing primary emphasis on the protection of public health. The Office of Environmental Health Hazard Assessment (OEHHA) established PHGs. They are concentrations of drinking water contaminants that pose no significant health risk if consumed for a lifetime, based on current risk assessment principles, practices, and methods. OEHHA establishes PHGs pursuant to Health and Safety Code Section116365(c) for contaminants with MCLs, and for those for which MCLs

[21] A comparison of EPA and California primary MCLs, see http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/dwdocuments/MCLsEPAvsDWP-2014-07-01.pdf; California secondary MCLs are available at: http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/recentlyadoptedregulations/R-21-03-finalregtext.pdf.

will be adopted.

Public water systems use PHGs to provide information about drinking water contaminants in their annual Consumer Confidence Reports. Certain public water systems must provide a report to their customers about health risks from a contaminant that exceeds its PHG and about the cost of treatment to meet the PHG, and hold a public hearing on the report.

There are also a variety of chemicals of health concern whose occurrence is too infrequent in conventional drinking water sources to justify the establishment of national standards, but are addressed using advisory levels. The DDW, with the assistance of OEHHA, has established NLs and Response Levels for that purpose.[22] If a chemical concentration is greater than its NL in drinking water, the utility that distributes the water must inform its customers and consumers about the presence of the chemical, and about health concerns associated with exposure to it. If a chemical is present in drinking water that is provided to consumers at concentrations greater than the Response Levels (10 to 100 times greater than the NL depending on the toxicological endpoint of the constituent), DDW recommends that the source be taken out of service.

Final Groundwater Replenishment with Recycled Water Regulations hereafter, referred to as "Groundwater Replenishment Regulations," went into effect June 18, 2014 (SWRCB, 2014). The overarching principles taken into consideration by DDW in developing the Groundwater Replenishment Regulations were:

- Groundwater replenishment projects are replenishing groundwater basins that are used as sources of drinking water.
- Control of pathogenic microorganisms should be based on a low tolerable risk that was defined as an annual risk of infection[23] from pathogen microorganisms in drinking water of one in 10,000 (10^{-4}). This risk level is the same as that used for the federal Surface Water Treatment Rule for drinking water.
- Compliance with drinking water standards for regulated chemicals.
- Controls for unregulated chemicals.
- No degradation of an existing groundwater basin used as a drinking water source.
- Use of multiple barriers to protect water quality and human health.
- Projects should be designed to identify and respond to a treatment failure. A component of this design acknowledges that groundwater replenishment projects inherently will include storage in a groundwater aquifer and include some natural treatment.

The key provisions of the Groundwater Replenishment Regulations that apply to subsurface application (e.g., the use of injection or vadose zone wells) that use 100% recycled water for application are summarized in **Table 4.10-10**.

Table 4.10-10
Summary of June 2014 Groundwater Replenishment Regulations

Control Mechanism	Requirements
Source Control	Entities that supply recycled water to a groundwater replenishment project must administer a comprehensive source control program to prevent undesirable chemicals from entering wastewater. The source control

[22] See http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/NotificationLevels.shtml

[23] There is a difference between infection and disease. Infection, often the first step, occurs when a pathogen enters a body and begins to multiply. Disease occurs when the cells in the body are damaged as a result of the infection and signs and symptoms of an illness appear. Infection necessarily precedes disease, but infection typically only leads to disease in a fraction of cases. Many factors influence the infection-to-disease ratio.

Table 4.10-10
Summary of June 2014 Groundwater Replenishment Regulations

Control Mechanism	Requirements
	program must include: (1) an assessment of the fate of DDW and RWQCB-specified contaminants through the wastewater and recycled water treatment systems; (2) provisions for contaminant source investigations and contaminant monitoring that focus on DDW and RWQCB-specified contaminants; (3) an outreach program to industrial, commercial, and residential communities; and (4) an up-to-date inventory of contaminants.
Pathogen Control	To meet the low tolerable risk level (a basic principle of the regulations), pathogen reduction requirements have been established for treatment of recycled water similar to the approach used for drinking regulations. The Groundwater Replenishment Regulations require a project to achieve a 12-log enteric virus reduction, a 10-log *Giardia* cyst reduction, and a 10-log *Cryptosporidium* oocyst reduction using at least 3 treatment barriers. To ensure that a barrier is significant, each barrier must achieve at least 1.0-log reduction. No treatment process can be credited with more than a 6-log reduction. The log reductions must be verified using a procedure approved by DDW. Log reduction refers to the reduction of pathogenic microorganism concentrations on a log-scale (e.g., 3 logs is 99.9% removal). Failure to meet the specified reductions requires notification to DDW and RWQB, investigation, and/or discontinuation of recycled water use until a problem is corrected. Trussell et al. (2013) conducted an extensive review of the proposed pathogen reduction requirements in the Groundwater Replenishment Regulations and concluded that the assumptions used to derive the log reductions were conservative and provide a large factor of safety that likely reduces the actual risk of infection below the 10^{-4} level, particularly for control of the amount of a particular disease present in a community.
Nitrogen Control	To ensure protection of groundwater, the concentration of total nitrogen in recycled water must meet 10 mg/L before or after recharge. Failure to meet this value requires follow-up sampling, notification to DDW and RWQCB, and/or discontinuation of recycled water use until a problem is corrected.
Regulated Chemicals Control	The recycled water must meet drinking water MCLs as specified by the Groundwater Replenishment Regulations. Failure to meet MCLs requires follow-up sampling, notification to DDW and RWQCB, and/or discontinuation of recycled water use until the problem is corrected.
Unregulated Chemicals Control	Monitoring the concentrations and toxicities of thousands of potential organic compounds in any water supply would be an infeasible task. Control of unregulated chemicals for all groundwater replenishment projects using 100% recycled water is accomplished through criteria for full advanced treatment of the recycled water, limits for Total Organic Carbon (TOC) and performance of treatment for constituents of emerging concern (CECs). TOC is used as a surrogate for unregulated and unknown organic chemicals. For subsurface application projects (injection and vadose wells), the entire recycled water flow must be treated using RO and AOP. After treatment, the TOC in the recycled water cannot exceed an average of 0.5 mg/L. Specific performance criteria for RO and AOP processes have been included in the Groundwater Replenishment Regulations. Failure to meet the requirements established for a groundwater replenishment project results in notifications to DDW and RWQCB, response actions, and in some cases cessation of the use of recycled water.
Response Retention Time (RRT)	The intent of the RRT is to provide time to retain recycled water underground to identify any treatment failure so that inadequately treated recycled water does not enter a potable water system. Sufficient time must elapse to allow for: a response that will protect the public from exposure to inadequately treated water; and provide an alternative source of water or remedial treatment at the wellhead if necessary. The RRT is the aggregate period of time between treatment verification samples or measurements; time to make the measurement or analyze the sample; time to evaluate the results; time to make a decision regarding the appropriate response; time to activate the response; and time for the response to work. The minimum RRT is 2 months, but must be justified by the groundwater replenishment project sponsor.
Monitoring Program	Comprehensive monitoring programs are established for recycled water and groundwater for regulated and unregulated constituents.
Operation and Optimization Plan	The intent of the plan is to assure that the facilities are operated to achieve compliance with the Groundwater Replenishment Regulations, to achieve optimal reduction of contaminants, and to identify how the project will be operated and monitored.
Boundaries Restricting Locations of Drinking Water Wells	Project sponsors must establish a "zone of controlled well construction," which represents the greatest of the horizontal and vertical distances reflecting the underground retention times required for pathogen control or for the RRT. Drinking water wells cannot be located in this zone. Project sponsors must also create a "secondary boundary" representing a zone of *potential* controlled well construction that may be beyond the zone of controlled well construction, thereby requiring additional study before a drinking water well is drilled.
Adequate Managerial and Technical Capability	A project sponsor must demonstrate that it possess adequate managerial and technical capability to comply with the regulations.
Engineering Report	The project sponsor must submit an Engineering Report to DDW and RWQCB that indicates how a groundwater replenishment project will comply with all regulations and includes a contingency plan to insure that no untreated or inadequately treated water will be used. The report must be approved by DDW.
Reporting	Annual reports must be submitted to DDW, RWQCB, and groundwater providers downgradient of injection wells; the Engineering Report must be updated every 5 years.
Alternatives	Alternatives to any of the provisions are allowed if: the project sponsor demonstrates that the alternative provides the same level of public health protection; the alternative has been approved by DDW; and an expert panel has reviewed the alternative unless otherwise specified by DDW.

Table 4.10-10
Summary of June 2014 Groundwater Replenishment Regulations

Control Mechanism	Requirements
Public Hearing	The project sponsor must hold a public hearing for a groundwater replenishment project after DDW approves the Engineering Report; based on the Engineering Report, the hearing, and public comments, DDW issues a conditional approval letter to the RWQCB for inclusion in the Waste Discharge Requirements and/or Water Reclamation Requirements issued by the RWQCB. Thus, including the hearing for the RWQCB permit, there are two public hearings for a groundwater replenishment project. Should DDW obtain primacy for issuing groundwater replenishment permits, the RWQCB would provide recommendations and conditions for inclusion in the WDRs and/or WRRs and the SWRCB would hold the permit hearing.

Order No. 2003-0003-DWQ, Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality

SWRCB Order No. 2003-0003-DWQ established a statewide Waste Discharge Requirements order regulating certain wastes that are low volume discharges with minimal pollutant concentrations. The order allows these wastes to be discharged to land without the preparation of a Report of Waste Discharge. The order addresses the discharge of well development water, monitoring well purge water, and boring waste directly to the land surface so long as the discharge is in a controlled manner that does not result in erosion or other adverse effects. The Central Coast RWQCB General Order WQ-2011-0223, *Waste Discharge Requirements NPDES General Permit for Discharges with Low Threat to Water Quality*, and the Central Coast –RWQCB Resolution R3-2008-0010, *General Waiver for Specific Types of Discharges*, discussed further below, provide further details on how this would apply to the Proposed Project.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California and defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the Central Coast RWQCB conducts planning, permitting, and enforcement activities. The California Water Code requires the RWQCB to establish a regional Basin Plan with beneficial uses of inland surface waters and groundwaters and the water quality objectives to protect those uses. A distinction is made in the Basin Plan between the terms "water quality objectives" and "water quality standards". Water quality objectives have been adopted by the RWQCB and, when applicable, extended as federal water quality standards. Water quality standards, pertain to navigable waters and become legally enforceable criteria when accepted by the EPA. Therefore, the Basin Plan forms the regulatory references for meeting state and federal requirements for water quality control. The Basin Plan incorporates the SWRCB Anti-degradation Policy and references other applicable policies, such as the Sources of Drinking Water Policy and the Recycled Water Policy as previously described. The Basin Plan requirements for the Proposed Project for the study areas are discussed below in the Local Regulations subsection.

The requirements in the California Water Code would apply to the proposed Salinas Treatment Facility Storage and Recovery, the Treatment Facilities at the Regional Treatment Plant, and the Injection Well Facilities because the changes in operations of the treatment facilities and the injection of purified recycled water would be required to comply with the Basin Plan objectives, discussed in the Local Regulations subsection further below.

4.10.3.3 Regional and Local

Central Coast RWQCB Basin Plan

The Central Coast RWQCB, under the authority of the California Water Code, is responsible for authorizing and regulating activities that may discharge wastes to surface water or groundwater resources. This authority includes adoption of Basin Plans (Section 13240) with beneficial uses and water quality objectives (both narrative and numeric) to reasonably protect those uses (Section 13050). The Basin Plan also establishes guidelines for water used for irrigation. The Basin Plan for the Central Coast was originally adopted in 1971 and was last amended in 2011.[24]

For the Seaside Basin, where the Injection Well Facilities would be constructed and the purified recycled water would be used for groundwater replenishment, the applicable beneficial uses for groundwater resources are: agricultural water supply (AGR), municipal and domestic water supply (MUN), and industrial use (IND). The Basin Plan has:

- General narrative groundwater objectives that apply to all groundwaters for taste and odor and radioactivity.
- For MUN beneficial uses - groundwater criteria for bacteria and DDW primary and secondary MCLs.
- For AGR beneficial uses - objectives to protect soil productivity, irrigation, and livestock watering and guidelines to interpret a general narrative objective to prevent adverse effects on the beneficial use.

Permit limits for groundwater replenishment projects are set to ensure that groundwater does not contain concentrations of chemicals in amounts that adversely affect beneficial uses or degrade water quality. For some specific groundwater sub-basins, the Basin Plan establishes specific mineral water quality objectives for total dissolved solids, chloride, sulfate, boron, sodium, and nitrogen. No specific numeric objectives have been established in the Basin Plan for the Seaside Basin for these constituents other than those with maximum contaminant levels.

The proposed new source water diversions to the Regional Treatment Plant and any impacts on tertiary recycled water would also be subject to Basin Plan for the Salinas Valley Groundwater Basin and Water Recycling Criteria in Title 22 Code of Regulation. The Salinas Valley Groundwater Basin has the same beneficial uses and water quality objectives as the Seaside Basin.

Integrated Regional Water Management Plans

Integrated regional water management (IRWM) in California was established by the DWR as a way to increase regional self-sufficiency by encouraging local water resource managers to take a proactive role in solving water management problems through collaboration with stakeholders to create innovative strategies and effective actions to achieve water management objectives. In the project study area there are two relevant IRWM regions: Greater Monterey County region and the Monterey Peninsula, Carmel Bay, and South Monterey Bay (Monterey Peninsula region). The most recent updates to the IRWM Plans for these regions were completed in 2013 and 2014.

[24] See http://www.waterboards.ca.gov/rwqcb3/publications_forms/publications/basin_plan/.

The IRWM Plans follow the criteria established by 2012 Proposition 84 and 1E IRWM Guidelines, as amended through December 2013 (Guidelines) that establish the general process and criteria that DWR uses to implement each IRWM Grant Program. DWR designed the IRWM planning process to be consistent with the California Water Plan, the overarching document that integrates all regional planning efforts and provides a collaborative planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public to develop findings and recommendations and make informed decisions for California's water future. Decisions enhanced by the IRWM planning process include funding from DWR and other agencies authorized by state Propositions, including Propositions 50 (passed by voters in 2002), 84 and 1E (passed in 2006), and the recent Water Bond, Proposition 1 (passed in 2014).

Local Salt and Nutrient Management Plans

As part of SWRCB Resolution No. 2009-0011, which established the statewide Recycled Water Policy, SNMPs for each groundwater basin in California are required by 2014, as stated previously. The SNMPs are called for to facilitate basin-wide or watershed-wide management of salts and nutrients in a manner that optimizes recycled water use while ensuring attainment of water quality objectives and protection of beneficial uses.

Seaside Basin

The SNMP for the Seaside Basin was completed and submitted to the RWQCB in 2014 to comply with the Recycled Water Policy. It has not yet been adopted into the Basin Plan. As documented in the SNMP, ambient groundwater generally exceeds the Basin Plan groundwater objective for total dissolved solids in many areas of the Seaside Basin, while nitrate and chloride concentrations generally meet Basin Plan objectives. Studies conducted to evaluate the water quality of the stabilized RO pilot plant recycled water for the Proposed Project found that the concentrations of total dissolved solids, nitrate, and chloride in the recycled water met all Basin Plan objectives. Further, these concentrations were generally lower than average concentrations in groundwater. As such, replenishment of the Seaside Basin using the Proposed Project purified recycled water would not degrade, but would provide benefits to, local groundwater quality.[25]

Salinas Valley Groundwater Basin

For the Salinas Valley Groundwater Basin, which is part of the Greater Monterey County IRWM region, the Central Coast RWQCB is currently conducting a study that is assessing salt and nutrient surface and groundwater levels, sources, and pathways in the lower Salinas River and Reclamation Ditch watersheds under a grant from the EPA. This work will include development of a simplified salt and nutrient groundwater/surface water model of the lower Salinas River watershed and groundwater basins. The study is intended to support development of salt-related Total Maximum Daily Loads (TMDLs) and regional SNMPs. The Proposed Project will be considered in this study as a potential future condition that would interact with the Salinas Valley Groundwater Basin. The study may provide additional data and information to support future management decisions related to use of recycled water.

[25] See http://seasidebasinwatermaster.org/Other/Seaside_Salt_Nutr_Plan_FINAL.PDF for more information.

Salinas Valley Groundwater Management Plan

As discussed above, several Proposed Project components are located on land overlying the Salinas Valley Groundwater Basin. The Crop Irrigation component of the Proposed Project would increase water supplies for use in the Castroville Seawater Intrusion project area, resulting in reductions in pumping by the supplemental wells in that area. In 1992, the California State Legislature adopted the Groundwater Management Act (California Water Code Part 2.7, §10753), originally enacted as AB 3030 and amended by SB 1938 in 2002. The Groundwater Management Act provided the authority to prepare groundwater management plans and encouraged local agencies to work cooperatively to manage groundwater resources within their jurisdictions and groundwater basins.

The MCWRA prepared a Groundwater Management Plan (GWMP) for the Salinas Valley Groundwater Basin. The purpose of the GWMP is to provide a comprehensive overview of the Salinas Valley Groundwater Basin and to recommend various management strategies for the basin. Specifically, this document provides the framework for the management of groundwater resources in the Salinas Valley Groundwater Basin (exclusive of the Seaside and Paso Robles subareas) and acts as a guidance document for future groundwater projects. This Proposed Project would implement several policies in that plan, including Plan Element 6: Short-Term and Long-Term Water Quality Management, and Plan Element 7: Continued Integration of Recycled Water.

Seaside Basin Adjudication and Management Plans

This section provides an overview of the Seaside Basin adjudication, Monitoring and Management & Implementation Plans, Basin Management Action Plan, and Seawater Intrusion Response Plan.

Historical and persistent low groundwater elevations caused by pumping led to concerns that seawater intrusion may threaten the Seaside Basin's groundwater resources. In 2006, an adjudication (*Cal-Am v. City of Seaside et al*.) led to the issuance of a Monterey County Superior Court decision that created the Seaside Basin Watermaster (Watermaster). The court concluded that groundwater production within the Seaside Basin exceeded the "Natural Safe Yield"[26] and therefore a physical solution was established to prevent seawater intrusion and its deleterious effects on the Basin. The Watermaster consists of nine representatives, one representative from each of the following: CalAm, City of Seaside, Sand City, City of Monterey, City of Del Rey Oaks, MPWMD, MCWRA, and two representatives from landowner groups. In 2012, the Watermaster evaluated water levels in the basin and determined that while seawater intrusion did not appear to be occurring, water levels were lower than those required to protect against seawater intrusion. Water levels were found to be below sea level in both the Paso Robles (the shallower aquifer) and the Santa Margarita Aquifers of the Seaside Basin. The threat of seawater intrusion is being reduced through triennial pumping reductions, which end in 2021 at the Natural Safe Yield of 3,000 AFY.

The Watermaster Technical Advisory Committee (TAC) has modeled several levels of groundwater recharge to the basin and concluded that supplemental water supply (injection well replenishment) is necessary to recover water levels to prevent seawater intrusion. There is a desire to achieve these levels within 20 to 25 years. Estimates of how much

[26] "Natural Safe Yield" was defined as "the quantity of Groundwater existing in the Seaside Basin that occurs solely as a result of Natural Replenishment" (California American Water v. City of Seaside, et al., Case No. 66343 (Monterey County Superior Court, 2006).

injection is required vary, but 750 to 1,000 AFY have been discussed. The Watermaster Board is considering how such a project would be financed and is encouraging local entities such as CalAm, MPWMD, and MRWPCA to consider planning for such a water supply project.

In addition to the creation of a Watermaster, the court mandated a Monitoring and Management Plan (M&MP) be developed; the M&MP was completed in September 2006. The purpose of the Seaside Basin M&MP and its associated Implementation Plan (2007) was to establish a logical, efficient and cost-effective work plan to meet the requirements of the Seaside Basin Adjudication. The Implementation Plan contains a description of the phases identified for the Implementation Plan work effort, a detailed scope, budget and schedule of tasks planned, as well as a summary of other projects underway that, in addition to implementation of the M&MP, will develop solutions to the threat of seawater intrusion and establish a maximum perennial yield for the producers who rely on the Seaside Basin for their water supply. The activities described in the 2006 M&MP have been accomplished, and the Watermaster has prepared an updated M&MP each year to address changing conditions and issues of concern. These are submitted to the Court each year as part of the Watermaster's Annual Report.

In 2008 and 2009, the Watermaster through their consultant, HydroMetrics WRI, prepared the Seawater Intrusion Response Plan and the Basin Management Action Plan. The Seawater Intrusion Response Plan is the Watermaster's contingency plan for responding to seawater intrusion in the Seaside Basin, if and when it occurs. The Seawater Intrusion Response Plan details both the indicators of seawater intrusion, and a list of recommended actions to be taken if seawater intrusion is observed. The Basin Management Action Plan describes the existing condition, identifies supplemental water supplies, groundwater management actions, and other recommendations, including the recommendation for development and use of a hydrogeologic model to evaluate proposed projects that may harm or benefit the basin. Since then a hydrogeologic model has been developed, and this model has been used to assess the impacts of the Proposed Project on the Seaside Basin. See discussions about the model in **Section 4.10.4.2**, under the section titled "Groundwater Depletion, Levels and Recharge: Seaside Basin." The Proposed Project would require that the project partners enter into a water storage agreement with the Seaside Basin Watermaster.

Plans and Policies Consistency Analysis

Table 4.10-11, Applicable Local Plans, Policies, and Regulations – Hydrology and Water Quality: Groundwater describes the state, regional, and local land use plans, policies, and regulations pertaining to groundwater hydrology and water quality that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.10-11** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.10.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

Table 4.10-11
Applicable Local Plans, Policies, and Regulations – Hydrology and Water Quality: Groundwater

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
County of Monterey	Monterey County General Plan	Public Services	Salinas Treatment Facility Storage and Recovery Reclamation Ditch, Tembladero Slough, and Blanco Drain Diversions Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy PS-2.8:** The County shall require that all projects be designed to maintain or increase the site's pre-development absorption of rainfall (minimize runoff), and to recharge groundwater where appropriate. Implementation shall include standards that could regulate impervious surfaces, vary by project type, land use, soils and area characteristics, and provide for water impoundments (retention/detention structures), protecting and planting vegetation, use of permeable paving materials, bioswales, water gardens, and cisterns, and other measures to increase runoff retention, protect water quality, and enhance groundwater recharge.	**Consistent:** The proposed new pipelines would be buried below the ground surface, mainly within existing developed or disturbed areas, and would therefore result in no effect on the absorption of rainfall. The Treatment Facilities at the Regional Treatment Plant would be constructed in unpaved areas and all rainwater would be routed to the permeable surrounding sandy soils. The Salinas Treatment Facility Storage and Recovery component would change operations at the existing facility that affect recharge to groundwater, but as described under Impact GW-3, where it describes how the Proposed Project would result in an overall benefit to groundwater supplies in the Salinas Valley Groundwater Basin.
County of Monterey	Monterey County General Plan	Public Services	Salinas Treatment Facility Storage and Recovery Reclamation Ditch, Tembladero Slough, and Blanco Drain Diversions Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy PS-2.9:** The County shall use discretionary permits to manage construction of impervious surfaces in important groundwater recharge areas in order to protect and manage groundwater as a valuable and limited shared resource. Potential recharge area protection measures at sites in important groundwater recharge areas may include, but are not limited to, the following: a. Restrict coverage by impervious materials. b. Limit building or parking footprints. c. Require construction of detention/retention facilities on large-scale development project sites overlying important groundwater recharge areas as identified by Monterey County Water Resources Agency. The County recognizes that detention/retention facilities on small sites may not be practical, or feasible, and may be difficult to maintain and manage.	**Consistent:** The Proposed Project includes only small areas of increased impervious surfaces. New impervious areas will occur at the Treatment Facilities at the Regional Treatment Plant, at each of the Booster Pump Stations and at each well cluster at Injection Well Facilities; however, at those sites all runoff will be directed to on-site or nearby unpaved areas and allowed to percolate.
County of Monterey (coastal zone & inland areas)	Monterey County Code	Water Wells	Injection Well Facilities	**Section 15.08.030:** Permit—Required. No person shall construct, repair, reconstruct or destroy any well, abandoned well, cathodic protection well, observation well, monitoring well, or test well unless a written permit has first been obtained from the Health Officer of the County or his or her authorized representative as provided in this Chapter.	**Consistent:** As described in Chapter 3, Project Description, MRWPCA proposes and would be required to obtain a Well Construction Permit from the Monterey County Department of Environmental Health prior to commencement of project well construction.
County of Monterey (coastal zone & inland areas)	Monterey County Code	Water Wells	Injection Well Facilities	**Section 15.08.110:** Technical Standards. a. Standards. Standards for the construction, repair, reconstruction of or destruction of wells shall be as set forth in Chapter II and Appendices A, B, C D of the Department of Water Resources Bulletin No. 74-81, "Water Well Standards" (December, 1981).	**Consistent:** As a part of the proposed project, the construction of the wells will be incompliance with DWR Bulletin 74-81.
County of Monterey (coastal zone & inland areas)	Monterey County General Plan	Safety	Injection Well Facilities	**Policy S-3.2:** Best Management Practices to protect groundwater and surface water quality shall be incorporated into all development.	**Consistent:** The proposed project would be subject to the state Construction General Permit, and the RWQCB Resolution R3-2013-0032c, which require construction-related best management practices to prevent concentrated storm water runoff, soil erosion, and release of construction site contaminants. Surface water quality is discussed in Section 4.11 Hydrology and Water Quality: Surface Water.
City of Marina	City of Marina General Plan	Community Infrastructure	RUWAP Alignment Option Coastal Alignment Option RUWAP Booster Pump Station Option	**Policy 3.3:** The intent of the General Plan Transportation and Infrastructure Element is to ensure that the requirements for transportation, water supply, wastewater collection and treatment, storm water drainage, and solid-waste disposal generated by existing and future development are adequately provided for. It is also the intent of this section to ensure, to the maximum extent possible, that the provision of such services does not have a deleterious effect on either natural resources or the quality of life of residents of Marina or other potentially affected areas. The major concerns of this section are outlined below: ….(11) Minimize the consumption of water for urban purposes and make maximum possible use of recycled water. ….(14) Support water resource programs, including desalinization and reclamation efforts, to provide an adequate water supply to accommodate General Plan permitted growth.	**Consistent:** The purpose of the Proposed Project is to provide a replacement water supply source for existing municipal water sources to allow reductions in diversions from the Carmel River and to provide crop irrigation water, which will reduce groundwater pumping from the Salinas Valley Groundwater Basin. These purposes are consistent with City's support of water resource programs, including reclamation efforts.
City of Seaside	City of Seaside General Plan	Land Use	RUWAP and Coastal Alignment Options Coastal Booster Pump Station Option Injection Well Facilities Transfer Pipeline Monterey Pipeline	**Goal LU-5:** Collaborate with local and regional water suppliers to continue to provide quality water supply and treatment capacity to meet community needs.	**Consistent:** The Proposed Project would provide alternative water supply through advanced treatment and groundwater injection, and crop irrigation water through tertiary treatment.
Former Fort Ord (City of Seaside)	Fort Ord Reuse Plan	Conservation	Injection Well Facilities	**Hydrology and Water Quality Policy A-1:** At the project approval stage, the City shall require new development to demonstrate that all measures will be taken to ensure that runoff is minimized and infiltration maximized in groundwater recharge areas	**Consistent:** The above-ground components of the proposed Injection Well Facilities would be constructed in unpaved areas. All rainwater would be routed to the surrounding unpaved sandy areas and allowed to infiltrate into the subsurface as recharge. The below-ground components would not affect groundwater recharge.

<u>* A water storage agreement with the Seaside Basin Watermaster would be required to implement the Proposed Project.</u>

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4.10.4 Impacts and Mitigation Measures

4.10.4.1 Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, a project would have a significant impact on hydrology and water quality of groundwater if it would:

a. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

b. Violate any water quality standards or otherwise degrade water quality

4.10.4.2 Impacts Analysis Overview

Approach to Analysis: Construction Impacts

Groundwater Depletion, Levels, and Recharge

During construction, the Proposed Project would use water for soil compaction and dust control. The amount of water use is quantified and the sources of construction water are provided to determine if this use would adversely affect groundwater levels. At some component sites, there would be new impervious surfaces constructed that may potentially change local recharge characteristics at each site. Along pipeline routes, groundwater recharge characteristics would not change because the existing site surfaces would be restored to pre-construction conditions and there would be no increases in the quantity of impervious surfaces and no loss of recharge ability. Where components are located on existing paved areas, no change in impervious surface area and no change in recharge would result. Where components would be located on existing unpaved areas and would include new impervious surfaces (i.e., Treatment Facilities at the Regional Treatment Plant, Coastal Booster Pump Station, and the Injection Well Facilities), the analysis of changes to groundwater recharge is presented in more detail, below. In particular, the impact analysis includes quantification of the increase in impervious surfaces and a description of the method proposed for insuring that rainfall runoff from new impervious areas is allowed to flow to adjacent pervious areas to recharge the groundwater basins underlying the component sites.

Groundwater Quality

The impacts analysis presents information on potential sources of groundwater contaminants during construction and assesses whether those contaminants may be released to the environment resulting in significant groundwater quality impacts due to construction of the Proposed Project.

Approach to Analysis: Operational Impacts

Groundwater Depletion, Levels, and Recharge: Salinas Valley Groundwater Basin

This section describes the approach for analyzing whether the Proposed Project may result in a significant impact related to depleting groundwater supplies or interfering substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

The Proposed Project operations would significantly impact groundwater resources if operations were to result in groundwater mounding, changes in groundwater gradients, or lowering of groundwater levels such that nearby municipal or private groundwater production wells experience a substantial reduction in well yield or physical damage due to exposure of well screens. Substantial reduction would occur if wells were to become incapable of supporting existing land uses or planned uses for which permits have been granted. More specifically, one of the following two conditions may occur that would trigger this condition:

- a decline in average groundwater level is significant if it would lower the water level to a depth below the median depth to the top of the well screen in nearby wells. When the top of the screen is above the water table it tends to corrode, which increases the risk of casing collapse. Also, air is entrained in the water pumped from the well, which promotes cavitation at the well pump and damage to the pump bowls. Over time, these physical effects will shorten the life of the well and could cause sudden well failure which, in turn, could affect well productivity (Todd Groundwater, February 2015).
- a decline in average groundwater level is significant if it would decrease pump output (in gallons per minute) by more than 10%. Decreases smaller than this amount can usually be accommodated by increasing the duration of pumping for each irrigation cycle (Todd Groundwater, February 2015).

For the Salinas Valley Groundwater Basin, the following geographic areas of impact are assessed: (1) impacts on local groundwater levels and wells near portions of the Reclamation Ditch system and the Salinas River that could be affected by source water diversion from surface water bodies, (2) impacts on local groundwater levels and wells near the Salinas Treatment Facility (that contains existing wastewater treatment and disposal facilities, specifically percolation ponds, beds, and basins) proposed for operational changes due to the diversions of agricultural wash water and storm water and the Salinas Treatment Facility Storage and Recovery components, and (3) the regional effects of the Proposed Project as a whole on the Salinas Valley Groundwater Basin.

Surface Water Diversions Recharge Assessment

The analysis of recharge impacts associated with surface water diversions on Salinas Valley Groundwater Basin recharge is focused on localized impacts on groundwater levels and wells in the vicinity and downstream of the locations proposed for surface water diversions from the Reclamation Ditch, Tembladero Slough and Blanco Drain. The overall water balance of inflows and outflows to and from the Salinas Valley Groundwater Basin and the overall groundwater storage volumes and water levels in the 180/400 Foot Aquifer Subbasin would benefit from the Proposed Project due to the provision of up to 5,142 AFY of new tertiary-treated recycled water for irrigation of the CSIP area in lieu of groundwater pumping from these aquifers. The impacts analysis on local wells and groundwater levels thus focuses on the changes in recharge amounts from assessments of hydrologic changes in the surface water bodies, groundwater cross-sections, previous studies, including consideration of the location and function of nearby wells (Schaaf & Wheeler, 2015c).

Salinas Pump Station and Treatment Facility Storage and Recovery Recharge Assessment

Potential changes in recharge and the associated effects on water levels of the Salinas Valley Groundwater Basin in the vicinity of the Salinas Treatment Facility (i.e., within a 1.5-mile radius of the center of the site) are assessed in a Todd Groundwater report which is provided in **Appendix N**. This section summarizes the approach used by Todd Groundwater in this analysis. As described above, the Proposed Project would provide tertiary treated recycled water for crop irrigation, which would reduce groundwater pumping in the Salinas Valley Groundwater Basin. The volume of decreased pumping within the CSIP area would be more than an order of magnitude higher than the loss of recharge from the Salinas Treatment Facility, thus overall the Proposed Project would have a beneficial impact on the Salinas Valley Groundwater Basin.

For the local Impacts on groundwater levels and wells near the Salinas Treatment Facility, Todd Groundwater first assessed the existing operations and developed two baseline scenarios as described in **Section 4.10.2**. Some of the water that percolates from the Salinas Treatment Facility flows downward through gaps in the Salinas Valley Aquitard and becomes recharge to the 180-Foot Aquifer and other connected aquifers in the Salinas Valley Groundwater Basin. A decrease in percolation would decrease recharge and tend to lower groundwater levels in wells near the Salinas Treatment Facility that pump from the 180-Foot Aquifer. If the decline in water levels were large, it could impact groundwater availability to well owners by physically damaging wells or by decreasing their pumping rates.

Todd Groundwater based their assessment of the Proposed Project on estimates of the monthly use of source waters under several operating scenarios (See the **Section 2.7.1** of **Chapter 2, Project Description** for a description of the source water availability and assumed diversion scenarios). In addition, the amount of water proposed to be sent to, or recovered from, the Salinas Treatment Facility for each month of the year was used, including monthly inflows and outflows in normal/wet years and in drought years.

Todd Groundwater calculated the amount of percolation by month and year type for each potential scenario of operation of the Proposed Project. The analysis made certain assumptions about the distribution of percolation among the various ponds, basins and drying beds at the Salinas Treatment Facility that are described in **Section 4.10.2.1**, above. This analysis compares conditions under the Proposed Project with the two baseline conditions (2013 existing conditions and 2017 conditions at commencement of Proposed Project operations) for pond percolation to determine if there would be a substantial change in groundwater levels and recharge that would result in a significant impact. Once the quantity of loss of percolation to the groundwater system was calculated, Todd Groundwater estimated changes to water levels in the vicinity of the Salinas Treatment Facility to determine quantitatively whether any local wells would be adversely impacted.

Approach to Analysis for Groundwater Depletion, Levels, and Recharge in the Seaside Basin

The Proposed Project's impact assessment related to groundwater depletion, levels, and recharge in the Seaside Basin is provided in **Appendix L, Draft Recharge Impacts Assessment Report** (Todd Groundwater, 2015). To predict the transport of the Proposed Project's purified recycled water in the groundwater system and to evaluate potential impacts of the Proposed Project on groundwater levels and quantity, HydroMetrics conducted groundwater modeling using the Seaside Basin groundwater flow model. The modeling of the Proposed Project builds on previous modeling runs that were used during project development to allocate purified recycled water between the two basin aquifers (HydroMetrics WRI, 2013). The initial project development modeling was described in the Draft Recharge Impacts Assessment report (see Section 3.3.5.1 in **Appendix L**). The technical memorandum documenting the project development and impacts analysis modeling results are included as Appendices B and C, respectively, **in Appendix L**.

The Proposed Project modeling incorporated the estimates by the MRWPCA staff of the monthly schedule and quantities of delivery of Proposed Project purified recycled water for subsurface injection in various year types as described in **Chapter 2, Project Description** and Section 2 of **Appendix L**. The appropriate purified recycled water delivery schedule shown on **Table 2-8, CalAm Water Production for Water Years 2006 – 2014 (in Acre-Feet)** in **Chapter 2, Project Description** was assigned to each year of project operation in the modeling based on hydrology and the balance of the drought reserve account.

The Proposed Project modeling was conducted using the predictive model setup that the Seaside Basin Watermaster has developed previously for analyzing future conditions in the basin. The predictive model covers a 33-year period from 2009 through 2041. The Proposed Project well operations are currently anticipated to begin in 2017. For purposes of the modeling analysis, the subsurface application was simulated as beginning in October 2016 to cover the entire Water Year 2017 and allow for a 25-year analysis of the Proposed Project.

The Proposed Project modeling was also conducted using reasonable assumptions of future operation of production wells in the basin. Production wells were assumed to be pumping in the model based on court-allocated pumping and agreements associated with the Seaside Basin adjudication. Existing CalAm production wells (and the ASR wells) were assumed to be the recovery (extraction) wells for the Proposed Project purified recycled water based on existing well capacity and water demand.

The Proposed Project modeling also incorporated a quantitative assessment of future operations of the ASR Project. This assessment was developed by MPWMD, which coordinates the ASR injection and extraction operations under cooperative agreements with CalAm. The assessment was based on historical hydrologic conditions on the Carmel River between 1987 and 2008 and approved rules of ASR operation. This allowed MPWMD to predict both injection and recovery schedules at each ASR well over time. By incorporating this assessment into the model setup, the Proposed Project was evaluated during a full range of ASR injection and recovery (pumping) conditions.

Approach to Analysis for Groundwater Quality

Based on the significance criterion (specifically, criterion b), this EIR uses a project-specific approach to determining whether implementation of the Proposed Project would be considered to have a significant impact to groundwater quality. Specifically, this EIR assumes a significant impact to groundwater quality would occur if the Proposed Project, taking into consideration the proposed treatment processes and groundwater attenuation and dilution, were to do one of the following:

- Impact groundwater quality so that it no longer met standards (e.g., Basin Plan beneficial uses and water quality objectives, including drinking water MCLs established to protect public health), or
- Degrade groundwater quality subject to California Water Code statutory requirements (Section 13540), and to the SWRCB Anti-degradation Policy and Recycled Water Policy, and
- Result in changes to groundwater recharge such that it would adversely affect groundwater quality by exacerbating seawater intrusion.

Salinas Valley Groundwater Basin Water Quality Assessment

The only Proposed Project components that overly and that would interact with the Salinas Valley Groundwater Basin during operations would be the source water diversions from surface water bodies (Reclamation Ditch, Tembladero Slough, and Blanco Drain Source Water Diversion components), the Salinas Pump Station Diversion component, the Salinas Treatment Facility Storage and Recovery component, and the Treatment Facilities at the Regional Treatment Plant. No other components are addressed individually in the impact analysis of the Salinas Valley Groundwater Basin; however, the net benefits to groundwater quality in the Salinas Valley Groundwater Basin are discussed qualitatively.

Source Water Diversion from Surface Waters (Reclamation Ditch, Tembladero Slough, and Blanco Drain)

Because the water quality of the surface waters from which Proposed Project source water diversions would occur are contaminated (i.e., listed as impaired water bodies according to the Clean Water Act 303(d) program) as described in **Section 4.11 Hydrology and Water Quality: Surface Water**, diversion and treatment of these waters would be a net benefit to groundwater quality. As discussed above, only minor amounts of local recharge may be reduced to the Salinas Valley Groundwater Basin when viewing the surface water diversions in isolation. No groundwater quality impacts due to operations of the diversions would occur and the diversion components are not addressed further in this section. The project as a whole would have direct and quantifiable benefits to the Salinas Valley Groundwater Basin water quality by providing new water to reduce pumping in the seawater intruded portions of the basin. For a discussion of potential pollutant load reduction benefits of diverting surface waters for recycling, see **Section 4.11.4** of this EIR. For a discussion of the benefits of the Proposed Project see **Section 2.1** of **Chapter 2, Project Description**.

Source Water Diversion related to Salinas Treatment Facility Pond Percolation

The effect of Salinas Treatment Facility percolation on water quality in the Salinas River and 180-Foot Aquifer depends on the concentrations of individual chemical constituents in the Salinas Treatment Facility ponds compared to existing concentrations and water quality objectives for the river and groundwater. The analysis of the Salinas Treatment Facility component of the Proposed Project compares median concentrations of chloride, nitrate, total dissolved solids, and phosphorus in the pond water to the groundwater. These constituents are present in pond water at concentrations that pose a risk of contamination. Data for the Blanco Drain are used as a surrogate for shallow groundwater, because most of the flow in Blanco Drain derives from soil water at the base of the root zone in agricultural fields, which is pumped into Blanco Drain from agricultural drainage tile systems. The data were compiled from various monitoring programs with differing suites of constituents and periods of record. Aquifer-specific data for groundwater quality were not available, and data considered in the impact analysis probably reflect a combination of 180-Foot Aquifer and 400-Foot Aquifer groundwater.

Treatment Facilities at the Regional Treatment Plant

The Treatment Facilities at the Regional Treatment Plant would not result in any impacts to the Salinas Valley Groundwater Basin water quality, except as it relates to the beneficial effects of treating additional flows of source water and providing those flows as tertiary recycled water to supplement existing sources of water for crop irrigation in the CSIP area. Existing regulatory requirements and best management practices at the Regional Treatment Plant site prevent accidental spills and other water pollutants from being discharged to unpaved areas and ultimately reaching groundwater. No groundwater quality impacts due to operations of this component would occur and this component is not addressed further in this section.

Seaside Basin Water Quality Assessment

To evaluate potential impacts on groundwater quality due to the Proposed Project injection of purified recycled water, both the existing groundwater quality and quality of the Proposed Project purified recycled water are characterized. The characterization of existing groundwater quality establishes a baseline for the water quality impacts assessment of the Proposed Projects' groundwater replenishment component. In this EIR, the Seaside Basin is the basin into which the purified recycled water would be applied via subsurface application using the Injection Well Facilities. This water quality characterization for existing Seaside Basin groundwater was prepared by Todd Groundwater (see **Appendix L,** Section 7.3). The characterization incorporates available data and previous investigations, and also summarizes the results of new geochemical evaluations regarding the chemistry of the water and its potential for interactions with the existing geologic sediments in the Proposed Project area. The approach to the geochemical analyses is presented more fully in a separate report on the MRWPCA field program (Todd Groundwater, February 2015). The characterization of existing and proposed purified recycled water provided in **Appendix L** supports the conclusions related to the impacts of the Proposed Project on the Seaside Basin water quality related to Criteria b, above.

The water quality statutory and regulatory requirements that protect groundwater quality and public health and how the Proposed Project would comply with those requirements are summarized in **Chapter 3, Water Quality Statutory and Regulatory Compliance**. A more detailed description and analysis of how the Proposed Project would comply with those requirements is provided in **Appendix D** (Nellor Environmental Associates, 2015). The report reviewed the analytical results of source water monitoring, the water quality results of the Proposed Project pilot plant testing (using ozone, microfiltration, and RO), the stabilized RO sample, information on the predicted performance and water quality of the proposed full-scale AWT Facility based on the pilot testing and treatment performance for other existing groundwater replenishment projects, and related research/studies. It analyzed the Proposed Project's ability to comply with federal and state water quality statutory and regulatory requirements to protect water quality for potable supplies/human health and other beneficial uses of groundwater. Relevant impact analyses and conclusions are presented in this section.

Areas of No Impact

The Proposed Project would have potential impacts related to both of the significance criteria above during construction and operation.

Summary of Impacts

Table 4.10-12 provides a summary of potential impacts to groundwater resources and significance determinations at each Proposed Project component site.

Table 4.10-12
Summary of Impacts –Hydrology and Water Quality: Groundwater

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System		
Impact Title	**Salinas Pump Station**	**Salinas Treatment Facility Storage and Recovery**	**Reclamation Ditch**	**Tembladero Slough**	**Blanco Drain (Pump Station and Pipeline)**	**Lake El Estero**	**Treatment Facilities at Regional Treatment Plant**	**RUWAP Alignment Option**	**Coastal Alignment Option**	**Injection Well Facilities**	**Transfer Pipeline**	**Monterey Pipeline**	**Project Overall**
GW-1: Construction Groundwater Depletion and Levels	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
GW-2: Construction Groundwater Quality	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
GW-3: Operational Groundwater Depletion and Levels: Salinas Valley Groundwater Basin	LS	LS	LS	LS	NI	NI	BI	NI	NI	NI	NI	NI	BI
GW-4: Operational Groundwater Depletion and Levels: Seaside Basin	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	LS
GW-5: Operational Groundwater Quality: Salinas Valley Groundwater Basin	BI	BI	LS	LS	LS	NI	BI	NI	NI	NI	NI	NI	BI
GW-6: Operational Groundwater Quality: Seaside Basin	NI	NI	NI	NI	NI	NI	BI/LS *	NI	NI	BI/ LS*	NI	NI	BI/ LS*
Cumulative Impact	LS: The Proposed Project would not contribute to significant cumulative impacts to groundwater levels, recharge or storage in the Salinas Valley Groundwater Basin. There would be no significant construction or operational cumulative impacts to groundwater levels, recharge, or storage in the Seaside Basin. The Proposed Project would not make a considerable contribution to a significant cumulative impacts to groundwaterquality in the Seaside Basin.												

BI – Beneficial Impact
NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
** For concentrations of total dissolved solids and chloride, the impact would be beneficial; for all other water quality parameters, the impact would be less than significant.*

4.10.4.3 Construction Impacts and Mitigation Measures

Impact GW-1: Construction Groundwater Depletion, Levels, and Recharge. Construction of the Proposed Project components would not deplete groundwater supplies nor interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of local groundwater levels. (Criterion a) (Less than Significant)

Construction at all Proposed Project sites would result in a limited, temporary demand for water for construction-related purposes, typically associated with watering surfaces for compaction and dust control. Construction water is typically acquired by the construction contractor. Contractors prefer local sources of water to fill their water trucks; therefore, the Proposed Project is expected to use water from one of the following sources for most construction:

- Salinas Valley Reclamation Plant or other reclamation plant (such as plants in the Carmel or Watsonville areas) when it is in excess of the amount of water needed for irrigation demands.
- Groundwater from beneath the Regional Treatment Plant site that is also currently used for dust control at the adjacent landfill and for non-potable uses at the Regional Treatment Plant.

For Injection Well Facilities construction, groundwater from nearby water supply wells would be used; however, the water would be allowed to percolate onsite after its use for construction purposes and, therefore, a majority of it would be returned to the groundwater basin. Portable toilets would be installed at construction sites for construction workers, which would not require use of groundwater.

The amount of construction water used at any individual construction site is estimated to be a onetime use of approximately 70 AF total, or about 1.1 AF per acre of ground disturbance. Some of the water applied at the construction sites would percolate to the Salinas Valley Groundwater Basin A-aquifer or the Seaside Basin depending upon which basin is beneath each Proposed Project component site. In comparison to total groundwater pumping in these basins (an average of approximately 5,000 AFY in the Seaside Basin and over 200,000 AFY total in the 180/400-foot Aquifer Subbasin and Eastside Subbasins of the Salinas Valley Groundwater Basin), this small amount of construction water use would not have a significant adverse impact on groundwater recharge, volume or levels.

Source Water Storage and Diversion Sites

New diversion structures, pipelines, and pump stations would be constructed in primarily unpaved areas for the various source water diversion and storage sites; however, only approximately 200 square feet of new impervious surfaces for pump station and diversion structure pads would be added at most diversion sites (not including pipelines). In all cases, the surrounding areas would remain unpaved and rainwater falling on the facilities would be allowed to infiltrate into the ground. This amount of new impervious surface would not substantially interfere with groundwater recharge and would result in a less-than-significant impact.

Treatment Facilities at the Regional Treatment Plant

The proposed Treatment Facilities at the Regional Treatment Plant (including the AWT Facility and the Salinas Valley Reclamation Plant modifications) would include structures that would result in the construction of about 3.5 acres of new impervious surfaces that would restrict rainfall from infiltrating into the subsurface, potentially interfering with groundwater recharge. However, rainwater falling on these structures would be routed to the unpaved surrounding area that will remain unpaved. Design plans include on-site retention of storm water (see **Figure 2-27, Advanced Water Treatment Facility Conceptual Site Plan**); rainwater would still be able to infiltrate into the subsurface and recharge the underlying aquifer. Therefore, the additional impervious surfaces to be added during construction of the Treatment Facilities at the Regional Treatment Plant would have a less-than-significant impact relative to groundwater recharge or levels.

Product Water Conveyance System Pipelines and Pump Station

The Product Water Conveyance pipelines would be constructed mostly within existing paved rights of-way and would disturb a relatively narrow width of land (10 to 15 feet) in unpaved areas. The areas of ground surface disturbance would be restored to pre-construction conditions. Therefore, none of the pipelines would substantially reduce recharge. The construction of the pipelines would include a very small amount of groundwater pumping (if any) and would have no effect on groundwater levels. Therefore, the construction of the pipelines would have no impact relative to groundwater recharge, volume, or levels.

The 2,000-square-foot Booster Pump Station would be built on one of two optional sites (depending on the pipe alignment selected), the RUWAP and the Coastal. For the RUWAP site, the new facilities would be located on an existing paved site, resulting in no new or additional impervious surfaces. For the Coastal site, the new pump station would be constructed in an unpaved area. The surrounding area would remain unpaved, providing a route for rainwater falling on the pump station to infiltrate back into the ground and recharge the underlying aquifer. Design plans include on-site retention of storm water (see **Figure 2-31, Proposed Booster Pump Station Options Conceptual Site Plan**); therefore, rainwater would still be able to infiltrate into the subsurface and recharge the underlying aquifer. In both cases, the Booster Pump Station construction would not use substantial amounts of groundwater and would not interfere substantially with recharge, thus resulting in a less-than-significant impact on groundwater.

Injection Well Facilities

Installation of any of the wells (deep injection, vadose zone and monitoring wells) typically would follow a three-step process: drilling and logging, installation/development, and testing and equipping. Construction of Injection Well Facilities would use a rotary drilling method that would be customized to minimize borehole impacts from drilling fluids. The method may incorporate air rotary methods or specialized drilling fluids (such as polymers). Water is sometimes added during the drilling of wells to reduce friction on the drill casing and assist in returning drill cuttings to the surface. If this water comes from groundwater supplies (i.e., wells in the Seaside Basin), aquifer volumes or groundwater levels would not be affected because that water would be returned to the basin (except for minor amounts of evaporation). In addition, each well cluster would include electrical and motor control systems that would be housed in an approximately 400 square-foot building. The addition of the four buildings and surrounding parking and concrete/asphalt area would result in the addition of impervious surfaces; however, the new impervious surfaces would not reduce groundwater recharge because all runoff from these areas would be percolated in adjacent open space areas comprised of sandy soils.

As noted above, the drilling process may require the use of some water. The water would be Seaside Basin water from nearby existing water supply wells. Use of the groundwater during construction would be minimal, and most of it would be returned to the basin via percolation on site, such that it would not substantially affect groundwater levels and storage, resulting in a less-than-significant impact to aquifer volumes and groundwater levels.

The wells would be developed to remove introduced drilling fluids and native fine-grained material suspended in water in the well casing. Well development is a standard procedure that is always performed in order to maximize the well efficiency by removing fine-grained material that would clog the slots in the well screen and pore spaces of the filter pack and the surrounding aquifer formation, both of which would reduce the flow of water into the well. The procedure is conducted in general accordance with the American Society for Testing and Materials (ASTM) D5521-02: Standard Guide for Development of Ground-Water Monitoring Wells in Granular Aquifers and includes two steps. After residual filter pack material is removed from the well by bailing, the wells would be developed first by mechanical means, which could including swabbing and bailing or swabbing and airlifting. Both methods are used to clean the screen section and consolidate the filter pack around the well screen. Once the screen has been satisfactorily cleaned, and turbidity is reduced, a submersible pump would aggressively pump and surge the well until the fluids removed are free of sand and sediment, and have very low turbidity values.

The volume of water pumped for development of each well would be about 3,600,000 gallons, based on four 10-hour days of development pumping at 1,500 gpm as estimated by Todd Groundwater. If the water used for development were drawn from groundwater and not returned as recharge, aquifer volumes or groundwater levels could be decreased; however, well development water at the Injection Well Facilities would be allowed to percolate back to the groundwater basin through on-site disposal resulting in a less-than-significant impact to aquifer volumes and groundwater levels.

The new well clusters at the Injection Well Facilities site are proposed to be located on existing unpaved areas that would be paved under the Proposed Project. In addition, a paved driveway would be constructed to provide vehicular access to each site. The surrounding area would remain unpaved providing a route for rainwater falling on the pump station to infiltrate back into the ground and recharge the underlying aquifer. Design plans include on-site retention of storm water (see **Figure 2-35, Conceptual Site Plan and Schematic of Typical Well Cluster**); therefore, rainwater would still be able to infiltrate into the subsurface and recharge the underlying aquifer. The Injection Well Facilities construction would not use substantial amounts of groundwater that would not be returned to the groundwater system and would not impact groundwater volume or levels due to loss of recharge.

CalAm Distribution System Pipelines

The CalAm Distribution System pipelines would be constructed mostly within existing paved rights-of way and would disturb a relatively narrow width of land (10 to 15 feet). Therefore the pipelines could not significantly reduce groundwater recharge. Construction of the pipelines would not include pumping substantial amounts groundwater or otherwise interfere with groundwater recharge and therefore would have a less-than-significant impact on groundwater recharge, volume, and levels.

Impact Conclusion

Impacts associated with groundwater depletion, levels and recharge during the construction of the Proposed Project would be less than significant. During construction, the Proposed Project would use water for soil compaction and dust control. The amount water use would be small in relation to overall water resources. At some component sites, there would be new impervious surfaces constructed that may potentially change local recharge characteristics at each site. Along pipelines routes, groundwater recharge characteristics would not change because the existing site surfaces would be restored to pre-construction conditions and there would be no increases in the quantity of impervious surfaces and no loss of recharge ability. Where components are located on existing paved areas, no change in impervious surface area and no change in recharge would result. For sites proposing new impervious surfaces, all rainfall runoff would be retained on site and allowed to percolate to the groundwater basin underlying the site. Therefore, for the project as a whole, the potential construction impacts would be less than significant relative to groundwater recharge, volume, or levels, and no mitigation measures would be required.

Impact GW-2: <u>Construction Groundwater Quality.</u> Proposed Project construction would not violate any water quality standards or otherwise degrade water quality. (Criterion b) (Less than Significant)

Injection Well Facilities

For the construction of the Injection Well Facilities (including deep injection wells, vadose zone wells and monitoring wells), water-based muds would be used; however, relatively small amounts of inert additives would be needed to ensure that the borehole stays open during the drilling and well construction. The addition of these additives could degrade water quality if not handled in accordance with regulatory requirements and professional standards.

Additives used during the construction of the existing ASR Project's injection/extraction wells included EZ Mud® or Mud-Nox®. EZ Mud® is a liquid polymer emulsion containing partially hydrolyzed polyacrylamide/polyacrylate copolymer, used primarily as a borehole stabilizer to prevent reactive shale and clay from swelling and sloughing. EZ-Mud® is added to low-solids drilling fluids (in this case, water) to increase fluid viscosity and keep the borehole open during drilling. Mud Nox® is a concentrated detergent added to drilling mud to reduce solids build-up, decrease friction, aid in reducing solids suspension, and remove "mud-cake" silt and clay from water wells. Mud-Nox® consists of a liquid blend of wetting agents, dispersants, and emulsifiers that are non-corrosive, non-contaminating, and slowly biodegradable. Well drilling and construction could degrade groundwater quality by introducing drilling additives that could alter the water chemistry of the Paso Robles and Santa Margarita Aquifers that are currently used for drinking water supply. With the implementation of previously-described standard well development procedures and compliance with the regulatory requirements (described further below) for the discharge of well development water, the fluids introduced into the aquifer would be removed and the water quality of the Santa Margarita and Paso Robles Aquifers would be restored to its existing condition. Therefore, drilling activities at the Injection Well Facilities would not result in a significant impact on groundwater quality.

The muds and clay slurry generated during the drilling and development of the proposed injection and monitoring wells would fall under the category of "Water Supply Well Drilling Muds" under the General Waiver of Waste Discharge Requirements for Specific Types of Discharges (General Waiver) (RWQCB Resolution R3-2008-0010), discussed in **Section 4.11.3, Regulatory Framework**. Water extracted during drilling and development of the wells would be conveyed to nearby natural depressions and percolated into the ground. The water produced during well development may also be considered a "water supply discharge" under the General Waiver. The contractor would not be required to submit a waste discharge report. However, the following conditions of the General Waiver would apply and implementation would be monitored and enforced by the RWQCB:

- The discharge shall be spread over an undisturbed, vegetated area capable of absorbing the water and filtering solids in the discharge, and spread in a manner that prevents a direct discharge to surface waters;
- The pH of the discharge shall be between 6.5 and 8.3;
- The discharge shall not contain oil or grease;
- The discharge area shall not be within 100 feet of a stream, water body, wetland, or streamside riparian corridor;
- The discharger shall implement appropriate management practices to dissipate energy and prevent erosion;
- The discharger shall implement appropriate management practices to preclude discharge to surface waters and surface water drainage courses; and
- The discharger shall immediately notify the Central Coast RWQCB staff of any discharge to surface waters or surface water drainages. The discharge shall not have chlorine or bromine concentrations that could impact groundwater quality.

With the implementation of standard well development procedures and compliance with these regulatory requirements that are enforced by the RWQCB, the water quality of the aquifers would not be adversely impacted by well drilling and development. Therefore, the impact would be less than significant and no mitigation measures would be required.

All Other Project Components

The Source Water Diversion and Storage components, Treatment Facilities at the Regional Treatment Plant, and Coastal Booster Pump Station option would be constructed on currently unpaved sites. The pipelines and the RUWAP Booster Pump Station would be constructed mostly within existing rights-of way (pipelines) or paved site (RUWAP Booster Pump Station option). Some water may be used for soil compaction and dust control but not in sufficient quantities to flow or infiltrate into the subsurface in significant quantities or to carry pollutants to the groundwater. In addition, storm water pollution prevention plans and best management practices are required by permits administered by the RWQCB. Local agencies require any accidental spills of contaminants or hazardous materials be promptly cleaned to prevent contamination of surface and groundwater. Therefore, the construction of the treatment facilities, pipelines and pump stations would result in a less-than-significant impact related to changes to groundwater quality and no mitigation measures would be required.

Impact Conclusion

Although discharges of pollutants to groundwater during well drilling activities has the potential to occur, impacts to groundwater quality during the construction of the Injection Well Facilities would be less than significant based on the Proposed Project's compliance with regulatory requirements that require best management practices, including preventative and emergency measures for potential spills. For all other components, there would be a less-than-significant impact based on the compliance with regulatory requirements that insure that there would be a lack of substantial pollutants released or disposed at the sites, and the low amount of flow that would carry any pollutants such that no contamination of groundwater resources are expected. Therefore, for the project as a whole, the potential construction impacts would be less than significant relative to groundwater quality and no mitigation measures would be required.

4.10.4.4 Operational Impacts and Mitigation Measures

Impact GW-3: Operational Groundwater Depletion and Levels: Salinas Valley Groundwater Basin. Operation of the Proposed Project would not deplete groundwater supplies in the Salinas Valley nor interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater levels in the Salinas Valley Groundwater Basin. (Criterion a) (Less than Significant)

Source Water Diversion and Storage Sites

Reclamation Ditch, Tembladero Slough and Blanco Drain Diversions

The Proposed Project implementation would improve overall groundwater conditions of the Salinas Valley Groundwater Basin by reducing extractions of groundwater in the CSIP area. In addition to the well pumping reduction benefits, treating and delivering a portion of surface stream diversions as recycled water to growers in the CSIP area would add to the surface application of water over a large area of the study area (i.e., the Crop Irrigation component of the Proposed Project). Thus, any reduction in recharge due to source water diversions from surface water bodies (Reclamation Ditch, Tembladero Slough and Blanco Drain) to the aquifers underlying the water bodies would only slightly reduce the Proposed Project's beneficial groundwater impacts on the Salinas Valley Groundwater Basin as a whole.

According to hydrologic analysis by Schaaf & Wheeler for this EIR, source water diversion for the Proposed Project would only result in about a two-inch reduction in water level in the Reclamation Ditch system between Highway 183 on the west and the Davis Road bridge on the east for four to five months (intermittently from approximately June through October) each year. The bottom of the channel would remain wet year round and would remain within the current water level variations of the system. In addition, the Proposed Project operations would not result in changes to water levels in Tembladero Slough, Old Salinas River, and the Salinas River Lagoon because water levels in these reaches of the system are predominantly controlled by the tidal cycles in the ocean. The Blanco Drain diversion point is immediately above the confluence with the Salinas River, so the Blanco Drain channel would remain wet. The Salinas River below the Blanco Drain is controlled by the Salinas River Lagoon during most of the year. Because the channels discussed above would remain wet under the Proposed Project, any existing minor groundwater recharge from these channels would continue uninterrupted (Schaaf & Wheeler, 2015b).

Based on the above information, the Proposed Project diversions of surface waters from the Reclamation Ditch, Tembladero Slough, and Blanco Drain would not result in adverse impacts related to groundwater depletion, changes in water levels, and changes in recharge. These source water diversion components would have a less-than-significant impact on groundwater resources in the vicinity of the Proposed Project area and would contribute to the beneficial impacts of the project as a whole.

Salinas Pump Station, Salinas Treatment Facility Storage and Recovery Diversion and Storage Sites

The Proposed Project would alter the operation of the Salinas Treatment Facility in terms of the amounts and types of water stored at the facility. Specifically, agricultural wash water, which is currently treated at the Salinas Treatment Facility, would be diverted to the Regional Treatment Plant during peak irrigation time periods and managed to meet the peak summer demand season by storing winter flows in the existing ponds at the Salinas Treatment Facility. In the summer months, both the incoming agricultural wash water and the stored storm water would be directed to the Proposed Project, allowing production of purified recycled water for groundwater replenishment in the Seaside Basin and increased tertiary recycled water production for CSIP crop irrigation. Urban storm water runoff from the City of Salinas would be routed to the Salinas Treatment Facility for seasonal storage and recovered back to the Salinas Pump Station for conveyance to the Regional Treatment Plant during the peak irrigation months.

These proposed changes in use of the Salinas Treatment Facility would locally alter the quantity and quality of percolation, which would affect the quantity and quality of Salinas River flow and groundwater recharge in the Salinas Valley Groundwater Basin in the vicinity of the Salinas Treatment Facility, as described in detail in **Appendix N** (Todd Groundwater, 2015b). However, those effects should be considered in a regional context because surface and groundwater throughout the northern Salinas Valley area are intensively managed as a single, interconnected system. The combined beneficial effects of all elements of the Proposed Project on regional groundwater pumping, water levels, and seawater intrusion of the Salinas Valley Groundwater Basin are discussed below. Effects of the Proposed Project on operation and yield of the Salinas Valley Water Project's Salinas River Diversion Facility and associated reservoir releases are described in the **Section 4.11, Hydrology and Water Quality: Surface Water** and in the Salinas River Inflow Impacts Report in **Appendix O rev** (Schaaf & Wheeler 2015). Potential local hydrologic impacts related to decreased groundwater recharge at the Salinas Treatment Facility and effects on local well yields are evaluated in this section.

Because the local groundwater impacts stem from changes in the amount of water percolated at the Salinas Treatment Facility, Todd Groundwater first established the assumptions about existing percolation at the facility, or the baseline (see **Section 4.10.2.3,** under the subheading "Salinas Treatment Facility: Existing Operations and Groundwater Relationship"). As described in that section, two baselines were established:

(1) a 2013 baseline representing a drought year and the conditions that existed at the time the Notice of Preparation was published; and

(2) a 2017 baseline that was considered to better represent the conditions that would occur when the Proposed Project commences operating and a more normal or wet hydrologic year.

Todd Groundwater then calculated the amount of percolation by month and year type for each potential example scenario of operation of the Proposed Project. The analysis depended on various assumptions about the distribution of percolation among the various ponds, basins and drying beds at the Salinas Treatment Facility which is described in **Section 4.10.2.3**, above. This analysis compares conditions under the Proposed Project with the two baseline conditions of pond percolation to determine if there would be a substantial change in groundwater levels and recharge that would result in a significant impact.

Percolation Patterns at the Salinas Treatment Facility

At the Salinas Treatment Facility, water percolates from Ponds #1, #2 and #3, the rapid infiltration beds, and the drying beds, but percolation rates vary substantially among those areas. Therefore, percolation under existing and Proposed Project conditions were estimated for each area separately using available data. The aeration pond is lined, therefore, its percolation is assumed to be negligible. Percolation from Ponds #1, #2, and #3 historically declined due to accumulation of fine-grained material and/or biofilms on the pond bottoms. As annual inflows have continued to increase and have become year round, the ponds have not completely dried out at any point from 2003 to 2013, and no maintenance (drying and disking) to improve percolation occurred during that time period. This led to reliance on the rapid infiltration and drying beds to provide additional disposal capacity. The drying beds have been operated more like percolation basins in recent years. Low berms divide the drying bed area into 54 cells or beds separated by low berms. Each bed is flooded to a depth of 1.0 to 1.5 feet then allowed to percolate, which takes anywhere from 5 days to several weeks (Cole, 2014c). The three rapid infiltration beds are long, narrow basins that occupy a strip along the river side of Ponds #1, #2, and #3. They have consistently provided relatively high rates of percolation but cover only a small area. Todd Groundwater used soils information and limited field data to estimate the amounts percolated at each area during 2013 and/or 2014 that increased the understanding of the relative proportions of percolation from each of the areas of the Salinas Treatment Facility. The detailed analysis is provided in **Appendix N** and the results were used to better characterize the impacts of changes at the Salinas Treatment Facility on groundwater resources.

Decreased Groundwater Recharge and Local Well Yields

To address local impacts on groundwater levels and wells near the Salinas Treatment Facility, Todd Groundwater first assessed the existing operations and developed two baseline scenarios as described in **Section 4.10.2**. Some of the water that percolates from the Salinas Treatment Facility flows downward through gaps in the Salinas Valley Aquitard and becomes recharge to the 180-Foot aquifer, which is one of several aquifers tapped by water supply wells in the northern Salinas Valley. A decrease in percolation would decrease recharge and tend to lower groundwater levels in wells near the Salinas Treatment Facility that pump from the 180-Foot aquifer. If the decline in water levels were large, it could impact groundwater availability to well owners by physically damaging wells or by decreasing their pumping rates.

These impacts stem from changes in the amount of water percolated at the Salinas Treatment Facility that would occur due to implementation (operation) of the Proposed Project. Todd Groundwater based their assessment of the Proposed Project on estimates of the monthly use of source waters under several operating scenarios related to the status of the drought reserve (See the **Section 2.7.1 Project Description** for a description of the source water availability and assumed diversion scenarios). In addition, the amount of water proposed to be sent to, or pumped from, the Salinas Treatment Facility for each month of the year was used, including monthly inflows and outflows in normal/wet years and in drought years.

Todd Groundwater calculated the amount of percolation by month and year type for each potential example scenario of operation of the Proposed Project. The analysis made certain assumptions about the distribution of percolation among the various ponds, basins and drying beds at the Salinas Treatment Facility which are described in **Section 4.10.2.1**, above.

Change in Percolation Volumes

Operation of the Salinas Treatment Facility would change substantially under the Proposed Project. In spite of new inflows of urban storm runoff, total annual inflow would decrease substantially because agricultural wash water inflows would be diverted to the Regional Treatment Plant during half the year. The drying beds and rapid infiltration beds would no longer be needed. The primary purpose of the Salinas Treatment Facility would switch from disposal to storage; any water that does not percolate or evaporate during the November-April storage season would be pumped back out to supply the Proposed Project. Only Ponds #1, #2 and/or #3 would be used for storage. The effect of reoperation under the Proposed Project would depend on the amount of percolation that continues to occur during the storage and pump-out seasons. This amount can be determined from monthly water balance calculations for the ponds, given the percolation rates estimated by Todd Groundwater.

Table 4.10-13, Proposed Project Salinas Treatment Facility Water Balance in Normal/Wet Years, below, shows the monthly pond water balance in normal/wet years, and **Table 4.10-14**, shows the balance during drought years. Inflows of agricultural wash water and Salinas urban storm runoff were obtained from the Salinas River Inflows Impact Report (Schaaf & Wheeler, 2015). The rainfall and evaporation rates in **Table 4.10-13** are average annual rates, and the rates in **Table 4.10-14, Proposed Project Salinas Treatment Facility Water Balance in Drought Years** are the drought year rates. The percolation rate from Ponds #1, #2, and #3 equals the rate of 140 AF per month estimated from 2014 data adjusted to be consistent with 2013 percolation.

Table 4.10-13
Proposed Project Salinas Treatment Facility Water Balance in Normal/Wet Years

Month	Agricultural Wash Water (AF)		Salinas Urban Storm Water Inflow (AF)	Rainfall		Pond Evaporation		Pumped Outflow to RTP (AF)	Ponds 1-2-3 Percolation (AF)	Pond Storage (AF)
	Total Available	Sent to STF		Rate (in)	Volume (AF)	Rate (in)	Volume (AF)			
DEC										353
JAN	156	156	52	2.62	25	1.21	12	0	140	435
FEB	158	158	41	2.35	23	1.54	15	0	140	502
MAR	201	201	34	2.11	20	2.88	28	0	140	590
APR	307	307	16	1.10	11	4.08	40	0	140	745
MAY	311	0	2	0.30	3	4.56	44	190	140	376
JUN	391	0	0	0.08	1	5.16	50	190	136	0
JUL	435	0	0	0.02	0	4.47	0	0	0	0
AUG	444	0	0	0.04	0	4.30	0	0	0	0
SEP	367	0	2	0.17	2	3.20	4	0	0	0
OCT	410	0	8	0.57	6	2.75	14	0	0	0
NOV	329	329	23	1.41	14	1.50	15	0	140	212
DEC	223	223	47	2.35	23	1.23	12	0	140	353
Total (AF):	3,732	1,374	225	13.12	128	36.88	233	380	1,113	
Percent of Salinas Treatment Facility outflow:							14%	22%	64%	

Notes: AF = acre-feet; RIB = rapid infiltration basin; in = inches; STF = Salinas Treatment Facility; RTP = Regional Treatment Plant; ponds 1-2-3 area = 104.3 acres; drying beds and RIBs inactive; agricultural wash water inflows are the expected amounts in 2017; rainfall and evaporation are long-term averages; ponds 1-2-3 percolation rate = 0.044 feet per day; aeration pond area = 12.4 acres, which is included in rain and evaporation but not percolation.

Table 4.10-14
Proposed Project Salinas Treatment Facility Water Balance in Drought Years

Month	Agricultural Wash Water (AF) Total Available	Agricultural Wash Water (AF) Sent to STF	Salinas Urban Storm Water Inflow (AF)	Rainfall Rate (in)	Rainfall Volume (AF)	Pond Evaporation Rate (in)	Pond Evaporation Volume (AF)	Pumped Outflow to RTP (AF)	Ponds 1-2-3 Percolation (AF)	Pond Storage (AF)
DEC										264
JAN	156	156	17	1.04	10	1.90	18	0	140	289
FEB	158	158	14	0.56	5	2.16	21	0	140	306
MAR	201	201	11	0.41	4	3.16	31	0	140	352
APR	307	307	5	0.27	3	4.30	42	0	140	485
MAY	311	0	1	0.01	0	4.99	49	60	140	238
JUN	391	0	0	0.04	0	4.26	41	60	137	0
JUL	435	0	0	0.00	0	3.73	0	0	0	0
AUG	444	0	0	0.02	0	3.87	0	0	0	0
SEP	367	0	1	0.07	1	3.93	1	0	0	0
OCT	410	0	3	0.15	1	3.10	4	0	0	0
NOV	329	329	8	0.47	5	1.99	19	0	140	182
DEC	223	223	16	0.21	2	1.95	19	0	140	264
Total (AF):	3,732	1,374	75	3.26	32	39.34	246	120	1,114	
Percent of Salinas Treatment Facility outflow:							17%	8%	75%	

Notes: AF = acre-feet; RIB = rapid infiltration basin; in = inches; STF = Salinas Treatment Facility; RTP = Regional Treatment Plant; ponds 1-2-3 area = 104.3 acres; drying beds and RIBs inactive;
wash water inflows are the expected amounts in 2017; rainfall and evaporation are 2013 values; ponds 1-2-3 percolation rate = 0.044 feet per day; aeration pond area = 12.4 acres, which is included in rain and evaporation but not percolation.

Annual percolation from the Salinas Treatment Facility would be approximately 1,110 AFY in normal and wet years (**Table 4.10-13**), which is 2,300 AFY less than the 3,400 AFY of percolation estimated in the 2017 baseline condition. The proportion of percolated water that seeps into the Salinas River (80%) would remain about the same as under baseline conditions because the center of percolation volume would remain under Ponds #1, #2, and #3. The drying beds are estimated to have a lower percolation rate than the ponds, and the rapid infiltration basins have a significantly smaller size than the ponds. Therefore, seepage into the Salinas River would be approximately 890 AFY (1.2 cfs), and recharge to groundwater would be approximately 220 AFY.

Percolation from the Salinas Treatment Facility would be more seasonally variable than under either baseline condition. The maximum change in percolation would occur during July through October, when percolation would be zero. Seepage into the Salinas River follows a short subsurface flow path that would respond quickly to changes in percolation. Thus, during July through October, seepage into the river would decrease by 3 cfs. During November through June, seepage into the river would be about 1.9 cfs, or about 1.1 cfs less than under baseline conditions. In drought years, annual percolation would decrease by about 2,230 AFY. Monthly river flow would decrease by 1.1 to 3.0 cfs depending on the month (same as in normal/wet years), and the annualized average decrease would be 2.5 cfs.

Recharge to the 180-Foot aquifer might also vary somewhat seasonally, but by less than the variations in pond percolation. This is because the relatively low average permeability along the downward flow path would tend to smooth out short-term fluctuations in pond percolation. For the purpose of evaluating water supply and well impacts, the change in average annual percolation is a reasonable basis for comparison with baseline conditions. The evaluation of impacts on river flow assumes a year-round decrease of 3 cfs, which represents a worst-case scenario as described in the Salinas River Inflows Impact Report (Schaaf & Wheeler, 2015).

Uncertainty of Change in Percolation Volumes

The above estimates of percolation from Ponds #1, #2, and #3 under Proposed Project operation are subject to substantial uncertainty. The ranges of uncertainty for rapid infiltration basin and drying bed percolation are quite large, and the midpoints of those ranges were used in calculating the "best" estimate of the percolation rate from Ponds #1, #2, and #3. In addition, the resulting percolation rate was increased by 20% to make it consistent with annual percolation volumes observed during 2013. The recoverable yield of water stored in Ponds #1, #2, and #3 is quite sensitive to the percolation rate, because percolation occurs throughout the storage and pump-out periods (November to June). To illustrate this sensitivity, plausible alternative estimates of percolation and yield were calculated using the 2014 percolation rate without the 20% adjustment. The 2014 estimated percolation rate from Ponds #1, #2, and #3 is 103 AF per month, and the water balance results for Proposed Project operation under normal/wet years can be summarized as follows: recoverable storage pumped for Proposed Project use during May to June is 620 AF; total percolation is 830 AFY, of which 660 AFY seeps to the Salinas River and 170 AFY recharges the 180-Foot aquifer. During drought years, total annual percolation is only slightly less than during wet/normal years because the duration of pond inundation would be about the same. Recoverable storage would be only about 400 AF, however, due largely to decreased rainfall and storm water inflows.

Change in Groundwater Levels

Compared with 2017 baseline conditions (**Tables 4.10-2** and **4.10-3**) annual pond percolation under Proposed Project conditions (**Tables 4.10-13** and **4.10-14**) would decrease by 2,300 AFY, of which 460 AFY would be a decrease in recharge to the 180-Foot aquifer. Recharge from Salinas Treatment Facility pond percolation to the 180-Foot aquifer occurs over a broad area due to the low permeability of the Salinas Valley Aquitard. The ponds are 1.5 miles long, and if 460 AFY of recharge is assumed to be distributed uniformly over a circular area with a radius of 1.5 miles, it would raise water levels in the 180-Foot aquifer by approximately 1.3 feet. Conversely, a decrease in percolation by that amount would tend to lower water levels by 1.3 feet.

The median elevation of the top of the screen in the 23 wells used to monitor water levels in the 180-Foot aquifer is 160 feet below sea level, which indicates the lower limit of the Salinas Valley Aquitard in this area. (Feeney, 2014 as cited in Todd Groundwater, 2015c in **Appendix N**). The water level in wells screened in the 180-Foot aquifer near the Salinas Treatment Facility is approximately 18 feet below sea level, or 142 feet above the top of the screen in a typical well. The 180-foot Aquifer has a seasonal variation of 10 to 20 feet (difference in water level between August and February). A decline of 1.3 feet would not lower the water level to below the top of a typical well screen, nor exceed the seasonal variation in the aquifer. Therefore, the Proposed Project would not result in any interrupted water supply due to screen corrosion or pump failure because those conditions would not occur. Performance curves for typical deep-well turbine pumps indicate that a change in water level of 1.3 feet would in most cases decrease the pump output by three to four percent (Driscoll, 1986; Goulds Water Technology, 2014 as cited in Todd Groundwater, 2015c in **Appendix N**). This small decrease in pump output can typically be accommodated by increased pumping duration. Based on the above analysis, the impact due to changes to water levels in local wells would be less than significant during normal and wet years.

The change in recharge to the 180-Foot aquifer during drought years (i.e., under the 2013 baseline conditions) would be about 420 AFY less than under the 2017 baseline conditions, which is a slightly smaller impact than during normal and wet years. Impacts on local wells would therefore also be less than significant assuming the 2013 baseline.

All Other Project Components/Overall Regional Impacts on Salinas Valley Groundwater Basin

The Proposed Project would reduce groundwater pumping by the wells currently being used to supplement tertiary recycled water and Salinas River water to irrigate the CSIP area. The amount of new water that is proposed to be provided for CSIP irrigators would be between 4,500 and 4,750 AFY during normal and wet years, and up to 5,900 AFY during drought conditions. This provision of new irrigation water would result in a reduction in pumping from the Salinas Valley Groundwater Basin. Specifically, MRWPCA operates the CSIP irrigation system and currently uses supplemental wells that draw water almost exclusively from the 400-Foot aquifer to augment recycled water and surface water supplies (a small amount from the Eastside Aquifer). In addition, this new recycled water availability may also result in some, albeit minor, recharge to the 180-Foot aquifer due to percolation of irrigation water through the soils to the 180-Foot aquifer.[27]

Average well water use in the CSIP area during 2009-2013 as reported by MRWPCA is provided in **Table 4.10-15, Five Year Average Castroville Seawater Intrusion Project Area Well Water Use (2009-2013).** This is the estimated amount of pumping that can be offset by making increased deliveries of tertiary treated recycled water to the CSIP area. A portion of this demand would be satisfied by making modifications to the SVRP. In addition, during dry years when there would be less or no Salinas River Diversion Facility diversions available and when irrigation demand is high due to lack of rainfall, the CSIP area may use a larger quantity of water that would be equal to the amount of a proposed "drought reserve," excess purified recycled water previously injected into the Seaside Basin. The "drought reserve" excess tertiary water available during any irrigation season would be the total amount that has been banked in the Seaside Basin, above the typical subsurface replenishment applications (above 3,500 AFY water supply yield) that can be delivered to farmers, up to 1,000 acre feet.

Table 4.10-15
Five Year Average Castroville Seawater Intrusion Project Area Well Water Use (2009-2013)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total (AFY)
Five Year Average Castroville Seawater Intrusion Project Area Well Water Use in acre-feet (AF)	448	195	304	440	324	606	476	504	300	76	233	354	**4,260**

Source: MRWPCA, October 2014.

The wells in the CSIP area, which are shown on **Figure 4.10-9**, **Castroville Seawater Intrusion Project Area,** are the wells whose production would be reduced or eliminated by delivering the additional crop irrigation water produced by the Proposed Project. All of the wells in the CSIP area are in the 400-Foot aquifer. Well 01C1 and Well 02A2 are in the Eastside aquifer which is an unconfined aquifer (Montgomery Watson, 1993).

Changes in recharge due to source water diversions would be an order of magnitude lower than the CSIP area well pumping reductions; this would only slightly reduce the Proposed Project's beneficial impacts of delivering more tertiary recycled water to growers within the CSIP area (Phyllis Stanin, Todd Groundwater, personal communication, October 23, 2014).

The impact of decreased 180-Foot aquifer recharge near the Salinas Treatment Facility on the regional groundwater balance and seawater intrusion is less than significant because it is more

[27] Recharge to the 180-Foot Aquifer would only occur in some areas of the irrigation system where tile drains are not present or are not continuous, and where the uppermost aquiclude, above the 180-Foot Aquifer, is discontinuous or not present.

than offset by other elements of the Proposed Project, specifically decreased groundwater pumping in the CSIP area. The Proposed Project is expected to increase the delivery of tertiary recycled water to CSIP growers during wet and normal years by 4,500 to 4,750 (see **Appendix B rev**). During drought conditions, the Proposed Project could provide up to 5,900 AFY of recycled water to growers for crop irrigation. The growers use water from three sources: tertiary recycled water from the Salinas Valley Reclamation Plant at the Regional Treatment Plant, Salinas River water supplied by the Salinas River Diversion Facility, and groundwater from 15 wells within the CSIP service area. Since the Salinas River Diversion Facility came on-line in 2010, CSIP groundwater use has ranged from 2,700 to 6,500 AFY. Thus, the Proposed Project would be able to decrease CSIP pumping to zero in most years and to a small fraction of existing pumping in the remaining years. The decrease in groundwater pumping in the CSIP area would be about ten times greater than the decrease in recharge at the Salinas Treatment Facility and would thus have a net beneficial impact with respect to seawater intrusion in the coastal region.

Locally, it is unclear whether the decrease in 400-Foot aquifer pumping near the CSIP wells would raise water levels in the 180-Foot aquifer beneath the Salinas Treatment Facility enough to completely offset the effect of decreased recharge. The Castroville Seawater Intrusion Project wells are all screened in the 400-Foot aquifer or the East Side Subbasin and are located 2.75 to six miles north to northwest of the Salinas Treatment Facility (between Salinas and Castroville). ~~The~~ Most CSIP wells are inland of the intrusion front in the 400-Foot aquifer but beneath the intruded part of the 180-Foot aquifer. In the 180-Foot aquifer, the seawater intrusion front is 1.5 miles northwest of the Salinas Treatment Facility. Locally, leakage between the 180-Foot and 400-Foot aquifers is limited due to the intervening aquitard, but the two depth intervals are hydraulically connected in the East Side Subarea of the Salinas Valley Groundwater Basin that is located approximately 4½ miles north of the Salinas Treatment Facility.

Impact Conclusions

Local changes to recharge and water levels and effects on nearby wells due to Proposed Project operations would be less than significant due to diversions of surface water from the Reclamation Ditch, Tembladero Slough, and Blanco Drain, and the proposed diversions of agricultural wash water and storm water to the Regional Treatment Plant. The Proposed Project would decrease CSIP area pumping to zero in most years and to a small fraction of existing pumping in the remaining years. The decrease in groundwater pumping in the CSIP area is estimated to be more than ten times greater than the decrease in recharge due to diversions of source water; therefore, the Proposed Project would have a net beneficial impact with respect to seawater intrusion and overall groundwater storage and levels in the Salinas Valley Groundwater Basin.

Impact GW-4: Operational Groundwater Depletion and Levels: Seaside Basin. Operation of the Proposed Project would not deplete groundwater supplies in the Seaside Basin nor interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater levels in the Seaside Basin. (Criterion a) (Less than Significant)

As discussed above, Todd Groundwater conducted a detailed Draft Recharge Impacts Assessment for the Proposed Project to determine if operation of the Proposed Project would result in a significant groundwater impact according the significance criterion a, above. This Recharge Impacts Assessment is provided in **Appendix L**. To determine whether the impact would be significant, Todd Groundwater analyzed the potential for groundwater mounding, change in groundwater gradients, or lower groundwater levels such that nearby municipal or private groundwater production wells experience a reduction in well yield or physical damage (due to exposure of well screens) resulting in a well not being capable of supporting existing land uses or planned uses for which permits have been granted.

Because the Proposed Project would provide additional water for downgradient groundwater extraction, it would result in both higher and lower water levels in existing basin wells over time depending on the timing of extraction and the buildup of storage in the basin. HydroMetrics examined potential changes in water levels for eight key production wells for a 33-year simulation period (including 25 years of Proposed Project operation). The results of the groundwater modeling by HydroMetrics were that simulated water levels sometimes would be lower under the Proposed Project scenario because of increased pumping at existing extraction wells. However, simulated water levels would be lowered only about ten feet or less and would be lowered for a relatively short duration, typically for a few months. In addition, simulated water levels would be generally higher than pre-project levels. As such, none of the municipal or private production wells would experience a reduction in well yield or physical damage. All existing wells would be capable of pumping the current level of production or up to the permitted production rights.

In addition, analysis of the closest shallow coastal well (PCA-West Shallow) indicates that increased pumping of purified recycled water would not result in water levels falling below elevations protective of seawater intrusion. Although it would take time for the beneficial impacts of recharge to reach coastal pumping wells, the increased pumping of nearby Paso Robles production wells would only reduce water levels about two feet near the coast. The closest coastal well, PCA-W Shallow, would remain above Protective Elevations for seawater intrusion.

In addition, Todd Groundwater found that there would be no adverse impacts to the quantity of groundwater resources. Because the Proposed Project would only recover up to the amount of purified recycled water injected into the Seaside Basin aquifers, there would be no impact related to long-term change in groundwater storage because the purified recycled water being used for groundwater replenishment would eventually be extracted for municipal use.

Impact GW-5: <u>Operational Groundwater Quality: Salinas Valley</u>. Operation of the Proposed Project would not degrade groundwater quality in the Salinas Valley. (Criterion b) (Less than Significant/Beneficial)

Source Water Diversion and Storage Sites

Salinas Pump Station, Salinas Treatment Facility Storage and Recovery

The Salinas Treatment Facility is located adjacent to the Salinas River about three miles southwest of the City of Salinas. The plant is owned and operated by the City of Salinas to treat and dispose of wastewater, 80 to 90% of which is used to wash and prepare vegetable crops at industrial food processing facilities in Salinas. The Salinas Treatment Facility consists of an aeration pond for treatment of incoming water and three large percolation ponds that dispose of water by percolation and evaporation. Additional disposal capacity is provided by drying beds and by temporary rapid infiltration basins located between the main ponds and the Salinas River channel. **Figure 4.10-3** shows the locations of the ponds, rapid infiltration beds, drying beds, Salinas River, shallow monitoring wells at the Salinas Treatment Facility, and nearby irrigation wells.

Water that percolates from the ponds either flows a short distance through the subsurface and emerges as seepage into the Salinas River or flows downward to the shallow aquifer that is present at depths of 0 to 80 feet below ground. As discussed previously, the Salinas Valley Groundwater Basin in this area contains a shallow aquifer, or A-Aquifer, above a regionally extensive aquitard (i.e., a bed of low permeability adjacent to an aquifer). The shallow aquifer is not used directly as a source of water supply, but gradual downward percolation from the shallow aquifer is a source of recharge to the 180-Foot Aquifer, which is used for water supply in the Salinas region.

Wastewater currently treated at the Salinas Treatment Facility is one of several supplemental sources of water proposed for recycling and reuse by the Proposed Project. Other source waters include municipal wastewater, agricultural tile drainage and runoff in Blanco Drain, mixed runoff and tile drainage in the Reclamation Ditch and Tembladero Slough, and urban runoff/storm water from parts of Monterey and Salinas. Detailed descriptions and maps of the source waters and diversion methods are included in **Section 2.7** in **Chapter 2, Project Description**. These sources would be diverted to the municipal wastewater system in varying amounts depending on availability, demand, and conditions of the various permits and agreements. The source waters would all be conveyed to the Regional Treatment Plant. Some of the secondary effluent from the Regional Treatment Plant would be treated to produce tertiary recycled water for delivery to agricultural users in the CSIP service area (see map in **Figure 4.10-9**). Some of the secondary effluent would be treated at an AWT Facility to be built within the Regional Treatment Plant site. The purified recycled water from the AWT Facility would be conveyed south for recharge via subsurface application into the Seaside Basin. The injected water would augment the basin yield to replace existing sources of potable water that serve the Monterey Peninsula area. Monthly water balances showing inflows and outflows to and from the Salinas Treatment Facility under existing conditions are presented in **Section 4.10.2.1** above.

The Proposed Project would alter the operation of the Salinas Treatment Facility. Currently, the only inflow is industrial wastewater produced by vegetable washing and related agricultural processing facilities in Salinas (agricultural wash water). The only outflows are evaporation and percolation. Under the Proposed Project, agricultural wash water would only be sent to the Salinas Treatment Facility during November through April, when irrigation demand is low. During May through October, it would be sent directly to the Regional Treatment Plant for immediate treatment and recycling. Water stored in the Salinas Treatment Facility ponds over the winter would be pumped out and sent to the Regional Treatment Plant for recycling by the Proposed Project. Storm water runoff from the southern part of Salinas would be added as a new source of inflow to the Salinas Treatment Facility ponds.

The effect of changes to percolation at the Salinas Treatment Facility percolation on water quality in the Salinas Valley Groundwater Basin depends on the concentrations of individual chemical constituents in the Salinas Treatment Facility ponds compared to existing groundwater concentrations and applicable water quality objectives. **Table 4.10-16, Comparison of Water Quality in Salinas Treatment Facility Ponds and Groundwater** compares median concentrations of chloride, nitrate, total dissolved solids and phosphorus for the Salinas Treatment Facility ponds and groundwater. The concentrations of some of these constituents in treated agricultural wash water (i.e., pond water) exceed both existing water quality in the groundwater and groundwater objectives. The data in the table[28] is summarized from various monitoring programs with differing suites of constituents and periods of record. Aquifer-specific data for groundwater quality were not available, and data in the table reflect a combination of

[28] Average concentrations are often influenced by skewed distributions (for example, high outliers for nitrate).

180-Foot and 400-Foot Aquifer groundwater concentrations. In spite of these limitations in available data, the table reveals several large contrasts in water quality conditions that can be used to infer impacts from changes in Salinas Treatment Facility percolation on water quality.

As discussed in detail in **Section 4.11**, seepage into the Salinas River derived from existing Salinas Treatment Facility pond percolation consistently exceeds the surface water quality objective for nitrate, occasionally degrades Salinas River water quality with respect to total dissolved solids and chloride, and probably continually degrades river quality with respect to phosphorus. Because the Proposed Project would decrease the annual volume of water percolated at the Salinas Treatment Facility, it would decrease the input of those contaminants to the river and have a beneficial impact on river water quality.

Groundwater quality impacts would be greatest near the Salinas Treatment Facility, and for this analysis the impact area previously described for water level impacts was also used for water quality impacts: a circle with a 1.5-mile radius ~~surrounding~~ centered at the Salinas Treatment Facility ponds. The 180/400 Foot Subarea water balance in the Salinas Valley Integrated Groundwater and Surface Water Model (the only applicable groundwater model for most of the Salinas Valley Groundwater Basin) indicates that groundwater recharge from rainfall and irrigation return flow averages 0.76 ft/yr, which is 38% of total groundwater recharge. Groundwater recharge from Salinas Treatment Facility percolation averages 0.12 ft/yr when distributed over a 1.5-acre circular area centered at the ponds. Recharge from Salinas Treatment Facility percolation therefore amounts to approximately six percent of total recharge. This means that water quality impacts of changes in Salinas Treatment Facility percolation would be substantially diluted by mixing with other sources of recharge.

Chloride is a relatively conservative solute, which means its concentration does not gradually decrease due to adsorption, degradation or mineral precipitation as it moves through the subsurface. The concentration in the Salinas Treatment Facility ponds is up to three times greater than the existing groundwater concentration, but only 0.9 to 1.2 times the recommended secondary MCL and management water quality objectives (see **Table 4.10-15**). This means that percolation of treated agricultural wash water from the ponds tends to degrade existing groundwater quality and could at most cause groundwater quality to slightly exceed the water quality objective. Therefore, a decrease in Salinas Treatment Facility pond percolation and associated groundwater recharge would probably have a small but beneficial impact on chloride concentration.

Table 4.10-16
Comparison of Water Quality in Salinas Treatment Facility Ponds and Groundwater

Water Source	Chloride (mg/L)	Nitrate (mg/L as N)	Total Dissolved Solids (mg/L)	Phosphorus (mg/L as P)	Notes
STF Ponds 1-3	301	4.5	1,090	--	Medians of 12 monthly samples during 2013. Total nitrogen converted to nitrate.
STF Ponds	237	5.9	1,228	27	Median of six samples collected during July 2013 to February 2014
Salinas River at South Davis Road (upstream of SIWTF)	70	7.0	618	0.1	CCAMP data. Medians of 92-100 samples during 1998-2011. Primarily low-flow data.
Blanco Drain[a]	274	66.0	2,003	<0.1	Median of monthly samples collected during July 2013-June 2014 for GWR Project source water investigation (Nellor Environmental Associates, 2015).
Groundwater	100	2.0	800	0.012	Chloride, nitrate and TDS from GeoTracker GAMA database. Medians of samples from 15-23 well locations between Salinas and the Salinas River. Dates vary. Combination of 180-Foot and 400-Foot aquifers. Phosphorus is the median of 8 samples from the Pressure Area (Kulongoski and Belitz, 2011).
Water Quality Objectives for 180 Foot Aquifer					
Primary MCL	–	10	–	–	
Recommended Range Secondary MCL	250	–	500[d]	–	
Central Coast Basin Plan Median Objective[b] ("Management Objective")	250	1[c]	1,500	–	These median objectives serve as mechanisms for evaluating water quality management.

Notes:
CCAMP = Central Coast Ambient Monitoring Program; STF = Salinas Treatment Facility; MCL = Maximum Contaminant Level
GAMA = groundwater ambient monitoring and assessment
[a] Blanco Drain data used as a surrogate for shallow groundwater quality, for which direct measurements are not available.
[b] From Table 3-8 in the Bain Plan; are intended to serve as a water quality baseline for evaluating water quality management in the basin, but are at best representative of gross areas only. Application of these objectives must be consistent with the objectives previously specified in the Basin Plan and synchronously reflect the actual ground water quality naturally present.
[c] The objective is for Total Nitrogen.
[d] The lower secondary drinking water standard is shown. Agricultural crops can experience "increasing problems" at electrical conductivity values that correspond to approximately 500-2,000 mg/L of TDS.

The nitrate concentration in Salinas Treatment pond water is two to three times greater than the existing ambient groundwater concentration. The pond water concentration is lower than the primary MCL-based objective, but four to six times greater than the management water quality objective, assuming that the total nitrogen in the pond water is all in the form of nitrate. However, existing nitrate concentrations in the 180-Foot Aquifer exceed the total nitrogen management water quality objective by a factor of two. Recharge from pond percolation presently tends to exacerbate an existing degraded condition. Therefore, a decrease in pond percolation would probably have a small beneficial impact on nitrate concentrations in the groundwater.

Total dissolved solids tend also to be fairly conservative during subsurface transport. The total dissolved solids concentration in pond water is 1.5 to 1.6 times greater than the ambient groundwater concentration. It is 2 to 2.5 times greater than the recommended secondary MCL-based objective for drinking water but less than the management water quality objective. Recharge from pond percolation presently tends to degrade groundwater quality with respect to total dissolved solids and potable use. Therefore, a decrease in pond percolation resulting from the Proposed Project would tend to improve groundwater quality and result in a beneficial impact.

Finally, the Central Coast RWQCB has not adopted a water quality objective for phosphorus in groundwater. It is not a constituent regulated by drinking water standards or addressed for the agricultural supply beneficial use, but would be subject to the Anti-Degradation Policy. Therefore, changes in phosphorus concentrations in the 180-Foot Aquifer caused by decreased Salinas Treatment Facility pond percolation would not affect beneficial uses according to the Basin Plan; however, the phosphorus concentrations in treated water are higher than in the groundwater so reducing the pond percolation would also be expected to lower phosphorous levels in the groundwater.

All Other Project Components/Overall Regional Impacts on Salinas Valley Groundwater Basin

Other source water diversion sites would not divert enough to change groundwater levels, storage, or recharge affecting seawater intrusion as discussed further in impact GW-3, above. No new or modifications to recharge or percolation of water from the Regional Treatment Plant site (including Proposed Project AWT Facility and SVRP modifications) would affect Salinas Valley Groundwater Basin quality. Source water diversions from Tembladero Slough, Reclamation Ditch and Blanco Drain would have a less that significant impact on groundwater quality.

As previously discussed, the Proposed Project would decrease CSIP pumping to zero in most years and to a small fraction of existing pumping in the remaining years. The decrease in groundwater pumping in the CSIP area would be about ten times greater than the decrease in recharge at the Salinas Treatment Facility and therefore, the Proposed Project would have a net beneficial impact with respect to seawater intrusion and overall groundwater storage and levels in the Salinas Valley Groundwater Basin. The Proposed Project would increase the amount of irrigation water available to the growers. The tertiary recycled water would comply with statutory and regulatory requirements for the production and use of recycled water per California Water Code Sections 13500 – 13577 and California Code of Regulations, Title 22, Sections 60301 – ~~60357~~60355. In addition, the increased use of the tertiary-treated recycled water on the existing CSIP area would not adversely affect the groundwater quality in the 180-Foot or 400-Foot Aquifers for the following reasons:

- the 180-/400-Foot Aquifers are confined (an aquitard overlies these aquifers).
- the shallow aquifer (sometimes called the A-Aquifer) is not used for municipal or agricultural uses.
- the farm fields receiving recycled water for irrigation are nearly all under-drained (artificially drained with tiles set at frequent intervals), and the leachates from excess irrigation end up in the drain tiles and ultimately into Tembladero Slough or Blanco Drain, and are discharged to Monterey Bay along with the other slough waters.

The technical analysis in **Appendix S** presents information on the salinity in the recycled water, describes existing use of recycled water by growers in the CSIP area and analyzes how the addition of the Proposed Project source waters to the recycled water supply may affect the quality of recycled water delivered to growers. No other Proposed Project components sites would overly the Seaside Groundwater Basin such that they would have the potential to affect its water quality. No other components would result in adverse operational impacts on groundwater quality in the Salinas Valley Groundwater Basin.

Impact Conclusions

The Proposed Project operations would have a less-than-significant impact on the water quality in the Salinas Valley Groundwater Basin. This conclusion is based on the lack of recharge or percolation of contaminated waters and the beneficial impacts of diversions of source waters of marginal water quality, and the delivery of new recycled water to the crop irrigation demands in the CSIP area.

Impact GW-6: <u>Operational Groundwater Quality: Seaside Basin</u>. Proposed Project operations would not degrade groundwater quality in the Seaside Basin, including due to injection of purified recycled water into the basin. (Criterion b) (Less than Significant/Beneficial)

All Project Components

Geochemical Compatibility of Purified Recycled Water and Groundwater

When two water types with different water chemistry are mixed (such as the Proposed Project purified recycled water and groundwater), the compatibility of the waters requires examination. Geochemical reactions in the groundwater system in the vicinity of the well and in the aquifer beyond could potentially result in precipitation or dissolution of constituents (e.g., precipitation of silica or dissolution of metals). These reactions could contribute to clogging in the well and/or pore throats or alter groundwater quality thorough dissolution in the vadose zone or aquifer. In particular, if not addressed, subsurface application of purified recycled water in the vadose zone could lead to leaching of natural or anthropogenic constituents that could impact groundwater quality or lead to well scaling or biofouling.

Under the Proposed Project, the potential for geochemical incompatibility would be addressed at the proposed AWT Facility by including a stabilization step in the treatment process to ensure that the purified recycled water is stabilized and non-corrosive. Other groundwater replenishment projects similar to the Proposed Project provide chemical stabilization for these purposes. Further, no adverse impacts have been observed at the nearby ASR Project’s wellfields where water injected in ASR wells has a different water chemistry than native groundwater; this water has some similar components of water chemistry to the Proposed Project purified recycled water that are relevant to compatibility.

To estimate geochemical issues that would need to be addressed through treatment design or operational adjustments at the AWT Facility, a geochemical assessment was performed using the data from the MRWPCA field program (Todd Groundwater, 2015c). Further, a pilot plant was constructed at the MRWPCA Regional Treatment Plant to test the ability of the proposed reverse osmosis (RO) system to remove impurities from the source waters that would be treated at the proposed AWT Facility. The Proposed Project pilot plant RO water was stabilized and provided to McCampbell Laboratories under chain of custody protocol to use in laboratory leaching tests on nine vadose zone core samples. The water extracted from the core samples (leachate samples) was analyzed for a suite of constituents to provide a preliminary estimate of leaching potential. These tests provide a conservative estimate of the potential for leaching constituents from the vadose zone during subsurface application associated with the Proposed Project. The analysis is considered conservative because the Proposed Project’s pilot plant water is slightly more aggressive (as indicated by the negative value of the Langelier Saturation Index on Table 17 in **Appendix L**) than the anticipated full-scale AWT Facility purified recycled water.

Due to the unconsolidated nature of the core samples and limitations with extraction methods, the laboratory results were compromised by elevated turbidity in some of the leachate samples (Todd Groundwater, February 2015). Notwithstanding the limitations of the results, the leaching tests provided valuable information on which constituents represented the highest potential for leaching and identified potential geochemical reactions that warranted further investigation through geochemical modeling.

Geochemical modeling was conducted to analyze the potential for dissolution (leaching) of chromium, arsenic, and lead from the vadose zone sediments (including samples from the Aromas Sand and Paso Robles Aquifer). The modeling indicated that trace amounts of chromium adsorbed onto the hydrous ferric oxide coatings of the sand grains and thus represented the highest potential for leaching. However, this leaching does not represent a long-term effect due to the limited total amount of chromium available in the sediments. The maximum concentration in the zone of saturation was estimated to be about 4.0 µg/L after one year of injection – a concentration substantially below the total chromium primary drinking water MCL of 50 µg/L.

Although arsenic and lead were also determined to be present in vadose zone sediments, those constituents were more strongly adsorbed to the oxides than chromium. Consequently, only small amounts are predicted to be released into solution as the injected water flows through the Aromas Sand, resulting in sustained but low concentrations of about 4 µg/L for arsenic and approximately 0.7 µg/L for lead. Concentrations in the zone of saturation meet water quality standards. None of the analyses indicated that groundwater concentrations would exceed regulatory standards for any of the leached constituents.

Additional geochemical analyses indicated that aquifer clogging from calcite precipitation would be unlikely due to the low concentrations of calcium and bicarbonate. Extensive biofouling of injection wells was also evaluated and determined to be unlikely given that the low concentrations of nitrogen and phosphorus in the AWT Facility purified recycled water would not tend to stimulate microbial growth.

In addition to impacts from the vadose zone wells, the analysis examined the potential for impacts to the Santa Margarita Aquifer from recharge into deep injection wells. Results indicated that the potential for such impacts were unlikely. Risk of trace metal desorption during injection of purified recycled water into the Santa Margarita Formation was inferred from previous studies of injected Carmel River water. The two injected water types have similar pH and oxidation-reduction potential, and are therefore expected to have similar effects with respect to adsorption/desorption processes. Previous studies found no indications that significant metal concentrations would be released into solution, and those results can reasonably be extended to injection of the purified recycled water.

The following summarizes the key conclusions from the geochemical compatibility analyses described above:

- Chemicals associated with the former Fort Ord activities, including soluble nitroaromatic compounds (explosives), perchlorate, or certain organic constituents, were not detected (or for those that were detected, the samples were not indicative of actual groundwater quality) in soil core samples or groundwater samples and testing indicates Fort Ord activities have not contaminated groundwater near the proposed Injection Well Facilities site.

- Potential changes in injected purified recycled water quality beneath vadose zone wells from geochemical reactions between the purified recycled water and formation materials along vertical flow paths are small. The analysis of leaching of chromium, arsenic, and lead indicated that concentrations in the zone of saturation are expected to be very low and would meet water quality standards.
- Aquifer clogging by calcite precipitation is unlikely to be a problem for the Proposed Project. In the Aromas Sand, calcium and bicarbonate concentrations are below saturation levels. Ambient groundwater in the Paso Robles Formation is at saturation with respect to calcite, but given the pH of the purified recycled water, calcite would not be expected to precipitate.
- Biofouling would not likely pose a problem for the injection wells because the purified recycled water is very low in nitrogen and phosphorus and would not tend to stimulate microbial growth.
- Based on the water chemistry of the AWT Facility pilot plant water and observations from the ASR Project's wellfield, adverse impacts from geochemical incompatibility are unlikely in the Santa Margarita Aquifer in the vicinity of the deep injection wells.

None of the modeling results indicated that groundwater would be geochemically incompatible with the AWT Facility purified recycled water. Complete results of the geochemical analyses and modeling are presented in the draft report on the MRWPCA field program (Todd Groundwater, February 2015c).

Potential Interactions with Local Anthropogenic Groundwater Contamination

A search of the study area was conducted on the DTSC *EnviroStor* web site (www.envirostor.dtsc.ca.gov) and the SWRCB *Geotracker* web site (http://geotracker.waterboards.ca.gov). The goal of the search was to identify any potential industrial sites or activities that could contribute to groundwater contamination from previous site uses, spills, and/or chemical releases in the Proposed Project Injection Well Facilities study area.

Both *EnviroStor* and *Geotracker* listed the 28,016-acre Fort Ord Military Reservation as an active Federal Superfund site and listed munitions as the contaminant of primary concern. Additionally, *Geotracker* identified two adjacent sites on the former Fort Ord lands as gasoline contamination sites: (1) the 14th Engineers Motor Pool and (2) Building 511. In addition, groundwater contaminant sites 2/12, OU-1, OU-2, and OU-CTP are described in **Section 4.9.2.1** of the **Section 4.9, Hazards and Hazardous Materials,** and all are located over one mile north of the boundary of the Seaside Basin. These are active sites currently undergoing investigations and are located about 1.8 miles to the northeast of the Injection Well Facilities. However, all sites are outside of the Seaside Groundwater Basin and are not a threat to groundwater in the Proposed Project Injection Well Facilities area; nor would operation of the Injection Well Facilities or extraction from existing CalAm Wells result in groundwater quality impacts of these active sites.

Other environmental sites have been identified in the Seaside Groundwater Basin, including numerous leaking underground storage tank sites, but none were in the Proposed Project Injection Well Facilities area and none within areas affected by existing CalAm Seaside Basin Extractions. Specifically, there were no environmental contaminant sites identified in the area between Proposed Project recharge and downgradient extraction wells. Replenishment activities would not have any interaction with contaminant plumes outside of the cone of depression for the existing CalAm extraction wells; and thus would result in a less-than-significant impacts related to interactions with any off-site groundwater contaminant sites.

Statutory and Regulatory Water Quality Compliance Overview

An assessment conducted by Nellor (2015) reviewed the analytical results of source water monitoring, the water quality results of the AWT Facility pilot plant testing (using ozone, MF, and RO), the stabilized RO sample, information on the predicted performance and water quality of the proposed full-scale AWT Facility based on other existing groundwater replenishment projects, and related research/studies. Based on the results of that assessment, the Proposed Project would comply with the following (see **Chapter 3, Water Quality Statutory and Regulatory Compliance** and **Appendix D** for more information):

- SWRCB Regulations (for groundwater replenishment), including MCLs, NLs, total organic carbon, and other numeric water quality-based requirements; and
- Central Coast Basin Plan objectives and guidelines for protection of groundwater uses (MUN, AGR, and industrial use).

The Proposed Project purified recycled water would be treated and stabilized to meet all drinking water quality objectives. The concentrations of total dissolved solids and nitrogen in the purified recycled water would also meet Basin Plan objectives. Further, the Proposed Project purified recycled water is expected to be higher quality water than ambient groundwater with respect to total dissolved solids, chloride, and nitrate. As such, the Proposed Project would not result in the groundwater failing to meet groundwater objectives or beneficial uses. Rather, the Proposed Project recycled water would have a beneficial effect on local groundwater quality from the injection of high quality water that meets objectives and has low total dissolved solids and chloride concentrations.

A Salt and Nutrient Management Plan (SNMP) has been prepared for the Seaside Basin to comply with requirements in the SWRCB's Recycled Water Policy (HydroMetrics WRI, 2014). The SNMP was developed with basin stakeholder input through the Seaside Basin Watermaster and has been adopted by the MPWMD Board. The final SNMP has been submitted to the RWQCB. As documented in the SNMP and confirmed herein, ambient groundwater generally exceeds Basin Plan objectives for total dissolved solids in many areas of the basin, while nitrate and chloride concentrations generally meet Basin Plan objectives. As indicated by the water quality analyses of the stabilized AWT Facility pilot plant water (discussed above), total dissolved solids, nitrate, and chloride in the purified recycled water produced by the Proposed Project would meet Basin Plan objectives. Further, these concentrations would be generally lower than average concentrations in groundwater. As such, recharge of the Seaside Basin using the Proposed Project purified recycled water would not adversely impact salt and nutrient loading in the basin and would provide benefits to local groundwater quality related to salts (total dissolved solids and chloride).

Impacts on Seawater Intrusion

As demonstrated by the modeling by HydroMetrics (attached to **Appendix L** of this EIR) and discussed above in Impact GW-4, the Proposed Project is not expected to cause water levels to fall below elevations that are protective against seawater intrusion.

The Proposed Project would incorporate operational monitoring to track impacts on water levels from recharge and pumping. Real-time modifications can be incorporated into the operation of the Proposed Project to address any short-term water level declines, if needed. For example, during the primary pumping period, more water can be directed to the deeper aquifer where existing water level declines are more widespread.

The Proposed Project would provide basin replenishment to meet the primary objective of increasing basin production to replace a portion of the CalAm water supply as required by state orders. The impact analysis indicates that the Proposed Project would not exacerbate seawater intrusion. However, it is noted that seawater intrusion cannot be prevented by the Proposed Project alone. Water levels are below sea level at the coast in the Santa Margarita Aquifer and the Proposed Project would not raise levels in the Seaside Basin over the long term. However, the short term rise in water levels associated with the Proposed Project during the winter when pumping is less will prevent significant water level declines during the summer when pumping increases. A more complete analysis of water level impacts associated with the Proposed Project is provided in the HydroMetrics' Groundwater Replenishment Project Modeling Technical Memo (HydroMetrics WRI, 2015a).

Impact Conclusions

Based on the groundwater characterization, recent groundwater sampling results, stabilized pilot water quality/chemistry and projected AWT Facility purified recycled water quality, and results from the MRWPCA field program, the following conclusions were made in the relevant technical reports.

- Stabilized pilot plant water samples and projected AWT Facility purified recycled water meet SWRCB Regulations for groundwater replenishment projects and Basin Plan groundwater quality standards, including drinking water MCLs. Further, the treatment processes that would be incorporated into the proposed full-scale AWT Facility would ~~be selected and~~meet the requirements in the DDW Groundwater Replenishment Regulations and the AWT Facility would be operated to ensure that all water quality standards would be met in both the purified recycled water and groundwater. A monitoring program would document project performance.
- Stabilized pilot plant water samples and projected AWT Facility purified recycled water exhibit much lower concentrations of total dissolved solids and chloride than in ambient groundwater and would be expected to provide a localized benefit to groundwater quality. Such a benefit would expand over time with continuous replenishment from the Proposed Project wells.
- No documented groundwater contamination or contaminant plumes have been identified in the Proposed Project area. Therefore, replenishment associated with the Proposed Project would not exacerbate existing groundwater contamination or cause plumes of contaminants to migrate.
- Injection of AWT Facility purified recycled water would not degrade groundwater quality. A monitoring plan would be implemented to meet RWQCB and DDW requirements.
- The Proposed Project purified recycled water would be stabilized as part of the full-scale AWT Facility to ensure no adverse geochemical impacts. Geochemical modeling associated with the MRWPCA field program indicated that no adverse groundwater quality impacts are expected from leaching or other geochemical reactions.
- Modeling indicates that the Proposed Project would not lower water levels below protective levels in coastal wells and would not exacerbate seawater intrusion.

As summarized above and discussed in detail in **Appendices D** and **L**, the Proposed Project, including subsurface application of purified recycled water through both vadose zone wells and deep injection wells, would be required to comply with federal, state and local statutes and regulations established to protect water quality. The Proposed Project would have a beneficial impact related to salt and, in some cases, nutrient concentrations in groundwater and would have a less-than-significant impact on groundwater quality for all other constituents, including those related to the seawater intrusion conditions of the basin, the safety of the water supply for human consumption, and the beneficial use of the Seaside Basin. (Todd Groundwater, February 2015 and Nellor Environmental Associates, 2015).

4.10.4.5 Cumulative Impacts and Mitigation Measures

The geographic scope for cumulative impact analysis on groundwater resources consists of two primary groundwater basins that are located beneath the Proposed Project area, the Salinas Valley and Seaside Groundwater Basins.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects identified on **Table 4.1-2, Project Considered for Cumulative Analysis (**see **Section 4.1, Introduction**):

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[29] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The overall estimated construction schedule would be from June 2016 through March 2019 for the combined projects, during which time the construction schedules could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a “Variant” project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects:* This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project.

[29] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC 2012). Based on ongoing coordination with the CPUC’s EIR consultants, this alternative is referenced as the “Variant” and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

Combined Impacts of Proposed Project plus MPWSP (with 6.4 mgd Desalination Plant)

Construction Combined Impacts on Groundwater

During construction, impacts to groundwater would be limited to very small use of groundwater for construction employees and changes to drainage and recharge resulting in no noticeable change to groundwater levels or quality due to either project and to both projects implemented together. Therefore, the combined MPWSP (with 6.4 mgd desalination plant) and the Proposed Project would not result in a significant cumulative groundwater impact during construction.

Operational Combined Impacts on Salinas Valley Groundwater Basin

Numerous studies, and plans have documented that the impact of cumulative projects (i.e., past, present and reasonably foreseeable future projects) on the groundwater resources/conditions of the Salinas Valley Groundwater Basin are detrimental to groundwater levels and quality. These detrimental effects are considered to be a significant cumulative impact because seawater intrusion conditions in the basin have continued to worsen with time and other contamination conditions, such as high nitrate concentrations are found in numerous groundwater wells supplying drinking water to small communities (Brown and Caldwell, 2014; California Department of Water Resources, 2003; California Department of Water Resources (DWR), 2004a; California Department of Water Resources, 2015; GeoScience Support Services, Inc;, 2013; Harding ESE, 2001; Kennedy/Jenks Consultants, 2004; Monterey County Water Resources Agency, 2006; Monterey County Water Resources Agency, 2014; and State Water Resources Control Board, 2014).

As documented in the impact analyses in **Section 4.10.4.4** (under Impacts GW-3 and GW-5),the Proposed Project would have overall, net beneficial impacts on both water quality and water levels, recharge, and storage in the Salinas Valley Groundwater Basin. Accordingly, operation of the Proposed Project would not contribute to significant cumulative impacts to groundwater quality and levels in the Salinas Valley Groundwater Basin.

Operational Combined Impacts on Seaside Groundwater Basin

See the section titled "*Operational Cumulative Impacts on Seaside Groundwater Basin*" below. The cumulative conditions considered for the Overall Cumulative Projects would be the same as the combined analysis of implementation of the Proposed Project and the MWPSP with a 6.4 mgd desalination plant because all other cumulative projects are approved or mandated by the Seaside Basin Watermaster so would occur both with the combined scenario and under conditions expected with all other cumulative projects implemented. The combined impacts of the Proposed Project and the MPWSP with 6.4 mgd desalination would not result in a significant impact on groundwater levels, recharge or storage in the Seaside Groundwater Basin and the Proposed Project would not make a considerable contribution to a significant cumulative impacts on groundwater quality.

Overall Cumulative Projects

Construction Cumulative Impacts on Groundwater

While the Proposed Project would use a small amount of groundwater during construction, and would introduce small amounts of impervious surfaces, there would be no noticeable change to groundwater levels or quality due to these construction-related changes. Construction of the Proposed Project would not change groundwater quality, recharge, levels, and storage in either groundwater basin on which Proposed Project components would be located. Therefore, the

Proposed Project would not contribute considerably to cumulative impacts on groundwater resources during construction.

Operational Cumulative Impacts on Salinas Valley Groundwater Basin

As documented in the impact analyses in **Section 4.10.4.4** (under Impacts GW-3 and GW-5), the Proposed Project would have overall, net beneficial impacts on both groundwater quality and groundwater levels, recharge, and storage in the Salinas Valley Groundwater Basin. Accordingly, the Proposed Project would make no contribution to adverse cumulative groundwater impacts in the Salinas Valley Groundwater Basin.

Operational Cumulative Impacts on Seaside Groundwater Basin

HydroMetrics WRI analyzed the potential for cumulative groundwater impacts related to implementation of cumulative projects in the Seaside Groundwater Basin, with and without the Proposed Project (see **Appendix M rev**). The analysis considers and incorporates the impacts of past, present, and reasonably foreseeable future projects that involve the Seaside Groundwater Basin, including the MPWSP with a 6.4 mgd desalination plant.

The calibrated groundwater model of the Seaside Groundwater Basin (HydroMetrics WRI, 2009) was used to estimate impacts from the cumulative projects over a 33-year modeling period, including 25 years of Proposed Project operation. The following cumulative projects and conditions were included in the modeling:

- The MPWSP with a 6.4-mgd desalination plant (also called the CalAm Facilities of the MPWSP Variant),
- implementation of Aquifer Storage and Recovery injection and extraction wells in accordance with water rights to divert from the Carmel River system and system capacity,
- ongoing imposed reductions of groundwater pumping in accordance with the requirements of the Seaside Groundwater Basin adjudication, and
- other changes to recharge and extraction assumed by the Seaside Watermaster in their ongoing modeling efforts as described in **Appendix M rev**.

A predictive model incorporating reasonable future hydrologic conditions was developed for this impact analysis. The groundwater model was calibrated through 2008; therefore the predictive model begins in 2009. The predictive model simulates a 33 year period: from 2009 through 2041.

Simulated future Carmel River flows were based on historical flow records. The amount of Carmel River water available for winter injection into the Seaside Basin was estimated by MPWMD staff. MPWMD compared historical daily streamflows with minimum streamflow requirements for each day, and then identified how much water could be extracted from the Carmel River for injection into the ASR wells in the Seaside Basin each month.

Cal-Am provided average monthly projections of both the groundwater injection and groundwater pumping needed to meet their anticipated future demands for their proposed Variant Project, which assumes implementation of the Proposed Project's GWR Facilities along with their MPWSP with a 6.4 mgd desalination plant. These projections were incorporated into the predictive model to the degree possible. Some modifications to Cal-Am's projections were performed to compensate for anticipated pumping capacity shortfalls in specific future years.

One additional modification to Cal-Am's projected groundwater pumping schedule was necessary to ensure adequate water would be available during a potential five-year drought.

Cal-Am may need to suspend its planned groundwater repayment plan during three years of the five-year drought. This is a reasonable assumption, because all water purveyors are expected to fully use any available water supplies during a drought.

Model results show that Seaside Basin groundwater conditions (water levels, protective elevations at the coast, storage capacity, and recharge) with implementation of the cumulative projects would be the same or better than conditions without implementation of the cumulative projects. Groundwater elevations generally would be higher under the cumulative conditions than under the conditions without the cumulative projects. These higher groundwater levels would tend to slow or stop seawater intrusion. For these reasons, there would not be a significant cumulative impact on groundwater levels, recharge, or storage.

Assuming cumulative projects and required groundwater extraction changes are implemented in accordance with the Seaside Basin adjudication requirements, particle tracking was used to estimate the travel time for the proposed purified recycled water from the point of recharge to the closest point of extraction. Particle tracking showed that the shortest travel time for any recharged Proposed Project purified recycled water would be 334 days. Travel times of less than 12 months would occur for 10 years of the 25-year simulation period when the Proposed Project is in operation. With these travel times, the Proposed Project (when combined with the implementation of cumulative projects) would still be able to meet regulatory and statutory requirements established to protect human health. The analyses in **Chapter 3, Water Quality Statutory and Regulatory Compliance** and in **Section 4.10.4.4** under Impact GW-6 demonstrates that the Proposed Project would have a beneficial impact on certain water quality conditions (total dissolved solids and chloride levels), and would not degrade water quality in the basin related to other constituents. For these reasons, the Proposed Project would not make a considerable contribution to a significant cumulative impact on groundwater quality.

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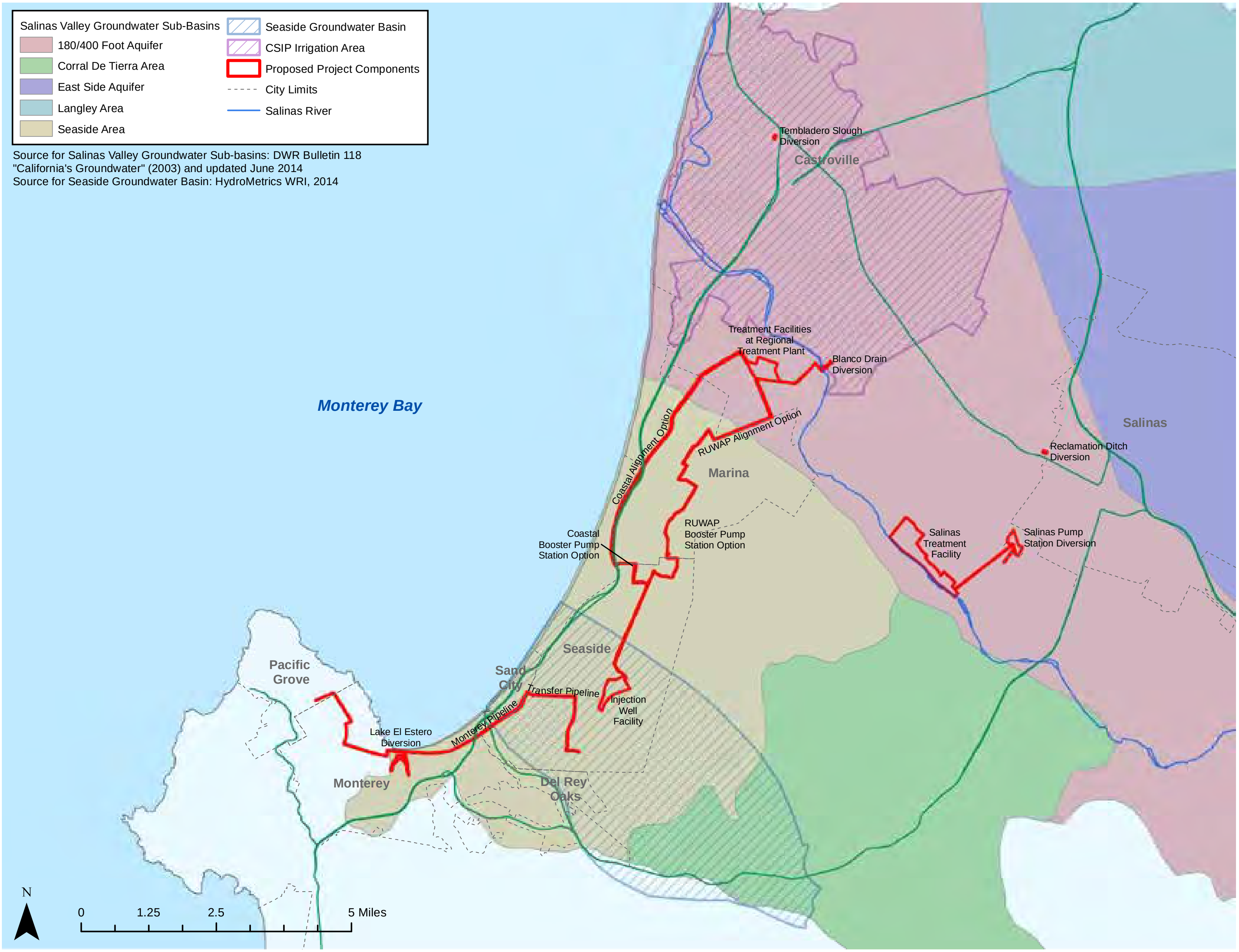


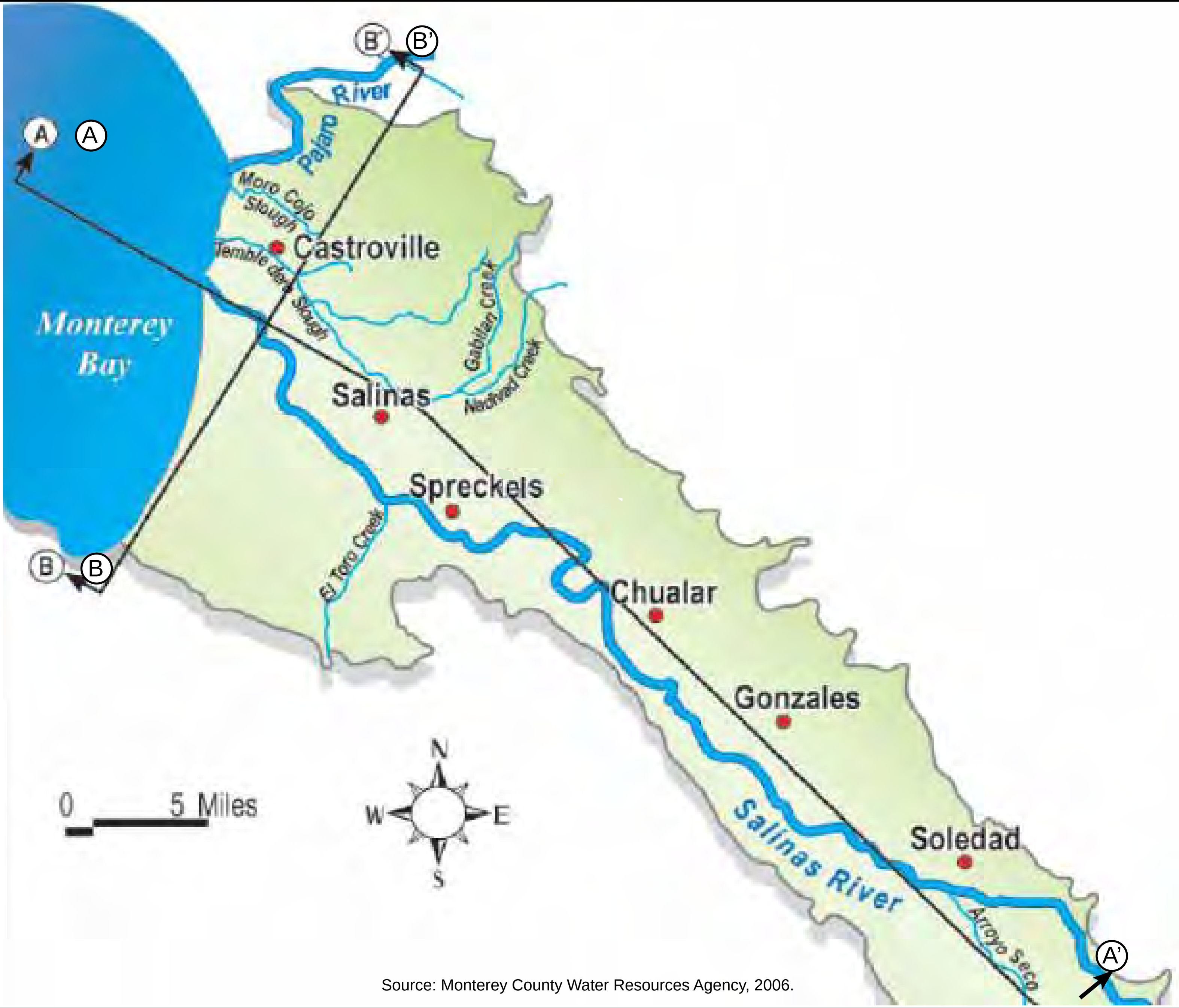
Regional Groundwater Basins and Subareas Map

DD&A

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 4.10.1



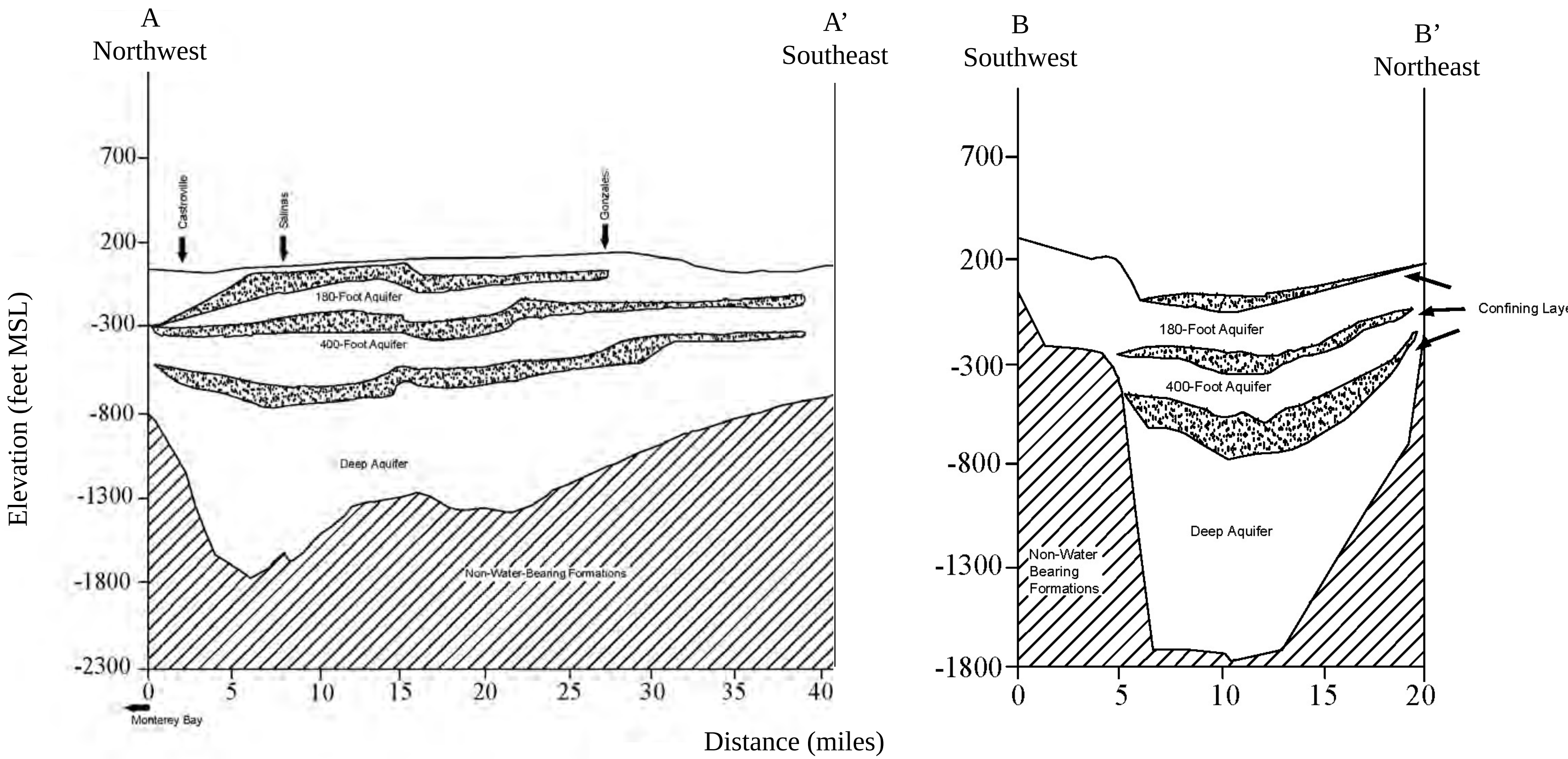
Source: Monterey County Water Resources Agency, 2006.

Salinas Valley Groundwater Basin Cross-Section

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.10-2a



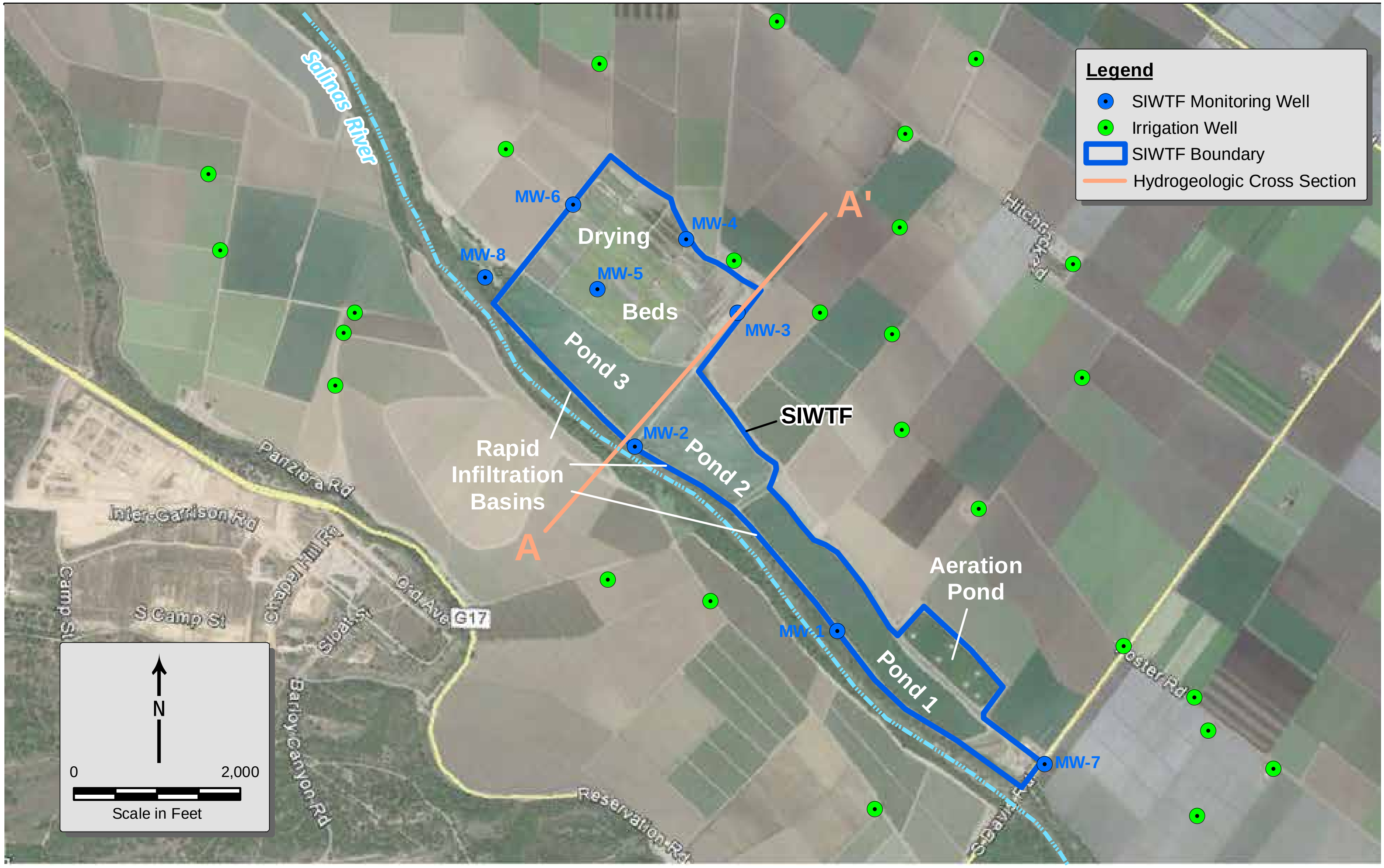
Source: Monterey County Water Resources Agency, 2006.

Salinas Valley Groundwater Basin Cross-Section

March 2015

Pure Water Monterey GWR Project
Administrative Draft EIR

Figure
4.10-2b



Source: Todd Groundwater, 2015c

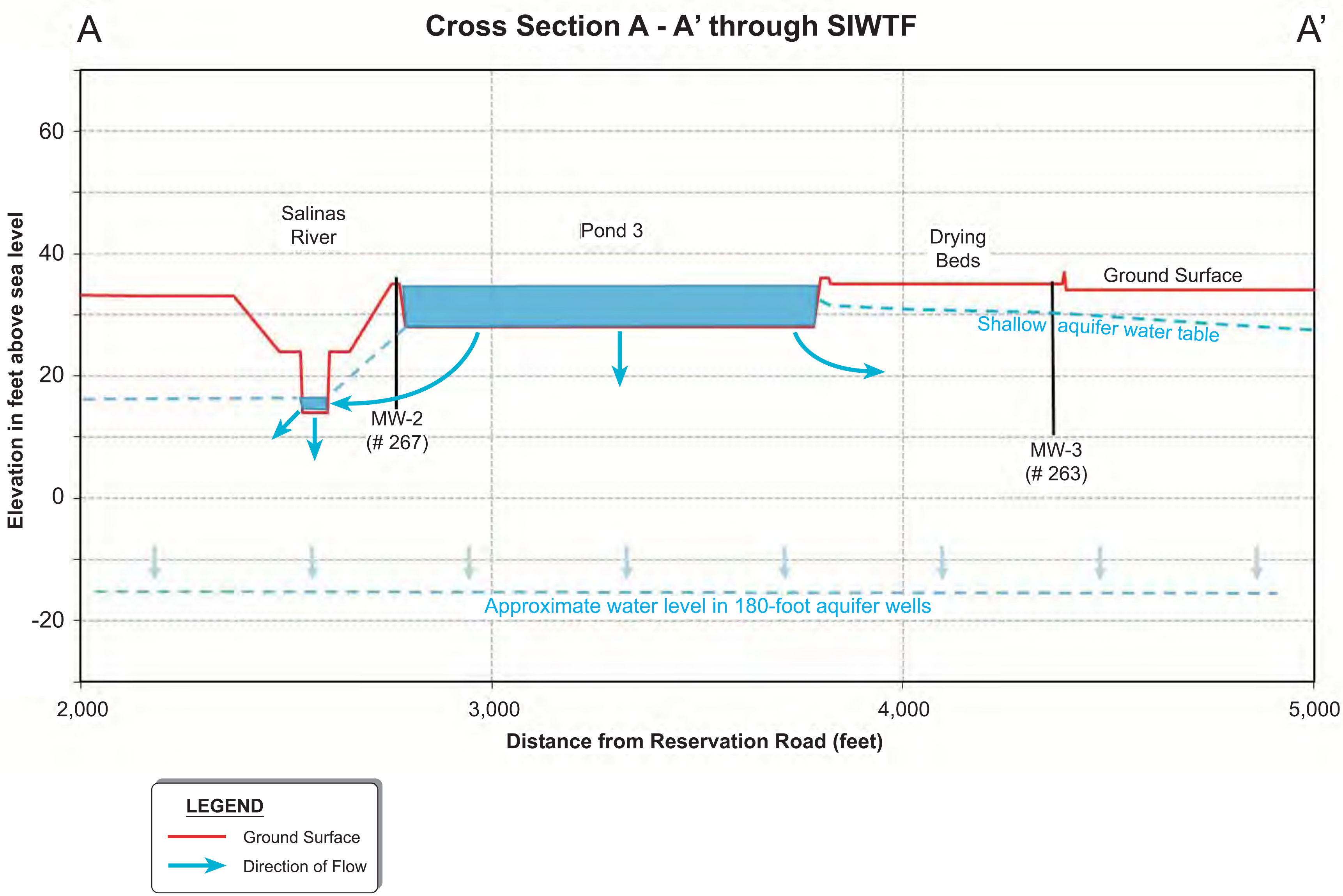
DD&A

Salinas Treatment Facility and Existing Vicinity Wells

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.10-3



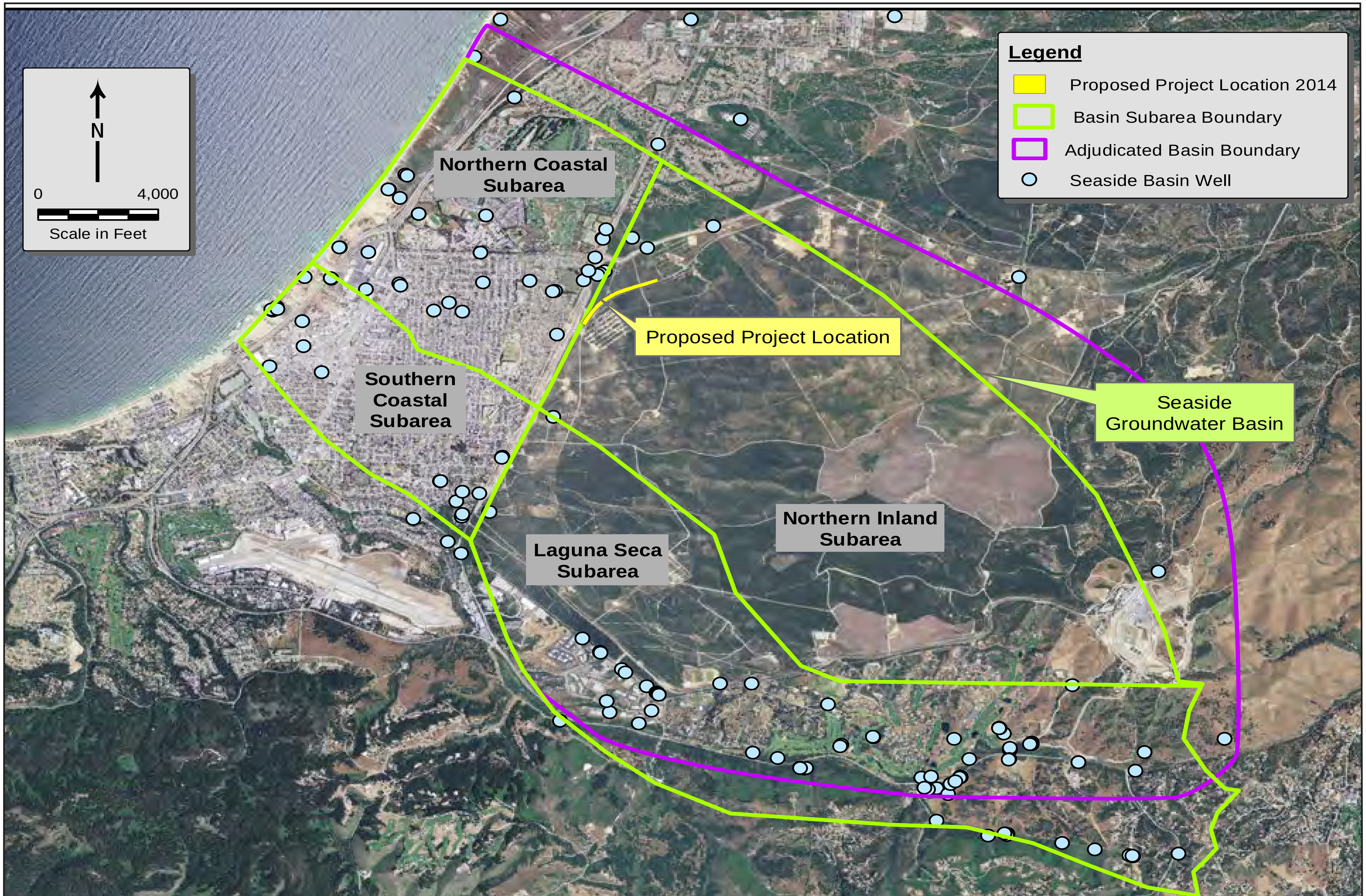
Source: Todd Groundwater, 2015c

Hydrogeologic Cross-Section of Salinas Treatment Facility

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.10-4



Source: Todd Groundwater, 2015a

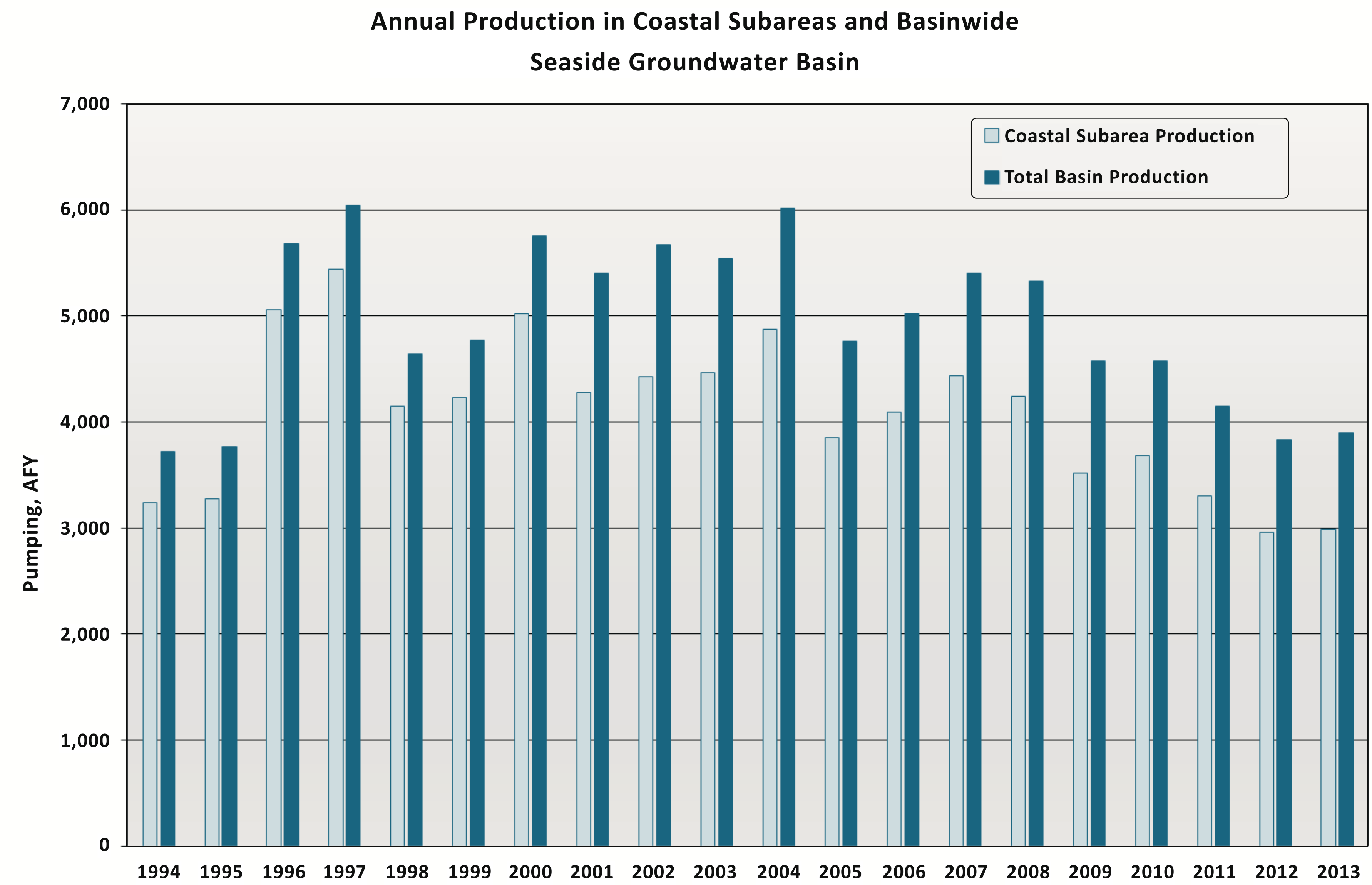
Seaside Groundwater Basin

This figure has been revised in response to comment N-10.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure 4.10-5 rev



Notes: 1994 - 2001 data by Reporting Period (July 1- June 30). 2001 - 2013 data by Water Year (October 1 - September 30).
Pumping data do not include ASR injection or recovery amounts.

Source: Todd Groundwater, 2015a

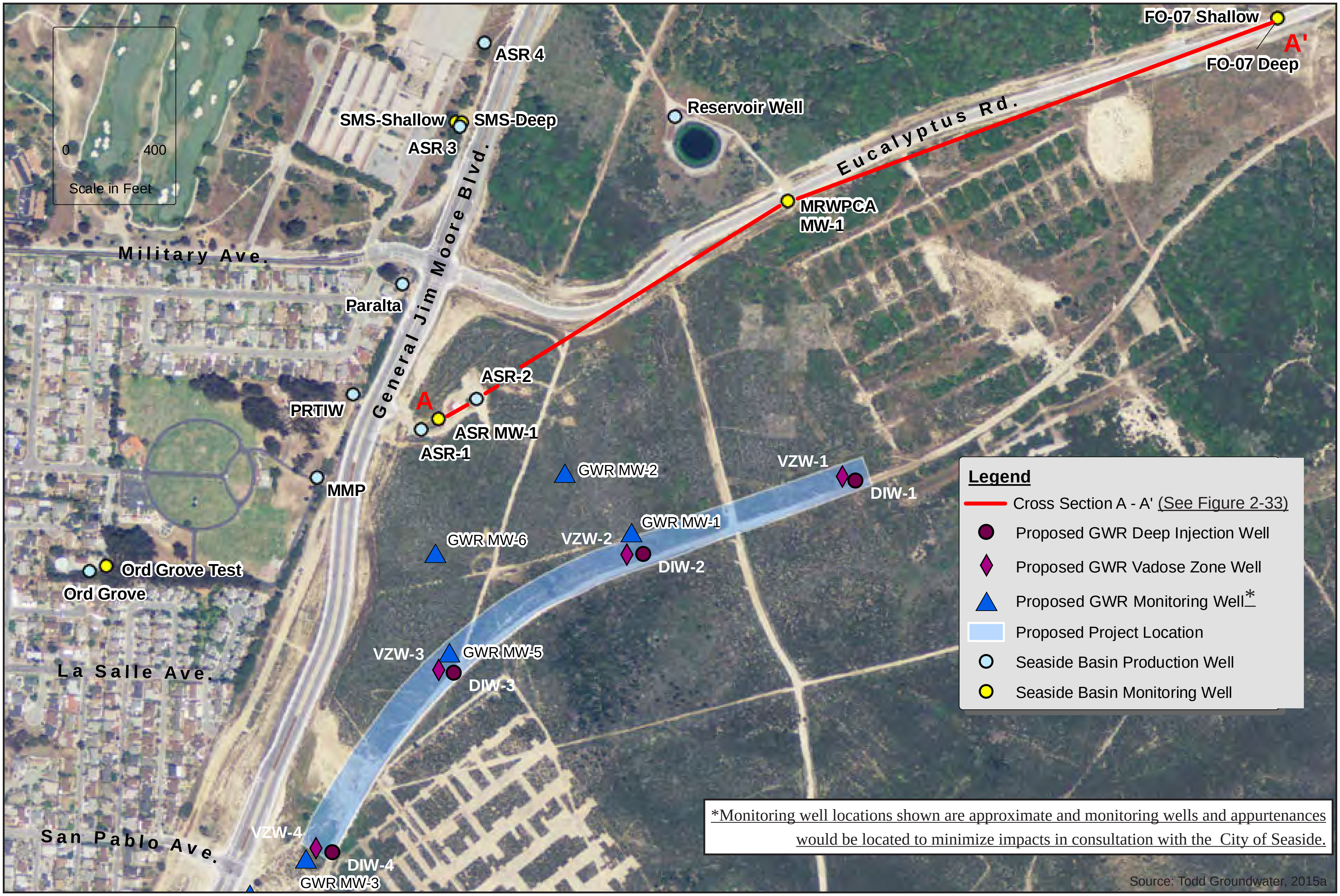
Coastal and Basin-wide Groundwater Production

April 2015

DD&A

Pure Water Monterey GWR Project
Draft EIR

Figure
4.10-6



DD&A

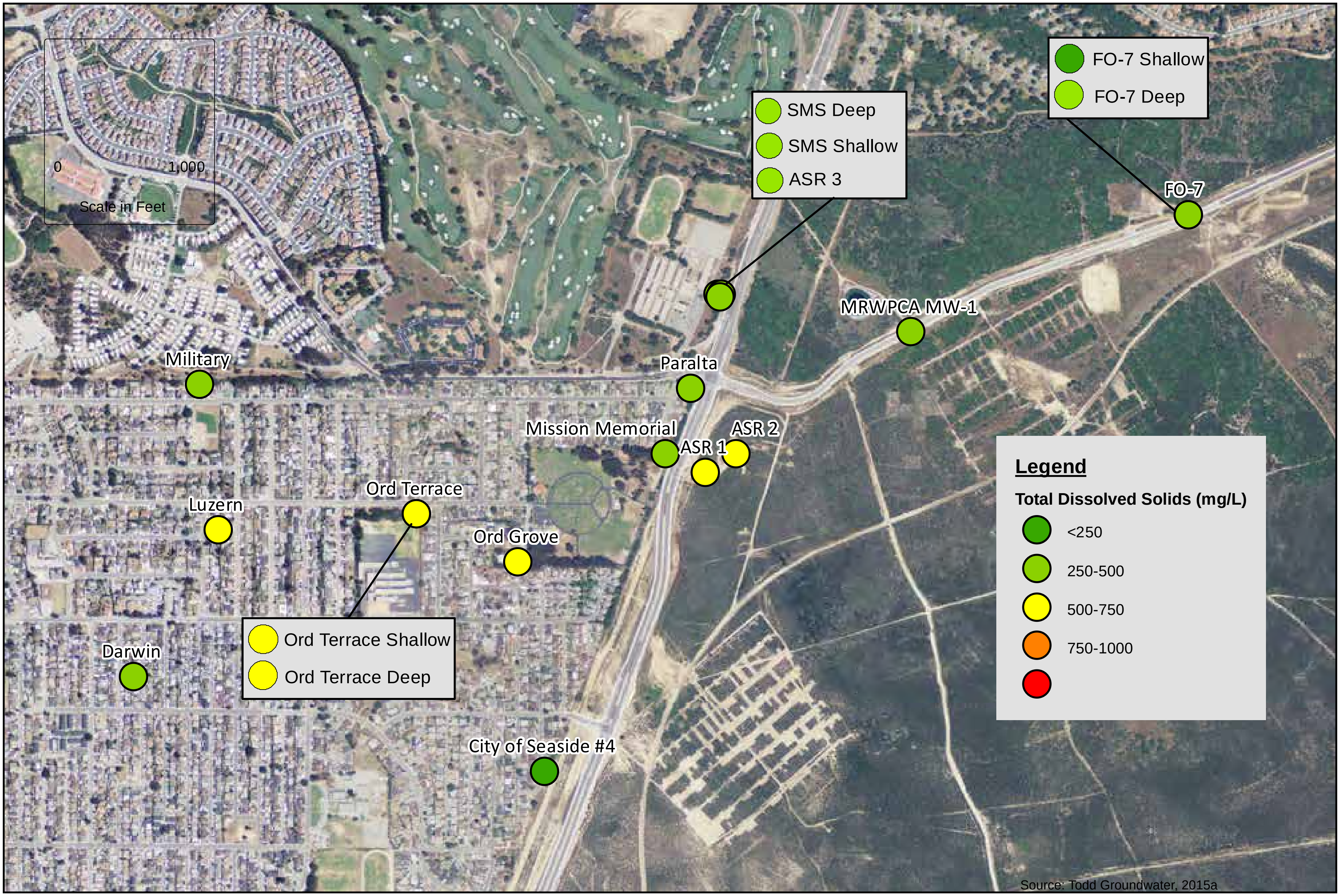
Proposed Injection Wells and Existing Vicinity Wells

This figure has been revised in response to comment L-25.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure
4.10-7 rev



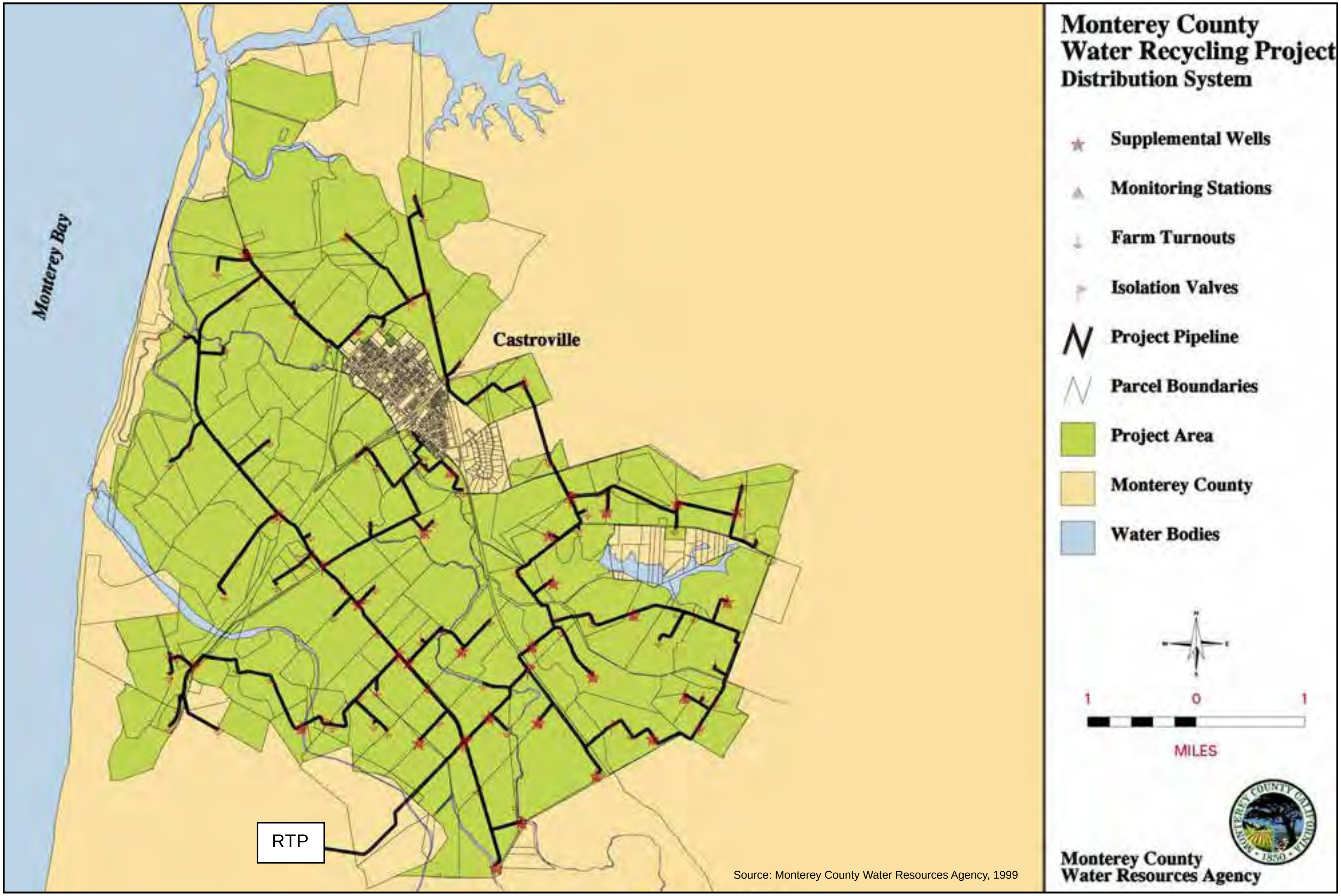
DD&A

Total Dissolved Solids in Groundwater Near Injection Well Facilities

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.10-8

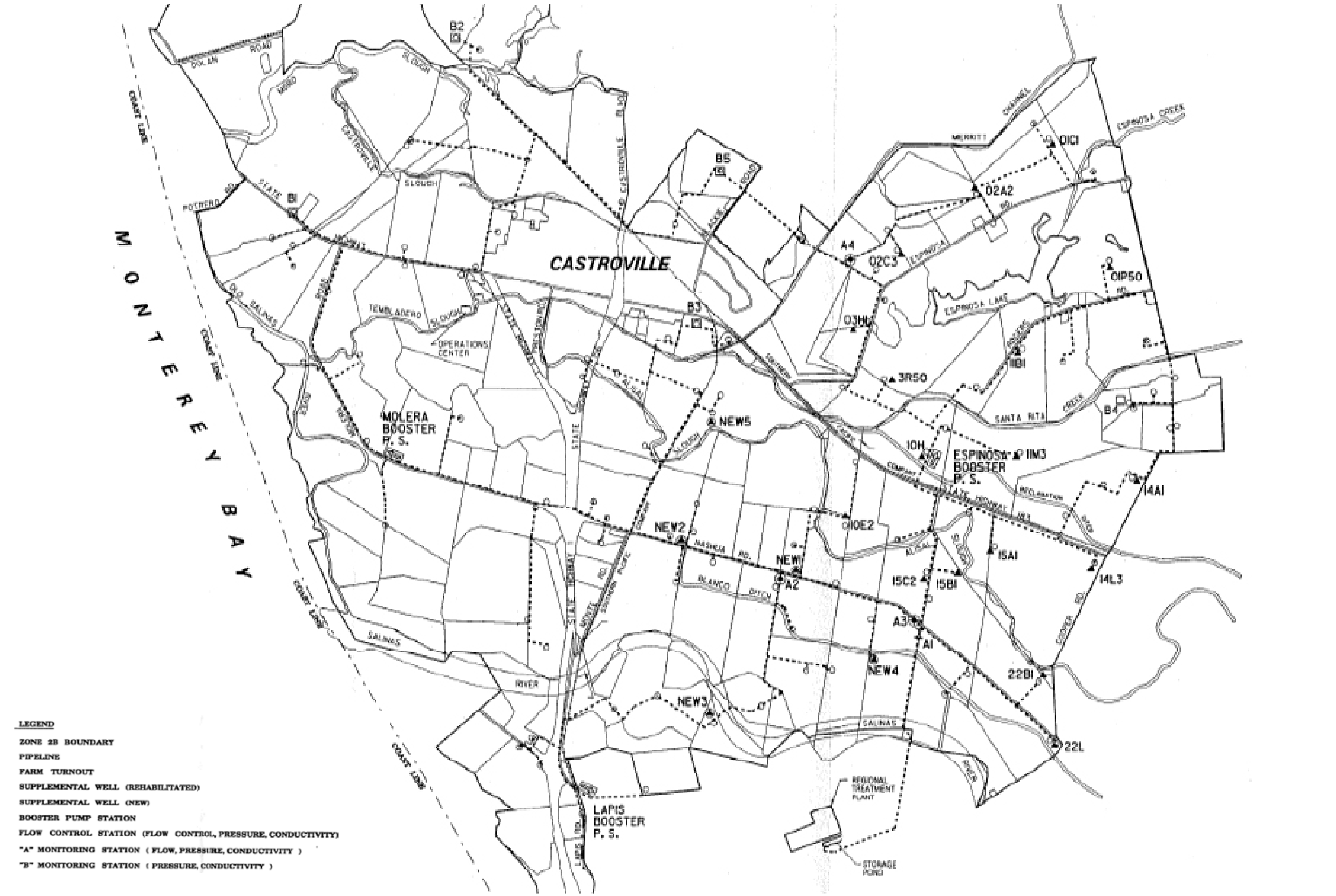


Castroville Seawater Intrusion Project Area

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.10-9



Detailed Map of CSIP Area Wells and System Components

This figure has been revised in response to comments H-39 and H-40.

September 2015

Figure 4.10-9a new

Pure Water Monterey GWR Project
Final EIR

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4.11 HYDROLOGY/WATER QUALITY: SURFACE WATER

Sections	Tables	Figures
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4.11.1 Introduction

The analysis of hydrology and water quality is separated into two sections in this EIR. This section addresses surface water hydrology and water quality, including marine water quality. In this section, existing conditions related to surface water hydrology and water, drainage systems, and flood and inundation hazards are described. In addition, applicable regulations governing water quality, drainage, and flood hazards are presented. Potential impacts resulting from construction and operation of the Proposed Project on surface and marine hydrological resources are assessed. The study area for this section includes the Salinas River (including the Reclamation Ditch watershed), Carmel River, and Lake El Estero watersheds and the Monterey Bay and Pacific Ocean. **Section 4.10, Hydrology and Water Quality: Groundwater**, addresses groundwater hydrology and water quality, including recharge and surface water/groundwater interaction characteristics of the groundwater basins. The analysis of how potential changes in ocean water quality would impact marine benthic species is discussed in **Section 4.13, Marine Biological Resources**.

Public and agency comments related to surface water and marine hydrology and water quality that were received during the public scoping period in response to the Notice of Preparation public are summarized below:

- Existing and pending regulatory requirements for dry and wet weather storm flows to Regional Treatment Plant.
- Discharge of reject concentrate into Monterey Bay or removal of pollutants from the receiving water (Monterey Bay).
- The quality of water sent to the outfall location as opposed to that of the water sent to Seaside for injection.
- Industrial and environmental hygiene.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report**.

4.11.2 Environmental Setting

This section addresses natural drainages and water bodes (rivers and sloughs) and man-made drainages (agricultural ditches drainages and urban stormwater systems). The geographic area for these water systems, and thus the project area of impact for this topic is northern Monterey County, including the watersheds of the Salinas River (and the inter-related watershed of the Gabilan Creek/Reclamation Ditch system that includes the watersheds that feed the Tembladero Slough and Blanco Drain), and smaller more urban watersheds in the Monterey Peninsula area. The study area for the analysis of impacts to surface water hydrology and water quality includes the following surface water bodies in the Proposed Project area:

- Salinas River between the City's stormwater outfall pipeline near the Davis Road Salinas River Bridge and the Salinas River lagoon,
- The portion (700 linear feet) of Blanco Drain just upstream of its confluence with the Salinas River,
- Reclamation Ditch below Davis Road overcrossing down to its confluence with the Tembladero Slough,
- Tembladero Slough from the confluence with the Reclamation Ditch to the confluence with the Old Salinas River channel,
- Old Salinas River Channel between the Old Salinas River Channel gated outlet and the Potrero Tide Gate near Moss Landing Harbor,
- Moss Landing Harbor and Elkhorn Slough,
- Smaller watersheds within the cities of Marina, Seaside, Sand City, Monterey, and Pacific Grove (including the Lake El Estero watershed),
- Carmel River watershed and Carmel Bay (due to the Proposed Project objective of reducing Cal-Am pumping of the Carmel River alluvial aquifer), and
- Monterey Bay and Pacific Ocean.

4.11.2.1 Climate and Precipitation

The Proposed Project area is located along the western margin of the Coast Range and the climate is dominated by the Pacific Ocean. The project area is characterized by moderate coastal climate with mild, wet winters and generally dry summer days, which are often overcast or have coastal fog and cool temperatures. The average temperature is approximately 60 degrees Fahrenheit. Rainfall occurs primarily between November and April. Average rainfall in Salinas is approximately 13 inches per year, approximately 90% occurring between November and April. The average rainfall in other areas of the county varies, but is approximately 18 inches per year.

4.11.2.2 Watersheds and Water Bodies

As shown in **Figure 4.11-1,** Proposed Project facilities would be located in and would involve water resources spanning several watersheds, including the Salinas River watershed and the Reclamation Ditch watershed, which includes various creeks, ditches and sloughs, including Alisal Creek, Santa Rita Creek, Gabilan Creek, Tembladero Slough, and Old Salinas River Channel. In addition, Proposed Project components would be located within, and would utilize runoff from, smaller watersheds that drain to the Monterey Bay in the Monterey Peninsula area, including Lake El Estero's watershed. This section describes these surface water features and their relationship to the Proposed Project. **Figure 4.11-1, Watersheds and Surface Water Bodies in the Proposed Project Area,** provides an overview of the surface water bodies and watersheds relevant to the Proposed Project. **Figure 4.11-2** shows the Salinas Valley Watershed. **Figure 4.4-1** and **Figure 4.4-2**, in **Section 4.4, Biological Resources: Fisheries**, show the northern Salinas Valley water bodies and the Reclamation Ditch watershed, respectively, with key Proposed Project components.

Salinas River

Watershed

The Salinas River is the largest water system in the county and is the largest river of the Central Coast of California, running 170 miles and draining 4,160 square miles. It has three main tributaries: the Nacimiento, San Antonio, and Arroyo Seco Rivers. The Salinas River originates near the town of Santa Margarita in San Luis Obispo County and flows north-northwest through Monterey County and into the Monterey Bay (directly or via the Old Salinas Channel to the Moss Landing Harbor). The Salinas River watershed is bounded by the Gabilan Range to the east and the Sierra de Salinas and Santa Lucia Range on the west. The combination of steep terrain on the sides of the watershed and intense farming of the valley floor leads to high sediment loads within the river. See **Figure 4.11-2**.

The San Antonio and Nacimiento Rivers are by far the largest tributaries to the Salinas River, with watersheds of about 330 and 328 square miles, respectively. Dams owned and operated by the Monterey County Water Resource Agency control both of these rivers and create the reservoirs with the same name. The San Antonio River has its headwaters in the Santa Lucia Mountains and flows in a southeasterly and easterly direction through the Los Padres National Forest and Fort Hunter Liggett Military Base to its confluence with the Salinas River, for a total length of 58 miles. The Nacimiento River, located about five miles southwest of the San Antonio River, originates in the Santa Lucia Mountains and flows southeasterly through the Los Padres National Forest, Fort Hunter Liggett, and Camp Roberts to its confluence with the Salinas River, for a total length of 54 miles. Nacimiento and San Antonio Rivers contribute approximately 200,000 acre-feet/year (AFY) and 70,000 AFY, respectively, to the Salinas River.

The Nacimiento Reservoir's storage capacity is 377,900 AF with a surface elevation of 800 feet and the reservoir yields on average about 62% of the total water in the Salinas River system. The San Antonio Reservoir has a capacity of 335,000 AF with a surface elevation of 780 feet, and yields on average about 13% of the total water in the Salinas River system.

Several other tributaries enter the Salinas River below the reservoirs, including Pancho Rico Creek, Santa Rita Creek, Estrella Creek, Chalone Creek, San Lorenzo Creek, El Toro Creek, Prunedale Creek, Arroyo Seco River, Nacimiento River, and San Antonio River. The Arroyo Seco River is the largest undammed tributary to the Salinas River and is an important source of groundwater recharge to the Salinas Valley Groundwater Basin. The river is 40 miles long and drains 275 square miles of watershed, most of which lies in the rugged coastal range areas southwest of Greenfield and Soledad. The dramatic topographical relief of its drainage area and the fact that there are no dams on the Arroyo Seco make the river prone to flash flooding. The river is therefore significant for Salinas River flood management. Watersheds bordering the Arroyo Seco drainage are the Carmel River and Big Sur River to the northwest, multiple small creeks flowing into the Pacific on the west, the San Antonio River to the south, and other smaller tributaries of the Salinas River on the east.

The Monterey County Water Resources Agency (MCWRA) regulates flows in the Salinas River through operation of the Nacimiento and San Antonio dams, maintains an ALERT warning system (http://www.mcwra.co.monterey.ca.us/flood_warning/ALERT_system.php) to monitor flow rates along the Salinas River, and maintains many of the irrigation ditches and channels that drain the Salinas Valley. Both riparian vegetation and sediment deposits (sandbars) reduce the overall water conveyance capacity of the Salinas River, and make it prone to flooding during higher flow storm events (MCWRA, 2014).

The Proposed Project components would be located at the northernmost and lowest topographic reaches of the Salinas River watershed. The Salinas River has two points of discharge into the Monterey Bay. During the periods when the Salinas River flows are lower (i.e., all summer months and most spring and fall months), the Salinas River flows into the Old Salinas River Channel through a gated culvert on the northern side of the Salinas Lagoon (see **Figure 4.11-2**). Direct discharge to the ocean is blocked by a seasonal sand bar which forms across the mouth of the Salinas Lagoon due to wave and tidal action in the Monterey Bay. The Old Salinas River Channel is controlled by tide gates at Potrero Road in Moss Landing. River flow combines with Tembladero Slough flow approximately 1.2 miles upstream of the tide gates. During high winter flows in the Salinas River, the sand bar breaches and the river flows directly to the Bay. When this occurs, the MCWRA closes the slide gate to the Old Salinas River to prevent flooding of properties north of the river. Aerial photography of the lagoon under both conditions is provided in **Figure 4.11-3**.

Salinas River Hydrology

The U.S. Geological Survey operates a stream flow gage on the Salinas River below Spreckels, approximately 3-miles upstream and east of Davis Road, the closest gage to the Proposed Project facilities. Daily flow readings are available from October 1, 1929 to present. Average annual flows to the ocean from the Salinas River are around 259,300 AFY for the period 1942 through 2013, most of which occurs during the period of November through March. This period corresponds to the months of peak seasonal rainfall and coincides with a seasonal reduction in irrigation activities in the valley. During the spring and summer months, the reservoirs on the Nacimiento and San Antonio Rivers regulate flow to maximize groundwater recharge along the Salinas River channel. A natural clay layer (or aquitard) underlies the river in the northern portion of the valley, which inhibits natural recharge in this area. The recharge characteristics of the northern Salinas Valley are described in more detail in **Section 4.10, Hydrology and Water Quality: Groundwater**. Since April 2010, Salinas River flows are managed as part of the Salinas Valley Water Project, which is described below.

Salinas Valley Water Project/Salinas River Diversion Facility

The Salinas Valley Water Project was completed in 2010 with the goal to halt seawater intrusion to aquifers, to provide water for current and future needs, and to improve the hydrologic balance of groundwater within the basin. Groundwater is the source for most urban and agricultural water needs in the Salinas River Valley. A historic imbalance between groundwater withdrawal and recharge caused overdraft conditions and seawater intrusion into the aquifer. The San Antonio and Nacimiento reservoirs were constructed in 1965 and 1957, respectively, partly to address overdraft within the basin. The Salinas Valley Water Project is a combination of structural and operational changes to the operation of these reservoirs to provide surface water deliveries and aquifer replenishment. The Salinas Valley Water Project includes the Salinas River Diversion Facility located approximately 4.8 miles from the ocean on the Salinas River (halfway between the Blanco Drain and the Highway 1 Bridge). This facility consists of a rubber bladder dam that is inflated to impound spring, summer and early-fall reservoir releases, and a pump station to deliver this diverted surface water to agricultural irrigators and to reduce the need for groundwater pumping. The Salinas Valley Water Project also includes changes to the manner in which releases from the San Antonio and Nacimiento dams are operated.

As a condition of operating the Salinas River Diversion Facility, the MCWRA must maintain certain in-stream flows in the Salinas River. When San Antonio and Nacimiento Reservoirs have a combined storage of 220,000 AF, the Salinas River Diversion Facility has a requirement to release (1) a minimum of 15 cfs downstream from April 1 to June 30, and (2) a minimum of 2 cfs downstream from July 1 to the end of the Salinas River Diversion Facility operating season for maintenance of downstream Salinas River Lagoon habitat. Higher block flow releases are triggered during steelhead migration season if the Salinas Lagoon is open to the ocean. When the combined storage in the two reservoirs is under 220,000 AF, the minimum release requirement is 2 cfs while the Salinas River Diversion Facility is in operation.

City of Salinas Runoff to the Salinas River

The City of Salinas receives an average of 13 inches of rain each year. Four major creeks and several minor tributaries pass through the Salinas area and receive stormwater discharges from the City northeast of and adjacent to Highway 101. As shown on **Figure 4.11-4** as “SR,” stormwater from southern portions of the City is collected in a storm drain system that flows south toward the Salinas River. This stormwater collection system terminates at a pump station on the City of Salinas’ former wastewater treatment plant site (called “TP1”) property, which discharges the stormwater to the Salinas River southeast of Davis Road via a 66-inch pipeline. **Figure 4.11-5** shows the location of these facilities. The stormwater pump station has a peak flow capacity of 110 cfs. In larger storm events, excess flows that cannot be discharged through the 66-inch pipeline to the river, overflow to the on-site Blanco Detention Pond. The portion of the City that drains to the Salinas River is approximately 1,631 acres, or 2.55 square miles. The average annual runoff from this area to the Salinas River is estimated at 242 AFY (Schaaf & Wheeler, 2014b).

Salinas Industrial Wastewater Treatment Facility

The City of Salinas operates the Salinas Industrial Wastewater Treatment Facility (herein referred to as the Salinas Treatment Facility). It serves 25 agricultural processing and related businesses located in the southeast area of the city. Industrial wastewater (washwater from processing/packaging agricultural products) is collected and conveyed separately from municipal wastewater and treated at the Salinas Treatment Facility located along the Salinas River northwest of Davis Road (see **Figures 2-9** and **2-10** in **Chapter 2, Project Description**, for a Salinas Treatment Facility process schematic and location, respectively). The Salinas Treatment Facility consists of an aeration pond for treatment of incoming water and three large percolation ponds that dispose of water by percolation and evaporation, with most water seeping through the upper most substrate into the river and contributing to river flows. Additional disposal capacity during the high-inflow season (approximately May through October) is provided by drying beds and by rapid infiltration basins (RIBs) between the main ponds and the adjacent Salinas River channel.

The Salinas Treatment Facility is designed and permitted for an average daily flow of 4.0 million gallons per day (MGD) with a peak flow of 6.8 MGD. The Salinas Treatment Facility operates year-round, with a current monthly inflow during summer months of approximately 3.5 to 4.0 mgd. This summer peak corresponds with the peak agricultural harvesting season in the Salinas Valley. However, substantial flows to the Salinas Treatment Facility have continued during the winter months due to the importation of agricultural products from Arizona for processing. (Schaaf and Wheeler, 2014b).

Salinas River Lagoon

The mouth of the Salinas River is a seasonal lagoon controlled by the presence of a sandbar that forms in response to changes in outflow and tidal cycles (Hagar Environmental Science and MCWRA, 2011). Lagoons form in response to seasonal rainfall and water patterns, and tidal influences, with sandbar closure during dry periods (spring through fall) and breaching during wet periods (primarily in winter). After sandbar formation, water surface elevation rises as the impounded lagoon fills with freshwater stream flow. Sandbars generally breach at the onset of fall and winter storms, converting the estuaries to freshwater during high flows and brackish estuaries during low inflows if there is still a substantial area of impounded water despite removal of all or most of the sandbar. In the Salinas River, flooding of agricultural lands adjacent to the lagoon can precede the natural breaching. As such, the MCWRA manages lagoon water levels as part of its flood control activities (Hagar Environmental Science and MCWRA, 2011).

During the summer months, the Salinas River flows from the Salinas River lagoon into the Old Salinas River Channel through a gated culvert. Direct discharge to the ocean is blocked by a seasonal sand bar which forms across the mouth of the Salinas Lagoon due to wave and tidal action in the Monterey Bay. The Old Salinas River channel is controlled by tide gates at Potrero Road in Moss Landing. River flow combines with Tembladero Slough flow approximately 1.2-miles above the tide gates. During high winter flows in the Salinas River, the sand bar breaches and the river flows directly to the Bay. When this occurs, the MCWRA closes the slide gate to the Old Salinas River. **Figure 4.4-2** in **Section 4.4, Biological Resources: Fisheries**, shows the relationship of the various waterbodies in northern Salinas Valley.

The study area for the Reclamation Ditch and Tembladero Slough diversions consists of downstream reaches of two interconnected waterbodies in Monterey County, California: the Reclamation Ditch and the Tembladero Slough (see **Figure 4.4-1**). The most upstream point of the study area is the Reclamation Ditch near Davis Road near the western border of the City of Salinas. All downstream waterbodies, including the Tembladero Slough and the Old Salinas River Channel to the Potrero Tide Gates are included in the study area for this hydrology and water quality analysis. Within this reach the Reclamation Ditch flows southeast to northwest through agricultural and urban settings, eventually converging with the Tembladero Slough approximately one mile south of the City of Castroville. Downstream of this confluence, the Tembladero Slough flows from east to west and empties into the Old Salinas River Channel at a confluence approximately 1.3 miles upstream of the tide gates on Potrero Road. Land use adjacent to Tembladero Slough is dominated by agriculture.

The Reclamation Ditch receives inflow from several tributaries: Gabilan Creek, Natividad Creek, Alisal Creek, and the Merritt Lake drainage (Casagrande and Watson 2006). The majority of hydrology for the Reclamation Ditch is derived from agricultural and urban runoff.

The Tembladero Slough receives inflow from three waterbodies: the Reclamation Ditch, Santa Rita Creek and Alisal Slough (Casagrande and Watson 2006). The majority of hydrology for the Tembladero Slough is derived from agricultural and urban runoff. The Tembladero Slough drains to the Old Salinas River Channel northwest of Molera Road. Located at this confluence is the Molera Experimental Wetland which uses a pump to divert 0.047 cfs from the Tembladero Slough to circulate through the wetland before and draining back into the Tembladero Slough (Krone-Davis et al., 2013). The Old Salinas River Channel flows from the south to north through agricultural fields and floodplains that abut coastal dunes, eventually connecting with Moss Landing Harbor (Harbor) through the tide gates located at Potrero Road.

The Potrero Road tide gates act as a control structure on the Old Salinas River Channel and the downstream reaches of Tembladero Slough. The tide gates are operated by differences in water surface elevations (WSE): when the Old Salinas River Channel WSE is higher than the Harbor WSE the tide gates open, allowing outflow; when Harbor WSE is higher the gates close. The tide gates limit the inflow of seawater, although some seawater does enter the Old Salinas River Channel (Nicol et al. 2010 as cited in CCoWS, 2015). When the gates are shut they act like a dam, impounding water and building potential energy. When the WSE allows the gates to open, the built up energy is released as the Old Salinas River Channel flows into the Harbor. The interaction between the tides, tide gates, and the Old Salinas River Channel results in a complex system that influences measurements of water quality and streamflow for the Old Salinas River Channel and the lower reaches of the Tembladero Slough.

The Reclamation Ditch, Tembladero Slough, and Old Salinas River Channel are located in the Lower Salinas Valley Watershed (RWQCB-CCR 2010). Casagrande and Watson (2006) identified a collection of sub-watersheds that encompassed the area contributing flow to the Reclamation Ditch, Tembladero Slough and the northern section of the Old Salinas River Channel to the tide gates of Potrero Road. This collection of sub-watersheds is referred to as the Reclamation Ditch Watershed by Casagrande and Watson (2006) and excludes the Salinas River and its connection to the Old Salinas River Channel.

The Reclamation Ditch Watershed as a whole, which includes the Tembladero Slough, the Reclamation Ditch and their contributing water bodies, drains approximately 407 km^2 (157 mi^2). The land cover of the lower Reclamation Ditch Watershed is characterized primarily by agricultural and urban development. The upper watershed, which lies along the eastern slope of the Gabilan Range, is characterized primarily by rangeland grazed by livestock; secondary land cover types include montane riparian vegetation, chaparral, oak woodland, annual grassland and perennial grassland (Casagrande and Watson 2006). Area estimates of land cover types were made using the National Oceanic Atmospheric Association (NOAA) 2010 digital coast land cover classification which were reclassified into broader categories based on hydrologic significance. Dominant land cover within the Reclamation Ditch Watershed includes, approximately 30% cultivated, 20% grassland, 17% forest, 13% shrub, and 13% developed (NOAA, 2010).

The hydrology of the Reclamation Ditch Watershed was characterized by Casagrande and Watson (2006) as being highly episodic, with the typically low streamflow intermittently interrupted by high streamflow events. Sources contributing to the streamflow vary seasonally. Sources include urban runoff, agricultural tile drain water, and permitted discharge in the dry season and stormwater/urban runoff in the wet season (Casagrande and Watson 2006). The upper reaches of the Reclamation Ditch Watershed are dry for most of the year; as the tributaries aggregate into larger ditches near the City of Salinas they are characterized by perennial standing water. The Reclamation Ditch and Tembladero Slough are characterized by perennially flowing water.

A quantitative characterization of the Reclamation Ditch watershed's hydrology follows in the sections below. This analysis was aided by the United States Geological Survey (USGS) stream gage (USGS 11152650) on the Reclamation Ditch at the San Jon Road Bridge. The stream gage is located 3.4 miles northwest and downstream of the City of Salinas, drains approximately 109.4 mi^2 (283.4 km^2) (Schaaf and Wheeler 1999) and has a period of record from October 1st, 1970 to February 4th, 1986 and from June 1st, 2002 to present. From 1986 to 2002 the USGS gaging site was non-operational; however the MCWRA obtained peak streamflow for the Reclamation Ditch during this period.

Lake El Estero

Lake El Estero is a surface water body that collects water from a major watershed within the City of Monterey and it is proposed to be a potential source water for the project. Under historic natural conditions, Lake El Estero was seasonally either a marine estuary or a brackish water lagoon connected by a surface stream to the Monterey Bay. The connection to the bay was changed to pipe culverts in the 1870s when the Southern Pacific Railroad Company constructed the Monterey and Salinas Valley Railroad on a sand ridge, thereby separating the lake from the bay (Gordon, 1996). The lake was further modified over time, including enlarging it and turning it into a fresh water lake. The City of Monterey maintains Lake El Estero as the central feature of the Lake El Estero Municipal Park. The surface area of Lake El Estero is 18.6 acres.

The Lake collects runoff from approximately 3.78 mi^2 of urban, suburban and wooded area. The majority of the watershed area, 2,014 acres, is pervious, and 404 acres are covered with non-pervious surfaces. As discussed in **Section 4.11.2.3**, the lake is fed by four ephemeral streams, including Majors Creek. In addition to surface water flows to the lake, shallow groundwater percolates into Lake El Estero. The lake level is maintained for aesthetics and recreation use, and excess storm flows are pumped to the ocean through two gravity-flow pipelines. There is a gate between the lake and the pipelines in order to control the release of flows to the ocean. See **Figure 4.11-6**.

The land area that drains to the lake has changed over time. Until 1941, a 1,186-acre area to the west of the lake, extending to Huckleberry Hill, drained into Lake Estero through a box culvert under Pearl Street. This portion of the City stormwater system was reconfigured with the addition of a box culvert under Figueroa Street, which now carries the flow into the Monterey Bay, discharging at the Municipal Wharf. In 1968, the current stormwater pump station at the northeast corner of the lake and outfall pipeline were constructed to facilitate better management of water levels in the lake, including providing for adequate storage to prevent flooding during most storms.

Carmel River

Watershed

The Carmel River is 36 miles long, and drains 255 square miles of the Los Padres National Forest and the Ventana Wilderness, as well as range, farm, and urban lands. The headwaters of the Carmel River are in the Santa Lucia Mountains. The larger tributaries of the Carmel River include Garzas Creek, San Clemente Creek, Tularcitos Creek, Pine Creek, Danish Creek, Cachagua Creek, and the Miller Fork. The Carmel River drains into the Pacific Ocean at Carmel River State Beach in Carmel Bay, which is part of the Monterey Bay National Marine Sanctuary and also is designated as an Area of Special Biological Significance (ASBS). The watershed is a highly dynamic system, experiencing large seasonal variability in flow levels and variation in sediment transport from the upper watershed to the estuary and ocean. Water from the Carmel River has been used as a supply for the Monterey Peninsula since 1883 when the first dam on the Carmel River was built. As the demand for water increased, two more dams were subsequently built. The San Clemente Dam was constructed in 1921, with a capacity of 1,300 AF. Los Padres Dam, with 3,200 AF of storage capacity, was completed in 1949. As of 2013, the San Clemente Dam has no storage capacity and is not used for water supply due to siltation. The dam also has been determined to be seismically unsafe by the California Division of Safety of Dams (DSOD). A construction project to remove the San Clemente Dam commenced in 2014 under direction from DSOD. The Los Padres Dam's capacity has diminished because of siltation, and is currently operated for conjunctive use: 1) to enhance stream habitat; and 2) to recharge the aquifer from which Cal-Am pumps. (Carmel River Watershed Conservancy and CSUMB Watershed Institute, 2013)

Carmel River Flows and Hydrology

Stream flow in the Carmel River occurs in direct response to rainfall. Annual rainfall in the upper watershed at San Clemente Dam averages 20.4 inches, with more than 90% of this average occurring between November and April. Typically, the first winter rains replenish soils that have dried out during summer. Consequently, there is little runoff before December. Most of the early rainfall percolates into the ground and recharges the aquifer, thus adding little flow to the lowest reach of the river near the coast. CalAm owns and operates San Clemente and Los Padres dams on the Carmel River. After the reservoirs have filled, usually by mid-December, water overflows into the lower Carmel River. As groundwater levels rise, the period of highest stream flow begins, usually from January through April. Average monthly flows in the lower Carmel River during January through April are between 180 and 380 cfs. Usually, the river dries up in the lower valley by July. From July until the onset of rains, the only water remaining in the lower Carmel River is in isolated pools that gradually dry up as the water table declines in response to pumping. Currently, CalAm's Monterey District service area system relies upon withdrawals from the Carmel ~~River~~ Valley Alluvial Aquifer through wells located in the lower part of the Carmel Valley and from wells located in the Seaside Groundwater Basin. .

The riverbed and stream banks of the Carmel River are generally composed of non-cohesive silts, sands, and gravels. In the lower 15 miles of the river, this sediment ranges in thickness from 150 feet near the mouth of the river to about 60 feet at a point 15 miles upstream. Beginning in the 1960s, pumping diversions along with gravel mining, agricultural development, residential development, and routine removal of vegetation and gravel bars have affected the Carmel River bank stability. Other activities affecting the river are past floodplain development practices, existing water diversions, trapping of sediment behind the main stem dams, and past gravel extraction practices (Monterey Peninsula Water Management District/Denise Duffy & Associates, 2014).

Monterey Bay

The Monterey Bay is a bay of the Pacific Ocean, along the central coast of California, between the cities of Santa Cruz on the north and Monterey on the south. Designated in 1992, the Monterey Bay National Marine Sanctuary (MBNMS) is a federally protected marine area offshore of California's central coast. The MBNMS is larger than the Monterey Bay itself, as it stretches from Marin County on the north to Cambria in San Luis Obispo County on the south, encompassing a shoreline length of 276 miles and 16,904 mi^2 of ocean, extending an average distance of 30 miles from shore.

The oceanographic feature primarily affecting waters of Monterey Bay and its adjacent continental shelf is the California Current System, which consists of the California Current, the California Undercurrent, and the Davidson Current. The California Current is a large-scale upper ocean current that transports cold, subarctic water with lower salinity from the North Pacific south along the North American coast where it mixes with warm, saltier equatorial water (ESA/PWA, 2014). Beneath this near-surface current and relatively close inshore (within 100 kilometers or 62 miles), is the California Undercurrent that transports warm subtropical water northward. During winter months the California Undercurrent becomes the inshore countercurrent or Davidson current (FlowScience, 2014).

Ocean climate refers to oceanographic conditions, including temperature, salinity, and current, and wave patterns prevailing over a period of time. An understanding of the ocean climate in Monterey Bay is important because the climatic conditions within the Bay affect the upwelling and mixing of the ocean water, which in turn affect the water quality in the Bay. There are three known ocean climate seasons in Monterey Bay. These three individual seasons overlap and the dates upon which they occur can vary from year to year.

1. Upwelling Period (typically February to July), when steady northwesterly/westerly winds cause offshore transport of surface waters, and causing deep, colder, nutrient-rich water to rise to the surface (upwelling);
2. Oceanic or California Current Period (typically August to October), when wind relaxation allows previously upwelled water to sink and be replaced by warm oceanic waters from offshore; and
3. Davidson Current Period (typically November to January), when winter storm conditions cause downwelling in Monterey Bay and lower currents in the nearshore area.

4.11.2.3 Surface Water Quality

This section describes existing water quality characteristics of the surface water bodies that have the potential to be affected by the Proposed Project, including the Salinas River and its lagoon, the Reclamation Ditch, including its downstream receiving water bodies

(Tembladero Slough, Old Salinas River Channel, and the Moss Land Harbor), Lake El Estero, and the Monterey Bay/Pacific Ocean. The water quality of a given stream or water body is controlled by multiple factors, including the chemical and physical nature of streambed material (i.e., erodibility, grain size, rock type) and influences from outside the stream corridor, such as quality of groundwater and upstream runoff that may be entering the stream system. Variations in the mineral content of different rock types within the stream course can affect the type and concentration of dissolved metals within a stream. Material that is more easily eroded or finer-grained presents a greater surface area on which chemical reactions can occur, thus influencing water quality. Very fine-grained sediments contribute to elevated turbidity and temperature in a stream, which in turn affects oxygen levels. The water quality of streams located within urban or agricultural corridors is typically influenced by increases in peak runoff, dissolved hydrocarbons, dissolved fertilizers, pesticide and herbicide residue, and increases in sediment loads. Agricultural runoff commonly contains fertilizers and pesticides, nutrient-response indicators within the waterway (i.e., dissolved oxygen, chlorophyll a and microcystins levels), as well as increased sediment loads in receiving waters. Groundwater quality is addressed in **Section 4.10, Hydrology and Water Quality: Groundwater Resources**.

Salinas River and Reclamation Ditch Watersheds

The Central Coast Regional Water Quality Control Board (RWQCB) has listed numerous water bodies in the Proposed Project hydrology and water quality study area as "impaired" pursuant to Section 303(d) of the Clean Water Act. The RWQCB has established Total Maximum Daily Load (TMDL) requirements for these pollutants that are the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards. Additional detail on the RWQCB's 303(d) and TMDL programs is provided in the following subsections and in Regulatory Framework Section 4.11.3. The impaired streams, channels or water bodies in the Salinas River and Reclamation Ditch watersheds and the pollutants for which they are listed are shown in **Table 4.11-1.**

Table 4.11-1
List of Impaired Water Bodies in the Salinas Area

Listed for:	Ammonia (Unionized)	Chlordane	Chloride	Chlorophyll-a	Chlorpyrifos	Copper	DDD (Dichlorodiphenyldichloroethane)	Diazinon	Dieldrin	Electrical Conductivity	Enterococcus	Escherichia coli (E. coli)	Fecal Coliform	Low Dissolved Oxygen	Metals	Nickel	Nitrate	Nutrients	Pathogens	PCBs (Polychlorinated biphenyls)	Pesticides	pH	Priority Organics	Sediment Toxicity	Sedimentation/Siltation	Sodium	Temperature, water	Total Coliform	Total Dissolved Solids	Toxaphene	Turbidity	Unknown Toxicity
Water Body																																
Alisal Creek (Monterey County)				X									X				X									X						
Alisal Slough (Monterey County)														X			X							X								X
Blanco Drain					X			X						X			X				X										X	
Espinosa Lake					X			X																								
Espinosa Slough	X							X									X				X	X	X	X							X	X
Gabilan Creek	X												X				X					X		X							X	X
Majors Creek (Monterey County)						X						X																				
Merrit Ditch	X													X			X							X							X	X
Monterey Harbor															X									X								
Moss Landing Harbor					X			X						X		X			X		X	X		X	X							
Natividad Creek	X											X		X			X					X		X			X				X	X
Old Salinas River				X	X			X				X	X	X			X					X		X							X	X
Old Salinas River Estuary																		X			X											
Salinas Reclamation Canal	X				X	X		X				X	X	X			X				X	X	X	X							X	X
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920)		**X**	**X**		**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**				**X**			**X**	**X**	**X**				**X**			**X**	**X**	**X**	**X**
Salinas River Lagoon (North)																		X			X											
Santa Rita Creek (Monterey County)	X											X	X	X			X									X					X	

Source: RWQCB, 2011b.

Salinas River Water Quality

The RWQCB's *Water Quality Control Plan for the Central Coast Basin* (Basin Plan) designates beneficial uses of the Salinas River below Spreckels as including municipal and domestic supply, agricultural supply, non-contact water recreation, wildlife habitat, warm and cold water fish habitat, freshwater replenishment (of the Salinas Lagoon) and commercial or sport fishing.

The Salinas River is listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act for chlorides, pesticides, Escherichia coli, fecal coliform, nitrate, total dissolved solids (TDS), turbidity and other factors. Water quality has been monitored for the past 15 years under various programs, including the Central Coast Ambient Monitoring Program (CCAMP) under the RWQCB, the Central Coast Watershed Studies (CCoWS) program of the Watershed Institute at California State University Monterey Bay, and the Cooperative Monitoring Program under the Conditional Waiver of Waste Discharges from Irrigated Lands (Ag Waiver). The results of these programs are summarized in **Table 4.11-2**. The RWQCB adopted order R3-2013-0008 to establish TMDLs for pollutants in the lower Salinas River Basin in 2013. These and other applicable water quality standards and the TMDLs for the Salinas River are also shown in **Table 4.11-2**, below.

Table 4.11-2
Water Quality Parameters, Salinas River below Spreckels

Parameter	Units	Mean[1]	Max[1]	Standard[Note 2]
Ammonia as N, Unionized	mg/L	0.02	0.13	0.025
Ammonia as NH3	mg/L	0.12	0.98	0.025 Note 3
Chlorophyll a, water column	mg/L	0.0033	0.023	0.015
Chlorpyrifos	mg/L	0.0011	0.029	0.00025
Diazinon	mg/L	0.008	0.22	0.00016
Dissolved Solids, Total	mg/L	369.60	610.00	1000 Note 3
Nitrate as N	mg/L	5.08	78.00	1.4 (May-Oct) 8.0 (Nov-Apr)
OrthoPhosphate as P	mg/L	0.23	2.60	0.07 (May-Oct) 0.3 (Nov-Apr)
Oxygen, Dissolved	mg/L	0.36	2.66	> 7.0
Turbidity	NTU	118.66	2,584.00	10 Note 3

1. Max and Mean values reflect all results in the CCAMP/CCoWS database
2. Listed TMDL established by RWQCB, except where noted
3. Proposed TMDL from CCAMP program
(Schaaf & Wheeler, 2015a) See **Appendix O rev**.

The City of Salinas operates the Salinas Treatment Facility under Waste Discharge Requirement Order R3-2003-0008. The City also has a National Pollutant Discharge Elimination System permit (number CA0049981, Order R3-2012-0005) for municipal stormwater discharges. Both of these permits require water quality monitoring and reporting. For the Salinas Treatment Facility, influent and effluent water quality is monitored at the treatment plant. For stormwater, the City monitors stormwater outfalls and receiving streams at various locations. **Table 4.11-3**, below, shows the most recent sampling results for those parameters.

Table 4.11-3
City of Salinas, Water Quality Sampling

Analyte Name	Units	Stormwater at the TP1 Site	Salinas Treatment Facility Effluent[1]	Standard
Ammonia as N, Unionized	mg/L	0.00022	NR	0.025
Chloride	Mg/L	NR	318	150
Dissolved Solids, Total	mg/L	50.8	1011	1000
Nitrate as N	mg/L	ND	0.12	1.4 (May-Oct) 8.0 (Nov-Apr)
OrthoPhosphate as P	mg/L	0.2	NR	0.07 (May-Oct) 0.3 (Nov-Apr)
Oxygen, Dissolved	mg/L	5.54	>4.5	>7
Turbidity	NTU	44.7	NR	10

Stormwater results from 2012-2013 season, Salinas Treatment Facility results from 2013
ND = not detected, NR = testing not required
Note 1: Effluent sampling conducted on flows from ponds to disposal beds
(*Schaaf & Wheeler, 2015a*) See **Appendix O rev**

The results above are typical of those in previous annual reports. The stormwater runoff is generally of equal or better quality than the Salinas River that receives it. It meets the RWQCB Basin Plan objectives in some categories. In the categories of turbidity and orthophosphate, it exceeds the Basin Plan objectives, but is below the average concentration in the receiving stream. Although the stormwater runoff may slightly improve the quality of the water in the river, the Salinas River basin is so large that diverting urban stormwater runoff to the Proposed Project should have no appreciable effect on water quality within the Salinas River.

Effluent from the Salinas Treatment Facility is not tested for ammonia or orthophosphate, so a general water quality comparison with the Salinas River cannot be made. The effluent exceeds the Basin Plan objective for chloride and TDS. Diverting Industrial Wastewater to the Proposed Project may result in reduced TDS levels in the river, particularly in summer months when percolation from the Salinas Treatment Facility makes up a significant portion of the river flow.

Reclamation Ditch Watershed, including Tembladero Slough

The RWQCB Basin Plan designates beneficial uses of the Reclamation Ditch as including water contact recreation, non-contact water recreation, wildlife habitat, warm water fish habitat and commercial or sport fishing. These are the minimum uses listed for all inland water bodies within the region, unless specific water quality information causes the RWQCB to remove a specific use (e.g., not listing water contact recreation for a stream segment listed for fecal coliform contamination). The Tembladero Slough is designated as having additional beneficial uses of estuarine habitat, rare/threatened/endangered species, and spawning/reproduction/early development habitat. **Table 4.11-4** lists the Basin Plan beneficial uses for all relevant stream segments in the lower Salinas Valley. The abbreviations and their meanings are provided below the table.

Table 4.11-4
Beneficial Use Designations for Surface Water in Project Area

Water Bodies	MUN	AGR	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	COMM	SHELL
Old Salinas River Estuary				X	X	X	X	X	X	X	X	X	X		X	X
Tembladero Slough				X	X	X		X		X		X	X		X	X
Salinas Reclamation Canal				X	X	X		X							X	
Blanco Drain				X	X	X		X							X	
Salinas River Lagoon (North)				X	X	X	X	X	X	X	X	X	X		X	X
Salinas River (downstream of Spreckels Gage)	X	X			X	X	X	X	X					X	X	
Lake El Estero	X		X	X	X	X	X	X		X					X	

SOURCE: RWQCB, 2011

KEY TO ACRONYMS:

MUN - Municipal and Domestic Water Supply: Uses of water for community, military, or individual water supply systems, including, but not limited to, drinking water supply, subject to the exclusions allowed under the State Water Resources Control Board Sources of Drinking Water Policy.

AGR - Agricultural Supply: Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

GWR - Ground Water Recharge: Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers. Ground water recharge includes recharge of surface water underflow.

REC-1 - Water Contact Recreation: Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

REC-2 - Non-Contact Water Recreation: Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

WILD - Wildlife Habitat: Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (i.e., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

COLD - Cold Fresh Water Habitat: Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

WARM - Warm Fresh Water Habitat: Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

MIGR - Migration of Aquatic Organisms: Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

SPWN - Spawning, Reproduction, and/or Early Development: Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

BIOL - Preservation of Biological Habitats of Special Significance: Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.

RARE - Rare, Threatened, or Endangered Species: Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

Table 4.11-4
Beneficial Use Designations for Surface Water in Project Area

EST - Estuarine Habitat: Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (i.e., estuarine mammals, waterfowl, shorebirds). An estuary is generally described as a semi-enclosed body of water having a free connection with the open sea, at least part of the year and within which the seawater is diluted at least seasonally with fresh water drained from the land. Included are water bodies which would naturally fit the definition if not controlled by tidegates or other such devices.
FRSH - Freshwater Replenishment: Uses of water for natural or artificial maintenance of surface water quantity or quality (i.e., salinity) which includes a water body that supplies water to a different type of water body, such as, streams that supply reservoirs and lakes, or estuaries; or reservoirs and lakes that supply streams. This includes only immediate upstream water bodies and not their tributaries.
COMM - Commercial and Sport Fishing: Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
SHELL - Shellfish Harvesting: Uses of water that support habitats suitable for the collection of filter- feeding shellfish (i.e., clams, oysters, and mussels) for human consumption, commercial, or sport purposes. This includes waters that have in the past, future, contain significant shellfisheries.

RWQCB Order No. R3-2012-0011 (Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands) found that:

> "...*toxicity resulting from agricultural discharges of pesticides has severely impacted aquatic life in Central Coast streams...Twenty-two sites in the region, 13 of which are located in the lower Salinas/Tembladero watershed area, and the remainder in the lower Santa Maria area, have been toxic in 95% (215) of the 227 samples evaluated*."

The Reclamation Ditch (Salinas Reclamation Canal) and Tembladero Slough are listed as impaired water bodies pursuant to Section 303(d) of the Clean Water Act for ammonia, fecal coliform, pesticides, nitrate, toxicity and other parameters. Water quality has been sampled and monitored for the past 15 years under various programs. The following discusses these programs in more detail.

Summary of Reclamation Ditch Watershed Monitoring

Water quality in the Reclamation Ditch watershed has been monitored and assessed by several local agencies and institutions. The water quality data summarized in this section include monitoring conducted by the RWQCB, Cooperative Monitoring Program under the Conditional Waiver of Waste Discharges from Irrigated Lands (Ag Waiver). Monterey Bay Sanctuary Citizen Watershed Monitoring Network, CCoWS, City of Salinas, University of California Santa Cruz (UCSC), and CSUMB.

The RWQCB's Central Coast Ambient Monitoring Program (CCAMP) collects water quality data to protect and enhance water bodies by informing regulatory decision making. Specifically, for the Salinas Valley area the goal of the program was to quantify the pollutant load at several sites to support the development of TMDL assessments (Worcester et al. 2000). CCAMP has established four sampling sites within the Reclamation Ditch Watershed study area, three sites in or near the Reclamation Ditch and one site in Tembladero Slough: Reclamation Ditch at Airport Road (called the Salinas Reclamation Canal at Airport Road), a storm drain on the Reclamation Ditch (called the Salinas Reclamation Canal Drain at Airport Road), on the Reclamation Ditch at Boronda Road (called the Salinas Reclamation Canal at Boronda Road), and Tembladero Slough at Preston Road. The program has collected monthly water quality data every five years since 1999. The CCAMP data compiled and reported by Worcester et al. (2000) found that in the Reclamation Ditch dissolved oxygen levels were low, especially in the summer months, and levels of nitrate, ammonia, orthophosphate, chloride, bacteria, heavy metals and pesticides were elevated.

Water quality data from various projects and monitoring efforts are available for download from the California Environmental Data Exchange Network (CEDEN) (2014) website, including: water chemistry, sediment chemistry, water toxicity, sediment toxicity, benthic macro invertebrate, physical habitat, bioaccumulation, tissue chemistry, and marine benthic invertebrate assemblages. Data from CEDEN (2014) included measured TDS from forty grab samples that had been collected from the Molera Road site on Tembladero Slough. Measured values for TDS at Molera Road varied from 470 mg/L to 9700 mg/L.

The CCoWS group at CSUMB has conducted extensive monitoring of the Reclamation Ditch Watershed. In 2000 Watson et al. (2003) collected suspended sediment, bedload and nutrient samples at three sites within the Reclamation Ditch (San Jon, Victor Way, Hwy 183) and at Molera Road on Tembladero Slough. They found that the Reclamation Ditch Watershed had high sediment loads and sedimentation.

The Monterey Bay Sanctuary Citizen Watershed Monitoring Network has measured water quality in Tembladero Slough and the Reclamation Ditch on the second Saturday in May every year since 2006. They measured the following water quality parameters: fecal coliform bacteria, nitrate, phosphate, DO, pH, water temperature and transparency (MBNMS 2013).

In 2006, a CSUMB student analyzed the streamflow and water quality of the Tembladero Slough at Haro Street during the winter of 2005-06 for his senior capstone thesis (Frank 2006). Frank installed a pressure transducer and measured streamflow using a current meter attached to a crane from the Haro Street bridge (2006). To account for the tidal influence Frank (2006) used a 24-hour moving window to successfully delineate the streamflow from tidal influence. Frank (2006) suggested that the influence of the tides and the tide gates on streamflow at Haro Street was also dependent on the volume of discharge. During periods of low flow the tide gates remain closed, reducing the direct influence of the tides. Conversely, during periods of higher flow the tide gates remain open longer leading to a greater direct influence of the tides on Tembladero Slough at Haro Street.

In 2006, Casagrande and Watson conducted a watershed assessment for the Reclamation Ditch Watershed. They summarized water quality measurements for ten sites within Tembladero Slough and the Reclamation Ditch using data from CCAMP, the City of Salinas, CcoWS, and UCSC. This study analyzed and synthesized a number of water quality parameters, including among others, temperature, DO, salinity, pH, TDS, and turbidity. Casagrande and Watson (2006) warn that the water quality data should be used as synoptic indicators, since each study summarized had different sampling design and sampling times. Casagrande and Watson (2006) reported the ranges of salinity as 1.03 – 25.95 parts per trillion (ppt, which is equivalent to mg/L), 0.6 – 0.88 ppt, and 0.7 – 0.8 ppt for Molera Road, San Jon Road, and Boronda Road respectively; and reported the range of TDS as 2105 – 2190 mg/L, 4.22 – 1231 mg/L, 128 – 745 mg/L for Molera Road, San Jon Road, and Boronda Road respectively.

In 2010, the CSUMB ENVS 660 class assessed spatial and vertical patterns in salinity within the Old Salinas River Channel and the lower Tembladero Slough during the month of November (Nicol et al. 2010). The reach of interest for the study extended from the tide gates at Potrero Road upstream into the Tembladero Slough, just past Molera Road Within this reach they took salinity depth profiles every 200 meters to determine the longitudinal salinity profile. Vertical salinity profiles were conducted by taking salinity readings at specific depth increments, from the water surface to the bottom of the channel. During the 2010 study, discharge in the Reclamation

Ditch ranged from 0.7 to 3.0 cfs at the San Jon USGS gage during sampling events, except on November 21, 2010 when discharge in the Reclamation Ditch was at approximately 30 cfs. Nicol et al. (2010) observed that salinity generally decreased with increased distance from the tide gates. They noted that within their reach of interest salinity and water depth typically increased with rising tides. They observed that during low tides, when the tide gates opened, salinity in the water column was generally more homogenous. However, not all low tides receded enough to allow the tide gates to open or fully open. Nicol et al. (2010) also observed that WSE changed overtime as a result of the change in pressure on the tide gates. Salinity depth profiles taken at Molera Road during the course of the 2010 study showed a typically uniform column with salinity values ranging from zero to five ppt. A halocline was observed at Molera on November 18; during this time salinity was approximately 20 ppt at the bottom of the channel. This observation followed a neap tide which occurred on December 16. Nicol et al. (2010) concluded that spatial and temporal variations of salinity, due in part to the timing and magnitude of the tides existed in the reach of interest.

In 2014, a CCoWS Advanced Watershed Science and Policy class (ENV 660) explored spatial and temporal dynamics of the Reclamation Ditch and Tembladero Slough systems, by measuring several water quality parameters and streamflow at three sites on the Tembladero Slough and three sites on the Reclamation Ditch over five nonconsecutive days between November 11th and December 2nd, 2014. The maximum salinity recorded was 19.2 ppt at the Molera Road site in the Tembladero Slough at the deepest point within the water column. For the remaining two sites on the Tembladero Slough, salinity did not exceed 1.5 ppt throughout the study period. Salinity for all three sites within the Reclamation Ditch was below 0.5 ppt.

The study found streamflow and salinity results at the Molera Road site were influenced by several factors, including the tides. The students observed an increase in stage and a decrease in streamflow at this site during high tide. They also observed a difference in streamflow between Haro Street and Molera Road during low tide.

Drought may have influenced the measurements. When the study began, California was entering its third year of drought. Besides obvious reductions in streamflow, drought can also result in a reduction of dissolved oxygen and changes in other water quality parameters. Conversely, two precipitation events, occurring on November 13th and December 2nd, influenced the results as increases in streamflow coincided with these events. Streamflow and salinity were also impacted by other water inputs into these waterbodies, such as urban and agricultural runoff.

Each dataset described above is limited in terms of comparison and identifying general trends since each project may have a unique sampling design and different period of study.

Summary of Applicable Water Quality Standards and Data for the Reclamation Ditch and Tembladero Slough

The Central Coast RWQCB adopted Resolution No. R3-2013-0008 to adopt TMDLs and implementation plans for nitrogen compounds and orthophosphate in the Lower Salinas River, Reclamation Canal Basin and Moro Cojo Slough Watershed. The also adopted Resolution No. R3-2010-0017, which established TMDLs for Fecal Coliform. The resulting standards from the TMDL along with existing applicable and proposed water quality standards are consolidated in **Table 4.11-5, Total Maximum Daily Loads**.

Table 4.11-5
Total Maximum Daily Loads

Analyte Name	Units	Standard	Reference
Ammonia as N, Unionized	mg/L	0.025	Board Order R3-2013-0008
Ammonia as NH3	mg/L	0.025	CCAMP Proposed
Chloride	mg/L	150	Basin Plan
Chlorophyll a, water column	mg/L	0.015	Board Order R3-2013-0008
Chlorpyrifos	mg/L	CMC 0.00025 CCC 0.00015	Board Decision 2011
Coliform, Fecal	MPN/100 ml	200	Board Order R3-2010-0017
Coliform, Total	MPN/100 ml	10,000	US EPA
Diazinon	mg/L	CMC 0.00016 CCC 0.00010	CC RWQCB Decision 2011
Dissolved Solids, Total	mg/L	1000	CCAMP Proposed
Nitrate as N (all streams with MUN use)	mg/L	10	Board Order R3-2013-0008
Nitrate as N (Salinas River)	mg/L	1.4 (dry season) 8.0 (wet season)	Board Order R3-2013-0008
Nitrate as N (Rec. Ditch, Tembladero, Blanco Drain, Alisal Slough, Espinosa Slough, Merritt Ditch, Santa Rita Creek)	mg/L	6.4 (dry season) 8.0 (wet season)	Board Order R3-2013-0008
Nitrate as N (OSR)	mg/L	3.1 (dry season) 8.0 (wet season)	Board Order R3-2013-0008
OrthoPhosphate as P (Salinas River)	mg/L	0.07 (dry season) 0.30 (wet season)	Board Order R3-2013-0008
Orthophosphate as P (Rec. Ditch, Tembladero, Blanco Drain, Alisal Slough, Espinosa Slough, Merritt Ditch, Santa Rita Creek)	mg/L	0.13 (dry season) 0.30 (wet season)	Board Order R3-2013-0008
Oxygen, Dissolved	mg/L	>7.0 and <13.0 (Cold) >5.0 and <13.0 (Warm)	Board Order R3-2013-0008
Suspended Solids, Total	mg/L	500	CCAMP Proposed
Turbidity	NTU	10	CCAMP Proposed

CMC = Criterion Maximum Concentration (1-hr average) CCC = Criterion Continuous Concentration (96-hour average) MPN/100 ml = Minimum Probable Number per 100 milliliters NTU = Nephelometric Turbidity Unit; Order R3-2013-0008: Lower Salinas River Watershed Nutrient TMDL; Seasonal targets for nitrate and orthophosphate (*Schaaf & Wheeler, 2015b)* See **Appendix P**

A summary of the water quality data from the sources described in the previous section for the Reclamation Ditch is provided in **Table 4.11-6** and for Tembladero Slough in **Table 4.11-7.**

Table 4.11-6
Water Quality Parameters, Reclamation Ditch below Carr Lake

Parameter	Units	Mean	Max	Standard
Ammonia as N, Unionized	mg/L	0.029	0.25	0.025
Ammonia as NH3	mg/L	0.61	6.00	0.025
Chloride	mg/L	106.41	200.00	150
Chlorophyll a, water column	mg/L	0.016	0.15	0.015
Chlorpyrifos	mg/L	0.0016	0.055	0.00025
Coliform, Fecal	MPN/100 ml	17,954	160,001	400
Coliform, Total	MPN/100 ml	53,966	160,001	1000
Diazinon	mg/L	0.10	3.16	0.00016
Dissolved Solids, Total	mg/L	641.83	1,080.00	1000
Nitrate as N	mg/L	13.00	69.10	8.0
OrthoPhosphate as P	mg/L	0.65	12.90	0.30
Oxygen, Dissolved	mg/L	0.93	6.58	> 5.0
Suspended Solids, Total	mg/L	69.46	385.00	500
Turbidity	NTU	141.51	1,454.00	10

Note: This table summarizes results from **Table B-12** in **Appendix P**. **Figure A-9** in **Appendix P** shows the primary sampling locations. (Schaaf & Wheeler, 2015b)

Table 4.11-7
Water Quality Parameters, Tembladero Slough

Parameter	Units	Mean	Max	Standard
Ammonia as N, Unionized	mg/L	0.010	0.074	0.025
Ammonia as NH3	mg/L	0.030	0.060	0.025
Chloride	mg/L	876.41	9,600.00	150
Chlorophyll a, water column	mg/L	0.037	0.66	0.015
Chlorpyrifos	mg/L	0.011	0.070	0.00025
Coliform, Fecal	MPN/100 ml	2,310	54,000	400
Coliform, Total	MPN/100 ml	29,307	240,001	1000
Diazinon	mg/L	0.20	0.52	0.00016
Dissolved Solids, Total	mg/L	2,024.71	18,000.00	1000
Nitrate as N	mg/L	28.59	107.00	8.0
OrthoPhosphate as P	mg/L	0.43	1.20	0.30
Oxygen, Dissolved	mg/L	0.60	8.98	> 5.0
Suspended Solids, Total	mg/L	133.85	1,600.00	500
Turbidity	NTU	211.18	2,663.00	10

Note: This table summarizes results from **Table B-12** in **Appendix P**. **Figure A-9** in **Appendix P** shows the primary sampling locations. (Schaaf & Wheeler, 2015b)

Blanco Drain

The RWQCB Basin Plan designates beneficial uses of the Blanco Drain as including water contact recreation, non-contact water recreation, wildlife habitat, warm water fish habitat and commercial or sport fishing. These are the minimum uses listed for all inland water bodies within the region, unless specific water quality information causes the RWQCB to remove a specific use (e.g., not listing water contact recreation for a stream segment listed for fecal coliform contamination).

The Blanco Drain is listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act for pesticides, nitrate and low dissolved oxygen. Water quality has been sampled and monitored for the past 15 years under various programs, including the CCAMP under the RWQCB, the CCoWS program of the Watershed Institute at California State University Monterey Bay, and the Cooperative Monitoring Program under the Conditional Waiver of Waste Discharges from Irrigated Lands (Ag Waiver). The Central Coast RWQCB adopted order R3-2013-0008 to establish certain TMDLs for the lower Salinas River Basin in 2013. A summary of the key parameters for the Blanco Drain are shown in **Table 4.11-8**, below.

Table 4.11-8
Water Quality Parameters, Blanco Drain above Salinas River

Parameter	Units	Mean	Max	Standard
Ammonia as N, Unionized	mg/L	0.014	0.26	0.025
Ammonia as NH3	mg/L	0.20	4.96	0.025
Chlorophyll a, water column	mg/L	0.0021	0.028	0.015
Chlorpyrifos	mg/L	0.0009	0.018	0.00025
Diazinon	mg/L	0.01	0.17	0.00016
Dissolved Solids, Total	mg/L	2,019	2,250	1,000
Nitrate as N	mg/L	65.27	325.00	8.0
OrthoPhosphate as P	mg/L	0.85	4.40	0.3
Oxygen, Dissolved	mg/L	0.20	2.52	> 5.0
Turbidity	NTU	66.48	1,210.00	10

Note: This table summarizes the water quality analysis provided in detail in Table B-6 within Appendix Q rev.
Source: Schaaf & Wheeler, 2015b

Lake El Estero

The RWQCB Basin Plan designates beneficial uses of Lake El Estero as including municipal and domestic supply, groundwater recharge, water contact recreation, non-contact water recreation, wildlife habitat, cold water fish habitat, warm water fish habitat, spawning/reproduction/early development habitat and commercial or sport fishing. Many of these are the minimum uses listed for all inland water bodies within the region, unless specific water quality information caused the RWQCB to remove a specific use (e.g., not listing water contact recreation for a stream segment listed for fecal coliform contamination). The Monterey Harbor has designated beneficial uses of water contact recreation, non-contact water recreation, industrial service supply, navigation, marine habitat, shellfish harvesting, commercial or sport fishing and rare/threatened/endangered species habitat.

Lake El Estero is not listed as an impaired water body, but Majors Creek (a tributary stream to Lake El Estero) and the Monterey Harbor are listed. Majors Creek is listed for copper, lead, zinc and Escherichia coliform. The Monterey Harbor is listed for metals and sediment toxicity. Lake

El Estero serves as a settling basin for stormwater, which is a treatment process for some pollutants in stormwater that would otherwise flow to the Bay. Water passing through the lake carries lower levels of suspended solids than stormwater discharging directly to the Bay.

Water quality has been sampled and monitored for the past 15 years under various programs, including the Central Coast Long-term Environmental Assessment Network (CCLEAN), the Monterey Bay Sanctuary Citizen Watershed Monitoring Network and the City of Monterey Urban Watch. The results of these programs have been consolidated in **Table 4.11-9** for Lake El Estero, Majors Creek, Monterey Harbor and Monterey Bay South Coastline.

The Monterey Regional Storm Water Management Program identifies water quality objectives for stormwater discharging into the Monterey Bay. These and other applicable water quality standards are consolidated in **Table 4.11-10**. See **Appendix R**.

Carmel River Watershed

The Monterey Peninsula Water Management District (Water Management District) has monitored surface-water quality in the Carmel River since 1991. This monitoring is used to help assess whether or not water-quality criteria for aquatic life are being met in various reaches of the Carmel River, and whether habitats for resources such as South-Central Coast steelhead (*Oncorhynchus mykiss*) and California red-legged frogs (*Rana aurora draytonii*) are being sustained or impaired in the Carmel River. Data is used for recommending appropriate reservoir release schedules, determining timing of fish rescues and as an indicator of habitat quality. River temperatures are also continuously monitored at six locations within the Carmel River with the objective to document the temperature regime in different stream reaches and to determine whether water-quality criteria for maximum stream temperatures are exceeded and to monitor changes in the thermal regime of the river over time.

In general, dissolved oxygen (DO), carbon dioxide (CO_2,) and hydrogen potential (pH) levels in the main stem of the Carmel River have met Central Coast Basin Plan objectives. However, average daily water temperature during the late summer and fall commonly exceeds the range for optimum steelhead growth (50-60°F). Water temperature during these months remains in a range that is stressful to this species and can reach levels that threaten aquatic life (above 70°F).

Turbidity in the main stem of the Carmel River is normally low, except during winter when storm runoff events can elevate turbidity for several days during and after a storm event. Very wet years can cause extensive landslides and bank erosion, which can increase turbidity in the main stem for up to several months.

A sand bar closes the mouth of the river off from the ocean most of the year and creates a lagoon. Water quality in the Carmel River Lagoon typically declines during late summer and fall as freshwater inflows cease and ocean waves start to overtop the sandbar at the mouth of the river. Water temperature often exceeds 70°F, which is above Central Coast Basin Plan guidelines. DO levels also periodically drop below guidelines (not less than 7.0 mg/L), probably due to a combination of increasing water temperature and decomposition of marine organic material washed into the lagoon by high ocean waves (Carmel River Watershed Conservancy, 2004).

Table 4.11-9
Water Quality: Lake El Estero, Majors Creek, Monterey Harbor, Monterey Bay South Coastline

Stream	Location	Analyte Name	No. Samples	Units	Mean	Min	Max
Lake El Estero	2 samples, 7/6/2009	Bicarbonate Alkalinity (HCO3)	2	mg/L	284.25	283.0000	285.50
Lake El Estero	2 samples, 7/6/2009	Boron	2	mg/L	0.24	0.23	0.25
Lake El Estero	2 samples, 7/6/2009	Calicium	2	mg/L	108.5	108.0	109.0
Lake El Estero	2 samples, 7/6/2009	Nitrate as N	2	mg/L	ND	ND	ND
Lake El Estero	2 samples, 7/6/2009	E. Coli	2	#/100 ml	48	10	86
Lake El Estero	2 samples, 7/6/2009	Coliform, Total	2	#/100 ml	6,499	6,131	6,867
Lake El Estero	2 samples, 7/6/2009	Enterococcus	2	#/100 ml	31	31	31
Lake El Estero	2 samples, 7/6/2009	Sulfate	2	mg/L	158.0	156.0	160.0
Lake El Estero	2 samples, 7/6/2009	Dissolved Solids, Total	2	mg/L	1,028.0	1,024.0	1,032.0
Lake El Estero	2 samples, 7/6/2009	Total Suspended Solids	2	mg/L	20.5	18.0	23.0
Lake El Estero	2 samples, 7/6/2009	Chloride	2	mg/L	320.5	317.0	324.0
Lake El Estero	2 samples, 7/6/2009	Potassium	2	mg/L	5.6	5.5	5.6
Lake El Estero	2 samples, 7/6/2009	Magnesium	2	mg/L	36.0	36.0	36.0
Twin 51" Outfalls	below El Estero	Nitrate	14	mg/L	0.62	0.16	1.30
Twin 51" Outfalls	below El Estero	Phosporus	15	mg/L	0.40	0.00	0.97
Twin 51" Outfalls	below El Estero	Urea	16	ug/L	317.86	16.00	920.00
Twin 51" Outfalls	below El Estero	E. Coli	17	MPN/100 mL	61,240	50	229,170
Twin 51" Outfalls	below El Estero	Enteroccoccus	18	MPN/100 mL	54,199	125	227,516
Twin 51" Outfalls	below El Estero	Zinc	19	ug/L	142.0	20.0	385.0
Twin 51" Outfalls	below El Estero	Copper	20	ug/L	36.54	5.00	99.00
Twin 51" Outfalls	below El Estero	Lead	21	ug/L	9.85	0.00	44.00
Twin 51" Outfalls	below El Estero	Total Suspended Solids	22	mg/L	40.07	0.00	183.00
Majors Creek	above El Estero	Calcium	5	mg/L	20.22	15.40	26.00
Majors Creek	above El Estero	Coliform, Total	18	MPN/100 ml	104,651	2,400	240,000
Majors Creek	above El Estero	Copper	15	ug/L	65.2	0.0	150.0
Majors Creek	above El Estero	Escherichia coli	18	MPN/100 ml	1,993	17	24,000
Majors Creek	above El Estero	Lead	15	ug/L	19.50	0.00	87.00
Majors Creek	above El Estero	Magnesium	6	mg/L	10.10	5.20	29.00
Majors Creek	above El Estero	Nitrate as N	19	mg/L	0.87	0.00	2.25
Majors Creek	above El Estero	Oil and Grease	1	mg/L	0.00	0.00	0.00
Majors Creek	above El Estero	Orthophosphate as P	19	mg/L	0.37	0.00	1.68
Majors Creek	above El Estero	Oxygen, Dissolved	5	mg/L	8.20	8.00	9.00
Majors Creek	above El Estero	Total Dissolved Solids	15	mg/L	399.73	149.00	930.00
Majors Creek	above El Estero	Total Suspended Solids	15	mg/L	101.13	12.40	531.00
Majors Creek	above El Estero	Zinc	15	ug/L	337.40	0.00	750.00
Monterey Bay	South Coastline	Ammonia as N	11	mg/L	0.023636	0.02	0.04000
Monterey Bay	South Coastline	Chlordanes	3	ng/L	0.01	0.01	0.01
Monterey Bay	South Coastline	ColiformFecal	13	MPN/100 ml	2	2	2
Monterey Bay	South Coastline	ColiformTotal	12	MPN/100 ml	60	2	659
Monterey Bay	South Coastline	Enterococcus	12	MPN/100 ml	2	2	2
Monterey Bay	South Coastline	Nitrate as N	12	mg/L	0.04	0.01	0.16
Monterey Bay	South Coastline	Orthophosphate as P	12	mg/L	0.02	0.01	0.04
Monterey Bay	South Coastline	Silica	12	mg/L	0.51	0.17	1.20
Monterey Bay	South Coastline	Total Suspended Solids	12	mg/L	13.35	6.70	34.40
Monterey Bay	South Coastline	Urea as N	12	ug/L	0.01	0.01	0.01
Highlighted cells exceed objective / standards. See table B13							
Min value of 0.00 = Not Detected.							

Key: E. Coli = Escherichia coli; N = nitrogen ug/L = microgram per liter

Table 4.11-10
Water Quality Objectives applicable to the Lake El Estero Diversion

Analyte Name	Units	Standard	Reference
Nitrate as N	mg/L	2.25	CCAMP Proposed
Orthophosphate as P	mg/L	0.12	CCAMP Proposed
E. coli	MPN/100 ml	400	EPA Ambient Water Quality Criteria
Enterococcus	MPN/100 ml	104	EPA Ambient Water Quality Criteria
Zinc	ug/L	200	Basin Plan Objective
Copper	ug/L	30	Basin Plan Objective
Lead	ug/L	30	Basin Plan Objective
Total Suspended Solids (TSS)	mg/L	500	Basin Plan Objective

Monterey Bay

The seawater in Monterey Bay is a mixture of water masses from different parts of the Pacific Ocean with warmer, saltier water from the equatorial zone and colder, fresher water from the arctic regions. The water quality is a function of different constituents present in the water and the ocean climate in the Bay that affects the concentration of the constituents. This section describes the constituents that are currently regulated or monitored, and that are anticipated to be regulated in the future, by the State Water Resources Control Board (State Board) and the RWQCB (**Section 4.11.3, Regulatory Framework**, provides additional information regarding water quality regulations).

Salinity and Temperature

Near-shore surface temperatures vary from 8°C (46.4°F) during winter and early spring to 17°C (62.6°F) during fall. Near-shore surface salinities vary from 33.2 practical salinity units (psu) to 34.0 psu when upwelling is strong. Practical salinity units are used to measure salinity in terms of the concentrations of dissolved salts in the water. Streams and rivers can affect salinity levels, but even during flood conditions, the salinity of Monterey Bay surface waters does not fall below 31 psu (MBNMS, 2013b).

Dissolved Oxygen

Monterey Bay is a dynamic environment that includes variable concentrations of dissolved oxygen (DO). Ambient DO levels in the Bay at a depth of approximately 100 feet have ranged from 4.25 milligrams per liter (mg/L) to 8.00 mg/L (KLI, 1998; KLI, 1999). Low concentrations of DO can have a detrimental effect on aquatic species. The Water Quality Control Plan for Ocean Waters of California (or Ocean Plan, discussed below in **Section 4.13.3.1**) sets the water quality objective for DO at 5 mg/L.

Other Constituents

The waters of Monterey Bay contain numerous legacy pesticides such as organochlorine pesticides, Dieldrin and DDT, and chemical products in current use such as organophosphate pesticides, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The largest source of contaminants is agricultural runoff into the San Lorenzo, Pajaro, and

Salinas. Seasonal data collected by CCLEAN[1] between 2001 and 2013 indicate numerous instances where water quality criteria and human health alert levels in Monterey Bay were exceeded due to presence of contaminants (Central Coast Long-term Environmental Assessment Network, 2014). Near-shore waters of Monterey Bay exceeded the Ocean Plan water quality objectives for PCBs. Annual data collected from 2004 to 2013 indicate that waters of Monterey Bay exceeded the Ocean Plan 30-day average PCB water quality objective of 1.9 x10-5 micrograms per liter (µg/L) for most of the years between 2004 and 2012. It is challenging to measure very low levels of PCBs and chlorinated pesticides in natural waters. The data may be biased by sample collection and handling (Luthy 2015).

Monterey Bay also receives point source discharges. These permitted discharges are subject to prohibitions and water quality requirements by regulatory agencies (i.e., the RWQCB and U.S. Environmental Protection Agency) such as periodic monitoring, annual reporting, and other requirements designed to protect the overall water quality of Monterey Bay. In the vicinity of the MRWPCA outfall, some of these permitted discharges include stormwater discharges from the cities of Marina, Sand City, Seaside, Monterey, Del Rey Oaks, and Pacific Grove, and unincorporated portions of Monterey County, and treated wastewater from the MRWPCA Regional Treatment Plant. Another permitted point discharge in Monterey Bay is located 7 miles north of the project area in Moss Landing and is a natural gas power plant operated by Dynegy whose cooling water is discharged.

Ocean Climate

Ocean climate refers to oceanographic conditions, including temperature, salinity, and current, and wave patterns prevailing over a period of time. Climatic conditions within the Bay affect the upwelling and mixing of the ocean water, which in turn affect the water quality in the Bay. As discussed above in **Section 4.13.2.2**, there are three known ocean climate seasons in Monterey Bay: (1) a wind-induced upwelling period producing cooler surface water between mid-February and November; (2) an oceanic period of warmer water, when winds relax and upwelling ceases, between mid-August to mid-October; and (3) the "low thermal gradient phase" or the Davidson current period between December and mid-February. These three individual seasons overlap and the dates upon which they occur can vary from year to year. For further information on ocean climate seasons see **Appendix T** (FlowScience, 2014a).

Besides the ocean climate seasons, the mixing of the ocean water is influenced by the ocean water density, physical processes such as waves and currents, and physical features on the ocean floor. The salinity and temperature of the ambient water determines its density, which in turn affects the extent of the mixing. The mixing process is enhanced by turbulence induced by currents and waves. Current velocities can be different throughout the water column. Tidally-driven currents can cause large pulses of water movement. Wave action, particularly during stormy periods, can vertically stir the water and cause enhanced dilution. The ocean water density and the physical processes (waves and currents) vary as a result of seasonal weather cycles and can also be severely modified by global ocean climate events, such as the Pacific Decadal Oscillation, a long-lived El Niño-like pattern of Pacific climate variability (State Water Resources Control Board, 2012).

[1] CCLEAN is a long-term water quality monitoring program designed to help municipal agencies and resource managers protect the quality of the near-shore marine waters in the Monterey Bay. CCLEAN is a collaborative program between the cities of Watsonville and Santa Cruz, MRWPCA, Carmel Area Wastewater District, Dynegy Moss Landing Power Plant, and Central Coast Regional Water Quality Control Board (CCLEAN, 2013).

The third factor, physical features, refers to regional bathymetry and localized effects from structures such as pipelines and outfall structures. The bathymetry in the vicinity of the MRWPCA outfall structure is relatively flat with an average slope of 1% to the west of the diffuser for 5 miles. The rim of Monterey Submarine Canyon is less than 4 miles to the northwest of the project area. The Monterey Submarine Canyon measures 292 miles long, approximately 7 miles wide at its widest point and is the deepest and largest submarine canyon on the coast of North America (larger than the Grand Canyon).

4.11.2.4 Floods, Seiche, and Ocean-Related Inundation

Flooding

The Federal Emergency Management Agency (FEMA) has designated areas in Monterey County that have a 1% chance of flooding in any given year (100-year flood) and areas that have a 0.2% chance of flooding in any given year (500-year flood). The areas along the coast designated with a 1% chance of flooding include areas subject to coincident flooding and high tide event/and or storm surge. The MCWRA is responsible for issuing permits for construction within designated flood zones in the project area. Floodplain regulations in the county extend to areas within 200 feet of rivers or within 50 feet of watercourses (MCWRA, 2008). Local cities in the county are responsible for permitting development within their floodplains.

Historically, significant flooding events have occurred in Monterey County. Three of the largest events in the last 15 years include January 1995, March 1995, and February 1998 (MCWRA, 2008). During these events, major water bodies, including the Salinas River and Carmel River, experienced flooding and Monterey County was declared a federal disaster area. Additional areas of the County could flood due to dam failure, tsunamis, or sea level rise (see the following sections for further information on these types of inundation risks). Dams located within the project vicinity include Los Padres and San Clemente Dams in the Carmel Watershed, and Nacimiento and San Antonio Dams in the Salinas Watershed.

Review of Monterey County and FEMA flood maps found that some of the Proposed Project components would be located within a 100-year flood hazard area (**Figure 4.11-7**). The Source Water Diversion and Storage sites within the Salinas Valley would be located in the 100-year flood hazard area associated with the Salinas River and Reclamation Ditch watersheds. Some small portions of the proposed Product Water Conveyance pipelines (both the Coastal and RUWAP alignments) would cross through small localized flood areas. In the City of Monterey near Del Monte Beach, the Lake El Estero Diversion site and the CalAm Distribution System: Monterey Pipeline would be located within a 100-year flood hazard area. The Treatment Facilities at the Regional Treatment Plant and the Injection Well Facilities would not be located within a 100-year flood hazard area.

Tsunami/Seiche

Seismic shaking during earthquakes can result in the formation of waves within open bodies of water. The two major types of seismically generated wave are tsunamis and seiches. Tsunamis are waves generated by the displacement of a large volume of water and, therefore, only occur in large water bodies such as oceans, bays, or large lakes. Displacements of water can occur by several mechanisms (including subaqueous landsliding or explosions) but are most commonly caused by the submarine displacements of the earth's crust resulting from earthquakes. A seiche is a wave that oscillates in lakes, bays, or gulfs from a few minutes to a few hours as a result of seismic or atmospheric disturbances. Small seiches are almost always present on larger lakes, and the frequency of the oscillation is determined by the size of the water body, its depth and contours, and the water temperature. Larger seiches can be caused by nearby or distant earthquakes and occur when the wave signature of the seismic waves is resonant with the natural period (controlled by basin geometry) of the lake.

Given the size of Monterey Bay and the area connected to the open Pacific Ocean, formation of seiches in the bay is unlikely. However, the formation of a tsunami in the bay is likely and a tsunami surge entered the bay as recently as February 2011, caused by a large earthquake in Japan. California Emergency Management Agency and the USGS modeled the tsunami hazards for the coast of Monterey Bay and found that the coastline of the bay at the mouth of the Carmel and Salinas Rivers and portions of the tidal influence zone of the rivers could be inundated in a tsunami. The mapped tsunami inundation area for the Salinas River includes the beach areas along and the lower portion of the Salinas River floodplain from the river mouth to approximately five miles from the coast. See **Figure 4.11-8**. The modeling considered local tsunami sources (including offshore reverse-thrust faults, restraining bends on strike-slip fault zones and large submarine landslides) and distant tsunami sources around the Pacific Basin that are known to have generated historic tsunamis. (California Emergency Management Agency, 2009)

A majority of the coastline along Monterey Bay is mapped within a tsunami inundation area, and some project components such as portions of the proposed CalAm Distribution System: Monterey Pipeline would be located within a tsunami inundation area. In the southwestern part of the project area, the areas within and around Lake El Estero are also mapped within a tsunami inundation zone. In the northeastern part of the project area, a majority of the Salinas River floodplain vicinity, including the Tembladero Slough and Blanco Drain Diversion sites are mapped within a tsunami inundation area The Monterey County Office of Emergency Services is responsible for developing and maintaining a state of readiness in preparation of any emergency, including tsunamis that could adversely affect any part of Monterey County. According to the Tsunami Incident Response Plan prepared by the Monterey County Office of Emergency Services and incorporated cities, a locally generated tsunami may occur if a large enough earthquake occurs in or near Monterey Bay. Such an earthquake could produce a tsunami that reaches shore in a matter of minutes. The plan states that within Monterey County there is a low likelihood of experiencing a tsunami. The most likely tsunami cause, though still relatively unlikely compared to other hazards, is a distant event, where there would be more than one hour to respond to a tsunami warning (Monterey County Office of Emergency Services, 2007).

Dam or Levee Failure

Dams located within the project vicinity include Los Padres and San Clemente dams on the Carmel River; and Nacimiento and San Antonio dams on the Salinas River. Historically, CalAm diverted surface water supplies from the Carmel River at Los Padres and San Clemente dams to serve CalAm's Monterey District service area. However, the storage capacity of both dams has been reduced by the gradual accumulation of sediment over the years of operation. Storage capacity at Los Padres Reservoir has been reduced by 40% as compared with original capacity. San Clemente Dam will be removed in the summer of 2015. The existing storage capacity at Los Padres Reservoir is about 2% of the annual outflow of the Carmel River Watershed. As previously indicated, Nacimiento and San Antonio dams are owned and operated by the MCWRA.

The four dams are regulated by the design and operational requirements established by the DSOD. California Water Code Section 6000, et seq. and 23 California Code of Regulations (CCR) 301, et seq. establish the authority and responsibility of the DSOD, including periodic safety inspections of dams, completion of studies that predict the flood zones created by sudden dam failure, and development of emergency response plans in the advent of pending dam failure, including a program for emergency warning and evacuation. The DSOD requires the determination of a dam inundation area, which is an area downstream of a dam that would be inundated or otherwise affected by the failure of the dam and accompanying large flood flows. Based on the County-wide dam inundation map, the Proposed Project facilities that would be located within a dam inundation zone, include the following Proposed Project components: Salinas Pump Station Diversion, Salinas Treatment Facility Storage and Recovery, Reclamation Ditch Diversion, Tembladero Slough Diversion, and Blanco Drain Diversion (Monterey County, 2010).

In Monterey County, levees along portions of the Salinas and Carmel Rivers were constructed as part of U.S. Army Corps of Engineers or U.S. Department of Agriculture flood control projects or by local flood control programs administered by the MCWRA and other stakeholders. All of these levees and floodwalls are required to undergo periodic inspections for safety and performance as part of routine maintenance plans (MCWRA, 2008).

Sea Level Rise and Coastal Flooding

Sea level rise provides a physical measure of possible oceanic response to climate change. Average global sea level has risen between five to nine inches during the 20th century as reported by the International Panel on Climate Change (IPCC), nearly one-tenth of an inch each year (California Environmental Protection Agency, 2013). The rise in global sea level is attributed to the thermal expansion of ocean water and the melting of mountain glaciers and ice sheets around the globe. As sea level rises, higher mean sea level will make it possible for wave run-up to reach coastal dunes more frequently, undercutting at the dune toe and causing increased erosion. A 2012 study by the National Research Council (NRC) provided a sea level rise projection of 15 inches by 2040 and 28 inches by 2060, relative to 2010 for San Francisco (the closest projection to the Proposed Project). The 2040 and 2060 values were derived by fitting a curve to the “Average of Models, High” projections for 2030, 2050, and 2100 published in the NRC study (ESA/PWA, 2014).

The “State of California Sea-Level Rise Guidance Document” (California Ocean Protection Council, 2013) provides guidance for incorporating sea-level rise projections into planning and projects in California in response to Executive Order S-13-08, issued on November 14, 2008 that directed state agencies to plan for sea level rise and coastal impacts. According to this document, sea level rise is projected (using the year 2000 as a baseline) as: 0.13-0.98 feet between 2000 and 2030; 0.39-2.0 feet between 2000 and 2050; and 1.38-5.48 feet between 2000 and 2010 (California Ocean Protection Council. 2013).

Coastal erosion and flooding, an ongoing issue in Southern Monterey Bay, is also expected to increase with accelerating sea level rise. The coast of Monterey Bay is exposed to high energy waves throughout the year, with seasonal differences resulting in waves approaching from many directions. The largest waves typically occur in the late fall and winter and are associated with wave generation in the Gulf of Alaska. In the spring, smaller wave heights and shorter wave periods result from strong northwest winds. In the summer, the coast is exposed to long period south swells. Point Piños partially shelters the coast from these waves, especially farther south in the bay, toward the City of Monterey. Large waves are not the only contributing factor to coastal erosion. A common indicator of coastal erosion is the *total water level,* which is the sum of tides, wave runup on the beach, and other atmospheric conditions which affect ocean water levels. Historically, some of the most damaging wave erosion events have occurred during El Niño events, when wave directions shift more to the south and west and come less impeded into Monterey Bay. This more direct wave energy coupled with elevated ocean water levels (on the order of one foot) can cause dramatic and often devastating erosion along the Monterey Bay coast. (ESA/PWA, 2014). The only Proposed Project components that would be located in areas subject to coastal flooding due to sea level rise and the associated erosion, and storm surges is a portion of the CalAm Distribution System: Monterey Pipeline and the Lake El Estero Diversion site.

Climate Change and Hydrologic Response

Intensive investigation of climate trends over the last two decades indicates strong evidence that the lower atmosphere has been warming at an unprecedented rate during the last 50 years, and it is expected to further increase at least for the next 100 years. Warming of the climate is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level (International Panel on Climate Change 2014). Generally, a warmer air mass implies a higher capacity to hold water vapor and an increased likelihood of an acceleration of the global water cycle. Other factors being equal, warm air holds more water vapor than cool air and potential for increased precipitation as the air is lifted either by winds blowing over a mountain range, by convective activity (thunderstorms), or by a weather system front has the potential for greater precipitation intensity.

Several effects on water resources infrastructure may occur in response to global warming. Potential impacts throughout California could include changes in snowpack accumulation and melting, alteration of precipitation and runoff patterns, increasing sea level, changes in flood frequency and timing, increased droughts, increased potential for wild fires, and increased demand for groundwater (and related decreases in groundwater levels).

It is generally accepted that the observed rise in global sea level is one of the most demonstrable responses to the effects of increased global temperatures. However, sea-level rise is neither uniform across the globe nor constant at any given location. Along the California coast, sea level is also affected by changes in Pacific Ocean water temperatures during relatively short-term climatic variations including El Niño/Southern Oscillation cycle (with return periods of 3 to 5 years) and the Pacific Decadal Oscillation cycle. Additionally, the rate of sea-level change is relative significant tectonic movements. Active uplift has occurred within the study area and would act to decrease the relative rate of sea-level rise.

Some climate change models suggest possible changes in the pattern and characteristics of storms in California. The effect of global warming may be to increase the number of years with many “pineapple express” (also called “atmospheric river”) storms, events with the potential to cause flooding in the study area. The potential for increased flood magnitudes can be amplified in areas that lie near sea level by concurrent high sea level stands associated with astronomical tides, storm surges, El Niño influences, and the gradual sea-level rise). Potential impacts of sea-level rise in coastal and estuarine zones may result in changes in shoreline erosion, inundation or exposure of low-lying coastal areas, changes in storm and flood damages, shifts in extent and distribution of wetlands and other coastal habitats, changes to groundwater levels, and alterations to salinity intrusion into estuaries and groundwater systems. In addition to potential changes in the characteristics of flooding events, global warming is expected to result in changes in water quality. As sea level rises, the tidal influence will migrate landward, causing a gradual increase in salinity in surface waters and will also generally increase saltwater intrusion into the aquifer. More information about the potential impacts on the water resources conditions of the northern Monterey County area (Salinas Valley) can be found in the Greater Monterey County Integrated Regional Water Management Plan (Greater Monterey County Regional

Water Management Group, 2013) found at the following website: http://www.greatermontereyirwmp.org/documents/plan/) and the Monterey Peninsula, Carmel Bay and Southern Monterey Bay Integrated Regional Water Management Plan (Monterey Peninsula Water Management District/Denise Duffy & Associates, Inc., 2014) at the following website: http://www.mpirwm.org/IRWM%20Library/IRWMPlan%20Final_whole.pdf.

4.11.3 Regulatory Framework

4.11.3.1 Federal and State Regulations

Clean Water Act

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States (waters of the U.S.) and regulating quality standards for surface waters. Its goals are to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Under the CWA, the U.S. Environmental Protection Agency (EPA) has implemented pollution control programs and established water quality standards. The National Pollutant Discharge Elimination System (NPDES) permit program under section 402 of the CWA and enabling regulations controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The EPA has delegated authority of issuing NPDES permits in California to the State Board, which has nine RWQCBs. The Central Coast RWQCB regulates water quality in the project area. The NPDES permit program is further described below.

The USACOE and EPA regulate discharge of dredged and fill material into waters of the U.S. under Section 404 of the CWA and its implementing regulations. Waters of the U.S. are defined broadly as waters susceptible to use in commerce (including waters subject to tides, interstate waters, and interstate wetlands) and other waters (such as interstate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds) (33 CFR 328.3, 40 CFR 230.3(s)(1), 40 CFR 122.2). For regulatory purposes under the CWA, the term wetlands mean those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions. Wetlands generally include swamps, marshes, bogs and similar areas (see 40 CFR 230.3(t)).

Section 401 of the CWA requires that, prior to the issuance of a federal license or permit for an activity or activities that may result in a discharge of pollutants into navigable waters, the permit applicant must first obtain a certification from the state in which the discharge would originate. A state certification indicates that the proposed activity or activities would not result in a violation of applicable water quality standards established by federal or state law, or that no water quality standards apply to the proposed activity.

Section 401 Water Quality Certifications are issued by the RWQCB to protect water quality and the beneficial uses of water from projects that may result in discharges of dredge and fill. The Central Coast RWQCB only issues Section 401 Water Quality Certifications for projects that may discharge dredge of fill to waterbodies that are under the jurisdiction of the USACOE. The Central Coast RWQCB may issue other waste discharge requirements (permits) for discharges of dredge or fill to waterbodies not under the jurisdiction of the USACOE, but that are waters of the state as defined by the Porter-Cologne Water Quality Control Act.

Water bodies that may not be covered under USACOE jurisdiction may require a Section 401 Water Quality Certification for impact on waters of the state. Placement of structures, fill, or dredged materials into waters of the State requires Section 401 Water Quality Certification. Activities that require a federal Section 404 permit also require a Section 401 Water Quality Certification. The RWQCB issues Section 401 Water Quality Certifications and waivers.

Under the authority of CWA Section 303(d), the RWQCB and State Board list water bodies as impaired when not in compliance with designated water quality objectives and standards. Section 303(d) also requires preparation of a TMDL program for waters identified by the state as impaired. A TMDL is a quantitative assessment of a problem that affects water quality. The problem can include the presence of a pollutant, such as a heavy metal or a pesticide, or a change in a physical property of the water, such as reductions in dissolved oxygen or increases in temperature. A TMDL are established at the level necessary to implement the applicable water quality standards. A TMDL requires that all sources of pollution and all aspects of a watershed's drainage system be reviewed (both point and non-point sources) and establishes load allocations to sources to achieve water quality standards. The CWA does not expressly require implementation of TMDLs. However, the State Board has interpreted California Water Code Section 13000 et. seq. to require that implementation be addressed when TMDLs are incorporated into Basin Plans. The EPA has established regulations (40 CFR 122) requiring that NPDES permits be revised to be consistent with any approved TMDL.

The RWQCB lists numerous water bodies within the lower Salinas River watershed as impaired (see Table 4.11-1). TMDLs have been adopted on the lower Salinas Watershed for the pesticides chlorpyrifos and diazinon[2], as well as for fecal coliform, and nitrogen compounds and orthophosphate. TMDLs are under development for salts and sediment toxicity.

NPDES Waste Discharge Program

In California, the NPDES program is administered by the State Board through the RWQCBs and requires point sources to obtain NPDES permits (also called Waste Discharge Requirements in California). Point sources includes municipal and industrial wastewater facilities and stormwater There are two types of NPDES permits: individual permits tailored to an individual facility and general permits that cover multiple facilities within a specific category. Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. When developing effluent limitations for an NPDES permit, a permit writer must consider limits based on both the technology available to control the pollutants (i.e., technology-based effluent limits) and limits that are protective of the water quality standards of the receiving water (i.e., water quality-based effluent limits if technology-based limits are not sufficient to protect the water body. For inland surface waters and enclosed bays and estuaries, the water-quality-based effluent limitations are based on criteria in the National Toxics Rule and the California Toxics Rule, and objectives and beneficial uses in the Basin Plan. For ocean discharges, the Ocean Plan contains beneficial uses, water quality objectives, and effluent limitations.

NPDES Permit for MRWPCA Wastewater Treatment Plant

The NPDES permit for the MRWPCA Regional Treatment Plant regulates the treated wastewater discharge from the Regional Treatment Plant that flows into Monterey Bay through the MRWPCA outfall (MRWPCA, 2014). The permit allows for a discharge up to 81.2 mgd, and

[2] For this TMDL, implementation is based on the *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* and associated monitoring program to correct the impairment and attain water quality standards.

specified influent flows to the secondary treatment system (29.6 mgd average dry weather flow and 75.6 mgd peak wet weather flow). In most winter months, secondary treated wastewater from the Regional Treatment Plant is discharged to Monterey Bay through the MRWPCA ocean outfall, which includes a diffuser that extends 11,260 feet offshore at a depth of approximately 100 feet. In summer months, treated wastewater is diverted to the Salinas Valley Reclamation Plant to produce tertiary-treated recycled water for irrigation of 12,000 acres of farmland in the northern Salinas Valley.

The minimum dilution requirement for the MRWPCA effluent discharge at the outfall is 145:1 (parts seawater to effluent), which is used by the RWQCB to determine the need for water quality-based effluent limitations and if needed to calculate those limitations based on water quality objectives contained in the Ocean Plan. It also includes effluent limitations in the Ocean Plan and a monitoring and reporting program for influent to and effluent from the Regional Treatment Plant.

NPDES Construction General Permit

Construction activities on one acre or more or that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the *NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity* (General Construction Permit) (SWRCB Order No. 2009-09-DWQ; Modified 2010-0014-DWQ). The State Board established the General Construction Permit program to reduce surface water impacts from construction activities. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Proposed Project would be required to comply with the permit requirements to control stormwater discharges from all of the Proposed Project construction sites. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Required elements of a SWPPP include:

1. Site description addressing the elements and characteristics specific to the site;
2. Descriptions of BMPs for erosion and sediment controls;
3. BMPs for construction waste handling and disposal;
4. Implementation of approved local plans;
5. Proposed post-construction controls; and
6. Non-stormwater management.

Examples of typical construction BMPs include scheduling or limiting activities to certain times of year, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling. The RWQCB has identified BMPs to effectively reduce degradation of surface waters to an acceptable level. In accordance with the Construction General Permit, a Rain Event Action Plan would be required to ensure that active construction sites have adequate erosion and sediment controls in place prior to the onset of a storm event, even if construction is planned only during the dry season.

NPDES General Permit for Discharges with Low Threat to Water Quality

Construction of the proposed facilities would require excavation and trenching activities. Such activities in areas with shallow groundwater or that are located adjacent to surface water bodies could require dewatering to create a dry area. Discharges of non-stormwater from a trench or excavation that contains sediments or other pollutants to sanitary sewer, storm drain systems, creek beds (even if dry), or receiving waters is prohibited. However, discharges of dewatering effluent are conditionally exempt. The RWQCB requires that the dewatering effluent be tested for possible pollutants; the analytical constituents for these tests are generally determined based on the source of the water, the land use history of the construction site, and the potential for the effluent to impact the quality of the receiving water body.

The *Waste Discharge Requirements and NPDES General Permit for Discharges with Low Threat to Water Quality (Order No. R3-2011-0223, NPDES No. CAG993001, amended)* (RWQCB, 2011c) applies to low-threat discharges, which are defined as discharges containing minimal amounts of pollutants and posing little or no threat to water quality and the environment. Discharges that meet the following criteria are covered under this permit:

a. Pollutant concentrations in the discharge do not: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable water quality objectives, including prohibitions of discharge;

b. The discharge does not include water added for the purpose of diluting pollutant concentrations;

c. Pollutant concentrations in the discharge will not cause or contribute to degradation of water quality or impair beneficial uses of receiving waters;

d. Pollutant concentrations in the discharge do not exceed the limits in the permit unless the Executive Officer determines that the applicable water quality control plan (i.e., Ocean Plan and/or State Implementation Policy) does not require effluent limits;

e. The discharge does not cause acute or chronic toxicity in receiving waters; and

f. The discharger demonstrates the ability to comply with the requirements of this General Permit.

The project-related discharges that could fall under this General Permit include discharges of: water produced from one-time draining of existing pipelines to construct new connections; and disinfection water from these same existing pipelines and newly constructed pipelines before being put into service, all of which would be discharged into surface waters or conveyances thereto. These discharges may be treated and discharged on a continuous or a batch basis. For discharges from construction sites smaller than one acre that are part of a larger common plan of development or that may cause significant water quality impacts, the discharge may require coverage under the construction stormwater permit or an individual NPDES permit.

Nonpoint Source Pollution Control Program

In accordance with Section 319 of the Clean Water Act and Section 6217 of the CZARA of 1990, SWRCB and the California Coastal Commission jointly submitted the Plan for California's

Nonpoint Source (NPS) Pollution Control Program to the USEPA and NOAA on February 4, 2000. The NPS Pollution Control Program provides a single unified, coordinated statewide approach to address nonpoint source pollution. A total of 28 state agencies are working collaboratively through the Interagency Coordinating Committee to implement the NPS Pollution Control Program. California's Critical Coastal Areas (CCA) Program is a non-regulatory planning tool to foster collaboration among local stakeholders and government agencies, to better coordinate resources and focus efforts on coastal-zone watershed areas in critical need of protection from polluted runoff. A coastal area is designated as a CCA if it: has a 1998 303(d)-listed impaired coastal water body that flows into a Marine Managed Areas; flows into a Wildlife Refuge or Waterfront Park/Beach; flows into a marine State Water Quality Protection Area (also known as ASBS);[3] or was on the original 1995 CCA list, which is comprised of watersheds that flow into an 1994 303(d)-listed impaired bay or estuary. The CCAs in the project area and vicinity include the Elkhorn Slough, Old Salinas River Estuary, Salinas River, Carmel Bay, Point Lobos, and Pacific Grove Marine Gardens and Hopkins Marine Life Refuge (CCC, 2014).

NPDES Municipal Stormwater Permit

The NPDES General Permit for Waste Discharge Requirements (WDRs) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) (Order No. 2013-001-DWQ, NPDES No. CAS000004) regulates stormwater discharges from small Municipal Separate Storm Sewer Systems (MS4) into waters of the U.S. (SWRCB, 2013b). An "MS4" is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) designed or used for collecting or conveying stormwater; (ii) which is not a combined sewer; and (iii) which is not part of a Publicly Owned Treatment Works (POTW) as defined at Title 40 of the Code of Federal Regulations (CFR) §122.2.

The Phase II Municipal General Permit requires regulated small MS4s to develop and implement BMPs, measurable goals, and timetables for implementation, designed to reduce the discharge of pollutants to the maximum extent practicable and to protect water quality.[4] The permittees under the small MS4 (Phase II) General Permit[5] in the project area include Monterey County and cities therein. Each permittee is required to prepare and implement a stormwater management plan (SWMP) and regulate stormwater runoff from development and redevelopment projects through post-construction stormwater management requirements.

The proposed aboveground facilities such as the Source Water Diversion and Storage sites, the Treatment Facilities at the Regional Treatment Plant, the Booster Pump Station, and the Injection Well Facilities would be subject to the stormwater control requirements in the respective local jurisdictions.

A Memorandum of Agreement for the Monterey Regional Stormwater Pollution Prevention Program was prepared and executed by MRWPCA and by the entities in the southern Monterey Bay area (Monterey County and cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside) to form the Monterey Regional Stormwater Management

[3] The SWRCB monitors and maintains water quality in a total of 34 ASBS along the California coast.

[4] Phase I stormwater permits provide permit coverage for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities.

[5] Phase II stormwater permits provide permit coverage for smaller municipalities (populations less than 100,000), including non-traditional Small MS4s, which are facilities such as military bases, public campuses, prisons, and hospital complexes.

Program (MRSWMP). MRWPCA acts as the administrative agent for the MRSWMP. The purpose of the MRSWMP is to implement and enforce a series of BMPs to reduce the discharge of pollutants from the MS4s to the "maximum extent practicable," to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. The Phase II Program contains six Minimum Control Measures:

- Public Education and Outreach;
- Public Participation/Involvement;
- Illicit Discharge Detection and Elimination;
- Construction Site Runoff Control;
- Post-Construction Runoff Control; and
- Pollution Prevention/Good Housekeeping.

The MRSWMP lists BMPs and associated Measurable Goals for the six Minimum Control Measures. The Measurable Goals must include, as appropriate, the months and years for scheduled actions, including interim milestones and frequency of the action. It is through the implementation and evaluation of these BMPs and Measurable Goals that the permittees ensure that the objectives of the Phase II NPDES Program are met (MRSWMP, 2015).

The Model Urban Runoff Program (MURP)—a water quality program under the Statewide NPS program—is a comprehensive guide developed for the local agencies to address polluted runoff in the urban environment. The MURP provides options to help small municipalities develop individual urban runoff programs. Each member or permittee is responsible for complying with the NPDES permit conditions. The local municipalities would require the proposed project to comply with the stormwater control requirements in their individual jurisdictions under the MS4 permit and require implementation of erosion and stormwater control measures to reduce any long term runoff effects from the facilities (MRSWMP, 2015).

In July 2013, the Central Coast RWQCB adopted Resolution No. R3-2013-0032 c, which prescribes new Post-Construction Requirements for projects that create or replace 2,500 square feet or more of impervious area and receive their first discretionary approval for design elements after March 6, 2014. **Table 4.11-11** summarizes the new post-construction requirements for different categories of projects, which would include the Proposed Project components.

For current guidance information about stormwater management, see the Monterey Regional Stormwater Management Program website at: http://montereysea.org/program-documents/.

Table 4.11-11
Overview of Post-Construction Requirements for Stormwater Management

Project Categories	Performance Requirements
Tier 1 Projects Projects that create or replace 2,500 square feet or more of impervious surface.	**Implement One or More Low Impact Design (LID) Measures:** Limit disturbance of natural drainage features. Limit clearing, grading, and soil compaction. Minimize impervious surfaces. Minimize runoff by dispersing runoff to landscape or using permeable pavements.
Tier 2 Projects Projects that create or replace 5,000 square feet or more net impervious surface.	**Tier 1 requirements, plus treat site runoff:** Treat runoff generated by the 85th percentile 24-hour storm event with an approved and appropriately sized LID treatment system prior to discharge from the site.

Tier 3 Projects Projects that create or replace 15,000 square feet or more of impervious surface.	**Tier 2 requirements, plus:** Prevent offsite discharge from events up to the 95th percentile rainfall event using Stormwater Control Measures.
Tier 4 Projects Projects that create or replace 22,500 square feet of impervious surface.	**Tier 3 requirements, plus:** Control peak flows to not exceed pre-project flows for the 2-year through 10-year events.
SOURCE: MRSWMP, 2014.	

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act (Division 7 of the California Water Code, Section 13000) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and groundwater, and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act, it is the policy of the State of California that:

- The quality of all the waters of the State shall be protected.
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason.
- The state must be prepared to exercise its full power and jurisdiction to protect the quality of water in the state from degradation.

The Porter-Cologne Act defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. The Porter-Cologne Act allows the State Board to adopt statewide water quality control plans or basin plans, which serve as the legal, technical, and programmatic basis of water quality regulation for a region. The act also authorizes the NPDES program under the Clean Water Act, which establishes effluent limitations and water quality requirements for discharges to waters of the state.

Under the Porter-Cologne Act, any person or entity discharging or proposing to discharge waste within the region (except discharges into a community sewer system) that could affect the quality of the waters of the state is required to file a Report of Waste Discharge. The State Board or RWQCB reviews the nature of the proposed discharge and adopts Waste Discharge Requirements to protect the beneficial uses of waters of the state. Waste discharge requirements could be adopted for an individual discharge, or a specific type of discharges in the form of a general permit. California Water Code Section 13269 authorizes the State or RWQCB to waive waste discharge requirements for specific discharges or specific types of discharges where such a waiver is consistent with any applicable state or regional water quality control plan and is in the public interest. The following are general waivers that are applicable to the Proposed Project.

The term "Waters of the State" is defined by Porter-Cologne as "any surface water or groundwater, including saline waters, within the boundaries of the state." The RWQCB protects all waters in its regulatory scope but has special responsibility for wetlands, riparian areas, and headwaters, including isolated wetlands, and waters that may not be regulated by the USACOE under Section 404 of the CWA. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of fill and dredged material under Section 401 of the CWA and Porter-Cologne.

General Waiver of Waste Discharge Requirements for Specific Types of Discharges

The *General Waiver of Waste Discharge Requirements for Specific Types of Discharges* (Resolution R3-2014-0041) (General Waiver) (RWQCB, 2014a) amended RWQCB Resolution R3-2008-0010 of the same name and contains specific conditions for the specific discharges and is consistent with the RWQCB Basin Plan. Waivers may be granted for discharges to land and may not be granted for discharges to surface waters or conveyances thereto that are subject to the federal CWA requirements for NPDES permits.

Well drilling would generate muds and clay slurry. In the case of muds, the threat to water quality of such materials depends primarily on the additives used. If the slurry material to be spread is free of appreciable additives (additive quantities in conformance with industry standards), the used slurry may be spread on pastures or fields, provided that contact with surface water is avoided and runoff is prevented (RWQCB, 2014a). The muds and clay slurry generated during the drilling and development of the Proposed Project's injection wells would fall under the category of "Water Supply Well Drilling Muds" in the General Waiver.

The water extracted during well development falls under the category of "water supply discharges" in the General Waiver (RWQCB, 2014a). Water supply discharges that would occur under the Proposed Project include all water produced during well drilling and development. Under the General Waiver, these discharges would be waived from waste discharge requirements and from the requirement of submitting a waste discharge report; however, they would be subject to the following conditions (RWQCB, 2014a):

Water Supply Well Drilling Muds

- The discharge shall be spread over an undisturbed, vegetated area capable of absorbing the top-hole water and filtering solids in the discharge, and spread in a manner that prevents a direct discharge to surface waters.
- The pH of the discharge shall be between 6.5 and 8.3.
- The discharge shall not contain oil or grease.
- The discharge area shall not be within 100 feet of a stream, body of water, or wetland, nor within streamside riparian corridors.

Water Supply Discharges

- The discharger shall implement appropriate management practices to dissipate energy and prevent erosion.
- The discharger shall implement appropriate management practices to preclude discharge to surface waters and surface water drainage courses.
- The discharger shall immediately notify the Central Coast RWQCB staff of any discharge to surface waters or surface water drainage courses. The discharge shall not have chlorine or bromine concentrations that could impact groundwater quality.
- The discharge area shall not be located within 100 feet of a stream, body of water, or wetland.

Anti-degradation Policies

California's anti-degradation policies are found in Resolution 68-16, Policy with Respect to Maintaining Higher Quality Waters in California, and Resolution 88-63, Sources of Drinking

Water Policy.[6] These resolutions are binding on all State agencies. They apply to both surface waters and groundwaters, protect both existing and potential beneficial uses of surface water and groundwater, and are incorporated into RWQCB Basin Plans. These policies apply to the projects components that may affect water quality, including the Injection Well Facilities (as discussed in detail in **Chapter 3**, and **Section 4.10, Hydrology and Water Quality: Groundwater**, and other impacts addressed in **Section 4.11.4, below**.

Resolution 68-16 (Anti-degradation Policy)

The Anti-degradation Policy requires that existing high water quality be maintained to the maximum extent possible, but allows lowering of water quality if the change is “consistent with maximum benefit to the people of the state, will not unreasonably effect present and anticipated use of such water (including drinking), and will not result in water quality less than prescribed in policies.” The Anti-degradation Policy also stipulates that any discharge to existing high quality waters will be required to “meet waste discharge requirements which will result in the best practicable treatment or control of the discharge to ensure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.”

Resolution 88-63 (Sources of Drinking Water Policy)

The Sources of Drinking Water Policy designates the municipal and domestic supply (MUN) beneficial use for all surface waters and groundwater except for those: (1) with total dissolved solids (TDS) exceeding 3,000 mg/L, (2) with contamination that cannot reasonably be treated for domestic use, (3) where there is insufficient water supply, (4) in systems designed for wastewater collection or conveying or holding agricultural drainage, or (5) regulated as a geothermal energy producing source. Resolution 88-63 addresses only designation of water as drinking water source; it does not establish objectives for constituents that threaten source waters designated as MUN.

City of Salinas Discharge Permits

The Salinas Treatment Facility operates under a Waste Discharge Requirements Order R3-2003-0008 issued in 2002 by the RWQCB. The treatment facility is designed and permitted for an average daily flow of 4.0 MGD with a peak flow of 6.8 MGD. The system operates year round with higher flows in the spring and summer months due to the significant increase in agricultural product processing. The City also has an NPDES permit (number CA0049981, order R3-2012-0005) for municipal stormwater discharges.

Coastal Zone Act Reauthorization Amendments (CZARA) Section 6217

The Coastal Nonpoint Pollution Control Program (Section 6217) addresses nonpoint pollution problems in coastal waters. Section 6217 requires states and territories with approved Coastal Zone Management Programs to develop Coastal Nonpoint Pollution Control Programs. In its program, a state or territory describes how it will implement nonpoint source pollution controls, known as management measures, that conform with those described in Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. This program is administered jointly with the NOAA. As of 2008, 34 states and territories participate in this program.

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[6] See http://www.swrcb.ca.gov/plans_policies/.

Flood Regulations

The Federal Emergency Management Agency (FEMA) is tasked with responding to, planning for, recovering from, and mitigating against disasters. FEMA is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers and approved agencies' studies; for coordinating the federal response to floods, earthquakes, hurricanes, and other natural or man-made disasters; and for providing disaster assistance to states, communities and individuals. FEMA prepares and distributes the Flood Insurance Rate Maps, which are used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including the 100-year flood zone. As shown in **Figure 4.11-7**, the following Proposed Project components would be located partially within 100-year flood zones:

- All Source Water Diversion and Storage Sites: Salinas Pump Station, Salinas Treatment Facility Storage and Recovery, Reclamation Ditch, Tembladero Slough, Blanco Drain, and Lake El Estero
- Product Water Conveyance Pipeline Alignment (small portions of both alignments)
- CalAm Distribution System: Monterey Pipeline (portions)

These facilities comprise diversion structures, wet wells, pumps, and pipelines. Neither the Treatment Facilities at the Regional Treatment Plant nor the Injection Well Facilities would be located within the 100-year flood zone.

National Marine Sanctuary Program Regulations

The National Oceanic and Atmospheric Administration has entered into a Memorandum of Agreement with the state of California, Environmental Protection Agency, and the Association of Monterey Bay Area Governments regarding the Monterey Bay National Marine Sanctuary regulations relating to water quality within state waters within the sanctuary (Monterey Bay National Marine Sanctuary, 2008). The Memorandum of Agreement provides for Monterey Bay National Marine Sanctuary review authority for the following permits within the Sanctuary:

- National Pollutant Discharge Elimination System permits issued by the State of California under Section 13377 of the California Water Code; and
- Waste Discharge Requirements issued by the State of California under Section 13263 of the California Water Code.

The Memorandum of Agreement specifies how the review process for applications for leases, licenses, permits, approvals, or other authorizations will be administered within State waters within the Sanctuary in coordination with the State permit program.

The Monterey Bay National Marine Sanctuary also implements a separate Water Quality Protection Program for the Sanctuary and tributary waters. The program is a partnership of 27 local, state, and federal government agencies (Monterey Bay National Marine Sanctuary, 2008). The program calls for education, funding, monitoring, and development of treatment facilities and assessment programs to protect water quality. The goal of the program is to enhance and protect the chemical, physical, and biological integrity of the Sanctuary. The only Proposed Project component subject to National Marine Sanctuary regulations would be any changes to MRWPCA's Regional Treatment Plant discharge permit that may be required due to the discharge of reverse osmosis concentrate using the Regional Treatment Plant ocean outfall.

Plans/Programs

Water Quality Control Plan (Basin Plan)

The Central Coast Regional Water Quality Control Board (RQWQCB) updated their Water Quality Control Plan for the Central Coastal Basin (Basin Plan) in 2011. It is intended to provide guidance on how the quality of the surface water and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan serves as a guidance document to the Water Board when reviewing and authorizing projects under their Section 401 authority.

The RWQCB establishes beneficial uses of surface and groundwater resources, as contained in its Water Quality Control Plan for the Central Coast. **Table 4.11-3** summarized beneficial uses identified for surface waters in the project area.

Ocean Plan

The Water Quality Control Plan for Ocean Waters of California (or Ocean Plan), adopted by the State Board in 2012, establishes water quality objectives and beneficial uses for waters of the Pacific Ocean adjacent to the California coast outside of estuaries, coastal lagoons, and enclosed bays. The Ocean Plan objectives for ocean discharges were adopted to preserve the quality of the ocean water for beneficial uses, including the protection of both human and aquatic ecosystem health. The plan establishes effluent quality requirements and management principles for specific waste discharges. The water quality requirements and objectives are incorporated into all NPDES permits. The Ocean Plan objectives relevant to the Proposed Project include:

- Marine communities, including vertebrate, invertebrate, and plant species shall not be degraded;
- Waste management systems that discharge into the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community; and
- Waste discharged to the ocean must be essentially free of substances that will accumulate to toxic levels in marine waters, sediments or biota.

The Ocean Plan establishes objectives for many bacterial, physical, chemical, biological, and radioactive parameters. Although not applicable to the AWT Facility reverse osmosis concentrate, there is no Ocean Plan objective specifically applicable to the discharges from an advanced water treatment processes. However, State Board staff is developing an amendment to the Ocean Plan that would address issues associated with desalination facilities and the disposal of brine discharges from other sources.[7] Currently, the Water Boards regulate brine discharges from these types of facilities through the issuance of NPDES permits that contain conditions protective of aquatic life. In March 2015, State Board staff released draft Ocean Plan amendments related to desalination for public review. They are currently scheduled for State Board approval in July 2015 (RWQCB, 2014b)

[7] These are not applicable to the Proposed Project; however are included due to the assessment of impacts under the cumulative conditions in **Section 4.11.4.5.**

For typical wastewater discharges, when released from an outfall, the wastewater and ocean water undergo rapid mixing due to the momentum and buoyancy of the discharge.[8] The mixing occurring in the rising plume is affected by the buoyancy and momentum of the discharge, a process referred to as initial dilution. The Ocean Plan objectives are to be met after the initial dilution of the discharge into the ocean. The initial dilution occurs in an area known as the zone of initial dilution (ZID). The extent of dilution in the ZID is quantified as the minimum probable initial dilution (D_m). The water quality objectives established in the Ocean Plan are adjusted by the D_m to derive the NPDES ocean discharge limits for a wastewater discharge prior to ocean dilution. The current MRWPCA wastewater discharge is governed by NPDES permit R3-2014-0013 issued by the Central Coast RWQCB that is based on the Ocean Plan objectives.

Marine Life Protection Program and other Ocean Protection/Conservation Programs

The Monterey Bay is the portion of the Pacific Ocean to which surface water runoff from the Proposed Project area would flow. The Monterey Bay in the vicinity of the Proposed Project includes the following designated conservation/protected areas (the agency that created the designation is in parentheses):

- Monterey Bay National Marine Sanctuary (National Oceanic and Atmospheric Administration),
- California Critical Coastal Areas (California Coastal Commission),
- Areas of Special Biological Significance (State Water Resources Control Board), and
- Marine Protected Areas (California Department of Fish and Game), including the Pacific Grove State Marine Conservation Area (SMCA), Lovers Point-Julia Platt State Marine Reserve (SMR), Edward Ricketts SMCA, Hopkins State Marine Reserve, Elkhorn Slough SMCA, Moro Cojo SMR, Elkhorn Slough SMR, Carmel Bay SMCA and Point Lobos SMCA in the Proposed Project area.

Additional information about the Marine Life Protection Act and the Marine Protected Areas is provided in **Section 4.13, Marine Biological Resources**.

4.11.3.2 Regional and Local

City of Salinas Stormwater Permit

The City of Salinas is subject to a waste discharge permit for their municipal storm water discharges (Order No. R3-2012-0005 NPDES Permit No. CA0049981). This Order incorporates BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable. These BMPs include erosion control, sediment control, and construction site waste management practices; the implementation of good housekeeping practices designed to control pollutants at the source, promote the use of proper waste management practices, and implement control practices to keep pollutants away from any entrance to the storm drainage system; requirements for new development and redevelopment designed to preserve pre-developed hydrologic and pollutant conditions; and requirements for development planning, and watershed characterization.

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[8] Municipal wastewater effluent, being effectively fresh water, is less dense than seawater and thus rises (due to buoyancy) while it mixes with ocean water.

Monterey Regional Stormwater Management Program

The Monterey Regional Stormwater permit (Order No. 2013-0001 DWQ effective July 1, 2013) regulates stormwater discharges from small municipal separate storm sewer systems (MS4)[9] that include the County of Monterey and cities in the project area. To comply with the stormwater permit, the County of Monterey and the cities of Carmel-by-the-Sea, Del Rey Oaks, Marina, Monterey, Pacific Grove, Sand City, and Seaside formed the Monterey Regional Stormwater Management Program. The MRWPCA acts as the administrative agent for the Monterey Regional Stormwater Management Program. The purpose of the Monterey Regional Management Program is to implement and enforce a series of BMPs to reduce the discharge of pollutants from the small municipal storm sewer systems to meet the requirements of the Statewide Phase 2 MS4 permit and to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. Construction of the Proposed Project facilities that would affect stormwater runoff and quality would be subject to the local stormwater control requirements in addition to the General Construction Permit.

Monterey County General Plan

Goals and policies regarding conservation and preservation of hydrologic resources and water quality and associated developmental constraints are found in Chapter 4 of the Monterey County General Plan (2010). The following goals and policies are relevant to the Proposed Project:

Goal S-3: Ensure effective storm drainage and flood control to protect life, property, and the environment.

Policy S-3.7: The MCWRA shall prepare a Flood Criteria or Drainage Design Manual that establishes floodplain management policies, drainage standards and criteria, stormwater detention, and erosion control and stormwater quality protection measures in order to prevent significant impacts from flooding and ensure that development does not increase flooding risk over present conditions. The manual shall include, as appropriate, hydrologic and hydraulic analysis procedures, procedures to assess stream geomorphology and stability, potential development impacts on streams, and design guidelines for channel design, including biotechnical bank stabilization. Until the Drainage Design Manual is prepared, the County shall continue to apply existing policies and ordinances to manage floodplains and minimize flood risk, erosion control, and water quality impacts.

Floodplain Management Plan

The Monterey County Floodplain Management Plan was first developed in 2002, and subsequently updated in 2008, to identify the flooding sources affecting properties, and to establish an implementation plan to reduce flooding and flood related hazards, and to ensure the natural and beneficial functions of our floodplains are protected. This requires utilization of existing programs and resources, involving those public agencies responsible for regulating development in special flood hazard areas in the planning process, and ensuring that the policies and programs identified in the implementation plan are carried out. The 2008 Floodplain Management Plan update was prepared by the MCWRA Floodplain Management and

[9] USEPA promulgated regulations, known as Phase II, requiring permits for stormwater discharges from Small MS4s (that serve a population of up to 100,000) and from construction sites disturbing between one and five acres of land (discussed under General Construction Permit above).

Development Review Section under the supervision of the Monterey County Floodplain Administrator. Monterey County has been a voluntary participant in the Community Rating System since October 1, 1991. The 2008 Floodplain Management Plan identified 107 Repetitive Loss Properties in Monterey County.

Local Codes

This section describes the local municipal and Monterey County codes relevant to surface water hydrology and water quality.

Monterey County Code

The following chapters in the Monterey County code (2013) have provisions relevant to hydrology, water quality, and flooding in the project area:

- Chapter 16.08 (Grading) sets rules and regulations to control all grading, including excavations, earthwork, road construction, fills and embankments, and establishes the administration procedure for issuance of permits; and provides for approval of plans and inspections of grading construction.
- Chapter 16.12 (Erosion Control) requires that specific design considerations be incorporated into projects to reduce the potential of erosion and that an erosion control plan be approved by the County prior to initiation of grading activities.
- Chapter 16.16 (Development of Floodplains) establishes methods of reducing flood losses such as controlling the alteration of natural floodplains and requiring new construction in the floodplain to incorporate floodproofing measures (Floodplain regulations in the county extend to areas within 200 feet of rivers or within 50 feet of watercourses).

City of Marina Municipal Code

The following chapters in the Marina City code (2007) have provisions relevant to flooding and erosion control in the project area:

- Chapter 15.48 (Flood Damage Protection) sets requirements for new stormwater drainage facilities, including within special flood hazard areas (i.e., subject to 1% or greater change of flooding in a given year, which is the FEMA 100-year floodplain).
- Chapter 16.08.080 (Erosion Control) requires implementation of silt basins, structures, planting, or other forms of erosion control when deemed necessary by the Planning Commission.

City of Seaside Municipal Code

The following chapter in the Seaside City code (2011) has provisions relevant to surface water hydrology and water quality in the project area:

Chapter 8.46 under Title 8, Health and Safety (Urban Stormwater Quality Management and Discharge Control) would apply to all water entering the storm drain system generated on any developed and undeveloped lands lying within the city. The chapter lists requirements to prevent, control, and reduce stormwater pollutants, protect water courses, and notify emergency response officials in the event of a chemical release. Seaside Municipal Code Section 15.32, "Standards to Control Excavation, Grading, Clearing and Erosion," sets forth guidelines, rules, regulations and minimum standards to control excavation, grading, clearing, erosion control and maintenance, including cut and fill embankments; requires control of all existing and potential conditions of accelerated erosion; establishes administrative procedures for issuance of permits; and provides for approval of plans and inspections during construction and maintenance.

City of Sand City Municipal Code

The following title in the Sand City code (2011) has provisions relevant to stormwater management in the project area:

Title 13 (Public Services), Chapter 13.05 (Stormwater Management) intends to protect and enhance surface water quality by reducing pollutants in stormwater discharges to the maximum extent practicable and by prohibiting non-stormwater discharges to the storm drain system. The chapter applies to all water entering the storm drain system generated on any developed and undeveloped lands lying within the Sand City. For example, Section 13.05.060 prohibits non-stormwater discharges or any illegal discharges into municipal storm drain systems or water courses. Section 13.05.100 requires prevention, control, and reduction of stormwater pollutants, which apply to construction sites.

City of Monterey Municipal Code

The following chapters in the City of Monterey Municipal code (2013) have provisions relevant to surface water hydrology and water quality in the project area:

Chapter 9 (Building Regulations, Article 7 Flood Damage Prevention), Section 9-70.1 (Establishment of Development Permit) requires a Development Permit prior to the start of construction within special flood hazard areas, as established in Section 9-69. The Development Permit application can be obtained from the Floodplain Administrator. As part of the application process, applicants must provide a scaled site plan prepared by a registered civil engineer that shows: the nature, location, dimensions, and elevations of the area in question; existing and proposed structures; cut and fill areas; stockpile and storage areas; and site drainage.

Chapter 31 (Stormwater Management Utility, Article 2.Urban Stormwater Quality Management and Discharge Control), Section 31.5-15 (Requirement to Prevent, Control, and Reduce Storm Water Pollutants, New Development and Redevelopment) includes that the City may require any owner or person developing real property to identify appropriate BMPs to control the volume, rate, and potential pollutant load of stormwater runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants. The City shall incorporate such requirements in any land use entitlement and construction or building-related permit to be issued relative to such development or redevelopment. The owner and developer shall comply with the terms, provisions, and conditions of such land use entitlements and building permits as required in this Article and the City Stormwater Utility Ordinance, Chapter 31.5, Article 1. The requirements may also include a combination of structural and non-structural BMPs along with their long-term operation and maintenance.

City of Pacific Grove Municipal Code

The following chapters in the City of Pacific Grove City municipal code (2013) have provisions relevant to hydrology, water quality, and flooding in the project area:

Chapter 11.97 (Community Floodplain) in Section 11.97.120 (Standards of Construction) states that if a proposed building site is in a flood-prone area, all new construction and substantial improvements, including manufactured homes, shall:

a. Be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; and

b. Be constructed:

   1. With materials and utility equipment resistant to flood damage;
   2. Using methods and practices that minimize flood damage; and
   3. With electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

Plans and Policies Consistency Analysis

Table 4.11-12 describes the state, regional, and local land use plans, policies, and regulations pertaining to hydrology and water quality of surface and marine waters that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.11-12** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.11.4, Environmental Impacts and Mitigation Measures,** for additional discussion, including the relevant impact determination and mitigation measures.

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Table 4.11-12
Applicable Local Land Use Plans, Policies, and Regulations – Hydrology and Water Quality: Surface Water

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
County of Monterey (coastal zone and inland areas)	Monterey County Code	Chapter 16.08 – Grading	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Chapter 16.08** – The Monterey County Grading Ordinance generally regulates grading activities that involve more than 100 cubic yards of excavation and fill. Minor fills and excavations ("cuts") of less than 100 cubic yards that are not intended to provide foundations for structures, or that are very shallow and nearly flat, are typically exempt from the ordinance, as are shallow footings for small structures. Submittal requirements for a County grading permit include site plans, existing contours and proposed contour changes, an estimate of the volume of earth to be moved, and geotechnical (soils) reports. Grading activities that involve over 5,000 cubic yards of soil must include detailed plans signed by a state-licensed civil engineer. Grading is not allowed to obstruct storm drainage or cause siltation of a waterway. All grading requires implementation of temporary and permanent erosion-control measures. Grading within 50 feet of a watercourse, or within 200 feet of a river, is regulated in the Monterey County Zoning Ordinance floodplain regulations. The Monterey County Grading Ordinance requires a soil engineering and engineering geology report (Section 16.08.110: Permit – Soil Engineering and Engineering Geology Reports [Ordinance 4029, 1999; Ordinance 2534, Section 110, 1979], unless waived by the Building Official because information of record is available showing such data is not needed. The soil engineering and engineering geology report must include the following: Data regarding the properties, distribution and strength of existing soils b. Recommendations for grading and corrective measures for project design, as appropriate c. The recommendations from the soil engineering and engineering geology report must be incorporated in the grading plans and construction specifications.	**Consistent:** The Proposed Project would be subject to the State Construction General Permit, which requires the implementation of specific construction-related BMPs to minimize erosion and soil loss, and prevent stormwater pollutants from leaving the construction sites.
County of Monterey (coastal zone and inland areas)	Monterey County Code	Chapter 16.12 – Erosion Control	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Chapter 16.12 – Erosion Control.** Requires that specific design considerations be incorporated into projects to reduce the potential of erosion and that an erosion control plan be approved by the County prior to initiation of grading activities.	**Consistent:** The Proposed Project would be subject to the State Construction General Permit, which requires the implementation of specific construction-related BMPs to minimize erosion and soil loss, and prevent stormwater pollutants from leaving the construction sites.
County of Monterey (coastal zone and inland areas)	Monterey County Code	Chapter 16.16 – Develop-ment of Floodplain s	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Chapter 16.16 – Development of Floodplains**. Establishes methods of reducing flood losses such as controlling the alteration of natural floodplains and requiring new construction in the floodplain to incorporate flood-proofing measures (Floodplain regulations in the county extend to areas within 200 feet of rivers or within 50 feet of watercourses).	**Consistent**: Although aboveground facilities or developments are proposed under the Proposed Project that would be located in 100-year floodplain areas all of the facilities would conform to the guidelines of the FEMA and National Flood Insurance Program and ordnances of the County, as applicable.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conser-vation and Open Space	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy OS-3.3**: Criteria for studies to evaluate and address, through appropriate designs and BMPs, geologic and hydrologic constraints and hazards conditions, such as slope and soil instability, moderate and high erosion hazards, and drainage, water quality, and stream stability problems created by increased stormwater runoff, shall be established for new development and changes in land use designations.	**Consistent**: The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ and NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041]), which require implementation of BMPs and measures to control and reduce erosion and pollutant discharge. The State requirements are incorporated in the County's Municipal Code and the municipal stormwater permit.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conser-vation and Open Space	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy OS-4.2**: Direct and indirect discharges of harmful substances into marine waters, rivers or streams shall not exceed state or federal standards.	**Consistent**: The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ and NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041], NPDES No. CAS000004 and Order No. R3-2014-0013, NPDES Permit No. CA0048551 for the Monterey Regional Water Pollution Control Agency Treatment Plant), which require implementation of BMPs and measures to control and reduce pollutants in the point and nonpoint discharges (e.g., stormwater runoff and brine discharge) from project facilities. The State requirements are incorporated in the County's Municipal Code and the municipal stormwater permit, and would be incorporated into any new permits obtained prior to project operation such as the NPDES permit for discharges from the existing MRWPCA outfall.
County of Monterey (coastal zone and inland	Monterey County General Plan	Conser-vation and Open Space	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion	**Policy OS-4.3**: Estuaries, salt and fresh water marshes, tide pools, wetlands, sloughs, river and stream mouth areas, plus all waterways that drain and have impact on State Monterey County General Plan designated Areas of Special Biological Significance (ASBS) shall be protected, maintained, and preserved in accordance with state and federal water quality regulations.	**Consistent**: The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ and NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041], NPDES No. CAS000004 and Order No. R3-2014-0013, NPDES Permit No. CA0048551 for the Monterey Regional Water Pollution Control Agency Treatment

Table 4.11-12
Applicable Local Land Use Plans, Policies, and Regulations – Hydrology and Water Quality: Surface Water

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
areas)			Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option		Plant), which require implementation of BMPs and measures to control and reduce pollutants in the discharges from project facilities, which eventually drain into the designated ASBSs. The State requirements are incorporated in the County's Municipal Code and the municipal stormwater permit, and would be incorporated into any new permits obtained prior to project operation such as the NPDES permit for discharges into Bay through the existing MRWPCA outfall.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-2.3**: All new development, including filling, grading, and construction, within designated 100-year floodplain areas shall conform to the guidelines of FEMA and the National Flood Insurance Program and ordinances established by the County Board of Supervisors. With the exception of the construction of structures, Routine and Ongoing Agricultural Activities shall be exempt from this policy.	**Consistent**: Although aboveground facilities or developments are proposed under the Proposed Project that would be located in 100-year floodplain areas all of the facilities would conform to the guidelines of the FEMA and National Flood Insurance Program and ordnances of the County, as applicable.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-2.6**: Drainage and flood control improvements needed to mitigate flood hazard impacts associated with potential development in the 100-year floodplain shall be determined prior to approval of new development and shall be constructed concurrently with the development.	**Consistent**: Although aboveground facilities or developments are proposed under the Proposed Project that would be located in 100-year floodplain areas all of the facilities would conform to the guidelines of the FEMA and National Flood Insurance Program and ordnances of the County, as applicable.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-2.8**: Alternative project designs and densities to minimize development in the floodplain shall be considered and evaluated	**Consistent**: Although aboveground facilities or developments are proposed under the Proposed Project that would be located in 100-year floodplain areas all of the facilities would conform to the guidelines of the FEMA and National Flood Insurance Program and ordnances of the County.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-3.1**: Post-development, off-site peak flow drainage from the area being developed shall not be greater than pre-development peak flow drainage. On-site improvements or other methods for storm water detention shall be required to maintain post-development, off-site, peak flows at no greater than predevelopment levels, where appropriate, as determined by the MCWRA.	**Consistent:** The Proposed Project would be subject to State WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ and NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041], NPDES No. CAS000004 and Order No. R3-2014-0013) which are set forth in the local municipal stormwater permit and which require implementation of site design and stormwater control measures such that post-project flow drainage from the site must match pre-project flows.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-3.2**: Best Management Practices to protect groundwater and surface water quality shall be incorporated into all development.	**Consistent**: The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs, which require implementation of BMPs and measures to control and reduce pollutants in the discharges from project facilities that could affect water quality. The State requirements are incorporated in the County's Municipal Code and the municipal stormwater permit, and would be incorporated into any new permits obtained prior to project operation. The issue of groundwater quality is addressed further in EIR Section 4.10, Hydrology and Water Quality: Groundwater.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-3.3**: Drainage facilities to mitigate the post-development peak flow impact of new development shall be installed concurrent with new development	**Consistent**: The Proposed Project would be subject to State WDRs, including the municipal stormwater permit, which require implementation of site design and stormwater control measures such that post-project flow drainage from the site must match pre-project flows.

Table 4.11-12
Applicable Local Land Use Plans, Policies, and Regulations – Hydrology and Water Quality: Surface Water

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-3.5:** Runoff Performance Standards that result in an array of site planning and design techniques to reduce storm flows plus capture and recharge runoff shall be developed and implemented, where appropriate, as determined by the MCWRA.	**Consistent:** The Proposed Project would be subject to State WDRs, the Clean Water Act Sections 404/401 and California Fish and Wildlife Code Section 1602 requirements, including the local municipal stormwater permit, which require implementation of site design and stormwater control measures such that post-project flows from the site must not exceed pre-project flows.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-3.9:** In order to minimize urban runoff affecting water quality, the County shall require all future development within urban and suburban areas to implement Best Management Practices (BMPs) as approved in the Monterey Regional Storm Water Management Program which are designed to incorporate Low Impact Development techniques. BMPs may include, but are not limited to, grassy swales, rain gardens, bioretention cells, and tree box filters. BMPs should preserve as much native vegetation as feasible possible on the project site.	**Consistent:** The Proposed Project would be subject to General Construction Permit, State WDRs (set forth in the local municipal stormwater permits), the Clean Water Act Sections 404/401 and California Fish and Wildlife Code Section 1602 requirements, including implementation of construction management (i.e., BMPs). Site design and stormwater control and treatment measures (including LID measures where necessary) to control any pollutant discharges through the runoff and to minimize site runoff such that the post-project flows from the site must not exceed pre-project flows.
County of Monterey (coastal zone)	North County Land Use Plan	Land Use and Develop-ment	Tembladero Slough Diversion Coastal Alignment Option	**Key Policy 4.3.4**: All future development within the North County coastal segment must be clearly consistent with the protection of the area's significant human and cultural resources, agriculture, natural resources, and water quality.	**Consistent**: The Proposed Project would be implemented in conformance of State Construction General Permit and WDRs set forth in the local municipal code and stormwater permit. The WDR requirements would be incorporated into any new permits obtained prior to project operation, such as minimizing erosion and sediment control and runoff. The project's implications for cultural, agricultural, and terrestrial biological resources are discussed in EIR Sections 4.6, 4.12, and 4.5, respectively. Specifically, please refer to the policy consistency tables in those sections for additional discussion of the project's conformity with applicable North County Land Use Plan policies governing these resource areas, respectively.
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Communit y Design and Develop-ment	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (RUWAP alignment)	***Policy 4.125:*** Approval of all future uses and construction within the Marina Planning Area shall be contingent upon compliance with the following policies and conditions intended to protect the quality of the area's water resources, avoid unnecessary consumption of water, and ensure that adequate water resources are available for new development.	**Consistent:** The Proposed Project would be constructed in conformance with the State Construction General Permit and WDRs, which require the implementation of specific construction-related BMPs to prevent concentrated stormwater run-on/runoff, soil erosion, and release of construction site contaminants. The Proposed Project would be operated in conformance with State WDRs under the NPDES Phase II Permit (Order No. 2013-001-DWQ, NPDES No. CAS000004), which regulates stormwater discharge into storm sewer systems. Please see Section 4.18 Water Supply and Wastewater for additional information on water use. The issue of groundwater levels is addressed further in Section 4.10 Hydrology and Water Quality: Groundwater. The project would not have adverse effects on groundwater levels such that mitigation would be required to ensure conformity with applicable plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect.
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Storm Drainage	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (RUWAP alignment)	***Policy 3.57 (1):*** All storm water runoff shall continue to be retained onsite and accommodated by localized retention basins. Retention basins associated with a particular project shall be landscaped with appropriate plant materials and shall be designed wherever possible as integral parts of a development project's common open space or parks, or to create new or enhance existing habitat. All onsite drainage facilities shall be designed to convey runoff from a 10-year frequency storm at minimum. In areas of the City where recycled water will not be readily available, the City encourages the provision of storm water reuse facilities of sufficient size to provide for landscape irrigation of development in proximity to retention basins. The adequacy of onsite and off-site drainage facilities shall be determined through the preparation of storm drainage reports and plans, approved by the City Public Works Director; such reports and plans shall be required for all new subdivisions and new commercial/industrial development proposed in Marina.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004) which require the implementation of specific BMPs and measures to manage stormwater. The Proposed Project would be subject to MRSWMP, which requires stormwater control requirements under the MS4 permit and implementation of erosion and stormwater control measures. The State requirements are incorporated in the municipal stormwater permit. The proposed Product Water Conveyance pipeline (RUWAP and Coastal options) components within Marina would be buried below ground surface and not create new impervious surfaces that would increase uncontrolled stormwater runoff.
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Storm Drainage	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (RUWAP alignment)	***Policy 3.57 (2):*** Pretreatment of stormwater runoff from roads, large parking areas, and other extensive paved areas used by vehicles shall be provided using appropriate means such as primary settlement structures, routing through settlement ponds, or routing through adequately long natural swales or slopes. In addition, all development plans shall conform to the requirements of the City's National Pollution Discharge Elimination System permit and City ordinances, and all subdivisions and new commercial/industrial development shall identify Best City of Marina General Plan 74 Management Practices (BMP's) appropriate or applicable to uses conducted onsite to effectively prevent the discharge of pollutants in stormwater runoff. 3. Stormwater systems shall be constructed in a manner which prevents soil erosion. Appropriate measures to avoid such impacts include the dispersal of runoff, installation of energy dissipaters where dispersal is not practical and concentration of runoff water is necessary, and retention of vegetation or revegetation of affected surfaces.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004) which require the implementation of specific BMPs and measures to manage stormwater. The State requirements are incorporated in the municipal stormwater permit. The Proposed Project would be subject to the MRSWMP requirements under the MS4 permit and would be required to implement erosion and stormwater control measures. The Proposed Project components within Marina would be buried below the ground surface and would not create new impervious surfaces that would increase stormwater runoff.
City of Marina (coastal zone and	Marina Municipal Code	Chapter 15.48 – Flood Damage	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (RUWAP alignment)	***Chapter 15.48 – Flood Damage Prevention*** states provisions for flood prevention and reduction of flood hazards. A special flood hazard area is an area that is subject to one percent or greater change of flooding in a given year, which is the FEMA 100-year floodplain. The code also sets requirements for new storm drainage facilities.	**Consistent:** Within the city of Marina, portions of the Product Water Conveyance alignment would be constructed in a 100-year flood hazard area. However, except for the electrical control building and electrical control panel for the Booster Pump Station, the pipelines would be placed underground and would not impede or redirect flood flows. The aboveground facilities would be built such that the sites would lie above

Table 4.11-12
Applicable Local Land Use Plans, Policies, and Regulations – Hydrology and Water Quality: Surface Water

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
inland areas)		Prevention			the flood elevation levels and the site design would be such that the project facilities would not impede or redirect flood flows in that area.
City of Marina (coastal zone and inland areas)	Marina Municipal Code	Chapter 16.08 – Design Require-ment by Type of Subdivisio n	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (RUWAP alignment)	***Section 16.08.080 (F) Erosion Control.*** [Implement] silt basins, structures, planting or other forms of erosion control when necessary in the opinion of the Planning Commission.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004) which require the implementation of specific BMPs and measures to manage stormwater. The State requirements are incorporated in the municipal stormwater permit. The Proposed Project would be subject to MRSWMP, which requires stormwater control requirements under the MS4 permit and implementation of erosion control measures.
City of Marina (coastal zone and inland area)	Marina Municipal Code	Title 8 – Health and Safety	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (RUWAP alignment)	***Section 8.46.130 Requirement to prevent, control, and reduce storm water pollutants (b) Responsibility to Implement Best Management Practices.*** Notwithstanding the presence or absence of BMP requirements promulgated pursuant to subparagraphs (a), (b), (c), and (d) of this section, each person engaged in activities or operations, or owning facilities or property which will or may result in pollutants entering storm water, the storm drain system, or waters of the U.S. shall implement best management practices to the extent they are technologically achievable to prevent and reduce such pollutants. The owner or operator of each commercial or industrial establishment shall provide reasonable protection from accidental discharge of prohibited materials or other wastes into the city storm drain system and/or watercourses. Facilities to prevent accidental discharge of prohibited materials or other wastes shall be provided and maintained at expense of the owner or operator.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004) that require implementation of specific BMPs and measures to manage stormwater. The State requirements are incorporated in the municipal stormwater permit. The Proposed Project would be subject to MRSWMP, which requires stormwater control requirements under the MS4 permit and implementation of erosion and stormwater control measures to protect water quality.
City of Marina (coastal zone & inland area)	Marina Municipal Code	Title 8 – Health and Safety	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (RUWAP alignment)	***Section 8.46.130 Requirement to prevent, control, and reduce storm water pollutants © Construction Sites.*** The city's BMP Guidance Series will include appropriate best management practices to reduce pollutants in any storm water runoff from construction activities. The city shall incorporate such requirements in any land use entitlement and construction or building-related permit to be issued relative to such development or redevelopment. The owner and developer shall comply with the terms, provisions, and conditions of such land use entitlements and building permits as required in this chapter and the city storm water utility ordinance. Construction activities subject to BMP requirements shall continuously employ measures to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality, contamination, or unauthorized discharge of pollutants.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004) that require implementation of specific BMPs and measures to manage stormwater. The Proposed Project would be subject to MRSWMP, which requires stormwater control requirements under the MS4 permit and implementation of erosion and stormwater control measures and to prevent concentrated stormwater run-on/runoff, soil erosion, and release of construction site contaminants to protect water quality.
City of Marina (coastal zone)	Marina Local Coastal Program Land Use Plan	Policy	RUWAP Alignment Option Coastal Alignment Option	**Policy 17.** To insure protection and restoration of ocean's water quality and biological productivity.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (the NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004), which require implementation of specific construction-related BMPs to prevent concentrated stormwater run-on/runoff, soil erosion, and release of construction site contaminants to protect water quality. The ocean discharges from the Proposed Project would meet Ocean Plan objectives.
Coastal Com-mission Original Jurisdiction	California Coastal Act	Marine Environ-ment	Treatment Facilities at the Regional Treatment Plant Transfer Pipeline Monterey Pipeline	***Section 30231: Biological Productivity; Water Quality.*** The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (the NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004 and Order No. R3-2014-0013, NPDES Permit No. CA0048551 for the Monterey Regional Water Pollution Control Agency Treatment Plant), which require implementation of BMPs and measures to prevent water pollution and control any pollutant discharge so as to protect water quality. The issue of aquatic biological productivity is addressed further in EIR Sections 4.13, Marine Biological Resources, and 4.6, Biological Resources: Terrestrial. The Proposed Project would meet Ocean Plan objectives at the edge of the zone of initial dilution as discussed further in Section 4.11.4, under Impact HS-5.
City of Monterey (coastal zone & inland area)	Monterey City Code	Chapter 31.5 – Storm Water Manage-ment	Monterey Pipeline Lake El Estero Diversion	***Section 31.5-12. Prohibitions of Illegal Discharges.*** No person or entity shall discharge or cause to be discharged into the municipal Storm Drain System or waters of the state, any materials, including but not limited to Pollutants or waters containing any Pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and the Chapter 31.5 of the City Code, which require the implementation of specific construction-related BMPs to prevent erosion and the release of contaminants to protect water quality.
City of Monterey (coastal zone & inland area)	Monterey City Code	Chapter 31.5 – Storm Water Manage-ment	Monterey Pipeline Lake El Estero Diversion	***Section 31.5-12. Requirement to Prevent, Control, and Reduce Storm Water Pollutants***. © Construction Sites. BMPs to reduce pollutants in any storm water runoff activities shall be incorporated in any land use entitlement and/or construction or building-related permit. The owner and developer shall comply with the terms, provisions, and conditions of such land use entitlements and/or building permits as required by the City and as required by the NPDES General Permit and as amended thereto.	**Consistent**: The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and the Chapter 31.5 of the City Code, which require the implementation of specific construction-related BMPs to prevent erosion and the release of contaminants.
City of Monterey (coastal zone)	Monterey Harbor Land Use Plan	Natural Marine Resource and Habitat	Monterey Pipeline	***Policy 3.s.*** BMPs shall be incorporated into the project design in the following progression: ***Site Design BMPs*** (any project design feature that reduces the generation of pollutants or reduces the alteration of the natural drainage features, such as minimizing impervious surfaces or minimizing grading); ***Source Control BMPs*** (practices that prevent the release of pollutants into areas where they may be carried by runoff, such as covering work areas and trash receptacles, practicing good housekeeping, and minimizing the use	**Consistent:** The Monterey Pipeline would be located below ground and would not include new impervious surfaces that would affect stormwater quality or quantity. In addition, the Proposed Project would be subject to the State Construction General Permit and the Chapter 31.5 of the City Code, which require specific construction-related BMPs to prevent stormwater pollutants from leaving the construction sites to protect water quality.

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Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
		Areas		of irrigation and gardening chemicals); ***Treatment Control BMPs*** (a system designed to remove pollutants from runoff including the use of gravity settling, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process).	
City of Monterey (coastal zone)	California Coastal Act	Marine Environment	Monterey Pipeline	***Section 30232: Oil and hazardous substance spills.*** Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.	**Consistent:** The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs which require implementation of measures to control and minimize any spills from chemicals such as oils that could be used or handled during construction or operations. See Section 4.9, Hazards and Hazardous Materials for more information.
City of Monterey (coastal zone and inland areas)	Monterey City Code	Chapter 31.5 – Storm Water Management	Monterey Pipeline and Lake El Estero Diversion	***Section 31.5-15 – Requirement to Prevent, Control, and Reduce Storm Water Pollutants. (b) New Development and Redevelopment.*** The City may require any owner or person developing real property to identify appropriate BMPs to control the volume, rate, and potential pollutant load of stormwater runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants. The City shall incorporate such requirements in any land use entitlement and construction or building-related permit to be issued relative to such development or redevelopment. The owner and developer shall comply with the terms, provisions, and conditions of such land use entitlements and building permits as required in this Article and the City Stormwater Utility Ordinance, Chapter 31.5, Article 1. The requirements may also include a combination of structural and non-structural BMPs along with their long-term operation and maintenance.	**Consistent:** Within the city of Monterey, the Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs, which require implementation of BMPs and measures to prevent water pollution and control any pollutant discharge so as to protect water quality.
City of Monterey (coastal zone and inland areas)	Monterey City Code	Chapter 9 – Building Regulations	Monterey Pipeline and Lake El Estero Diversion	***Section 9-70.1- Establishment of Development Permit.*** A Development Permit shall be obtained before construction or development begins within any area of special flood hazards established in Section 9-69. Application for a Development Permit shall be made on forms furnished by the Floodplain Administrator and may include, but not be limited to plans prepared by a registered civil engineer in duplicate drawn to scale showing the nature, location, dimensions, and elevation of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; along with their locations.	**Consistent:** No new habitable development or redevelopment is proposed within the city of Monterey. Portions of the Monterey Pipeline would be located in a 100-year flood zone. However, the pipeline would be located underground and would not subject people or property to flood hazards.
City of Monterey (coastal zone)	Del Monte Beach Coastal Land Use Plan	Local Coastal Program, Land Use Plan	Monterey Pipeline	***Policy 13:*** Any grading, excavation, or construction in conjunction with shoreline development, shall be conducted in a manner that will not impair biological productivity of the marine habitat.	**Consistent:** The Proposed Project would be constructed in conformance with the State Construction General Permit and WDRs (NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041]). See Sections 4.4, 4.5 and 4.13 for discussions of biological resources.
City of Monterey (coastal zone)	Del Monte Beach Coastal Land Use Plan	Local Coastal Program, Land Use Plan	Monterey Pipeline	***Policy 18:*** New development shall not result in the degradation of coastal waters caused by the introduction of pollutants or by changes to the landscape that adversely impact the quality, quantity, and flow dynamics of coastal waters. Runoff shall not be discharged in a manner that adversely impacts coastal waters.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041]), which require implementation of BMPs and measures to prevent water pollution and control any pollutant discharge so as to protect water quality.
City of Monterey (coastal zone)	Del Monte Beach Coastal Land Use Plan	Local Coastal Program, Land Use Plan	Monterey Pipeline	***Policy 19:*** BMPs shall be incorporated into the project design in the following progression: Site Design BMPs (any project design feature that reduces the generation of pollutants or reduces the alteration of the natural drainage features, such as minimizing impervious surfaces or minimizing grading); Source Control BMPs (practices that prevent release of pollutants into areas where they may be carried by runoff, such as covering work areas and trash receptacles, practicing good housekeeping, and minimizing use of irrigation and garden chemicals); Treatment Control BMPs (a system designed to remove pollutants from runoff including the use of gravity settling, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process). Site design and source control BMPs shall be included in all new developments. Where the development poses a threat to water quality due to its size, type of land use or proximity to coastal waters (or proximity to a creek, channel or storm drain system that leads to coastal waters) and the combination of site design and source control BMPs is not sufficient to protect water quality as required by Policy 18, treatment control BMPs shall be implemented. ***Policy 20:*** The City shall include a procedure in the Implementation Plan for reviewing all development for impacts to water quality to identify the potential water quality impacts from the development, and prescribe appropriate site design, source control or treatment control BMPs necessary to address those impacts. ***Policy 21:*** The implementation plan will include a manual of BMPs to guide project design and engineering for development within the Coastal Zone. ***Policy 22:*** Where post-construction treatment controls are required, BMPs shall be designed to infiltrate/treat the amount of stormwater runoff ; ***Policy 23:*** Under limited circumstances, where implementation of a treatment control BMP would typically be required to reduce the impacts of a development on water quality; ***Policy 24:*** The City or property owners where applicable shall be required to maintain any drainage device to ensure that it functions as designed and intended; ***Policy 25:*** Public streets and parking lots shall be swept frequently to remove debris and contaminant residue; and ***Policy 26:*** Control the buildup of plastic debris in the marine environment, the City shall require all new or improved development along the shoreline to install refuse and recycling containers at points conveniently accessible to commercial and recreational boaters, and the general public.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004 and Order No. R3-2014-0013), which require implementation of BMPs and measures to prevent water pollution and control any pollutant discharge so as to protect water quality. The State requirements are incorporated in the municipal stormwater permit. The Monterey Pipeline would be located underground and hence would have not pose a threat to water quality from new impervious surfaces.

Table 4.11-12
Applicable Local Land Use Plans, Policies, and Regulations – Hydrology and Water Quality: Surface Water

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
City of Sand City (coastal zone)		Chapter 13.05 – Storm Water Manage-ment	Transfer Pipeline Monterey Pipeline	***Chapter 13.05 Storm Water Management.*** The chapter intends to protect and enhance water quality of water courses and water bodies by reducing pollutants in stormwater discharges to the maximum extent practicable and by prohibiting non-stormwater discharges to the storm drain system. The chapter applies to all water entering the storm drain system generated on any developed and undeveloped lands lying within the Sand City. For example, Section 13.05.060 prohibits non-stormwater discharges or any illegal discharges into municipal storm drain systems or water courses. Section 13.05.100 requires prevention, control, and reduction of stormwater pollutants, which apply to construction sites.	**Consistent:** The Proposed Project would be constructed in conformance with the State Construction General Permit and WDRs (NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041]), which require implementation of BMPs and measures to control and minimize stormwater runoff discharges.
City of Sand City (coastal zone)	Sand City Local Coastal Land Use Plan	4.Coastal Resource Manage-ment	Transfer Pipeline Monterey Pipeline	***Section 30253.*** New development shall minimize risks to life and property in areas of high geologic, flood, and fire hazard.	**Consistent:** Portions of the proposed pipelines in Sand City would be located in the 100-year coastal flood areas. However, no aboveground structures or new habitable developments are proposed that would subject life or property to high flood hazard.
City of Sand City (coastal zone)	Sand City Local Coastal Land Use Plan	4.Marine and Water Resources	Transfer Pipeline Monterey Pipeline	***Policy 4.3.29.*** Protect the water quality of the ocean. Source of pollution to coastal waters shall be controlled and minimized.	**Consistent:** The Proposed Project would be constructed in conformance with the State Construction General Permit and WDRs (NPDES General Permit for Discharges with Low Threat to Water Quality and the General Waiver of WDRs for Specific Types of Discharges [Resolution R3-2014-0041]), which require implementation of BMPs and measures to control and minimize stormwater runoff and wastewater discharges and protect water quality.
City of Seaside (coastal zone)	City of Seaside Local Coastal Program Land Use Plan	Natural Hazards	Monterey Pipeline	***Coastal Act Section 30253 Minimization of adverse impacts:*** New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.	**Consistent:** The Monterey Pipeline would be constructed underground and would not impede nor redirect flood flows.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Conser-vation/ Open Space	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station sites Injection Well Facilities Transfer Pipeline Monterey Pipeline	***Policy COS.3-2:*** Work with all local, regional, State, and federal agencies to implement mandated water quality programs and regulations to improve surface water quality. *Implementation Plan COS-3.2.1: NPDES Requirements:* To reduce pollutants in urban runoff, require new development projects and substantial rehabilitation projects to incorporate Best Management Practices (BMPs) pursuant to the National Pollutant Discharge Elimination System (NPDES) permit to ensure that the City complies with applicable state and federal regulations.	**Consistent:** The pipelines would be constructed below grade and would not increase the amount of impervious surfaces, or release pollutants. In addition, the Proposed Project would be subject to the State Construction General Permit, which requires the implementation of specific construction-related BMPs to prevent stormwater pollutants from leaving the construction sites.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Conser-vation/ Open Space	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station sites Injection Well Facilities Transfer Pipeline Monterey Pipeline	***Policy COS-4.2*:** Protect and enhance the creeks, lakes, and adjacent wetlands for their value in providing visual amenity, habitat for wildlife, and recreational opportunities.	**Consistent:** The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ),which require implementation of BMPs and measures to control and minimize any stormwater runoff and prevent water pollution so as to protect water quality. The Proposed Project would be operated in conformance with State WDRs under the NPDES Phase II Permit (Order No. 2013-001-DWQ, NPDES No. CAS000004), which regulates stormwater discharge into storm sewer systems. For impacts related to wetlands, please refer to Section 4.5, Biological Resources: Terrestrial.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Safety	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station sites) Injection Well Facilities Transfer Pipeline Monterey Pipeline	***Policy S-1.2*:** Protect the community from flooding hazards. *Implementation Plan S-1.2.1*: Project Flood Control. Require developers to provide flood control systems in new development areas that mitigate potential on-site flooding hazards and also avoid increasing flood hazards elsewhere.	**Consistent**: None of the Proposed Project components proposed for Seaside would be located in a flood hazard area. With the exception of the Injection Well Facilities and the Coastal Booster Pump Station Proposed Project components proposed for Seaside would be buried below ground surface and would not present a risk of flood hazard. The Injection Well Facilities and Coastal Booster Pump Station Site would not be located in a flood hazard area and would be subject to the State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ) set forth in the local municipal stormwater permit, which include requirements to control and minimize stormwater runoff so as to prevent any flood hazards and impede flood flows.
City of Seaside (coastal zone and inland areas)	Seaside Municipal Code	Chapter 8.46: Urban Storm Water Quality Manage-ment & Discharge Control	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station sites Injection Well Facilities Transfer Pipeline Monterey Pipeline	***Chapter 8.46 Urban Storm Water Quality Manage Surface Management and Discharge Control.*** Urban Stormwater Quality Management and Discharge Control would apply to all water entering the storm drain system generated on any developed and undeveloped lands lying within the city. The chapter lists requirements to prevent, control, and reduce stormwater pollutants, protection of water courses, and notification to emergency response officials in the event of a chemical release.	**Consistent:** The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ, NPDES No. CAS000004 and Order No. R3-2014-0013), which require implementation of BMPs and measures to control and minimize stormwater discharges into nearby water bodies. The State requirements are incorporated in the local municipal code and the municipal stormwater permit.

Table 4.11-12
Applicable Local Land Use Plans, Policies, and Regulations – Hydrology and Water Quality: Surface Water

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
City of Seaside (coastal zone and inland areas)	Seaside Municipal Code	Chapter 8.46: Health and Safety	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (Coastal) Injection Well Facilities Transfer Pipeline Monterey Pipeline	***Section 8.46.130 Requirement to prevent, control, and reduce storm water pollutants (B) Responsibility to Implement Best Management Practices***. Notwithstanding the presence or absence of BMP requirements promulgated pursuant to subparagraphs A, B, C, and D of this section, each person engaged in activities or operations, or owning facilities or property which will or may result in pollutants entering storm water, the storm drain system, or waters of the U.S. shall implement best management practices to the extent they are technologically achievable to prevent and reduce such pollutants. The owner or operator of each commercial or industrial establishment shall provide reasonable protection from accidental discharge of prohibited materials or other wastes into the city storm drain system and/or watercourses. Facilities to prevent accidental discharge of prohibited materials or other wastes shall be provided and maintained at expense of the owner or operator. ***Section 8.46.130 Requirement to prevent, control, and reduce storm water pollutants © Construction Sites***. The city's BMP Guidance Series will include appropriate best management practices to reduce pollutants in any storm water runoff from construction activities. The city shall incorporate such requirements in any land use entitlement and construction or building-related permit to be issued relative to such development or redevelopment. The owner and developer shall comply with the terms, provisions, and conditions of such land use entitlements and building permits as required in this chapter and the city storm water utility ordinance. Construction activities subject to BMP requirements shall continuously employ measures to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality, contamination, or unauthorized discharge of pollutants.	**Consistent**: The pipelines would be constructed below grade and would not increase the amount of impervious surfaces, or releasing pollutants. In addition, the Proposed Project would be subject to the State Construction General Permit, and the Seaside Municipal Code, which require the implementation of specific construction-related BMPs to prevent stormwater pollutants from leaving the construction sites.
City of Seaside (coastal zone)	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Monterey Pipeline	**Policy NCR-CZ 1.3.B: Protection of Wetlands** III. The biological productivity of coastal waters, streams, wetlands, estuaries, and lakes, shall be maintained and restored, where feasible, to maintain optimum populations of marine organisms and to protect human health where applicable. Maintenance and restoration efforts shall support biological productivity by minimizing adverse effects of wastewater discharges and entrainment; controlling runoff, preventing substantial interference with surface water flow, and minimizing alteration of natural streams; preventing depletion of groundwater supplies; encouraging wastewater reclamation; and maintaining natural vegetation buffer areas that protect riparian habitats.	**Consistent:** The Proposed Project would be constructed and operated in conformance with the State Construction General Permit and WDRs, which require implementation of BMPs and measures to prevent water pollution and control any pollutant discharge so as to protect water quality. The issue of wetlands protection is addressed further in EIR Section 4.6, Biological Resources. As discussed in Impact 4.6-11, wetlands resource issues would be addressed through implementation of recommended mitigation measures, thereby resolving potential conflicts with applicable biological resources protection policies.
City of Seaside	Fort Ord Reuse Authority Base Reuse Plan	Conser-vation	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (Coastal) Injection Well Facilities Transfer Pipeline Monterey Pipeline	**Hydrology and Water Quality Policy A-1:** At the project approval stage, the City shall require new development to demonstrate that all measures will be taken to ensure that runoff is minimized and infiltration maximized in groundwater recharge areas.	**Consistent:** The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ), which require implementation of BMPs and measures to control and minimize impervious surfaces and any stormwater runoff.
City of Seaside	Fort Ord Reuse Authority Base Reuse Plan	Conser-vation	RUWAP Alignment Option Coastal Alignment Option Booster Pump Station (Coastal) Injection Well Facilities	**Hydrology and Water Quality Policy C-2:** At the project approval stage, the City shall require new development to demonstrate that all measures will be taken to ensure that on-site drainage systems are designed to capture and filter out urban pollution.	**Consistent:** The Proposed Project would be constructed and operated in conformance with State Construction General Permit and WDRs (NPDES Phase II Permit, Order No. 2013-001-DWQ), which require implementation of BMPs and measures to control and minimize impervious surfaces and any stormwater runoff.

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4.11.4 Impacts and Mitigation Measures

4.11.4.1 Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, the project would have a significant impact on surface water hydrology and water quality if it would:

a. Violate any water quality standards or waste discharge requirements.

b. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

d. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

e. Otherwise substantially degrade water quality.

f. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map.

g. Place within a 100-year flood hazard area structures that would impede or redirect flood flows.

h. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, or as a result of sea level rise and storm surges.

i. Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

4.11.4.2 Impact Analysis Overview

Approach to Analysis

Construction

Proposed Project construction could impact surface water hydrology and water quality of regional and local surface waters and the ocean. The surface water hydrology and water quality analysis evaluates whether the Proposed Project construction activities would have the potential to degrade existing water quality, increase erosion, modify drainage patterns, or exceed capacities of existing drainage facilities.

The analyses related to Criteria “a,” “b,” “d”, and “e” are based on existing site conditions, applicable water quality requirements of relevant regulatory programs, including required permits, and local ordinances. Construction dewatering and erosion was analyzed for the Proposed Project by Ninyo and Moore in their project-specific Draft Preliminary Geotechnical Analysis (see **Appendix K**). Regional data, plans, reports, and maps were reviewed to identify surface water resources that could be directly or indirectly affected by Proposed Project construction. The impact analysis describes if and to what degree the Proposed Project construction would change the existing surface water hydrology and water quality, conditions described in **Section 4.11.2** and how the Proposed Project would comply with or exceed any regulatory requirements described in **Section 4.11.3**. The significance of an impact is determined using the criteria identified in **Section 4.11.4.1**. No construction activities are proposed within the marine study area. No direct construction impacts to marine resources would occur because none of the Proposed Project components involve construction within the marine study area defined above. Indirect temporary construction impacts on the marine water quality relative to discharges to surface waters that may lead to the ocean are also addressed.

Criteria “c” “f,” “g,” “h,” and “i” are not evaluated for construction-related impacts, because the temporary activities would not result in substantial risks related to any types of flooding nor inundation. Construction crews and equipment would demobilize in the unlikely event of one of these conditions occurring during the short-term construction periods for each component (see **Figure 2-40**). These criteria are not discussed in **Section 4.11.4.3**.

Operation

Operational or long-term impacts on inland surface water bodies and the marine water quality relative to flow quantities and water quality may occur due to siting of some project components, operational diversions of source water, discharges to surface waters and the ocean, and maintenance activities. The impact analysis describes if and to what degree the Proposed Project operations would change the existing hydrology, water quality, and flooding conditions described in **Section 4.11.2** and how the Proposed Project would comply with or exceed any regulatory requirements described in **Section 4.11.3**. The significance of an impact is determined using the criteria identified in **Section 4.11.4.1**.

Operational impacts on the hydrology and water quality of inland surface water bodies due to the proposed source water diversions to the wastewater treatment system are analyzed based on the results of the following technical reports:

- *Salinas River Inflow Impacts* (Schaaf & Wheeler, 2015a) [**Appendix O <u>rev</u>**]
- *Memorandum: Impacts of Changes in Percolation at the Salinas Industrial Wastewater Treatment Facility on Groundwater and the Salinas River* (Todd Groundwater, 2015a) [**Appendix N**]
- *Reclamation Ditch Yield Study* (Schaaf & Wheeler, 2015b) [**Appendix P**]
- *Blanco Drain Yield Study* (Schaaf & Wheeler, 2014b) [**Appendix Q <u>rev</u>**]
- *Urban Runoff Capture at Lake El Estero* (Schaaf & Wheeler, 2014a) [**Appendix R**]

To analyze sea level rise, storm surges, and their effects on coastal erosion and flooding, ESA/PWA prepared an analysis regarding storm surges and sea level rise that is the basis of the impact analysis in this issue area (ESA/PWA, 2014). In addition to the studies identified above, the project-specific Preliminary Geotechnical Evaluation (Ninyo and Moore, 2014) addresses operational impacts related to coastal inundation and flooding of facilities (see **Appendix K**).

The impact analysis in this section on marine water quality describes if, and to what degree, the Proposed Project would change the existing ocean water quality described in **Section 4.11.2** and how the Proposed Project would comply, or be consistent, with the regulatory requirements described in **Section 4.11.3**. The significance of an impact is determined using the criteria identified in **Section 4.11.4.1**.

Potential adverse impacts to marine water quality considered below are those that would result from operation of the Proposed Project Advanced Water Treatment Facility (AWT Facility), specifically discharges of reverse osmosis concentrate to Monterey Bay through the existing ocean outfall.

The discharge of reverse osmosis concentrate would not involve high salinities because the concentrate would be far less saline than ambient ocean water (5,800 mg/L of TDS compared to 33,000 to 34,000 mg/L). In addition, the reverse osmosis concentrate discharge would not result in a negatively buoyant (or sinking) plume.

Modeling of the dilution characteristics of the Proposed Project ocean discharge from the outfall to the edge of the ZID (i.e., the zone of initial dilution) was conducted by FlowScience, Inc. to determine minimum initial dilution values for the various discharge scenarios. The ocean modeling results were used to assess compliance with the Ocean Plan. The information sources included the results of source water assessments, GWR pilot plant and water quality sampling, and monitoring, ocean dilution modeling by FlowScience (November, 2014), provided in **Appendix T** and water quality quantitative analysis of the Proposed Project's ability to meet the Ocean Plan objectives by Trussell Technologies (2015a and c) provided in **Appendix U-1 and U-2**, and described in detail in below.[10]

Areas of No Impact

The Proposed Project would not result in impacts related to some of the significance criteria, as explained below. Impact analyses related to the other criteria are addressed below under **subsections 4.7.4.4** (construction impacts), **4.7.4.5** (operational impacts), and **4.7.4.6** (cumulative impacts).

> *Place housing within a 100-year flood hazard area (criterion "f").* The Proposed Project does not include the construction of new housing or structures for human occupancy. Therefore, the significance criterion related to the placement of housing within a 100-year flood hazard zone is not applicable to the Proposed Project and is not discussed further.

Summary of Impacts

Table 4.11-13 (Summary of Impacts – Hydrology and Water Quality: Surface Water) provides a summary of potential impacts to the surface water hydrology and water quality environment and significance determinations at each Proposed Project component site.

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[10] In addition to the water quality analysis of Ocean Plan Table 1 and 2 constituents by Trussell Technologies, MRWPCA conducted a toxicity test on reverse osmosis concentrate produced during the pilot plant program for the Proposed Project and the results are summarized in this section.

Table 4.11-13
Summary of Impacts –Hydrology and Water Quality: Surface Water

Impact Title	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain Diversion (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	
HS-1: Construction Impacts to Surface Water Quality due to Discharges	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**
HS-2: Construction Impacts to Surface Water Quality due to Earthmoving, Drainage Alterations, and Use of Hazardous Chemicals	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**
HS-3: Operational Impacts to Surface Water Quality due to Well Maintenance Discharges	NI	NI	NI	NI	NI	NI	NI	NI	NI	LS	NI	NI	**LS**
HS-4: Operational Surface Water Quality Impacts due to Source Water Diversions	LS	LS	LSM	LS	LS	LS	NI	NI	NI	NI	NI	NI	**LSM**
HS-5: Operational Marine Water Quality due to Ocean Discharges	BI	BI	BI	BI	BI	BI	LS	NI	NI	NI	NI	NI	**LS**
HS-6: Operational Drainage Pattern Alterations	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	**LS**
HS-7: Operational Carmel River Flows	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	**BI**
HS-8: Operational Risks due to Location within 100-Year Flood Area	LS	LS	LS	LS	LS	LS	NI	LS	LS	LS	NI	NI	**LS**
HS-9: Operational Risks due to Flooding due to Levee/Dam Failure, or Coastal Inundation	LS	LS	NI	LS	LS	LS	NI	NI	NI	NI	LS	LS	**LS**
HS-10: Operational Seiche, Tsunami, or Mudflow Risk	NI	NI	NI	LS	LS	LS	NI	NI	NI	NI	LS	LS	**LS**
Cumulative Impacts- Inland	LS: There would be no significant construction or operational cumulative impacts to hydrology or water quality of inland surface waters.												
Cumulative Impacts- Marine	LSM: The Proposed Project would potentially make a considerable contribution to significant cumulative impacts to marine water quality due to the potential exceedance of the Ocean Plan water quality objectives for several constituents; however, with implementation of Mitigation Measure HS-C, the impact would be reduced to less than significant and the proposed Project would not make a considerable contribution to a significant cumulative impact.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.11.4.3 Construction Impacts and Mitigation Measures

Impact HS-1: <u>Construction Impacts to Surface Water Quality due to Discharges</u>. Proposed Project construction involving well drilling and development, and dewatering of shallow groundwater during excavation would generate water

requiring disposal. Compliance with existing regulatory requirements would ensure that water disposal during construction would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality. (Criteria a, b, d, and e) (Less than Significant)

Injection Well Facilities

As described in **Chapter 2, Project Description**, the deep injection wells would be drilled with rotary drilling methods. The method would be customized to minimize borehole impacts from drilling fluids and may incorporate air rotary methods or specialized drilling fluids (such as polymers). The direct rotary drilling method would also likely be used for the monitoring wells.

When necessary and depending on the formation material encountered, certain commercially available additives could be combined with the drilling water to increase fluid viscosity and stabilize the walls of the boring to prevent reactive shale and clay from swelling and caving into the hole. Other products used to enhance the drilling performance help reduce the build-up of solids, decrease friction, and aid in reducing solids suspension. Drilling mud additives would be used for the drilling and installation of groundwater wells. Because the additives are combined with the water and are circulated through the borehole annulus during drilling, they react locally within the borehole and do not migrate into the surrounding groundwater formation. The additives are noncorrosive, biodegradable and do not contain chemicals that would contaminate the groundwater supply. The muds and clay slurry generated during the drilling and development of the Proposed Project's injection wells would fall under the category of "Water Supply Well Drilling Muds" in the *General Waiver of Waste Discharge Requirements for Specific Types of Discharges* (General Waiver) that is discussed in **Section 4.11.3.1**, above (RWQCB, 2014a).

The water extracted during well development falls under the category of "water supply discharges" in the General Waiver. Therefore, Proposed Project water supply discharges during construction that would occur under the General Waiver include all water produced during well drilling and development. Under the General Waiver, these discharges would be waived from waste discharge requirements and from the requirement of submitting a waste discharge report; however, they would be subject to the following conditions (RWQCB, 2014a):

Water Supply Well Drilling Muds

- The discharge shall be spread over an undisturbed, vegetated area capable of absorbing the top-hole water and filtering solids in the discharge, and spread in a manner that prevents a direct discharge to surface waters.
- The pH of the discharge shall be between 6.5 and 8.3.
- The discharge shall not contain oil or grease.
- The discharge area shall not be within 100 feet of a stream, body of water, or wetland, nor within streamside riparian corridors.

Water Supply Discharges

- The discharger shall implement appropriate management practices to dissipate energy and prevent erosion.

- The discharger shall implement appropriate management practices to preclude discharge to surface waters and surface water drainage courses.
- The discharger shall immediately notify the Central Coast RWQCB staff of any discharge to surface waters or surface water drainage courses. The discharge shall not have chlorine or bromine concentrations that could impact groundwater quality.
- The discharge area shall not be located within 100 feet of a stream, body of water, or wetland.

Because the disposal of water produced during well drilling and development activities would comply with the conditions of the General Waiver and those conditions have been documented to be effective at preventing significant water quality impacts from occurring, the Proposed Project construction activities requiring water disposal during well drilling and development would have a less-than-significant impact and no mitigation is necessary.

All Proposed Project Components Requiring Excavation and Dewatering

Subsurface water levels vary throughout the project area and depths of excavation would vary by Proposed Project component. Excavation during construction of all Proposed Project components may intercept shallow or perched groundwater, requiring temporary localized dewatering to facilitate construction. Groundwater encountered during excavation would be pumped and discharged to the local drainage system. Water from dewatering operations could contain materials used during typical construction activities such as silt, fuel, grease or other chemicals. Absent regulatory controls, the discharge from construction dewatering could thus contaminate downstream surface water.

The northern project area includes the Source Water Diversion and Storage sites (except the Lake El Estero Diversion site in Monterey), including the following: Salinas Pump Station Diversion site, the Salinas Treatment Facility Storage and Recovery site, Reclamation Ditch Diversion site, Tembladero Slough Diversion site, and Blanco Drain Diversion site. These components are located in low-lying floodplain areas within this area are underlain by Holocene alluvial deposits. These deposits include unconsolidated interbedded silts, clays, sands, and gravels. Groundwater is anticipated to be approximately ten feet deep or less in low-lying areas, such as the Salinas Pump Station and pipelines associated with the Source Water Storage and Diversion components. Within the perennially wet urban and agricultural land drainage channels (Reclamation Ditch, Tembladero Slough, and Blanco Drain), the surficial soils will be saturateda and surface water would be present. In these situations, subsurface drainage conditions are relatively poor and the subsurface soils are anticipated to be very moist to saturated. Trench excavations may encounter groundwater, moist to wet soils, and soft ground conditions, and trench dewatering may be required. Moist to wet soil conditions along lower elevations may require drying/mixing prior to trench backfill compaction. Soft ground may require over-excavation and stabilization with crushed rock/filter fabric to provide suitable pipe bedding support. (Ninyo & Moore, 2014)

Construction work occurring within drainage channels at the Source Water Storage and Diversion (i.e., the perennially wet urban and agricultural land drainage channels, including Reclamation Ditch, Tembladero Slough, and Blanco Drain) would disturb approximately 0.15 to

0.25 acres of land at each site, including the banks and channel bottoms.[11] The channels carry flow year-round, so a temporary coffer dam would be required above and below the site, with a small diversion pump to convey existing channel flows past the project construction area. The temporary coffer dams would consist of waterproof tarps or membranes wrapped around gravel fill material, which would be removed when the work is completed. Permits would be required prior to commending construction including as required by the Clean Water Act Sections 404 and 401), and California Fish and Wildlife Code 1602 (Streambed Alteration Agreements) that required management measures to protect downstream water quality and biological habitat and species.

The southwestern portion of the study area includes the sites for the proposed CalAm Distribution System: Monterey and Transfer pipelines, and the Lake El Estero Diversion site. Trench excavations in the low-lying alluvial areas may encounter some soft, wet, alluvium with a potential for caving and unstable trench bottoms. Dewatering may be required. (Ninyo & Moore, 2014)

Most of the dewatering effluent produced during construction and excavation is considered a low threat and can be discharged to the land or local receiving water provided it complies with the *General Waste Discharge Requirements for Discharges with a Low Threat to Water Quality* (Order No. R3-2011-0223, NPDES Permit No. CAG993001) (RWQCB, 2011c). To comply with the conditions of these general waste discharge requirements, the construction contractor(s) would be required to control, test, and treat the extracted water as needed to minimize or avoid water quality degradation, erosion, and sedimentation in the receiving waters. To receive coverage under the general waste discharge requirements, the contractor would submit a Notice of Intent along with the following materials to the Central Coast RWQCB (2011c):

- A list of all chemicals (including Material Safety Data Sheets) added to the water and the concentrations of such additives in the discharged effluent;
- Certified analytical results of the effluent for all priority toxic pollutants listed in Attachment D of the General Waste Discharge Requirements. These analyses would fulfill the requirements set forth in the California Toxics Rule to evaluate the potential for water quality degradation and establish effluent limits, unless the discharge meets all requirements for a conditional exception;
- Certified analytical results of representative samples of the receiving surface water collected 50 feet upstream and 50 feet downstream from the point of discharge, respectively. Alternately, if access is limited, the samples can be collected at the first point upstream and downstream of the discharge, respectively, that is accessible for the following constituents: pH, temperature, color, turbidity, and dissolved oxygen;
- For low-threat discharges from proposed facilities, the Contractor(s) would provide analytical data for discharges from similar existing facilities, or information regarding

[11] **Section 4.4, Biological Resources: Fisheries** includes the following mitigation measure (as an alternative to compliance with recommended fish bypass flow requirements in Mitigation Measures BF-2a): "**Mitigation Measure Alternate BF-2b: Modify San Jon Weir. (Applies to the Reclamation Ditch Diversion)**. Construct modifications to the existing San Jon weir to provide for steelhead passage. Modifications could include downstream pool, modifications to the structural configuration of the weir to allow passage or other construction and improvements to remove the impediment to steelhead passage defined above." If this alternate mitigation measure is implemented, these measures would also result in "in channel" construction activities with the same mandatory permits and regulatory requirements that would reduce insure potential impacts would remain less-than-significant.

the anticipated discharge characteristics of the proposed facility based on the specific facility design. As part of facility startup, the operator of each facility would submit all analytical results required in Section A of the General Waste Discharge Requirements; and

- If the concentration of any constituent in the effluent sampled under the second bullet above exceeds the applicable criterion listed in Attachment D of the General Waste Discharge Requirements, the Contractor(s) may submit a Reasonable Potential Analysis consistent with Section 1.3 of the State Implementation Policy or Appendix VI of the Ocean Plan, as applicable.

In certain cases, depending on the site-specific conditions and the construction methods, suspended sediment and/or trace amounts of construction-related chemicals (i.e., fuels, lubricants, cement products) could be present in the dewatering effluent. The dewatering effluent could also contain other chemicals and contaminants present in local soil and groundwater. If the dewatering effluent contains contaminants that do not comply with the requirements of the General Waste Discharge Requirements, the contractor must contain the dewatering effluent in a portable holding tank for appropriate offsite disposal or discharge. The contractor could either dispose of the effluent at a permitted waste management facility or discharge the dewatering effluent, under permit, to a publicly owned treatment works such as the MRWPCA Regional Treatment Plant.

Adherence to the permit requirements as described above would ensure that the Proposed Project would not have a significant impact on water quality due to construction dewatering and therefore, no mitigation measures would be required.

Impact Conclusion

All water extracted during well drilling and development of the Injection Well Facilities would be disposed of in accordance with the *General Waiver of Waste Discharge Requirements for Specific Types of Discharges* (Resolution R3-2014-0041). Disposal of water produced during general construction dewatering would be conducted in accordance with the *NPDES General Permit for Discharges with Low Threat to Water Quality* (Central Coast RWQCB Order R3-2011-0223). All discharges of water produced during well drilling and development, and dewatering of shallow groundwater during construction would occur in compliance with these regulatory requirements that are protective of the receiving water quality. Therefore, the Proposed Project construction would result in less-than-significant water quality impacts due to well drilling and development, and dewatering of surface waters and shallow groundwater during excavation for all Proposed Project components and for the project as a whole and no mitigation measures would be required.

Impact HS-2: Construction Impacts to Surface Water Quality due to Earthmoving, Drainage Alterations, and Use of Hazardous Chemicals. Proposed Project construction would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality including marine water quality, due to earthmoving, drainage system alterations, and use of hazardous chemicals. (Criteria a, b, d, and e) (Less than Significant)

All Project Components

The Proposed Project could degrade water quality as a result of erosion and siltation caused by earthmoving activities during construction or the accidental release of hazardous construction chemicals. In general, water quality impacts would be significant if a water quality standard were to be exceeded or a beneficial use were to be impacted due to changes in water quality caused by erosion and/or siltation or release of hazardous construction chemicals resulting from Proposed Project earthmoving activities.

Earthmoving activities associated with Proposed Project construction at all sites would temporarily alter existing drainage patterns to some degree, including grading, excavation, and soil stockpiling. New pipelines would generally be installed using open-trench construction methods. Exposed soil from excavated areas, stockpiles, and other areas where ground cover would be removed could be inadvertently transported offsite by wind or water. If not properly managed, this could increase sediment loads in surface water bodies some of which are located on site (as in the Reclamation Ditch, Tembladero Slough, and Blanco Drain source water diversion sites) and adversely impact the surface water quality, including quality of marine waters, thereby adversely affecting water quality and designated beneficial uses.

Construction activities at all sites could also result in the accidental release of hazardous construction chemicals, such as adhesives, solvents, lubricants, and fuels. If not managed appropriately, these chemicals could adhere to soil particles, become mobilized by rain or runoff, and flow to downstream water bodies, including sloughs, ditches, and drains that lead to the Salinas River and Monterey Bay/Pacific Ocean, degrading water quality.

Proposed Project construction activities would disturb more than one acre of soil, therefore all Proposed Project components would be subject to the NPDES Construction General Permit and the Municipal Stormwater Permit requirements. As required under the Construction General Permit a Stormwater Pollution Prevention Plan (SWPPP) would be prepared by a Qualified SWPPP Developer and a Qualified SWPPP Practitioner would oversee its implementation. The SWPPP, which would include specific measures and conditions to reduce or eliminate stormwater flow carrying any pollutants or sediment from the earthmoving activities and related construction activities, would be implemented throughout the duration of construction activities. As discussed in **Section 4.11.3, Regulatory Framework**, the SWPPP is required to include specific elements such as erosion and stormwater control measures that would be implemented onsite. At a minimum, the SWPPP must include the following:

- A description of construction materials, practices, and equipment storage maintenance;
- A list of pollutants likely to contact stormwater and site specific erosion and sedimentation control practices;
- A list of provisions to eliminate or reduce discharge of materials to stormwater;

- BMPs for fuel and equipment storage;
- Non-stormwater management measures to manage pollutants generated by activities such as paving operations and vehicle and equipment washing and fueling;
- The requirement that the appropriate equipment, materials, and workers be available to respond rapidly to spills and/or emergencies. All corrective maintenance or BMPs must be performed as soon as possible, depending upon worker safety; and
- On-site post-construction controls.

Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods of the year, installing sediment barriers such as silt fencing and fiber rolls, maintaining equipment and vehicles used for construction, and tracking controls such as stabilization of construction access points. The development and implementation of BMPs such as overflow structures designed to capture and contain any materials that are inadvertently released from the storage containers on the construction site is also required. In accordance with the Construction General Permit, a Rain Event Action Plan would be required to ensure that active construction sites have adequate erosion and sediment controls in place prior to the onset of a storm event, even if construction is planned only during the dry season.

The construction contractor(s) would also be required to develop and implement a monitoring program as required under the NPDES Construction General Permit. The contractor would be required to conduct inspections of the construction site prior to anticipated storm events and after the actual storm events. During extended storm events, the inspections would be conducted after every 24-hour period. The inspections would be conducted to: identify areas contributing to stormwater discharge; evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, were properly installed, and are functioning in accordance with the Construction General Permit; and determine whether additional control practices or corrective measures are needed.

The action of moving earth within waters of the state (such as with trenching or excavation) is considered a discharge and requires a permit. If the U.S. Army Corps of Engineers (USACOE) claims jurisdiction in the subject waterbody where the discharge may occur, the Central Coast Regional Water Quality Control Board (RWQCB) also will need to review the action and potential discharge and issue a Clean Water Act Section 401 Water Quality Certification. If the RWQCB determines that the action will be protective of water quality and the beneficial uses of water it can issue the 401 certification. If the USACOE does not take jurisdiction, the RWQCB may issue waste discharge requirements (a permit) for impacts to waters of the state.

Mandatory compliance with the NPDES Construction General Permit requirements, Section 404 and 401 of the Clean Water Act, and, if required, other Waste Discharge Requirements issued by the RWQCB due to impacts to waters of the state would prevent significant construction-related impacts to surface water quality during general construction activities. Therefore, the water quality impacts (including on inland surface waters and marine waters) associated with general construction activities would be less than significant.

Impact Conclusion

Prior to construction of any of the Proposed Project components, compliance with NPDES Construction General Permit, Clean Water Act Sections 404 and 401, and other waste discharge requirements of the Porter-Cologne Water Quality Control Act, would be required, including implementation of erosion and stormwater quality control measures set forth in a SWPPP and a Rain Event Action Plan that would prevent substantial adverse effects on water quality during construction. The Proposed Project would have a less-than-significant impact on water quality associated with increased soil erosion and sedimentation, and inadvertent releases of toxic chemicals during general construction activities and no mitigation measures would be required.

4.11.4.4 Operational Impacts and Mitigation Measures

Impact HS-3: Operational Impacts to Surface Water Quality due to Well Maintenance Discharges. Proposed Project operations would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality due to well maintenance discharges. (Criteria a, b, d, and e) (Less Than Significant)

Injection Well Facilities

Over time, injection well capacity can decrease because of several factors, including air entrainment, filtration of suspended or organic material, bacterial growth, and other factors. To regain lost capacity, wells are pumped periodically, a process referred to as back-flushing. For back-flushing, wells are usually pumped at an extraction rate that is twice the injection rate. Each deep injection well would be equipped with a well pump to back-flush the well. The back-flushing rate would be approximately 2,000 gallons per minute (gpm) and would require a well pump and motor. Pump speed would be variable by inclusion of a variable frequency drive, so that back-flushing can be ramped up (manually or with an automated program) from initial lower flow to full flow, so as not to impact the geologic formation in the vicinity of the well.

Based on the experience of the Water Management District in the operation of its nearby Aquifer Storage and Recovery wells, back-flushing of each GWR injection well would occur for about four hours weekly and would require discharge of the back-flush water to the on-site proposed percolation pond, or back-flush basin (see **Figure 2-33** in **Section 2, Project Description**).

All discharge water would be comprised only of water extracted from the Santa Margarita groundwater aquifer, an aquifer whose water quality consistently meets drinking water quality standards, as discussed in **Section 4.10, Hydrology and Water Quality: Groundwater**. There are no surface water bodies nor wetlands or riparian areas within the Injection Well Facilities site and the site contains soils that are sandy and drain quickly; therefore, the discharge water associated with well maintenance discharge would not violate any water quality standards or waste discharge requirements, and would not otherwise substantially degrade surface water quality. The back-flush basin would be constructed to ensure that water discharges to an area reinforced by rock rip rap to dissipate the energy and therefore, would not cause substantial erosion or siltation. The Proposed Project would have a less-than-significant impact due to discharge of well maintenance water, and no mitigation measures would be required.

None of the other Proposed Project components include the construction of wells nor would the other components involve any well maintenance discharges to land or inland surface waters. Marine water quality impacts due to operational discharges of wastewater (reverse osmosis concentrate) from the AWT Facility to the Monterey Bay are addressed in **Impact HS-5, below**. Therefore, the Proposed Project would have a less-than-significant impact on surface water quality due to well maintenance discharges and no mitigation measures would be required.

Impact Conclusion

There are no surface water bodies nor wetlands or riparian areas within the Injection Well Facilities site and the site contains soils that are sandy and drain quickly; therefore, the discharge water associated with well maintenance discharge would not violate any water quality standards or waste discharge requirements, and would not otherwise substantially degrade surface water quality. None of the other Proposed Project components include the construction of wells nor would the other components involve any well maintenance discharges to land or inland surface waters. The Proposed Project would have a less-than-significant impact due to discharge of well maintenance water, and no mitigation measures would be required.

Impact HS-4: <u>Operational Surface Water Quality Impacts due to Source Water Diversions</u>. Proposed Project diversions would result in water quality benefits due to diversion and treatment of polluted waters; however, rapid water fluctuation from diversions at the Reclamation Ditch could induce erosion and sedimentation in downstream waters. (Criteria a, b, d, and e) (Less than Significant with Mitigation)

Source Water Diversion and Storage Sites

This section provides a detailed description of pollutant load reduction benefits on surface waters due to diversion of the various source waters to the Regional Treatment Plant for treatment and reuse. The Proposed Project would reduce the disposal of certain polluted waters to the environment, including to groundwater, surface waters, and in most cases, to the Monterey Bay portion of the Pacific Ocean. In addition, this section analyzes other potential operational impacts on surface water quality related to the Source Water Diversion and Storage Sites, such as erosion and sedimentation/siltation, and salinity changes in surface water bodies.

Proposed new source waters to be treated and reused include: excess municipal wastewater, agricultural wash water, southern Salinas urban runoff that currently flows to Salinas River, Reclamation Ditch water, Tembladero Slough water, Blanco Drain water, and Lake El Estero water. Each of the proposed new source waters contain varying amounts and concentrations of pollutants as characterized in **Sections 4.10 Hydrology and Water Quality: Groundwater** and in **Section 4.11.2.3, above**. **Section 4.10.2.3** also summarizes the existing water quality conditions of the Salinas River, Reclamation Ditch and Tembladero Slough system, Blanco Drain, and Lake El Estero. Waters in these water bodies currently discharge directly or indirectly to the Monterey Bay/Pacific Ocean. Under existing conditions, agricultural wash water, after it is treated and percolated at the Salinas Treatment Facility, seeps through subsurface soils to the Salinas River, which in turn discharges to the Monterey Bay/Pacific Ocean. Pure water is evaporated from the ponds and water with some water pollutants percolates through the shallow aquifer and ultimately to seeps to either the Salinas River (estimated to be 80% of the percolated quantity) or to the Salinas Valley Groundwater Basin (estimated to be 20% of the percolated quantity) (Todd Groundwater, 2015a). The Reclamation Ditch flows to the Tembladero Slough and Tembladero Slough flows into the Old Salinas River Channel and ultimately through the Potrero Tide Gate to the Moss Landing Harbor that is directly connected to the Monterey Bay/Pacific Ocean. As the water in the system flows toward the lowest part of the watershed, it collects water from tributaries encompassing a larger watershed.

A benefit of the Proposed Project is that it would divert and treat contaminated waters rather than allowing those waters to flow to the Monterey Bay. The waters would be diverted to the municipal wastewater collection system for conveyance to the MRWPCA Regional Treatment

Plant. All waters would receive primary and secondary treatment then a majority of the water would undergo additional treatment and reuse using one of two additional treatment systems:

1. the existing Salinas Valley Reclamation Plant (tertiary treatment system) that supplies agricultural irrigation water to cropland in the Castroville area, or
2. the proposed AWT Facility that would supply purified recycled water for injection into the Seaside Groundwater Basin for later extraction and use for potable supplies.

The proposed treatment processes would destroy many of the typical pollutants through biological and chemical treatment processes, and for other pollutants, through settling or filtration out of the wastewater stream. Most of the settled and filtered pollutants would remain in sewage sludge. Sewage sludge is the solid, semisolid or liquid untreated residue generated during the treatment of domestic sewage in a treatment facility. Sewage sludge would then be dried to form biosolids. Federal and state standards and regulations ensure that biosolids are safely recycled or disposed. Local governments make the decision whether to recycle the biosolids as a fertilizer, incinerate it, or bury it in a landfill. (Source: EPA, 2014) [12] MRWPCA disposes of biosolids at the adjacent MRWMD landfill and would continue to do so if the Proposed Project is implemented. Biosolids disposal at the MRWMD landfill would not add to pollutant loads on the marine environment because the landfill is regulated to ensure that solid waste disposal does not result in contamination of water resources, including groundwater, surface water bodies like the Salinas River, and the Monterey Bay and Pacific Ocean.

Salinas Pump Station and Salinas Treatment Facility Storage and Recovery Diversion and Storage Sites: Diversions of Agricultural Wash Water and Salinas Stormwater

Water from the City of Salinas agricultural industries, 80 to 90% of which is water used for washing produce, is currently conveyed to ponds at the Salinas Treatment Facility for treatment (aeration) and disposal by evaporation and percolation. The Proposed Project would include improvements that would enable the agricultural wash water to be conveyed to the Regional Treatment Plant to be recycled. The Proposed Project also would include improvements at the Salinas Treatment Facility to allow storage of agricultural wash water and south Salinas stormwater in the winter and recovery of that water for recycling and reuse in the spring, summer and fall. Storm water from urban areas in southern portions of the City of Salinas is collected and released to the Salinas River through an outfall near Davis Road. The Proposed Project would include improvements that would enable Salinas stormwater to be conveyed to the Regional Treatment Plant to be recycled.

Two of the proposed sources of raw water for the Proposed Project would be captured and diverted from subsurface conveyance structures to the existing MRWPCA Salinas Pump Station: agricultural wash water and City of Salinas urban runoff (described in **Section 2.7.2.3**). Both of these sources would necessitate construction of new diversion structures and short pipelines near the existing Salinas Pump Station, as shown in **Figure 2-21, Salinas Pump Station Source Water Diversion Conceptual Site Plan**. The Salinas Pump Station Diversion site (also referred to as Treatment Plant 1, or TP1) would include several new diversion facilities to redirect flows of agricultural wash water and City of Salinas stormwater and dry weather runoff to the existing Salinas Pump Station for blending with Salinas municipal wastewater and treatment and recycling at the Regional Treatment Plant. The combined storm and waste waters would be conveyed from the existing Salinas Pump Station through the MRWPCA's existing 36-

[12] See also: http://water.epa.gov/polwaste/wastewater/treatment/biosolids/genqa.cfm and http://water.epa.gov/scitech/wastetech/biosolids/503pe_index.cfm for more information on biosolids.

inch diameter interceptor to the Regional Treatment Plant. The diversion facility would also accommodate the routing of agricultural wash water and winter stormwater to the Salinas Treatment Facility for seasonal storage, and would provide a termination point for the pipeline that would carry returned flows of stored waters to the Salinas Pump Station.

The existing water that percolates from the Salinas Treatment Facility and seeps to the Salinas River can affect water quality due to any differences in the concentrations of individual chemical constituents in the Salinas Treatment Facility ponds, rapid infiltration basins, and drying beds compared to existing concentrations in the river. In addition, the existing seepage from the ponds to the river can result in exceedances of water quality objectives (or worsening of water quality exceedance) for the River. **Table 4.11-14** prepared by Todd Groundwater, compares median concentrations of chloride, nitrate, TDS, and phosphorus between the ponds and the river (Todd Groundwater, 2015a).

Table 4.11-14
Comparison of Water Quality in Salinas Treatment Facility Ponds and Salinas River

Water Source	Chloride (mg/L)	Nitrate (mg/L as NO_3)	TDS (mg/L)	Phos-phorus (mg/L as P)	Notes
Salinas Treatment Facility Ponds 1-3	301	20	1,090	--	Median of 12 monthly samples during 2013. Total nitrogen converted to nitrate.
Salinas Treatment Facility Ponds	237	26	1,228	27	Median of six samples collected during July 2013 to February 2014
Salinas River at South Davis Road (upstream of Salinas Treatment Facility)	70	31	618	0.1	CCAMP data. Medians of 92-100 samples during 1998-2011. Primarily low-flow data.
Water Quality Objectives					
Salinas River below Spreckels	250[a]	6.2 to 28[b]	500 to 1,000[c]	0.07 to 0.13[b]	Basin Plan for the Central Coast Region, and RWQCB Resolution R3-2013-2008b, except as noted

Notes:
CCAMP = Central Coast Ambien Monitoring Program RWQCB = Central Coast Regional Water Quality Control Board

[a] The drinking water standard for municipal use is shown. Agricultural crops can experience "increasing problems" at concentrations ranging from 142 to 355 mg/L.
[b] Dry-season TMDL objectives for the lower Salinas River.
[c] The lower and upper secondary drinking water standards are shown. Agricultural crops can experience "increasing problems" at electrical conductivity values that correspond to approximately 500 to 2,000 mg/L of TDS. The pond water in that Salinas Treatment Facility is high in sugars due to its prior use for produce washing, thus typical primary and secondary treatment processes can reduce the TDS shown here.

Source: Todd Groundwater, 2015a [adapted from Table 6 in **Appendix N***].*

Schaaf & Wheeler also assessed the water quality impacts of the proposed diversions of agricultural wash water and Salinas stormwater to the Regional Treatment Plant. **Table 4.11-2** in **Section 4.11.2.3** shows the existing Salinas River water quality and standards (adopted and proposed TMDLs) and **Table 4.11-3,** in **Section 4.11.2.3** compares the most recent sampling results (2012-2013 for Salinas stormwater and 2013 for Salinas Treatment Facility effluent) to the standards. Effluent from the Salinas Treatment Facility is not tested for ammonia or orthophosphate, so a general water quality comparison with the Salinas River cannot be made (Schaaf & Wheeler, 2015a).

Based on the above technical analysis, the following conclusions were drawn:

- Median concentrations of TDS, chloride, and phosphorus are higher in the Salinas Treatment Facility ponds (aeration pond effluent) than in the Salinas River and thus occasionally degrades Salinas River water quality for these constituents;

- Existing Salinas Treatment Facility pond percolation water that seeps into the Salinas River consistently exceeds the Basin Plan water quality objectives and TMDLs for constituents in **Table 4.11-3** and **Table 4.11-14**;
- Diverting agricultural washwater to the Proposed Project may result in reduced TDS levels in the river, particularly in summer months when percolation from the Salinas Treatment Facility makes up a significant portion of the river flow.
- Existing Salinas Treatment Facility pond percolation may degrade river water quality with respect to phosphorus.

Because the GWR Project would decrease the annual volume of water percolated at the Salinas Treatment Facility by approximately 1,600 to 2,300 AFY and the amount of seepage to the river by 1,280 to 1,840 AFY (depending upon the year type and baseline scenario used), the proposed diversions would decrease the total mass loading (environmental input) of all of these contaminants to the river and would have a beneficial impact on river water quality. Under the current condition described in detail in **Section 4.11.2** with increased flows released from the reservoirs to the Salinas River Diversion Facility during the summer months, the Salinas Treatment Facility inflows represent a smaller percentage of the total streamflow and the water quality changes due to their elimination as influent to the river would be less than if flow were not managed (Schaaf & Wheeler, 2015a).

The results in **Table 4.11-3**, above, are typical of those in previous annual reports and can be used to assess changes in Salinas River quality due to reduction in pollutant loads if stormwater is diverted to the Regional Treatment Plant. The stormwater runoff is generally of equal or better quality than the Salinas River to which it currently flows, except perhaps during the first flush of each wet weather season. It meets the Central Coast RWQCB Basin Plan objectives in some categories. In the categories of turbidity and orthophosphate, it exceeds the Basin Plan objectives but is below the average concentration in the receiving stream. Although the stormwater runoff may slightly improve the quality of the water in the river during storm events, the Salinas River basin is so large and the flows during storm events are so high (100 to ten thousand cubic feet per second) diverting urban stormwater runoff to the Proposed Project would not have an adverse impact on water quality within the Salinas River (Schaaf & Wheeler, 2015a).

Reclamation Ditch, Tembladero Slough, and Blanco Drain Diversions Sites: Impaired Surface Water

The Proposed Project would divert water from the Reclamation Ditch at Davis Road, from Tembladero Slough near Castroville, and from Blanco Drain at the existing pump station, and would convey those waters to the Regional Treatment Plant for treatment, including recycling and reuse. The diversion and conveyance facilities to achieve this and the methods of diversion are described in **Section 2.7.2** of **Chapter 2**. See **Figures 4.4-1** and **4.4-2,** in **Section 4.4, Biological Resources: Fisheries** for the location of the diversion points and the associated water bodies.

Overview of Diversion Methods and Facilities

Reclamation Ditch Diversion. The Reclamation Ditch Diversion would consist of a new intake structure on the channel bottom, connecting to a new wet well (manhole) on the channel bank via a new gravity pipeline. The new intake would be screened to prevent fish and trash from entering the pump station. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a locked, weatherproof cabinet near the wet well and above flood level. The new pump station would discharge through two new short force mains (approximately 50-ft each), discharging to an existing manhole on the City of Salinas 54-inch sanitary sewer main. Two new underground vaults would be installed along the force main, one to hold the check and isolation valves, and one for the flow meter. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring and facilitate the management of by-pass flows. Key existing and proposed facilities at this site are shown in **Figure 2-23.**

Based on the proposed location of diversion, the potentially affected surface water bodies for this analysis include the following:

- downstream reaches of the Reclamation Ditch (from Davis Road to its confluence with the Tembladero Slough near Castroville),
- the Tembladero Slough downstream of the Reclamation Ditch confluence,
- downstream affected reaches of Old Salinas River channel from the Tembladero Slough confluence to the Potrero Tide Gate, and
- the Moss Landing Harbor and Monterey Bay.

Tembladero Slough Diversion. The Tembladero Slough Diversion would consist of a new intake structure on the channel bottom, connecting to a new lift station wet well (manhole) on the channel bank via a new gravity pipeline. The new intake would be screened to prevent fish and trash from entering the new pump station. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a locked, weatherproof cabinet near the wet well and above flood level. The new pump station would discharge through a new short force main (approximately 100-ft in length), discharging to the existing wet well at the MRWPCA Castroville Pump Station. A new underground valve vault would be installed along the force main to hold the check valves, isolation valves and flow meter. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring and facilitate the management of by-pass flows. Key existing and proposed facilities at this site are shown in **Figure 2-24.**

Based on the proposed location of diversion, the potentially affected surface water bodies for the Tembladero Slough analysis include the following:

- the Tembladero Slough downstream of the proposed diversion near Highway 1 to its confluence with the Old Salinas River Channel,
- downstream affected reaches of Old Salinas River channel from the Tembladero Slough confluence to the Potrero Tide Gate, and
- the Moss Landing Harbor and Monterey Bay/Pacific Ocean.

Blanco Drain Diversion. The Blanco Drain collects water from approximately 6,400 acres of agricultural lands near Salinas. The Proposed Project would include improvements that would enable tile drain and surface runoff water in the Blanco Drain to be diverted and conveyed to the Regional Treatment Plant to be recycled.

The proposed new Blanco Drain Diversion pump station would be located adjacent to the existing seasonal pump station operated by MCWRA. The new pump station would consist of a new intake structure on the channel bottom, connecting to a new wet well (manhole) on the channel bank via a new gravity pipeline. The intake would be screened to prevent debris and trash from entering the pump station. Two submersible pumps would be installed in the wet well, controlled by variable frequency drives. The electrical controls and drives would be in a locked, weatherproof cabinet above the wet well and above flood level. The new pump station would discharge through a new 18-inch force main running from the pump station to a connection in the existing 36-inch Salinas Interceptor before it discharges into the headworks of the Regional Treatment Plant.[13] The segment of the pipeline crossing the Salinas River would be installed using trenchless methods. A new underground valve vault would be installed adjacent to the pump station to hold the check and isolation valves, and a second vault would hold the flow meter. Due to the high pressure in the pipeline, a new surge tank would be installed at the new pump station. The channel banks and invert near the pump station intake would be lined with concrete to prevent scouring. When the new pump station is operating, the existing slide gate in the channel would be closed to facilitate diversion of all flows to the Regional Treatment Plant. Key existing and proposed facilities at this site are shown in **Figure 2-25. Blanco Drain Diversion Pump Station and Force Main Conceptual Site Plan.**

Overview of Water Quality Impacts Analyses

The following three types of water quality impacts are analyzed in this section related to diversions of surface waters from the Reclamation Ditch, Tembladero Slough, and Blanco Drain.

- *Pollutant Load Reductions*. The Pollutant Load Reductions section presents a summary of the analyses prepared by Schaaf & Wheeler that estimated the reductions in pollutant loads (or the total annual mass of pollutants removed from the environment) due to diversion of water that has been documented to have high concentrations of pollutants (see **Section 4.11.2.3**) and thus are considered impaired in accordance with the Clean Water Act section 303(d) listing.
- *Hydrologic Changes that Could Cause Erosion and Sedimentation*. This section analyzes the operational water quality impacts that may occur due to hydrologic changes caused by the diversions and the resultant erosion and sedimentation conditions (including due to alterations of drainage patterns and changes to runoff) that may occur downstream of the surface water diversions.
- *Hydrologic Changes that Could Increase Salinity.* The third analysis is related to the potential for salinity increases due to diverting water that would be less saline than the existing downstream water in the lower watershed.

Pollutant Load Reductions – Reclamation Ditch and Tembladero Slough

A benefit of the Proposed Project is that it would remove waters of marginal quality due to diversion as source water to meet the Proposed Project objectives. Diversion of water from the Reclamation Ditch and Tembladero Slough would remove a portion of the current pollutant load from the streams that ultimately flow to the Monterey Bay. The water quality (in terms of concentrations) of the water remaining within the streams may not noticeably improve; however, the reduction in pollutant-loaded flows would have a positive effect on the water quality in the Moss Landing Harbor below Potrero Road tide gates and in the Monterey Bay and Pacific Ocean.

Pollutant removal was estimated using the conversion formula 1 mg/L = 2.7 pounds/acre-foot. **Table 4.11-15** and **Table 4.11-16** show the estimates for diverting 6 cfs from the Reclamation Ditch at Davis Road and 3 cfs from Tembladero Slough at Castroville, respectively. The average

[13] Two options are currently being considered to connect the Blanco Drain diversion pipeline to the Salinas Interceptor before it enters the headworks. One option connects at the headworks and the other option connects 1,000 feet further upstream. The current proposal for the location of the connection is shown on **Figure 2-25**.

annual flows in the system and the amount proposed to be diverted are included for comparison.

Table 4.11-15
Estimated Pollutant Removal due to Proposed Surface Water Diversion from Reclamation Ditch at Davis Road, 6 cfs capacity

Pollutant	Average Conc.	Average Annual Flow	Average Pollutant Load	Diverted Flow	Diverted Pollutant Load
	(mg/L)	(AFY)	(lb/yr)	(AFY)	**(lb/yr)**
Ammonia as N, Unionized	0.029	7,640	597	1,611	**126**
Ammonia as NH3	0.61	7,640	12,581	1,611	**2,653**
Chloride	106.41	7,640	2,195,025	1,611	**462,852**
Chlorophyll a, water column	0.016	7,640	332	1,611	**70**
Chlorpyrifos	0.0016	7,640	32	1,611	**7**
Diazinon	0.10	7,640	2,058	1,611	**434**
Dissolved Solids, Total	641.83	7,640	13,239,724	1,611	**2,791,780**
Nitrate as N	13.00	7,640	268,084	1,611	**56,529**
OrthoPhosphate as P	0.65	7,640	13,327	1,611	**2,810**
Suspended Solids, Total	69.46	7,640	1,432,718	1,611	**302,108**
Source: Schaaf & Wheeler, 2015b					

Table 4.11-16
Estimated Pollutant Removal due to Proposed Surface Water Diversions from Tembladero Slough at Castroville, 3 cfs capacity

Pollutant	Average Conc.	Average Annual Flow	Average Pollutant Load	Diverted Flow	Diverted Pollutant Load
	(mg/L)	(AFY)	(lb/yr)	(AFY)	(lb/yr)
Ammonia as N, Unionized	0.010	10,696	836	1,536	120
Ammonia as NH3	0.03	10,696	17,613	1,536	2,529
Chloride	876.41	10,696	3,073,036	1,536	441,304
Chlorophyll a, water column	0.037	10,696	464	1,536	67
Chlorpyrifos	0.0111	10,696	45	1,536	6
Diazinon	0.20	10,696	2,881	1,536	414
Dissolved Solids, Total	2,024.71	10,696	18,535,614	1,536	2,661,808
Nitrate as N	28.59	10,696	375,317	1,536	53,897
OrthoPhosphate as P	0.43	10,696	18,658	1,536	2,679
Suspended Solids, Total	133.85	10,696	2,005,805	1,536	288,044
Source: Schaaf & Wheeler, 2015b					

Pollutant Load Reductions - Blanco Drain Diversion

A benefit of the Proposed Project is that it would remove waters of marginal quality due to diversion as source water to meet the Proposed Project objectives. Diversion of water from the Blanco Drain would remove a portion of the current pollutant load from the Salinas River that ultimately flows to the Salinas River Lagoon and Monterey Bay (directly or through the Old Salinas River Channel to the Moss Landing Harbor). The water quality (in terms of concentrations) of the water remaining within these water bodies may not noticeably improve;

however, the reduction in pollutant-loaded flows would have a positive effect on the water quality in the Old Salinas River Channel, Moss Landing Harbor below Potrero Road tide gates, and in the Monterey Bay and Pacific Ocean.

In the Biological Opinion for the Salinas Valley Water Project (that included the Salinas River Diversion Facility), NMFS recommended diverting the Blanco Drain flows to the Regional Treatment Plant as a means of improving the habitat in the Salinas River Lagoon. Removing water from the Blanco Drain and conveying it to the Regional Treatment Plant for treatment and reuse would reduce the dissolved and suspended pollutant load on the Salinas River (i.e., reduction in the environmental load). The quantity removed may be estimated using the conversion factor 1 mg/L = 2.7 lb/AF. **Table 4.11-17** below shows the estimated annual pollutant removal, assuming average annual flow conditions and historic average pollutant concentrations under the Proposed Project diversion of 6 cfs maximum pumping capacity. The average annual flows in the system and the amount proposed to be diverted are included for comparison.

Table 4.11-17
Estimated Pollutant Removal due to Proposed Surface Water Diversions from Blanco Drain

Pollutant	Average Conc.	Average Annual Flow	Average Pollutant Load	Diverted Flow	Diverted Pollutant Load
	(mg/L)	(AFY)	(lb/yr)	(AFY)	(lb/yr)
Ammonia as N, Unionized	0.014	2,620	98	2,620	98
Ammonia as NH3	0.20	2,620	1,432	2,620	1,432
Chlorophyll a, water column	0.0021	2,620	15	2,620	15
Chlorpyrifos	0.00085	2,620	6	2,620	6
Diazinon	0.011	2,620	76	2,620	76
Dissolved Solids, Total	2019.7	2,620	14,287,358	2,620	14,287,358
Nitrate as N	65.27	2,620	461,726	2,620	461,726
OrthoPhosphate as P	0.85	2,620	6,026	2,620	6,026
Source: Schaaf & Wheeler, 2014b					

Inter-related Salinity and Water Level Impacts

The Tembladero Slough and Old Salinas River channel are tidally influenced, with a well-defined halocline (higher salinity at the bottom of the channel[14]). The tidal effects are dampened by the tide (flap) gates on the Old Salinas River at Potrero Road, but brackish water still passes through the gates. The upstream migration of the saline layer is controlled, in part, by freshwater inflows that provide dilution at low flows and which push the salt water downstream at higher flows. The estuary typically sees seasonal increases in salinity, with peak levels occurring in late summer before the on-set of winter rains. Students in the Central Coast Watershed Studies Program at CSUMB studied salinity in the Tembladero Slough on several days in November 2010 and again in November 2014. Calendar year 2010 was a wet year, and also the first year that the Salinas River Diversion Facility (SRDF) was in operation. Releases from San Antonio

[14] Central Coast Watershed Studies Program, 2010 and 2014 reports on Spatial and Temporal Variations on Streamflow and Water Quality in the Tembladero Slough.

and Nacimiento Reservoirs were increased for rediversion at the SRDF, and while the facility was operating a minimum of 2 cfs was released to the Salinas Lagoon, which is tributary to the Old Salinas River Channel. In 2010, the lagoon opened to the ocean on December 25 (after the 2010 sampling period was completed), and stayed open until September 21, 2011. Conversely, the 2014 sampling period came at the end of an extended drought, with record low rainfall during the period 2012 to 2014. The Salinas River Lagoon was last open to the ocean on January 27, 2013. The Salinas River Diversion Facility was not operated during the summer of 2014, so there were no upstream reservoir releases augmenting flows into the lagoon and the Old Salinas River.

As shown in **Table 4.11-6**, the total dissolved solids concentrations in the Reclamation Ditch below Carr Lake ranged from 642 to 1,080 mg/L (equivalent to 0.64 to 1.08 ppt). As shown in **Table 4.11-7**, the total dissolved solids concentrations in the Tembladero Slough ranged from 2,025 to 18,000 mg/L (equivalent to 2 to 18 ppt). A 2010 study by CCOWS, discussed above, found salinities at the lower end of the Tembladero Slough ranging from 1 to 15 parts per thousand (ppt). In 2014, salinities at that location ranged from 1 to 20 ppt. Seawater has salinity of about 35 ppt, so while there was a definite increase in salinity due to the prolonged drought that has occurred from 2012 through 2014, the Slough remained a brackish estuary. There were rainfall events during both the 2010 and 2014 sampling periods, and the post-rainfall sampling showed similar low salinities (under 1 ppt) in both years. The 2014 study extended the water sampling upstream into the Reclamation Ditch, and found that the saline layer was detectable as far upstream as Haro Road in Castroville. This information leads to the conclusion that salinity is controlled almost exclusively by the ocean due to tidal influence and by rainfall that results in periods of high flows in the surface waters. Lower background flows during the drought conditions mimic conditions that might occur when proposed project diversions would occur. These reductions in overall flows from the watershed that flows into the water bodies in the lower watershed had little effect on the high and low range of salinities.

The Proposed Project would divert up to 80% of the available flows from the Reclamation Ditch/Tembladero Slough in the summer months (June to October), which may result in increased salinity near the water surface, and/or longer periods of salinity accumulation in the Tembladero Slough before seasonal flushing by winter runoff. Diversions from the Reclamation Ditch and Tembladero Slough would be most needed by the Proposed Project during dry years when irrigation demands are highest. Due to the tidal influence, water levels in the Tembladero Slough would not be noticeably affected by the project, so wetland species would not see a loss of wetted habitat due to salinity changes, only an increase in the duration of periods of higher salinity. The existing system exhibits a wide variation of salinities due to the influence of the ocean tidal fluctuations, storm surges, agricultural tile drain and surface runoff, and urban runoff; therefore, the salinity changes due to the Proposed Project would be within the range of salinities that are currently found in these water bodies every year. Based on the above information, these changes would result in a less-than-significant impact on surface water quality in the affected reaches of the Reclamation Ditch, Tembladero Slough and the Old Salinas River Channel. Additional discussion of impacts to wetland and riparian habitat is provided in **Section 4.5, Biological Resources: Terrestrial**.

Erosion and Sedimentation due to Hydrologic Changes

Operation of proposed surface water diversion components on the Reclamation Ditch, Tembladero Slough, and Blanco Drain could result in increased erosion and subsequent sedimentation/siltation, with adverse impacts to surface water quality.

The diversions of agricultural wash water, Salinas urban runoff, and flows from the Blanco Drain, would capture some stormwater which currently flows to the Salinas River. Reducing urban runoff into the Salinas River, particularly the first flush as storms begin, would reduce the amount of suspended solids conveyed to the river and may reduce peak flows being discharged into the river. The change in operation at the Salinas Treatment Facility to facilitate the diversion of agricultural wash water and Salinas urban runoff would have no effect on erosion and siltation, because that water is currently disposed of using evaporation and percolation and would continue to percolate however at a lesser amount due to diversions to the Regional Treatment Plant and recovery of stored water to the Regional Treatment Plant. The diversion of Blanco Drain flows would reduce the amount of sediment carried from the Blanco Drain into the main stem of the Salinas River, and the channel around the inlet structure for the diversion pump station would be lined with concrete to prevent local scour and erosion. The Blanco Drain diversion may not operate during wet winter months when storm runoff typically occurs. In that case, the conveyance of sediment from the Blanco Drain into the River would be no greater than under the current condition (Schaaf & Wheeler, 2015a).

Although the channel around the inlet structure for the diversion pump station would be lined with concrete to prevent local scour and erosion, diversions from the water bodies may result in rapid water-level fluctuations that could, if not managed correctly, increase erosion and sedimentation downstream of the diversion points, including potentially increased incidences of bank collapse. Erosion due to water-level fluctuations would not occur at the Blanco Drain diversion site because the proposed pump station would be placed adjacent to the existing pump station that limits the water level fluctuations and has been demonstrated to not result in erosion bank collapse. In addition, water-level fluctuations would not result in erosion or sedimentation due to diversions at the Tembladero Slough Diversion site where maximum diversions would rarely affect water levels due to the pooling, backwater effect of the Potrero Tide Gates and wide channel in this reach of the water body.

At higher background flow levels (i.e., 10-year storm event or larger) within the Reclamation Ditch, sediment-transport rates are higher, and pool scour-and-fill processes, bar mobility, and bank instability are active and expected in any earthen drainage system. In addition, higher flows occur during and following rain storms when water levels in this water body are dynamic, typically rising rapidly during the storm and receding quickly as the storm passes. Water levels in these waterbodies rise highest during a sequence of storms and develop a seasonal peak of 100 to 200 cubic feet per second or more. Two or three seasonal peaks are common during a typical wet season. The natural erosion and sediment transport processes dominate the ditch system during these high flow events. In these high flow events, the proposed diversions would not result in increased erosion and sedimentation because the diversion may reduce high flows albeit only by a small percent (at most approximately 5 to 10%). In addition, as discussed in the **Chapter 2, Project Description** (see **Section 2.7.1.2)**, the diversion would be reduced when irrigation demands decrease and adequate flows of other source waters are available for recycling. For these reasons during high flow conditions (i.e., during and after 10-year or greater storm events), potential erosion, sedimentation (i.e., increases in turbidity) and bank collapse due to water-level fluctuations would not be detectable. According to Schaaf & Wheeler, the conveyance of sediment from the Reclamation Ditch/Tembladero Slough into the Old Salinas River would be no greater than under the current condition (Schaaf & Wheeler, 2015b).

Ongoing rapid water-level fluctuations associated with diversion regimes at the Reclamation Ditch Diversion site may result in erosion and sedimentation, including due to bank failure of the Reclamation Ditch west of Davis Road and the portion of Tembladero Slough between its confluence with the Reclamation Ditch and the Highway 1 bridge. The Reclamation Ditch Diversion component proposes a diversion of up to 6 cubic feet per second (cfs) during the dry seasons (typically, June through October). In some cases, those diversions would be as much as 80% of the flow in the water body and thus rapid water fluctuations may induce erosion and sedimentation, or bank failure. This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of Mitigation Measure HS-4, below.

Lake El Estero

The City of Monterey actively manages the water level in Lake El Estero so that there is storage capacity for large storm events. Prior to a storm event, the lake level is lowered by pumping or gravity flow for discharge to Del Monte Beach. The Proposed Project would include improvements that would enable water that would otherwise be discharged to the beach to instead be conveyed to the Regional Treatment Plant to be recycled. Lake El Estero Water is proposed to be diverted (when available and needed to meet Proposed Project objectives, typically between November and April) by gravity or using a small pump to the municipal wastewater collection system in the vicinity of the City of Monterey's existing stormwater management pump station at the northeastern corner of Lake El Estero. This diversion would occur in lieu of pumping lake water into the city's storm drainage pipelines or allowing it to overflow into storm drainage pipelines. Lake El Estero is a land-locked water body that only discharges to the ocean during large storm events; in these cases, lake water is pumped or flows by gravity through pipelines under Del Monte Boulevard and adjacent parkland. These pipelines currently discharge stormwater via man-made outfalls onto the nearby Del Monte State Beach above the normal high water line. The pump station intake is screened to prevent fish from entering the station. The outfall structure is gated to prevent sand from accumulating inside the structure when not in use. If the pump station cannot divert the full volume of stormwater runoff entering the lake and the lake level rises sufficiently, the excess water flows through two 33-inch gravity pipelines to a second point of discharge on Del Monte State Beach, west of the pump station outfall.

The RWQCB *Basin Plan* designates beneficial uses of Lake El Estero as including municipal and domestic supply, groundwater recharge, water contact recreation, non-contact water recreation, wildlife habitat, cold water fish habitat, warm water fish habitat, spawning/reproduction/early development habitat and commercial or sport fishing. The Monterey Harbor portion of the Monterey Bay has designated beneficial uses of water contact recreation, non-contact water recreation, industrial service supply, navigation, marine habitat, shellfish harvesting, commercial or sport fishing and rare/threatened/endangered species habitat.

Lake El Estero is not listed as an impaired water body, but Majors Creek (a tributary stream to Lake El Estero) and the Monterey Harbor are listed as impaired water bodies. Majors Creek is listed as impaired for copper, lead, zinc and Escherichia coliform. The Monterey Harbor is listed as impaired for metals and sediment toxicity. Water quality has been sampled and monitored for the past 15 years under various programs, including the Central Coast Long-term Environmental Assessment Network, the Monterey Bay Sanctuary Citizen Watershed Monitoring Network and the City of Monterey Urban Watch. The Monterey Regional Storm Water Management Program identifies water quality objectives for stormwater discharging into the Monterey Bay.

Stormwater runoff can carry pollutants such as oils, sediments and metals into the Monterey Bay, which is a National Marine Sanctuary. However, Lake El Estero serves as a settling basin for stormwater, which is a treatment process for the stormwater. Water passing through the lake carries lower levels of suspended solids than stormwater discharging directly to the Bay. The impact of diverting water to the Regional Treatment Plant instead of discharging the water to the beach would not result in a measurable change to existing water quality, either in the Lake itself or in the Monterey Bay and ocean (Schaaf & Wheeler, 2014a). Therefore, the proposed Lake El Estero Diversion would not impact water quality in the lake or in Monterey Bay.

All Other Project Components

None of the other Proposed Project components would impact surface water quality during operation due to their location and function. Impacts related to marine water quality due to ocean discharge of wastewater from the Advanced Water Treatment Facility at the Regional Treatment Plant are addressed in Impact HS-5. Therefore, no impacts associated with the other Proposed Project components are anticipated and no mitigation measures would be required.

Impact Conclusion

The Proposed Project would result in water quality benefits due to proposed diversions of polluted surface waters and wastewaters and treatment of those waters at the Regional Treatment Plant, as documented in this section and in **Appendices N, O rev, P, and Q rev.** During the dry seasons (typically, June through October) proposed diversions of surface water from the Reclamation Ditch would be as much as 80% of the flow in that drainage channel and thus rapid water fluctuations may induce erosion and sedimentation within the downstream affected reach of the Reclamation Ditch and Tembladero Slough (except west of the Highway 1 crossing where the tidal backwater effect dominates water level changes and would suppresses these imposed water level changes). This is a significant impact that would be reduced to a less-than-significant with implementation of the following mitigation measure.

Mitigation Measure

Mitigation Measure HS-4: Management of Surface Water Diversion Operations (Applies to Reclamation Ditch Diversion, only)

Rapid, imposed water-level fluctuations shall be avoided when operating the Reclamation Ditch Diversion pumps to minimize erosion and failure of exposed (or unvegetated), susceptible banks. This can be accomplished by operating the pumps at an appropriate flow rate, in conjunction with commencing operation of the pumps only when suitable water levels or flow rates are measured in the water body. Proper control shall be implemented to ensure that mobilized sediment would not impair downstream habitat values and to prevent adverse impacts due to water/soil interface adjacent to the Reclamation Ditch and Tembladero Slough. During planned routine maintenance at the Reclamation Ditch Diversion, maintenance personnel shall inspect the diversion structures within the channel for evidence of any adverse fluvial geomorphological processes (for example, undercutting, erosion, scour, or changes in channel cross-section). If evidence of any substantial adverse changes are noted, the diversion structure shall be redesigned and the project proponents shall modify it in accordance with the new design.

Impact HS-5: Operational Marine Water Quality due to Ocean Discharges. Proposed Project operational discharges of reverse osmosis concentrate to the ocean through the MRWPCA outfall would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. (Criteria a and e) (Less than Significant)

Treatment Facilities at the Regional Treatment Plant

The reverse osmosis process included in the proposed Advanced Water Treatment Facility (a component of the Treatment Facilities at the Regional Treatment Plant) would remove dissolved inorganics and organics from the waste water. The inorganics and organics removed from the treated water would be concentrated into a new waste stream. This waste stream (called concentrate) would be combined with Regional Treatment Plant secondary effluent when it is available and discharged via MRWPCA's existing ocean outfall. The secondary effluent (or Regional Treatment Plant effluent) is currently composed of both municipal wastewater and some discrete flows of dry weather urban runoff treated through the primary and secondary treatment process described in **Section 2.5.1**. The Regional Treatment Plant currently recycles a majority of the secondary effluent through the co-located Salinas Valley Reclamation Plant, a tertiary treatment plant that produces recycled water for agricultural land irrigation. The flows that exceed the demands for tertiary-treated water are disposed via the ocean outfall. In addition, an estimated maximum of 0.1 mgd of trucked-in brine waste is also disposed through the outfall with secondary effluent. Secondary effluent water quality data are provided in **Appendix D** (see Appendix B of the Nellor Environmental Associates, Inc. February 2015). Historical actual secondary flow quantities and future projections of wastewater flows are presented in **Chapter 2, Project Description**.

Impacts to water quality associated with the reverse osmosis by-product discharge (also referred to as reverse osmosis concentrate) combined with a range of wastewater and hauled brine quantities were compared to the Ocean Plan water quality objectives at the edge of the zone of initial dilution. The analysis is based on dilution modeling conducted by FlowScience and water quality concentration spreadsheet analysis conducted by Trussell Technologies on behalf of MRWPCA. **Figure 4.11-9** shows a schematic of the methodology and data sources used to assess the Proposed Project's impact on marine water quality

As described above, the Ocean Plan compliance analysis estimated the worst-case water quality for each of the three future discharge components: future Regional Treatment Plant effluent, Proposed Project reverse osmosis concentrate, and hauled brine waste. A summary of the estimated water qualities of these components is given in **Table 4.11-18.** Additional considerations and assumptions for each constituent are documented in the **Table 4.11-18** notes section.

Table 4.11-18
Summary of Estimated Worst-Case Water Quality for the Three Waters that Would Be Discharged through the Ocean Outfall

Constituent	Units	Secondary Effluent	Hauled Brine	Reverse Osmosis Concentrate	Notes
Ocean Plan water quality objectives for protection of marine aquatic life					
Arsenic	µg/L	45	45	12	1,12
Cadmium	µg/L	1.2	1.2	6.4	2,11
Chromium (Hexavalent)	µg/L	2.7	130	14	2,11
Copper	µg/L	25.9	39	136	2,11
Lead	µg/L	0.82	0.82	4.3	2,11
Mercury	µg/L	0.089	0.089	0.510	5,12
Nickel	µg/L	13.1	13.1	69	2,11
Selenium	µg/L	6.5	75	34	2,11
Silver	µg/L	*ND(<1.59)*	ND(<1.59)	ND(<0.19)	4,14
Zinc	µg/L	48.4	48.4	255	2,11
Cyanide (MBAS data)	µg/L	89.5	89.5	143	2,12,13,16
Cyanide	µg/L	7.2	46	38	6,11,16
Total Chlorine Residual	µg/L	*ND(<200)*	*ND(<200)*	*ND(<200)*	10
Ammonia (as N), 6-month median	µg/L	36,400	36,400	191,579	1,11
Ammonia (as N), daily maximum	µg/L	49,000	49,000	257,895	1,11
Acute Toxicity	TUa	2.3	2.3	0.77	7,12,13
Chronic Toxicity	TUc	40	40	100	7,12,13
Phenolic Compounds (non-chlorinated)	µg/L	69	69	363	1,9,11
Chlorinated Phenolics	µg/L	*ND(<20)*	*ND(<20)*	ND(<20)	4,14
Endosulfan	µg/L	0.048	0.048	0.25	5,9,11
Endrin	µg/L	0.000079	0.000079	0.00	3,11
HCH (Hexachlorocyclohexane)	µg/L	0.060	0.060	0.314	11
Radioactivity (Gross Beta)	pCi/L	32	307	34.8	1,7,12,13
Radioactivity (Gross Alpha)	pCi/L	18	457	14.4	1,7,12,13
Objectives for protection of human health - noncarcinogens					
Acrolein	µg/L	9.0	9.0	47	2,11
Antimony	µg/L	0.79	0.79	4	1,11
Bis (2-chloroethoxy) methane	µg/L	*ND(<4.2)*	*ND(<4.2)*	*ND(<1)*	4,14
Bis (2-chloroisopropyl) ether	µg/L	*ND(<4.2)*	*ND(<4.2)*	*ND(<1)*	4,14
Chlorobenzene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
Chromium (III)	µg/L	7.3	87	38	1,11
Di-n-butyl phthalate	µg/L	*ND(<7)*	ND(<7)	*ND(<1)*	4,14
Dichlorobenzenes	µg/L	*1.6*	*1.6*	*8*	1,11
Diethyl phthalate	µg/L	*ND(<5)*	*ND(<5)*	*ND(<1)*	4,14
Dimethyl phthalate	µg/L	*ND(<2)*	*ND(<2)*	*ND(<0.5)*	4,14
4,6-dinitro-2-methylphenol	µg/L	*ND(<20)*	*ND(<20)*	*ND(<5)*	4,14
2,4-dinitrophenol	µg/L	*ND(<13)*	*ND(<13)*	*ND(<5)*	4,14
Ethylbenzene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
Fluoranthene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.1)*	4,14
Hexachlorocyclopentadiene	µg/L	*ND(<0.5)*	*ND(<0.5)*	ND(<0.05)	4,14
Nitrobenzene	µg/L	*ND(<2.3)*	*ND(<2.3)*	*ND(<1)*	4,14
Thallium	µg/L	0.69	0.69	3.7	2,11
Toluene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
Tributyltin	µg/L	*ND(<0.05)*	*ND(<0.05)*	*ND(<0.02)*	8,14
1,1,1-trichloroethane	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14

Table 4.11-18
Summary of Estimated Worst-Case Water Quality for the Three Waters that Would Be Discharged through the Ocean Outfall

Constituent	Units	Secondary Effluent	Hauled Brine	Reverse Osmosis Concentrate	Notes
Objectives for protection of human health - carcinogens					
Acrylonitrile	µg/L	2.5	2.5	13	2,11
Aldrin	µg/L	*ND(<0.007)*	*ND(<0.007)*	*ND(<0.01)*	4,14
Benzene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
Benzidine	µg/L	ND(<19.8)	*ND(<19.8)*	*ND(<0.05)*	4,14
Beryllium	µg/L	ND(<0.69)	0.0052	*ND(<0.5)*	4,14
Bis(2-chloroethyl)ether	µg/L	ND(<4.2)	*ND(<4.2)*	*ND(<1)*	4,14
Bis(2-ethyl-hexyl)phthalate	µg/L	78	78	411	1,11
Carbon tetrachloride	µg/L	0.5	0.5	2.7	2,11
Chlordane	µg/L	0.000735	0.000735	0.00387	3,9,11
Chlorodibromomethane	µg/L	2.4	2.4	13	2,11
Chloroform	µg/L	39	39	204	2,11
DDT	µg/L	0.0011	0.022	0.035	2,9,11
1,4-dichlorobenzene	µg/L	1.6	1.6	8.4	1,11
3,3-dichlorobenzidine	µg/L	*ND(<19)*	*ND(<19)*	*ND(<2)*	4,14
1,2-dichloroethane	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
1,1-dichloroethylene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
Dichlorobromomethane	µg/L	2.6	2.6	14	2,11
Dichloromethane (methylenechloride)	µg/L	0.64	0.64	3.4	2,11
1,3-dichloropropene	µg/L	0.56	0.56	3.0	2,11
Dieldrin	µg/L	0.0005	0.0056	0.0029	2,11
2,4-dinitrotoluene	µg/L	*ND(<2)*	*ND(<2)*	*ND(<0.1)*	4,14
1,2-diphenylhydrazine (azobenzene)	µg/L	*ND(<4.2)*	*ND(<4.2)*	*ND(<1)*	4,14
Halomethanes	µg/L	1.4	1.4	7.5	2,9,11
Heptachlor	µg/L	*ND(<0.01)*	*ND(<0.01)*	*ND(<0.01)*	4,14
Heptachlor epoxide	µg/L	0.000059	0.000059	0.000311	3,11
Hexachlorobenzene	µg/L	0.000078	0.000078	0.000411	3,11
Hexachlorobutadiene	µg/L	0.000009	0.000009	0.000047	3,11
Hexachloroethane	µg/L	*ND(<2.3)*	*ND(<2.3)*	*ND(<0.5)*	4,14
Isophorone	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
N-Nitrosodimethylamine	µg/L	0.096	0.096	0.150	2,12,13
N-Nitrosodi-N-Propylamine	µg/L	0.076	0.076	0.019	1,12,13
N-Nitrosodiphenylamine	µg/L	*ND(<2.3)*	*ND(<2.3)*	ND(<1)	4,14
PAHs	µg/L	0.0529	0.0529	0.278	3,9,11
PCBs	µg/L	0.000679	0.000679	0.00357	3,9,11
TCDD Equivalents	µg/L	1.54E-07	1.54E-07	8.09E-07	8,9,11
1,1,2,2-tetrachloroethane	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
Tetrachloroethylene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
Toxaphene	µg/L	0.00709	0.00709	3.73E-02	3,11
Trichloroethylene	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
1,1,2-trichloroethane	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14
2,4,6-trichlorophenol	µg/L	*ND(<2.3)*	*ND(<2.3)*	*ND(<1)*	4,14
Vinyl chloride	µg/L	*ND(<0.5)*	*ND(<0.5)*	*ND(<0.5)*	4,14

Table 4.11-18
Summary of Estimated Worst-Case Water Quality for the Three Waters that Would Be Discharged through the Ocean Outfall

Constituent	Units	Secondary Effluent	Hauled Brine	Reverse Osmosis Concentrate	Notes

Notes:

Regional Treatment Plant Effluent and Hauled Brine Data

1 Existing Regional Treatment Plant effluent exceeds concentrations observed in other proposed source waters; the value reported is the existing secondary effluent value.

2 The proposed new source waters may increase the secondary effluent concentration; the value reported is based on predicted source water blends.

3 Regional Treatment Plant effluent value is based on CCLEAN data; no other source waters were considered due to MRL differences.

4 MRL provided represents the maximum flow-weighted MRL based on the blend of source waters.

5 The only water with a detected concentration was the Regional Treatment Plant effluent, however the flow-weighted concentration increases due to higher MRLs for the proposed new source waters.

6 Additional source water data are not available; the reported value is for Regional Treatment Plant effluent.

7 Calculation of the flow-weighted concentration was not feasible due to constituent and the maximum observed value reported.

8 Agricultural Wash Water data are based on an aerated sample, instead of a raw water sample.

9 This value in the Ocean Plan is an aggregate of several congeners or compounds. Per the approach described in the Ocean Plan, for cases where the individual congeners/compounds were less than the MRL, a value of 0 is assumed in calculating the aggregate value, as the MRLs span different orders of magnitude.

10 For all waters, it is assumed that dechlorination will be provided when needed such that the total chlorine residual will be below detection.

Reverse Osmosis Concentrate Data

11 The value presented represents a calculated value assuming no removal prior to reverse osmosis, complete rejection through reverse osmosis membrane, and an 81% reverse osmosis recovery.

12 The value represents the maximum value observed during the pilot testing study.

13 The calculated value for the reverse osmosis concentrate data (described in note 11) was not used in the analysis because it was not considered representative. It is expected that the value would increase as a result of treatment through the AWT Facility (*i.e.,* formation of N-Nitrosodimethylamine as a disinfection by-product), or that it will not concentrate linearly through the reverse osmosis (*i.e.,* toxicity and radioactivity).

14 The MRL provided represents the limit from the source water and pilot testing monitoring programs.

15 The value presented represents a calculated value assuming 20% removal through primary and secondary treatment, 70% and 90% removal through ozone for DDT and dieldrin, respectively (based on Oram, 2008), complete rejection through the reverse osmosis membrane, and an 81% reverse osmosis recovery. The assumed Regional Treatment Plant concentrations for Dieldrin and DDT do not include contributions from the agricultural drainage waters. This is because in all but one flow scenario (Scenario 4, described later), either the agricultural drainage waters are not being brought into the Regional Treatment Plant because there is sufficient water from other sources (*i.e.,* during wet and normal precipitation years), or the Regional Treatment Plant effluent is not being discharged to the outfall (*i.e.,* summer months). In this one scenario (Scenario 4), there is a minimal discharge of secondary effluent to the ocean during a drought year under Davidson ocean conditions; for this flow scenario only, different concentrations are assumed for the Regional Treatment Plant effluent. DDT and dieldrin concentrations of 0.022 μg/L and 0.0056 μg/L were used for Scenario 4 in the analysis.

Cyanide Data

16 In mid-2011, MBAS began performing the cyanide analysis on the Regional Treatment Plant effluent, at which time the reported values increased by an order of magnitude. Because no operational or source water composition changes took place at this time that would result in such an increase, it is reasonable to conclude the increase is an artifact of the change in analysis method and therefore questionable. Therefore, the cyanide values as measured by MBAS are listed separately from other cyanide values, and the MBAS data were not be used in the analysis for evaluating compliance with the Ocean Plan objectives for the EIR.

Ocean Modeling Results

FlowScience performed modeling of various discharge scenarios that include combinations of Regional Treatment Plant secondary effluent, hauled brine waste, and Proposed Project reverse osmosis concentrate (FlowScience, 2014). Year-round compliance with the Ocean Plan objectives was assessed through the evaluation of five representative discharge scenarios. All scenarios assume the maximum flow rates for the reverse osmosis concentrate and hauled brine waste, which is a conservative assumption in terms of constituent loading and minimum dilution. Various secondary effluent flows were used in the compliance analysis, which represent the different types of future discharge compositions.

The five scenarios used for the compliance assessment in terms of secondary effluent flows to be discharged with the other discharges are shown in **Table 4.11-19**, and include:

(1) **Regional Treatment Plant Design Capacity:** maximum flows for the Proposed Project with all 172 discharge ports open[15]. The Oceanic ocean condition was used as it represents the worst-case dilution for this flow scenario. This scenario represents the maximum NPDES-permitted wastewater flow (with the Proposed Project in operation).

(2) **Maximum Flow under Current Port Configuration:** the maximum flow that can be discharged with the current ports configuration (130 of the 172 ports open)[16]. The Oceanic ocean condition was used as it represents the worst-case dilution for this flow scenario. This scenario was chosen as it represents the maximum wastewater flow under the existing diffuser conditions.

(3) **Minimum Wastewater Flow (Oceanic/Upwelling):** the maximum influence of the Proposed Project reverse osmosis concentrate on the ocean discharge under Oceanic/Upwelling ocean conditions (i.e., no secondary effluent discharged). The Oceanic ocean condition was used as it represents the worst-case dilution for this flow scenario.

(4) **Minimum Wastewater Flow (Davidson):** the maximum influence of the Proposed Project reverse osmosis concentrate on the ocean discharge under Davidson ocean condition (i.e., the minimum wastewater flow). Observed historic wastewater flows generally exceed 0.4 mgd during Davidson oceanic conditions. Additional source waters would be brought into the Regional Treatment Plant if necessary to maintain the 0.4 mgd minimum.

(5) **Moderate Wastewater Flow:** conditions with a moderate wastewater flow when the Proposed Project reverse osmosis concentrate has a greater influence to the water quality than in Scenarios 1 and 2, but where the ocean dilution (D_m) is reduced due to the higher overall discharge flow (*i.e.*, compared to Scenarios 2 and 3). The Davidson ocean condition was used as it represents the worst-case dilution for this flow scenario.

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[15] Note that this scenario would only apply if wastewater flows increased to the point that MRWPCA took action to open the 42 discharge ports that are currently closed. Scenario 2 is the maximum discharge flow under the current port configuration.

[16] For Scenarios 2 through 5, ocean modeling was performed assuming 120 ports open, which would yield more conservative D_m values than 130 ports, as dilution increases with increasing numbers of open ports.

Table 4.11-19
Flow Scenarios and Modeled D_m Values used for Ocean Plan Compliance Analysis

No.	Discharge Scenario (Ocean Condition)	Flows (mgd)			D_m
		Secondary effluent	Reverse Osmosis Concentrate	Hauled brine	
1	Regional Treatment Plant Design Capacity (Oceanic)	24.7	0.94	0.1	150
2	Regional Treatment Plant Capacity with Current Port Configuration (Oceanic)	23.7	0.94	0.1	137
3	Minimum Wastewater Flow (Oceanic)	0	0.94	0.1	523
4	Minimum Wastewater Flow (Davidson)	0.4	0.94	0.1	285
5	Moderate Wastewater Flow Condition (Davidson)	3	0.94	0.1	201

Ocean Plan Compliance Results

The flow-weighted in-pipe concentration for each constituent was calculated for each discharge scenario using the water quality presented in **Table 4.11-18** and the flows presented in **Table 4.11-19.** The in-pipe concentration was then used to calculate the concentration at the edge of the ZID using the D_m values presented in **Table 4.11-19**. The resulting concentrations at the edge of the ZID for each constituent in each scenario were compared to the Ocean Plan objective to assess compliance. The estimated concentrations for all five flow-scenarios are presented as concentrations at the edge of the ZID in **Table 4.11-20** and as a percentage of the Ocean Plan objective in **Table 4.11-21.** As shown, none of the constituents are expected to exceed 80% of their Ocean Plan objective[17].

Table 4.11-20
Predicted Concentrations of Ocean Plan Constituents at the Edge of the ZID

Constituent	Units	Ocean Plan Objective	Predicted concentrations of Ocean Plan constituents at the Edge of ZID by Discharge Scenario				
			1	2	3	4	5
Objectives for protection of marine aquatic life							
Arsenic	ug/L	8	3.3	3.3	3.0	3.1	3.2
Cadmium	ug/L	1	0.009	0.01	0.01	0.02	0.01
Chromium (Hexavalent)	ug/L	2	0.02	0.03	0.05	0.07	0.04
Copper	ug/L	3	2.2	2.2	2.2	2.3	2.2
Lead	ug/L	2	0.006	0.007	0.008	0.011	0.008
Mercury	ug/L	0.04	0.006	0.006	0.006	0.006	0.006
Nickel	ug/L	5	0.1	0.1	0.1	0.2	0.1
Selenium	ug/L	15	0.05	0.06	0.07	0.10	0.07
Silver	ug/L	0.7	<0.17	<0.17	<0.16	<0.16	<0.17
Zinc	ug/L	20	8.3	8.3	8.4	8.6	8.4
Cyanide (MBAS data)	ug/L	1	0.61	0.66	0.26	0.44	0.50
Cyanide	ug/L	1	0.056	0.062	0.074	0.105	0.076
Total Chlorine Residual	ug/L	2	<1.3	<1.4	<0.4	<0.7	<1.0
Ammonia (as N) - 6-mo median	ug/L	600	279	306	337	481	359

[17] Aldrin, benzidine, 3,3-dichlorobenzidine, and heptachlor were not detected in any source waters, however their MRLs are greater than the Ocean Plan objective. Therefore, no percentages are presented Table 4 as no compliance conclusions can be drawn for these constituents. This is a typical occurrence for ocean discharges since the MRL is higher than the ocean plan objective for some constituents.

Table 4.11-20
Predicted Concentrations of Ocean Plan Constituents at the Edge of the ZID

Constituent	Units	Ocean Plan Objective	Predicted concentrations of Ocean Plan constituents at the Edge of ZID by Discharge Scenario				
			1	2	3	4	5
Ammonia (as N) - Daily Max	ug/L	2,400	375	413	454	648	483
Acute Toxicity[a]	TUa	0.3					
Chronic Toxicity[a]	TUc	1					
Phenolic Compounds (non-chlorinated)	ug/L	30	0.53	0.58	0.64	0.91	0.68
Chlorinated Phenolics	ug/L	1	<0.13	<0.14	<0.04	<0.07	<0.10
Endosulfan	ug/L	0.009	0.00037	0.00040	0.00045	0.00064	0.00047
Endrin	ug/L	0.002	6.0E-07	6.7E-07	7.3E-07	1.0E-06	7.8E-07
HCH (Hexachlorocyclohexane)	ug/L	0.004	0.00046	0.00050	0.00055	0.00079	0.00059
Radioactivity (Gross Beta)[a]	pci/L	0.0					
Radioactivity (Gross Alpha)[a]	pci/L	0.0					
Objectives for protection of human health - non-carcinogens							
Acrolein	ug/L	220	0.07	0.08	0.08	0.1	0.09
Antimony	ug/L	1200	0.0060	0.0066	0.0073	0.010	0.0078
Bis (2-chloroethoxy) methane	ug/L	4.4	<0.03	<0.03	<0.002	<0.007	<0.02
Bis (2-chloroisopropyl) ether	ug/L	1200	<0.03	<0.03	<0.002	<0.007	<0.02
Chlorobenzene	ug/L	570	<0.003	<0.004	<0.001	<0.002	<0.002
Chromium (III)	ug/L	190000	0.058	0.064	0.082	0.116	0.082
Di-n-butyl phthalate	ug/L	3500	<0.04	<0.05	<0.003	<0.01	<0.03
Dichlorobenzenes	ug/L	5100	0.01	0.01	0.01	0.02	0.02
Diethyl phthalate	ug/L	33000	<0.03	<0.04	<0.003	<0.008	<0.02
Dimethyl phthalate	ug/L	820000	<0.01	<0.01	<0.001	<0.004	<0.008
4,6-dinitro-2-methylphenol	ug/L	220	<0.1	<0.1	<0.01	<0.04	<0.08
2,4-Dinitrophenol	ug/L	4.0	<0.08	<0.09	<0.01	<0.03	<0.06
Ethylbenzene	ug/L	4100	<0.003	<0.004	<0.001	<0.002	<0.002
Fluoranthene	ug/L	15	<0.003	<0.004	<0.0003	<0.001	<0.002
Hexachlorocyclopentadiene	ug/L	58	<0.003	<0.003	<0.0002	<0.001	<0.002
Nitrobenzene	ug/L	4.9	<0.01	<0.02	<0.002	<0.005	<0.01
Thallium	ug/L	2	0.005	0.006	0.006	0.009	0.007
Toluene	ug/L	85000	<0.003	<0.004	<0.001	<0.002	<0.002
Tributyltin	ug/L	0.0014	<0.0003	<0.0004	<0.00004	<0.0001	<0.0002
1,1,1-Trichloroethane	ug/L	540000	<0.003	<0.004	<0.001	<0.002	<0.002
Objectives for protection of human health - carcinogens							
Acrylonitrile	ug/L	0.10	0.02	0.02	0.02	0.03	0.03
Aldrin[b]	ug/L	0.000022	<0.00005	<0.00005	<0.00002	<0.00003	<0.00004
Benzene	ug/L	5.9	<0.003	<0.004	<0.001	<0.002	<0.002
Benzidine[b]	ug/L	0.000069	<0.1	<0.1	<0.004	<0.02	<0.08
Beryllium	ug/L	0.033	0.005	0.005	0.001	0.002	0.003
Bis(2-chloroethyl)ether	ug/L	0.045	<0.03	<0.03	<0.002	<0.007	<0.02
Bis(2-ethyl-hexyl)phthalate	ug/L	3.5	0.60	0.66	0.72	1.03	0.77
Carbon tetrachloride	ug/L	0.90	0.004	0.004	0.005	0.007	0.005
Chlordane	ug/L	0.000023	5.6E-06	6.2E-06	6.8E-06	9.7E-06	7.2E-06
Chlorodibromomethane	ug/L	8.6	0.02	0.02	0.02	0.03	0.02
Chloroform	ug/L	130	0.3	0.3	0.4	0.5	0.4
DDT	ug/L	0.00017	1.6E-05	1.8E-05	6.4E-05	1.1E-04	4.7E-05
1,4-Dichlorobenzene	ug/L	18	0.01	0.01	0.01	0.02	0.02
3,3-Dichlorobenzidine[b]	ug/L	0.0081	<0.1	<0.1	<0.01	<0.03	<0.1
1,2-Dichloroethane	ug/L	28	<0.003	<0.004	<0.001	<0.002	<0.002
1,1-Dichloroethylene	ug/L	0.9	0.003	0.004	0.001	0.002	0.002
Dichlorobromomethane	ug/L	6.2	0.02	0.02	0.02	0.03	0.03
Dichloromethane (methylenechloride)	ug/L	450	0.005	0.01	0.01	0.01	0.01
1,3-dichloropropene	ug/L	8.9	0.004	0.005	0.01	0.01	0.01

Table 4.11-20
Predicted Concentrations of Ocean Plan Constituents at the Edge of the ZID

Constituent	Units	Ocean Plan Objective	Predicted concentrations of Ocean Plan constituents at the Edge of ZID by Discharge Scenario				
			1	2	3	4	5
Dieldrin	ug/L	0.00004	4.0E-06	4.5E-06	6.1E-06	1.3E-05	5.9E-06
2,4-Dinitrotoluene	ug/L	2.6	<0.01	<0.01	<0.001	<0.003	<0.01
1,2-Diphenylhydrazine (azobenzene)	ug/L	0.16	<0.03	<0.03	<0.002	<0.01	<0.02
Halomethanes	ug/L	130	0.011	0.012	0.013	0.019	0.014
Heptachlor[b]	ug/L	0.00005	<0.0001	<0.0001	<0.00002	<0.00003	<0.00005
Heptachlor Epoxide	ug/L	0.00002	4.5E-07	5.0E-07	5.5E-07	7.8E-07	5.8E-07
Hexachlorobenzene	ug/L	0.00021	6.0E-07	6.6E-07	7.2E-07	1.0E-06	7.7E-07
Hexachlorobutadiene	ug/L	14	6.9E-08	7.6E-08	8.3E-08	1.2E-07	8.9E-08
Hexachloroethane	ug/L	2.5	<0.01	<0.02	<0.001	<0.004	<0.01
Isophorone	ug/L	730	<0.003	<0.004	<0.001	<0.002	<0.002
N-Nitrosodimethylamine	ug/L	7.3	0.001	0.001	0.0003	0.0005	0.001
N-Nitrosodi-N-Propylamine	ug/L	0.38	0.0005	0.001	0.00005	0.0001	0.0003
N-Nitrosodiphenylamine	ug/L	2.5	<0.01	<0.02	<0.002	<0.01	<0.01
PAHs	ug/L	0.0088	0.00041	0.00045	0.00049	0.00070	0.00052
PCBs	ug/L	0.000019	5.20E-06	5.72E-06	6.29E-06	8.98E-06	6.70E-06
TCDD Equivalents	ug/L	3.9E-09	1.18E-09	1.30E-09	1.42E-09	2.03E-09	1.52E-09
1,1,2,2-Tetrachloroethane	ug/L	2.3	<0.003	<0.004	<0.001	<0.002	<0.002
Tetrachloroethylene	ug/L	2.0	<0.003	<0.004	<0.001	<0.002	<0.002
Toxaphene	ug/L	2.1E-04	5.43E-05	5.97E-05	6.57E-05	9.38E-05	6.99E-05
Trichloroethylene	ug/L	27	<0.003	<0.004	<0.001	<0.002	<0.002
1,1,2-Trichloroethane	ug/L	9.4	<0.003	<0.004	<0.001	<0.002	<0.002
2,4,6-Trichlorophenol	ug/L	0.29	<0.01	<0.02	<0.002	<0.01	<0.01
Vinyl chloride	ug/L	36	<0.003	<0.004	<0.001	<0.002	<0.002

[a] Calculating flow-weighted averages for toxicity (acute and chronic) and radioactivity (gross beta and gross alpha) is not appropriate based the nature of the constituent. These constituents were measured individually for the secondary effluent and reverse osmosis concentrate, and these individual concentrations would comply with the Ocean Plan objectives.
[b] All observed values from all data sources were below the MRL, and the flow-weighted average of the MRLs is higher than the Ocean Plan objective. No compliance conclusions can be drawn for these constituents.

Table 4.11-21
Predicted Concentrations of all Ocean Plan Constituents, Expressed as Percent of Ocean Plan Objective

Constituent	Units	Ocean Plan Objective	Estimated Percentage of Ocean Plan Objective at the Edge of ZID by Discharge Scenario [c]				
			1	2	3	4	5
Objectives for protection of marine aquatic life							
Arsenic	ug/L	8	41%	41%	38%	38%	40%
Cadmium	ug/L	1	1%	1%	1%	2%	1%
Chromium (Hexavalent)	ug/L	2	1%	1%	2%	3%	2%
Copper	ug/L	3	73%	73%	75%	78%	75%
Lead	ug/L	2	0.3%	0.3%	0.4%	0.5%	0.4%
Mercury	ug/L	0.04	14%	14%	15%	16%	15%
Nickel	ug/L	5	2%	2%	2%	3%	3%
Selenium	ug/L	15	0.3%	0.4%	0.5%	0.7%	0.5%
Silver	ug/L	0.7	<24%	<24%	<23%	<23%	<24%
Zinc	ug/L	20	42%	42%	42%	43%	42%
Cyanide (MBAS data)	ug/L	1	61%	66%	26%	44%	50%
Cyanide	ug/L	1	6%	6%	7%	10%	8%
Total Chlorine Residual	ug/L	2	–	–	–	–	–
Ammonia (as N) - 6-mo median	ug/L	600	46%	51%	56%	80%	60%
Ammonia (as N) - Daily Max	ug/L	2,400	16%	17%	19%	27%	20%
Acute Toxicity[a]	TUa	0.3					
Chronic Toxicity[a]	TUc	1					
Phenolic Compounds (non-chlorinated)	ug/L	30	2%	2%	2%	3%	2%
Chlorinated Phenolics	ug/L	1	<13%	<14%	<4%	<7%	<10%
Endosulfan	ug/L	0.009	4%	4%	5%	7%	5%
Endrin	ug/L	0.002	0.03%	0.03%	0.04%	0.05%	0.04%
HCH (Hexachlorocyclohexane)	ug/L	0.004	11%	13%	14%	20%	15%
Radioactivity (Gross Beta)[a]	pci/L	0.0					
Radioactivity (Gross Alpha)[a]	pci/L	0.0					
Objectives for protection of human health - noncarcinogens							
Acrolein	ug/L	220	0.03%	0.03%	0.04%	0.05%	0.04%
Antimony	ug/L	1200	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Bis (2-chloroethoxy) methane	ug/L	4.4	<0.61%	<0.67%	<0.06%	<0.17%	<0.39%
Bis (2-chloroisopropyl) ether	ug/L	1200	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Chlorobenzene	ug/L	570	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Chromium (III)	ug/L	190000	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Di-n-butyl phthalate	ug/L	3500	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Dichlorobenzenes	ug/L	5100	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Diethyl phthalate	ug/L	33000	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Dimethyl phthalate	ug/L	820000	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
4,6-dinitro-2-methylphenol	ug/L	220	<0.06%	<0.06%	<0.01%	<0.02%	<0.04%
2,4-Dinitrophenol	ug/L	4.0	<2.10%	<2.30%	<0.28%	<0.68%	<1.38%
Ethylbenzene	ug/L	4100	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Fluoranthene	ug/L	15	<0.02%	<0.02%	<0.01%	<0.01%	<0.01%
Hexachlorocyclopentadiene	ug/L	58	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Nitrobenzene	ug/L	4.9	<0.30%	<0.33%	<0.04%	<0.10%	<0.20%
Thallium	ug/L	2	0.27%	0.29%	0.32%	0.46%	0.34%
Toluene	ug/L	85000	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Tributyltin	ug/L	0.0014	<23%	<25%	<3%	<8%	<15%
1,1,1-Trichloroethane	ug/L	540000	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Objectives for protection of human health - carcinogens							
Acrylonitrile	ug/L	0.10	20%	21%	24%	34%	25%
Aldrin[b]	ug/L	0.000022	–	–	–	–	–
Benzene	ug/L	5.9	<0.06%	<0.06%	<0.02%	<0.03%	<0.04%

Table 4.11-21
Predicted Concentrations of all Ocean Plan Constituents, Expressed as Percent of Ocean Plan Objective

Constituent	Units	Ocean Plan Objective	Estimated Percentage of Ocean Plan Objective at the Edge of ZID by Discharge Scenario [c]				
			1	2	3	4	5
Benzidine[b]	ug/L	0.000069	–	–	–	–	–
Beryllium	ug/L	0.033	14%	15%	3%	5%	9%
Bis(2-chloroethyl)ether	ug/L	0.045	<60%	<66%	<6%	<16%	<38%
Bis(2-ethyl-hexyl)phthalate	ug/L	3.5	17%	19%	21%	29%	22%
Carbon tetrachloride	ug/L	0.90	0.4%	0.5%	0.5%	0.7%	0.6%
Chlordane	ug/L	0.000023	24%	27%	30%	42%	32%
Chlorodibromomethane	ug/L	8.6	0.2%	0.2%	0.3%	0.4%	0.3%
Chloroform	ug/L	130	0.2%	0.3%	0.3%	0.4%	0.3%
DDT	ug/L	0.00017	9%	10%	37%	62%	27%
1,4-Dichlorobenzene	ug/L	18	0.1%	0.1%	0.1%	0.1%	0.1%
3,3-Dichlorobenzidine[b]	ug/L	0.0081	–	–	–	–	–
1,2-Dichloroethane	ug/L	28	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
1,1-Dichloroethylene	ug/L	0.9	0.4%	0.4%	0.1%	0.2%	0.3%
Dichlorobromomethane	ug/L	6.2	0.3%	0.4%	0.4%	0.6%	0.4%
Dichloromethane (methylenechloride)	ug/L	450	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
1,3-dichloropropene	ug/L	8.9	0.05%	0.05%	0.06%	0.08%	0.06%
Dieldrin	ug/L	0.00004	10%	11%	15%	34%	15%
2,4-Dinitrotoluene	ug/L	2.6	<0.5%	<0.5%	<0.02%	<0.1%	<0.3%
1,2-Diphenylhydrazine (azobenzene)	ug/L	0.16	<17%	<18%	<2%	<5%	<11%
Halomethanes	ug/L	130	0.01%	0.01%	0.01%	0.01%	0.01%
Heptachlor[b]	ug/L	0.00005	–	–	<38%	<70%	–
Heptachlor Epoxide	ug/L	0.00002	2%	2%	3%	4%	3%
Hexachlorobenzene	ug/L	0.00021	0.3%	0.3%	0.3%	0.5%	0.4%
Hexachlorobutadiene	ug/L	14	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
Hexachloroethane	ug/L	2.5	<0.6%	<0.6%	<0.1%	<0.2%	<0.4%
Isophorone	ug/L	730	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
N-Nitrosodimethylamine	ug/L	7.3	0.01%	0.01%	<0.01%	0.01%	0.01%
N-Nitrosodi-N-Propylamine	ug/L	0.38	0.13%	0.14%	0.01%	0.04%	0.08%
N-Nitrosodiphenylamine	ug/L	2.5	<0.6%	<0.7%	<0.1%	<0.2%	<0.4%
PAHs	ug/L	0.0088	5%	5%	6%	8%	6%
PCBs	ug/L	0.000019	27%	30%	33%	47%	35%
TCDD Equivalents	ug/L	3.9E-09	30%	33%	37%	52%	39%
1,1,2,2-Tetrachloroethane	ug/L	2.3	<0.1%	<0.2%	<0.04%	<0.1%	<0.1%
Tetrachloroethylene	ug/L	2.0	<0.2%	<0.2%	<0.05%	<0.1%	<0.1%
Toxaphene	ug/L	2.1E-04	26%	28%	31%	45%	33%
Trichloroethylene	ug/L	27	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%
1,1,2-Trichloroethane	ug/L	9.4	<0.04%	<0.04%	<0.01%	<0.02%	<0.03%
2,4,6-Trichlorophenol	ug/L	0.29	<5%	<6%	<1%	<2%	<3%
Vinyl chloride	ug/L	36	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%

[a] Calculating flow-weighted averages for toxicity (acute and chronic) and radioactivity (gross beta and gross alpha) is not appropriate based the nature of the constituent. These constituents were measured individually for the secondary effluent and reverse osmosis concentrate, and these individual concentrations would comply with the Ocean Plan objectives.

[b] All observed values from all data sources were below the MRL, and the flow-weighted average of the MRLs is higher than the Ocean Plan objective. No compliance conclusions can be drawn for these constituents.

[c] Note that if the percentage as determined by using the MRL was less than 0.01 percent, then a minimum value is shown as "<0.01%" (*e.g.*, if the MRL indicated the value was <0.000001%, for simplicity, it is displayed as <0.01%).

All Other Project Components

None of the other project components have the potential to adversely affect marine water quality; in fact, beneficial impacts to marine water quality are anticipated as described in Impact HS-4, above.

Impact Conclusions

The Proposed Project would comply with the Ocean Plan objectives established to protect marine life and human health. Trussell Tech used a conservative approach to estimate the water qualities of the Regional Treatment Plant secondary effluent, reverse osmosis concentrate, and hauled brine waste for the Proposed Project. These water quality data were then combined for various discharge scenarios, and a concentration at the edge of the ZID was calculated for each constituent and scenario. Compliance assessments could not be made for selected constituents, as noted, due to analytical limitations, but this is a typical occurrence for these Ocean Plan constituents. Based on the data, assumptions, modeling, and analytical methodology presented in the Trussell Tech technical memorandum, the Proposed Project would comply with the Ocean Plan objectives and the Proposed Project would have a less-than-significant impact on water quality in the Monterey Bay and Pacific Ocean.

In the larger Monterey Bay and Pacific Ocean, the Proposed Project would provide a beneficial impact due to pollutant load reductions that would occur due to diversions of waters of marginal quality to the Regional Treatment Plant for treatment and disposal. A portion of the pollutants in the new source waters would be removed from the wastewater streams through the treatment processes (sedimentation and filtration prior to the reverse osmosis system) and disposed as solids to the adjacent landfill where they would no longer adversely affect surface water quality. Those pollutants removed would no longer be discharged to the environment and thus, the water quality in the Salinas River Lagoon, Moss Landing Harbor/Elkhorn Slough, and the Monterey Bay/Pacific Ocean would be improved.

Impact HS-6: <u>Operational Drainage Pattern Alterations</u>. The Proposed Project would alter existing drainage patterns of the component sites by increasing impervious surfaces, but would not substantially increase the rate or amount of runoff such that it would: (1) cause erosion or siltation on- or off-site, (2) cause flooding on- or offsite, or (3) exceed the existing storm drainage system capacity. (Criteria b, c, and d) (Less than Significant)

Source Water Storage and Diversion Sites

All of the proposed Source Water Storage and Diversion sites that increase impervious surfaces have the potential to alter drainage patterns and increase in stormwater runoff. The Proposed Project would be subject to the post-construction stormwater management requirements of the applicable municipal stormwater permit, General Construction Stormwater Permit, and other WDRs that require projects to implement post-construction stormwater BMPs (and low impact development measures) into the final site designs and construction.

New diversion structures, pipelines, and pump stations would be constructed in primarily unpaved areas for the various source water diversion and storage sites; however, only approximately 200 square feet of new impervious surfaces for pump stations and diversion structure pads would be added at the diversion sites (not including pipelines). In all cases, the surrounding areas would remain unpaved and rainwater falling on the facilities would be allowed to infiltrate into the ground in accordance with State and local permits. Rainwater would sheet flow onsite to unpaved areas. Therefore, the additional impervious surfaces to be added at the Source Water Storage and Diversion sites would have a less-than-significant impact relative to alteration of drainage patterns and increased runoff.

Treatment Facilities at the Regional Treatment Plant

The proposed Treatment Facilities at the Regional Treatment Plant (including the AWT Facility and the Salinas Valley Reclamation Plant modifications) would include structures that would result in the construction of about 3.5 acres of new impervious surfaces that would restrict rainfall from infiltrating into the subsurface, altering drainage patterns and potentially increasing runoff. However, rainwater falling on these structures would be routed to the unpaved surrounding area that will remain unpaved. Design plans include on-site retention of storm water (see **Figure 2-27**); rainwater would be disposed to an on-site stormwater retention basin with appropriate energy dissipation (i.e., rock rip-rap) in accordance with State and local permits. Therefore, the additional impervious surfaces for the Treatment Facilities at the Regional Treatment Plant would not cause erosion or siltation on- or off-site, cause flooding on- or offsite, or exceed the existing storm drainage system capacity, and therefore, would have a less-than-significant impact due to alteration of drainage patterns or creating runoff.

Product Water Conveyance System Pipelines and Pump Station

The Product Water Conveyance pipelines would be constructed mostly within existing paved rights of-way and would disturb a relatively narrow width of land (10 to 15 feet) in unpaved areas. The areas of ground surface disturbance would be restored to pre-construction conditions. Therefore, the pipelines would not substantially alter drainage patterns or create substantial runoff. Upon completion of construction, the pipelines would not cause erosion or siltation on- or off-site, cause flooding on- or offsite, or exceed the existing storm drainage system capacity. Therefore, the Product Water Conveyance pipelines would have a less-than-significant impact due to alteration of drainage patterns or creating runoff.

The 2,000-square-foot Booster Pump Station would be built on one of two optional sites (depending on the pipe alignment selected), the RUWAP and the Coastal. For the RUWAP site, the new facilities would be located on an existing paved site, resulting in no new or additional impervious surfaces. For the Coastal site, the new pump station would be constructed in an unpaved area. The surrounding area would remain unpaved, providing a route for rainwater falling on the pump station to infiltrate back into the ground including energy dissipation. Design plans include on-site retention of storm water (see **Figure 2-31**); therefore, rainwater would be disposed to an on-site stormwater retention basin with appropriate energy dissipation (i.e., rock rip-rap). In both cases, the Booster Pump Station would not substantially alter drainage patterns or create substantial runoff. Upon completion of construction, the Booster Pump Station would not cause erosion or siltation on- or off-site, cause flooding on- or offsite, or exceed the existing storm drainage system capacity. Therefore, the Product Water Conveyance pipelines and Booster Pump Station (both alignment options) would have a less-than-significant impact due to alteration of drainage patterns or creating runoff.

Injection Well Facilities

Each well cluster would include electrical and motor control systems that would be housed in an approximately 400 square-foot building. The addition of the four buildings and surrounding parking and concrete/asphalt area would result in the addition of impervious surfaces. The new well clusters at the Injection Well Facilities site are proposed to be located on existing unpaved areas that would be paved under the Proposed Project. In addition, a paved driveway would be constructed to provide vehicular access to each site. The surrounding area would remain unpaved providing a route for rainwater falling on the pavement to infiltrate back into the ground. Design plans include on-site retention of storm water (see **Figure 2-35**); therefore, rainwater would remain on-site through percolation back to the groundwater basin. Based on this information, the new impervious surfaces would not substantially alter drainage patterns or create substantial runoff. Upon completion of construction, the Injection Well Facilities would not cause erosion or siltation on- or off-site, cause flooding on- or offsite, or exceed the existing storm drainage system capacity. Therefore, the Injection Well Facilities would have a less-than-significant impact due to alteration of drainage patterns or creating runoff.

CalAm Distribution System Pipelines

The CalAm Distribution System pipelines would be constructed mostly within existing paved rights-of way and would disturb a relatively narrow width of land (10 to 15 feet). Therefore the pipelines would not substantially alter drainage patterns or create substantial runoff. Upon completion of construction, the pipelines would not cause erosion or siltation on- or off-site, cause flooding on- or offsite, or exceed the existing storm drainage system capacity. Therefore, the CalAm Distribution System pipelines would have a less-than-significant impact due to alteration of drainage patterns or creating runoff.

Impact Conclusion

The Proposed Project would be subject to the post-construction stormwater management requirements of the state and local permits and the project proponent and its contractors would be required to implement post-construction stormwater BMPs in site designs and construction. With adherence to the post-construction requirements, the Proposed Project would result in a less-than-significant impact associated with new impervious surfaces resulting in alteration of drainage patterns or creation of substantial runoff and no mitigation measures would be required.

Impact HS-7: <u>Operational Carmel River Flows</u>. Proposed Project operations would result in reduced pumping of the Carmel River alluvial aquifer resulting in increased flows in Carmel River that would benefit habitat for aquatic and terrestrial species. (Criteria b, c, and d) (Beneficial)

All Project Components

The primary objective of the Proposed Project is to provide replacement water to California American Water Company (CalAm) thereby enabling CalAm to reduce its diversions from the Carmel River system by this same amount. Reduction of diversions in the Carmel River would have a beneficial impact on river flows (including fisheries and other aquatic and terrestrial habitat and species that benefit from the Carmel River flows). The Proposed Project would have net beneficial effects on special-status species and sensitive habitats in the Carmel River system. As described in **Chapter 2, Project Description** (see **Section 2.3.2.4)**, the State Water Resources Control Board has required CalAm to find a new source of water to replace diversions over and above the entitled 3,376 acre-feet per year (AFY) from the Carmel River and reduce pumping from the river by 20% from historic levels (SWRCB, 1995b). The Proposed Project would assist CalAm in meeting the requirements of the State Board. Project implementation would reduce pumping of river sub-flows from the Carmel River by 3,500 AFY compared to existing conditions thus returning equivalent amount of flows to the Carmel River.

Reducing diversions of river water would result in associated benefits to habitat and improved conditions for aquatic and terrestrial species; see discussion of fisheries benefits in **Section 4.4, Biological Resource: Fisheries** and benefits to other terrestrial and aquatic species and habitat in **Section 4.5, Biological Resource: Terrestrial**, including stability/health of the riparian corridor. The CalAm diversions would be reduced by 3,500 AFY because the Proposed Project includes improvements that would enable CalAm Monterey District main system to deliver the new supplies of extracted groundwater to customers. The average CalAm water production from the Carmel River system (for the last nine completed water years) was 8,995 AFY as shown in **Table 2-8** in **Chapter 2, Project Description**. The Proposed Project would reduce Carmel River extractions to 5,489 AFY.[18] Although the habitat and stability/health of the riparian corridor would be improved, resulting increased flows in the river could be a significant impact if the flows would cause adverse effects such as flooding and/or stream bank instability; therefore, these issues are address in the following sections.

Flooding

Under existing conditions, flooding along the lower Carmel River occurs during significant storm events. Flooding of low-lying properties and some structures along the lower Carmel River can begin when flow in the river exceeds 7,000 cfs at Carmel Valley village. The estimated peak 100-year event flows is 22,700 cfs at the USGS gaging station (River Mile 3.2[19]). A flow of approximately 9,500 cfs is considered close to a 10-year event. Historically, most of the losses from flooding recorded by Monterey County were estimated to result from storm events in 1995 and 1998. These storms were

A reduction in CalAm diversions of Carmel River water would have no noticeable impact on river flows and associated flooding during significant storm events. The maximum instantaneous pumping capacity of CalAm wells reported in the lower reach of the Carmel River is approximately 33 cfs, which represents approximately 0.15% of the estimated peak flow in a 100-year flood (Hampson, 2008). Based on these considerations, reduced CalAm River diversions would not affect the magnitude of peak flood flows.

Stream Bank Stability/Erosion/Water Quality

Under existing conditions, the lower reach of the Carmel River is a potentially unstable system that varies between a narrow, stable channel and a wide shifting channel. CalAm diversions have led to a loss of continuous corridors of healthy riparian habitat, which has exposed some of the stream banks to erosive forces during winter flows. (Hampson, 2008).

Streamside vegetation depends directly on access to adequate levels of surface and groundwater to become established and to maintain its health and vigor. Diversions along the river during the low flow season reduce the amount of water available to sustain healthy streamside vegetation and can result in reduced vigor and/or mortality and loss of diversity of the vegetation (Hampson, 2008).

Reducing CalAm Carmel River diversions would help in restoring the streamside vegetation (Hampson, 2008). Therefore, the impact from increased flows in the Carmel River, on stream erosion, bank stability, and water quality would be beneficial.

[18] The average water production from the Carmel River system (for the last five completed water years) was 7,817 AFY as shown in **Table 2-8** in **Chapter 2, Project Description**. Using this average, the Proposed Project would reduce Carmel River extractions to 4,317 AFY.
[19] River miles are measured upstream from the mouth of a river.

Impact HS-8: Operational Risks due to Location within 100-Year Flood Area. Portions of the Proposed Project would be located within a 100-year flood hazard area but would not impede or redirect flood flows. (Criterion g) (Less than Significant)

All Proposed Project Components

The Source Water Diversion and Storage sites within the Salinas Valley would be located in the 100-year flood hazard area associated with the Salinas River and Reclamation Ditch watersheds. Some small portions of the proposed Product Water Conveyance pipelines (both the Coastal and RUWAP alignments) would cross through small localized flood areas, but would be located entirely underground. The Treatment Facilities at the Regional Treatment Plant and the Injection Well Facilities would not be located within a 100-year flood hazard area. In the City of Monterey near Del Monte Beach, the Lake El Estero Diversion site and the CalAm Distribution System: Monterey Pipeline would be located within a 100-year flood hazard area but would also both be located entirely underground. Design of the project components would take these hazards into consideration. Damage to, temporary inundation of, or temporary exposure of the proposed new water supply infrastructure due to flooding or tsunami is not expected to result in a significant risk of loss of life or property as documented further below (Ninyo & Moore, 2014).

Table 2-20 in **Chapter 2, Project Description**, provides the permanent footprint and maximum height of new above-ground facilities for the Proposed Project components located in areas designated as 100-year flood hazard areas. The following discusses the physical facilities and associated risks for those facilities proposed to be located in a 100-year flood hazard area:

The proposed Salinas Pump Station Diversion site would be below ground therefore would not impede or redirect flood flows. In addition, this component would not pose a significant risk of loss or injury to structures because only new wet wells, pipelines and valves would be built at the site and thus, this component would not be substantially harmed due to temporary inundation by a storm event. In addition, this component would not pose a significant risk of loss injury, or death to people because the facilities are controlled by automated systems and no new permanent employees would be working at the site.

The proposed Salinas Treatment Facility Storage and Recovery component site, except the aeration lagoon, are located within FEMA 100-year flood zone that is associated with potential flooding on the Salinas River. Floodplain AE is defined as the base flood plain where flood plain elevations are provided and there is a 1% chance of expecting a flood each year. Two below-ground pumps with elevated electrical controls (i.e., small boxes located up to 10 feet above ground) would be built; however the electrical controls would be so small as to avoid impacts of impeding or redirecting flood flows and would not necessitate the need to revise the flood maps. (Schaaf & Wheeler, 2015a) The ponds themselves would potentially be damaged by flood flows and thus the City and/or others that may be using the ponds at the time may be required to rebuild or reconstruct all or part of the Salinas Treatment Facility in the event of a 100-year flood.

The proposed Reclamation Ditch and Tembladero Slough Diversions would be new physical facilities within the channel of the man-made drainage ditches. The proposed project components would increase impervious areas by a small amount (less than 1,000 square feet each) at the Davis Road and Castroville sites. The Proposed Project would not substantially alter the existing drainage patterns of any of the proposed project sites and would not resulting in any changes to flooding conditions on- or off-site by impeding or redirecting flood flows. The proposed diversion pump stations at Davis Road and Castroville would include inlet structures in the channel bottom. These inlets must include a screen to exclude fish and trash, and must be configured to not alter the conveyance capacity of the Reclamation Ditch and Tembladero Slough. Above-ground structures on the channel bank would be located within a 100-year flood hazard area, but will not impede or reduce flood flows because they are relatively small (less than 100 square feet and up to ten feet tall) and would be located at sites that currently contain other above-ground structures of much larger size and profile, most notably the roadway bridge abutments immediately upstream. These components would not necessitate the need to revise the flood maps (Schaaf & Wheeler, 2015b).

The proposed Blanco Drain Diversion (including the pump station and pipeline) would be located in the 100-year flood hazard area. The new pump station would not alter the channel cross-section, nor the conveyance capacity of the Blanco Drain. The pump station would not impede or reduce flood flows because they are low profile (less than five feet above ground)[20] and small in surface area (less than 500 square-feet of vertical structures). The Blanco Drain Diversion pump station would be located at a site that currently contains similarly sized above-ground structures. This component would not necessitate the need to revise the flood maps.

Impact Conclusion

No habitable structures or above-ground structures that would impede or redirect flood flows would be constructed within any 100-year flood hazard zones. The project would not place habitable structures in a 100-year flood zone, create above-ground structures that could impede or redirect flood flows, or expose new structures or people to significant risks of loss, injury or death related to inundation by floods. Therefore, the Proposed Project would have a less-than-significant impact related to flood risks associated with the siting of facilities within a 100-year flood hazard area and no mitigation measures would be required.

Impact HS-9: Operational Risks due to Flooding due to Levee/Dam Failure, or Coastal Inundation. During operations, some Proposed Project facilities may be exposed to flooding due to failure of a levee or dam, sea level rise, and storm surges/tides related to climate change, but this exposure would not pose a substantial nor significant risk of loss, injury, or death. (Criterion h) (Less than Significant)

All Proposed Project Components – Flooding due to Levee/Dam Failure

There are no levees within the hydrology and water quality study area or near Proposed Project components. Dams that are located in the Proposed Project study area include Nacimiento and San Antonio Dams in the Salinas River Watershed. In the unlikely event of failure of a dam, the downstream areas that would be in the path of the flood flows would be confined to the 500-year floodplain of the Salinas River. The Proposed Project facilities within that area are the Salinas Pump Station, Salinas Treatment Facility Storage and Recovery, Tembladero Slough, and Blanco Drain Diversion sites. However, these component sites are not at risk of loss due to inundation because they would only include diversion structures, wet wells, pumps, and pipelines that would not be damaged by temporary inundation, with the exception of electrical automation controls (SCADA). Therefore, the Proposed Project would not expose people or structures to substantial risk

[20] Note: Electrical controls would be elevated up to 10-feet above ground in a small control box, and would be so small as to avoid impacts of impeding or redirecting flood flows

from flooding related to a dam failure. The Proposed Project would have a less-than-significant impact associated with potential flooding from levee or dam failure. Proposed Project changes to runoff and drainage and other changes to flow in surface water bodies that may expose people or structures to flooding are addressed in more detail previously in Impacts HS-6, HS-7, and HS- 8. Proposed Project impacts related to inundation by seiche, tsunami and mudflow are addressed in HS-10.

Sea Level Rise and Storm Surges/Tides Related to Climate Change

The analysis of sea level rise in the project area used a projection of 15 inches by 2040 and 28 inches by 2060, relative to existing conditions in 2010. These projections are based on a 2012 study by the National Research Council. As sea level rises, higher mean sea level will make it possible for wave run-up to reach the dune more frequently, undercutting at the dune toe and causing increased erosion (ESA/PWA, 2014).

Sea level rise impacts were analyzed based on a Technical Memorandum prepared by ESA PWA for the Monterey Peninsula Water Supply Project (ESA/PWA, 2014). This analysis evaluated historic shoreline change trends in order to project future erosion. Shoreline change data was compiled from a variety of sources. Sand mining operations and rip embayments were included in the analysis as significant factors affecting shoreline change. Future erosion was analyzed at six locations within the Proposed Project area. Coastal erosion hazard zones were developed, representing an area where erosion (caused by coastal processes) has the potential to occur over a certain time period. This does not mean that the entire hazard zone is eroded away; rather, any area within this zone is at risk of damage due to erosion during a major storm event. The coastal hazard zones were developed based on three factors: historic erosion, additional erosion due to sea level rise, and the potential erosion impact caused by a large storm wave event (i.e., 100-year).

Portions of the proposed CalAm Distribution System: Monterey Pipeline in Monterey would be located in areas that would be subject to flooding and coastal erosion from sea level rise and storm tides as shown on **Figure 4.8-6** and described in **Sections 4.8.2.3** and **4.8.4.4**. Within **Section 4.8.4.4**, the impact due to coastal erosion related to the CalAm Distribution System: Monterey Pipeline was found to be significant and mitigation was provided in that section (see Impact GS-5). However, once constructed, the pipelines would be located underground and would not impede or redirect flood flows, nor be subject to a significant risk of flood damage from sea level rise. The CalAm Distribution System: Monterey Pipeline and Lake El Estero would have a less-than-significant impact related to flood risks from sea level rise.

In the City of Monterey, the dune erosion envelopes are projected to extend inland 65 feet by 2060, with another 110 feet possible with a 100-year storm event. The Lake El Estero Diversion Site is outside of this 100-year storm event dune erosion envelope and would not be at risk of flooding due to sea level rise or storm surges and tides. Coastal erosion is addressed in more detail in **Section 4.8, Geology, Soils, and Seismicity**.

Therefore, the Proposed Project would not expose people or structures to risk from flooding due to sea level rise and storm surges or tides. The impact would be a less than significant and no mitigation measures would be required.

Impact Conclusion

During operations, some Proposed Project facilities (Salinas Pump Station, Salinas Treatment Facility Storage and Recovery, Tembladero Slough, and Blanco Drain Diversion sites) may be exposed to flooding due to failure of a levee or dam. In addition, the CalAm Distribution System: Monterey Pipeline and the Lake El Estero Source Water

Diversion sites may be exposed to sea level rise, and storm surges/tides related to climate change. Flooding due to failure of a levee or dam, sea level rise, nor storm surges/tides would pose a substantial or significant risk of loss, injury, or death. The Proposed Project would result in a less than-significant impact related to flooding due to failure of a levee or dam, sea level rise, and climate-related storm surges/tides, and no mitigation measures would be required.

Impact HS-10: Operational Seiche, Tsunami, or Mudflow Risk. The Proposed Project operations would not expose people or structures to substantial risk from flooding due to a seiche, tsunami, or mudflow. (Criterion i) (Less than Significant)

The Proposed Project would have no effect on the frequency or probability of seiches (i.e., earthquake-induced oscillating waves in an enclosed water body), because the Proposed Project would not create new enclosed water bodies or affect the frequency of earthquakes. Further, the Proposed Project does not include the construction of habitable structures near any isolated bodies of water subject to inundation by seiche. No mudflows have been mapped at the Proposed Project component sites, and mudflows are extremely rare throughout the Proposed Project area (Monterey County, 2008). In addition, there would be no new development on slopes greater than 30%. Other types of slope instability issues are discussed in **Section 4.8, Geology, Soils, and Seismicity**. Therefore, the Proposed Project would have a less-than-significant impact related to risks due to inundation by seiche or mudflow and no mitigation measures would be required.

The Proposed Project encompasses coastal areas in Monterey County that could be subject to tsunamis. Tsunamis are generally caused by earthquakes, but can also be caused by a volcanic eruption or landslide. Damage caused by tsunamis is typically confined to low-lying coastal areas. The underground facilities, including all of the pipelines, would not likely be damaged by a tsunami.

A majority of the coastline along Monterey Bay is mapped within a tsunami inundation area, which includes the locations of the following project components: portions of the proposed CalAm Distribution System: Monterey Pipeline, and the areas within and around the proposed Lake El Estero Diversion site, and the Tembladero Slough and Blanco Drain Diversion sites. None of the other project components are within the mapped tsunami inundation areas. Water supply infrastructure such as the source water diversions and potable water pipelines are designed to withstand temporary inundation due to tsunami, seiche, storm surges, and flood flows. Damage to, temporary inundation of, or temporary exposure of the proposed new water supply infrastructure due to flooding or tsunami is not expected to result in a significant risk of loss, injury or death (Ninyo & Moore, 2014). The Proposed Project would have a less-than-significant impact related to tsunami risks and no mitigation measures would be required.

4.11.4.5 Cumulative Impacts and Mitigation Measures

Cumulative Impact: Inland Surface Waters

The geographic scope for cumulative impact analysis on hydrology and water quality of inland surface water includes the watersheds of the surface water bodies that would receive surface flows that originate or interact with other surface water (in the case of flooding and inundation) at the Proposed Project sites, including the following:

- Salinas River between the City's stormwater outfall pipeline just east of the Davis Road bridge over the Salinas River and the Salinas River lagoon,

- Reclamation Ditch below the Davis Road overcrossing downstream to its confluence with the Tembladero Slough,
- Tembladero Slough from its confluence with the Reclamation Ditch to the confluence with the Old Salinas River channel
- Old Salinas River Channel between the Old Salinas River Channel gated outlet and the Potrero Tide Gate near Moss Landing Harbor
- Moss Landing Harbor, Monterey Bay and Pacific Ocean

Based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**), there are numerous other proposed or planned developments within the watershed areas potentially affected by the Proposed Project, including the proposed MPWSP (the small, 6.4 mgd desalination plant) (also referred to as the CalAm Facilities of the MPWSP Variant per the MPWSP EIR).

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects:

- *Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant):* The CalAm MPWSP includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines to convey between the well. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR projects. The estimated construction schedule would overlap for approximately 18 months, from mid-summer 2016 to the end of 2017. The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPWSP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPWSP with 6.4 mgd Desal Plant

Combined Construction Impacts

Table 4.11-6, above provides a summary of impacts of the GWR Facilities for construction-related impacts of hydrology and water quality, including surface water quality impacts due to discharges (HS-1), and surface water quality impacts due to earthmoving, drainage alterations, and use of hazardous chemicals (HS-2). These impacts were found to be less-than-significant with compliance with the requirements of state and local agencies and professional engineering standards during construction.

The MPSWP would have similar impacts from construction-related discharges due to well drilling, development, and testing, and dewatering of shallow groundwater during excavations.

The CalAm Desalinated Water Pipeline (or Transmission Main) component of the MPWSP with 6.4 mgd Desalination Plant would be constructed in a similar location as the segments of the Proposed Project's Product Water Conveyance Coastal Alignment pipeline along the Transportation Agency's rail line corridor. The Transmission Main that would be located near and parallel to the Coastal alignment option for the GWR Product Water Conveyance pipeline would be between the Del Monte Boulevard crossing of the Monterey Peninsula interceptor (north of Marina) and the intersection of Divarty Road and Highway 1 near the northwestern border of the City of Seaside.

The construction of the two pipelines would be in proximity to each other, but would not be located within the same alignment trenches. The two projects would not add to each other's impacts on surface water quality due to dewatering shallow groundwaters when excavating, earthmoving, drainage alterations, and use of hazardous chemicals. Both projects would be required to comply with local and state regulatory and permitting requirements include avoiding polluted discharges to surface water bodies, and the projects' individual surface water impacts at well sites would not add to each other's surface water impacts because the well sites would not be within the same watershed area and both would be subject to local and state regulatory and permitting requirements.

Combined Operational Impacts

Proposed Project operational impacts to hydrology and surface water were also found to be less than significant, including the following:

- Surface Water Quality Impacts due to Well Maintenance Discharges (HS-3)
- Marine Water Quality Impacts due to Ocean Discharges (HS-5)
- Drainage Pattern Alterations (HS-6)
- Risks due to Location within 100-Year Flood Area (HS-8)
- Operational Risks due to Flooding due to Levee/Dam Failure, or Coastal Inundation (HS-9)
- Operational Seiche, Tsunami, or Mudflow Risk (HS-10)

Based on the Proposed Project objectives, implementation of the Proposed Project would beneficially impact the Carmel River system, including conditions due to erosion, bank stability, and water quality. Regarding hydrologic changes due to source water diversions, the Proposed Project has the potential to result in erosion and bank instability due to rapid water level fluctuations when operating the diversion pumps at the Reclamation Ditch Diversion site. Implementation of Mitigation Measure HS-4 would reduce the impact to a less-than-significant level by requiring appropriate management of diversion pumps to avoid rapid water level fluctuations downstream of the Reclamation Ditch Diversion site.

Both the Proposed Project and the MPSWP would incrementally benefit the hydrology and water quality conditions in the Carmel River system by providing replacement supplies in accordance with the State Water Resources Control Board Cease and Desist Order. The combined projects (GWR Project and the MPWSP with 6.4 mgd desalination plant) would provide for all the replacement water that the State Board required of CalAm. The MPWSP (with 6.4 mgd desalination) does not propose diversions from surface waters, therefore would not add to the potentially significant operational surface water quality impacts due to source water diversions.

Both the Proposed Project and the MPSWP would have similar and less-than-significant impacts to surface water quality impacts due to well maintenance discharges and drainage pattern alterations due to the requirements for both projects to comply with local and state regulatory programs to control discharges and runoff to prevent water quality changes by retaining discharges and runoff on site with appropriate BMPs and low impact development standards included in the relevant permits. The impacts of each project from risks of exposure of people or structures to flooding due to levee failure, coastal inundation and seiche, tsunami or mudflow risks would not be additive.

Overall Cumulative Impacts. This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (Also see **Figure 4.1-2** in **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects could result in impacts that combine with the impacts of the Proposed Project.

Because of the localized nature of the anticipated individual project impacts, the projects listed in **Table 4.1-2** would not combine with those of the Proposed Project to cause or contribute to potential cumulative surface water hydrology and water quality impacts. Construction of all projects would be subject to applicable City and County construction and grading ordinances, local permit requirements and state waste discharge requirements (NPDES permits). Thus, there would be no significant construction-related cumulative impacts of the Proposed Project combined with all other projects related to surface water hydrology and water quality beyond the impacts of individual components of each project.

Cumulative Impact Conclusion: Inland Surface Waters

There would be no significant cumulative construction or operational impacts to inland (and indirect marine) surface water quality to which the Proposed Project would contribute. Construction of the MPWSP Transmission Pipeline and GWR Product Water Conveyance Pipeline Coastal Alignment may have overlapping or close construction schedules, however compliance with the permitting requirements of local and state agencies related to stormwater water quality and drainage would ensure combined impacts would not be significant.

Ocean Discharge Impacts on Marine Water Quality - Combined Analysis

The geographic scope for cumulative impact analysis on marine water quality includes the area near the MRWPCA ocean outfall diffusers (the marine study area shown in **Figure 4.13-1**). Based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis (listed by primary geographic area in which project is located)** (see **Section 4.1, Introduction**), no cumulative projects have been identified that would result in impacts to this area, except for the MPWSP (with the 6.4-mgd Desalination Plant) (also referred to as the CalAm facilities of the MPWSP Variant).[21] The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the

[21] Although in the future, Marina Coast Water District may propose to use the MRWPCA ocean outfall for the disposal of desalination brine; the currently approved program and project is called the Desalination component of the Regional Urban Water Augmentation Project (a portion of the Hybrid Alternative) that does not include discharge of brine through the MRWPCA outfall, but instead would discharge brine subsurface in the vicinity of Reservation Road and Marina State Beach (Marina Coast Water District, 2004).

6.4 mgd Desalination Plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects:

- *Combined Impacts of Proposed Project Plus MPSWP (with 6.4-mgd Desalination Plant)*: The CalAm MPWSP includes a subsurface seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR Project. The cumulative impact analysis in this EIR anticipates that the Proposed Project could be implemented with a version of the MPWSP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project.

The only other projects that may add with the Proposed Project's marine water quality impacts would be projects that would also change the ocean environment in the immediate vicinity of the outfall. As documented above, the Proposed Project ocean discharges would meet all Ocean Plan objectives (i.e., concentrations of the constituents in the ocean at the edge of the zone of initial dilution would be less than the Ocean Plan objectives) and thus, would have a less-than-significant impact on marine water quality.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). In addition to conducting the Proposed Project's technical analysis of the Ocean Plan compliance, Trussell Technologies also prepared a parallel analysis of the Ocean Plan compliance issues (and thus the impacts on marine water quality and biological resources) for the MPWSP (with 6.4 mgd Desalination Plant) CalAm desalination plant combined with the Proposed Project. That analysis is provided in **Appendix V, Ocean Plan Compliance Assessment for the Monterey Peninsula Water Supply Project and Project Variant** and **Appendix U-2 ,Update to Ocean Plan Compliance Assessment Reports** (herein referred to together as the MPWSP/Variant Ocean Plan Assessment) (Trussell Technologies, 2015b and 2015c).

The purpose of the MPWSP/Variant Ocean Plan Assessment was to assess the ability of the MPWSP (with the larger, 9.6 mgd desalination plant) and of the MPSWP (with the small, 6.4 mgd desalination plant) plus the Proposed Project (the "Variant") to comply with the Ocean Plan objectives using the same methodology and approach described above for the Proposed Project. For this assessment, Trussell Technologies also used a conservative approach to estimate the water qualities of the secondary effluent, GWR concentrate, desalination brine, and hauled brine for these projects. The water quality data were then combined for various discharge scenarios, and a concentration at the edge of the ZID was calculated for each constituent and scenario. Compliance assessments could not be made for selected constituents, as noted, due to analytical limitations, but this is a typical occurrence for these types of Ocean Plan constituents.

Based on the data, assumptions, modeling, and analytical methodology presented in the MPWSP/Variant Ocean Plan Assessment, the MPSWP (with the 6.4 mgd desalination plant) combined with the Proposed Project would result in a significant cumulative impact due to potential exceedances of the Ocean Plan objectives at the edge of the ZID. Implementation of the MPSWP (with the 6.4-mgd Desalination Plant) and the Proposed Project would require mitigation measures to reduce the impact to a less-than-significant level to comply with the Ocean Plan objectives under some discharge scenarios. Specifically, three types of exceedances were identified:

(1) PCBs, which are present in relatively high concentrations in the worst-case ocean water samples, were predicted to exceed the Ocean Plan objectives in several scenarios for the discharges from GWR Project combined with the MPWSP 6.4 mgd desalination plant at times when the desalination brine from the MPSWP represents a relatively large fraction (approximately 40% or more) of the total discharge water,

(2) Ammonia, which is consistently present at a relatively high concentration in secondary effluent from the Regional Treatment Plant, was predicted to potentially exceed the Ocean Plan objective for scenarios where both the desalination brine and a moderate secondary effluent flow from the Regional Treatment Plant are discharged. The exceedance would also potentially occur when the discharge contains the GWR reverse osmosis concentrate and moderate to no (approximately 6 mgd or less) discharge of secondary effluent flow from the Regional Treatment Plant.

(3) Chlordane, DDT, TCDD equivalents, and toxaphene (along with PCBs and Ammonia), were predicted to exceed the Ocean Plan objective for scenarios where the combined discharge would consist of desalination brine and GWR reverse osmosis concentrate with either moderate to no flow (approximately 6 mgd or less) of secondary effluent.

The Proposed Project would not result in a considerable contribution to the significant cumulative impact pertaining to discharge of PCBs. The MPSWP standing alone would cause this significant impact, due to PCBs in existing in ocean water, which would be concentrated at levels above background ocean water in the desalination plant brine.

The Proposed Project would contribute to the significant cumulative impact pertaining to the discharge of ammonia. The exceedance would be a result of the combination of ammonia present in the secondary effluent and GWR concentrate combined with high salinity of the desalination brine[22]. Ammonia is not expected to exceed the Ocean Plan objective when the discharge consists of secondary effluent and/or GWR reverse osmosis concentration without desalination brine, or when the desalination brine is combined with approximately 6 mgd or more of secondary effluent, because in these cases there would be sufficient mixing in the ZID

[22] The desalination brine has a relatively high salinity (approximately 57,500 mg/L of TDS), compared to ambient seawater (33,000 to 34,000 mg/L of TDS), such that when discharged on its own, the denser brine would sink and experience relatively less mixing with ocean water and thus less dilution in the ZID (approximately 10 times less). The secondary effluent (approximately 1,000 mg/L of TDS) and GWR reverse osmosis concentrate (approximately 5,000 mg/L of TDS) are relatively light and would rise when discharged. In the combined discharge, the secondary effluent and GWR reverse osmosis concentrate would dilute the salinity of the desalination brine and thus reduce the density. With sufficient dilution, the combined discharge would be less dense than the ambient ocean water, resulting in a rising plume with more dilution in the ZID.

to adequately dilute the discharge. Similarly, no exceedance is expected when the discharge contains desalination brine with less than approximately 3 mgd of secondary effluent flow and no GWR reverse osmosis concentrate, due to the lower ammonia loading. This potential ammonia exceedance would occur for the MPSWP when desalination brine is combined with 3 to 6 mgd of secondary effluent or when combined with GWR reverse osmosis concentrate and 6 mgd or less of secondary effluent. The largest potential exceedance of ammonia is expected at times when the combined discharge consists of desalination brine and GWR reverse osmosis concentrate with no secondary effluent flow.

The Proposed Project also would contribute to a significant cumulative impact pertaining to the discharge of chlordane, DDT, and TCDD equivalents to a similar degree as it does to ammonia, where the exceedance would be a result of constituents in the secondary effluent and ocean water and inadequate dilution in the ZID due to the density of the desalination brine. Because these constituents would potentially not meet the Ocean Plan water quality objectives at the edge of the ZID in some combined discharge conditions, the Proposed Project would have a considerable contribution to a significant cumulative water quality impact. Implementation of Mitigation Measure HS-C would be required to reduce the cumulative impact to a less than significant level.

Cumulative Marine Water Quality Impact Conclusion

The water quality impact has been studied for multiple discharge scenarios resulting from the operation of the GWR Project with the MPWSP with the 6.4 mgd desalination plant. The water quality analysis used the best available information and the impact conclusion is based on modeled constituents in the discharge streams and water quality data collected from Monterey Bay under CCLEAN to represent source water entering the MPWSP Desalination Plant. **Table 4.11-22** summarizes the exceedances of water quality objectives for constituents at the edge of the ZID from combined discharges composed of brine from the MPWSP with 6.4 mgd desalination project, GWR concentrate, and secondary effluent:

Table 4.11-22
Potential Water Quality Objectives Exceedances at the Edge of the ZID

Combined Discharge [a]	Desalination Brine	Secondary Effluent	GWR Concentrate	Potential Exceedances
Desalination brine only	X			PCBs
Desalination brine combined with 3-6 mgd of secondary effluent	X	X		PCBs and ammonia
Desalination brine combined with 0-3 mgd or 6-14 mgd of secondary effluent	X	X		PCBs
Desalination brine combined with greater than 14 mgd of secondary effluent	X	X	X	None
Desalination brine combined with GWR concentrate and 0-6 mgd of secondary effluent	X	X	X	Ammonia, chlordane, DDT, PCBs, TCDD Equivalents, toxaphene
Desalination brine combined with GWR concentrate and 6-14 mgd of secondary effluent	X	X	X	PCBs
Desalination brine combined with GWR concentrate and 14 mgd of secondary effluent	X	X	X	None
GWR concentrate combined with secondary effluent		X	X	None
GWR concentrate only			X	None
Secondary effluent only		X		None

[a] Indicated secondary effluent flow values are approximate estimations.

Based on the water quality analyses, the desalination brine-only, desalination brine-and-secondary effluent (at 3 to 6 mgd of flow), and blended discharges (with less than 14 mgd of secondary effluent) would result in a significant impact to marine water quality, which would be reduced to less-than-significant level through implementation of **Mitigation Measure HS-C**. The mitigation would involve employing one or more of the design features and/or operational measures listed below prior to operating the MPWSP desalination plant. The design features and operational measures include short-term storage and release of brine from the MPWSP desalination plant, treatment of the MPWSP source water and/or brine discharge(s), and biologically active filtration at the Regional Treatment Plant. These operational changes or measures along with the additional analysis of the constituents in MPWSP source waters would be incorporated into the NPDES permit issued by the Regional Water Quality Control Board as part of the process of amending the MRWPCA NPDES Permit (R3-2014-0013). The Proposed GWR Project when implemented in combination with the MPWSP with 6.4 mgd desalination plant would result in a less-than-significant cumulative impact to marine water quality with implementation of Mitigation Measure HS-C, below.

Mitigation Measure HS-C: Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the Zone of Initial Dilution (ZID).

As part of the amendment process to modify the existing MRWPCA NPDES Permit (Order No. R3-2014-0013, NPDES Permit No. CA0048551) per 40 Code of Regulations Part 122.62, it would be necessary to conduct an extensive assessment in accordance with requirements to be specified by the RWQCB. It is expected that the assessment would include, at a minimum, an evaluation of the minimum probable initial dilution at the point of discharge based on likely discharge scenarios and any concomitant impacts on water quality and beneficial uses per the Ocean Plan. Prior to operation of the ~~MPSWP~~ MPWSP desalination plant, the discharger(s) will be required to test the ~~MPSWP~~ MPWSP source water in accordance with protocols approved by the RWQCB. If the water quality assessment indicates that the water at the edge of the ZID will exceed the Ocean Plan water quality objectives, the MRWPCA will not accept the desalination brine discharge at its outfall, and the following design features and/or operational measures shall be employed, individually or in combination, to reduce the concentration of constituents to below the Ocean Plan water quality objectives at the edge of the ZID:

- Additional pre-treatment of MPWSP source water at the Desalination Plant: Feasible methods to remove PCBs and other organic compounds from the MPWSP source water at the desalination plant include additional filtration or use of granular activated carbon (GAC). GAC acts as a very strong sorbent and can effectively remove PCBs and other organic compounds from the desalination plant source water (Luthy, Richard G., 2015). Indirect impacts of implementation of this portion of the mitigation measure are discussed in the following section.
- Treatment of discharge at the Desalination Plant: Feasible methods to remove residual compounds from the discharge to comply with water quality objectives at the edge of the ZID are use of GAC (similar to that under the additional pre-treatment of MPWSP source water) and advanced oxidation with ultraviolet light with concurrent addition of hydrogen peroxide. The method of using advanced oxidation with ultraviolet light with concurrent addition of hydrogen peroxide is used for the destruction of a variety of environmental contaminants such as synthetic organic compounds, volatile organic compounds, pesticides, pharmaceuticals and personal care products, and disinfection byproducts. This process is energy intensive, but requires a relatively small construction footprint. Indirect impacts of implementation of this portion of the mitigation measure are discussed in the following section
- Short-term storage and release of brine at the Desalination Plant: When sufficient quantities of treated wastewater from the Regional Treatment Plant to prevent an exceedance of Ocean Plan objectives at the edge of the ZID are not available, brine from the desalination plant would be temporarily stored at the MPWSP site in the brine storage basin,[23] and discharged (pumped) in pulse flows (up to the capacity of the existing outfall), such that the flow rate allows the discharge to achieve a dilution level that meets Ocean Plan water quality objectives at the edge of the ZID. Indirect impacts of implementation of this portion of the mitigation measure are discussed in the following section

[23] A detailed description of the brine storage facility at the desalination plant site will be available in the MPWSP EIR Chapter 3, Project Description, scheduled for availability to the public at the end of April.

- Biologically Active Filtration at the Regional Treatment Plant: As part of the proposed AWT Facility at the Regional Treatment Plant, the GWR Project includes the potential for use of upflow biologically active filtration following ozone treatment to reduce the concentration of ammonia and residual organic matter present in the ozone effluent and to reduce the solids loading on the membrane filtration process. The biologically active filtration system would consist of gravity-feed filter basins with approximately 12 feet of granular media, and a media support system. Ancillary systems would include an alkalinity addition system for pH control, backwash waste water basin (also used for membrane filtration backwash waste water), backwash pumps, an air compressor and supply system for air scour, an air compressor and supply system for process air, and a wash water basin to facilitate filter backwashing (the wash water basin may be combined with the membrane filtration flow equalization basin). This biologically active filtration system may be needed to meet Ocean Plan water quality objectives at the edge of the ZID (if and/or when discharges from the Proposed Project are combined with discharges from the MPWSP with 6.4 mgd desalination plant). This optional component of the Proposed Project is described in **Chapter 2, Project Description** (see Section 2.8.1.3), would become a required process if the MPWSP with 6.4 mgd desalination project is in operation and the other components of the mitigation do not achieve Ocean Plan compliance. The impacts of implementation of this portion of the mitigation measure are discussed in Sections 4.2 through 4.18 as a component of the AWT Facility (within the "Treatment Facilities at the Regional Treatment Plant" component of the Proposed Project).

Effects of Implementation of Mitigation Measure HS-C

Potential impacts associated with implementation of Mitigation Measure HS-C (Implement Measures to Avoid Exceedances of Water Quality Objectives at the Edge of the ZID) are discussed below. These impacts would be associated with the potential new facilities to be constructed at the MPSWP desalination plant, which could include a GAC facility, advanced oxidation system, as well as any storage and any pumping facilities that may be installed at the MPWSP desalination plant site as part of Mitigation Measure HS-C. Installation and operation of the potential Biologically Active Filtration System at the Regional Treatment Plant would not result in any adverse impacts beyond those already addressed in this EIR because the Biologically Active Filtration System has been evaluated as a potential component of the Proposed Project.

Granular Activated Carbon (GAC)

Treatment of the desalination plant source water or brine could potentially be provided by GAC filter-adsorbers within the footprint of the proposed MPWSP desalination plant. Operation of the GAC system would generate spent GAC, which would be considered hazardous waste. Handling and disposal of the waste generated would be subject to federal and state hazardous waste regulations (discussed in Section 4.9, Hazards and Hazardous Materials). Thus, handling, transportation, and disposal of the spent GAC material generated at the MPWSP desalination plant would be subject to, and would adhere to, the regulations intended to protect environmental and public health and ensure safety. Therefore, the impact would be less than significant.

Operating the GAC adsorption system also would result in an increase in energy use by the MPSWP, in particular if there were additional pumping necessary. The increase in greenhouse gas emissions due to increased energy use from the MPWSP would contribute to the MPSWP's significant and unavoidable impact.

Maintenance of the GAC system would involve removing and replacing the GAC, which would require that the spent GAC be transported to a permitted disposal site and replacement GAC would be transported to the desalination plant site. These traffic and transportation impacts and other impacts of this transportation / traffic generation (air quality, noise, and energy demand) would increase the adverse impacts of the MPSWP.

Advanced Oxidation for PCBs Removal

The advanced oxidation system would likely include a building with a liquid hydrogen peroxide chemical storage and feed system. The building would be installed as part of the construction activities associated with the MPWSP. The advanced oxidation process would generate minimal byproducts and no residuals compounds or liquid or solid waste.

Implementing the advanced oxidation system would result in an increase in energy use by the MPSWP. It is anticipated that operation of the advanced oxidation system would thus increase the energy use at the proposed desalination plant. The increase in greenhouse gas emissions due to increased energy use from the MPWSP with 6.4 mgd desalination plant would contribute to the MPSWP's significant and unavoidable impact.

The advanced oxidation system would require a liquid hydrogen peroxide chemical storage and feed system onsite at the MPSWP desalination plant. The impact from routine transport, use, or disposal of hazardous materials during facility operations is discussed under in Section 4.9, Hazards and Hazardous Materials.

Storage and Pumping to Release Brine at a Higher Discharge Rate

The MPWSP proposes a 3-mgd storage tank. It is expected that this component of the measure may need to be implemented in combination with one or more of the measures above to achieve compliance with Ocean Plan objectives and to reduce the cumulative impact to a less than significant level. Operation of the pumps required to discharge the MPSWP desalination plant brine at a higher flow rate than has been proposed by the MPSWP and would require increased energy use by the MPSWP. Such increased energy use would result in an increase in greenhouse gas emissions, which would contribute to the MPSWP's significant and unavoidable impact. The implementation of this mitigation measure component would thus also result in increased impacts identified above for the prior components, but perhaps a smaller increase in impacts.

Overall Cumulative Projects. No other cumulative projects would change the marine water quality conditions in the area in the immediate vicinity of the MRWPCA ocean outfall, and thus, there would be no cumulative significant impacts besides those described above for the MPSWP (with the 6.4 mgd desalination plant) combined with the Proposed Project.

As discussed previously, the Proposed Project would also reduce pollutant loads to the marine environment due to diversion and treatment of surface waters (or waters that are disposed directly or indirectly to surface waters) that currently flow to the Monterey Bay. The quantitative analysis of these beneficial impacts is provided in detail above. Any amount of reduction in pollutant loads on the ocean would result in a benefit to marine water qualiy due to reductions in exposure of marine biological species to pollutants. Thus, if you consider a larger geographic area of the marine environment than only the immediate vicinity of the ocean outfall, the Proposed Project would result in beneficial cumulative impacts.

4.11.5 References

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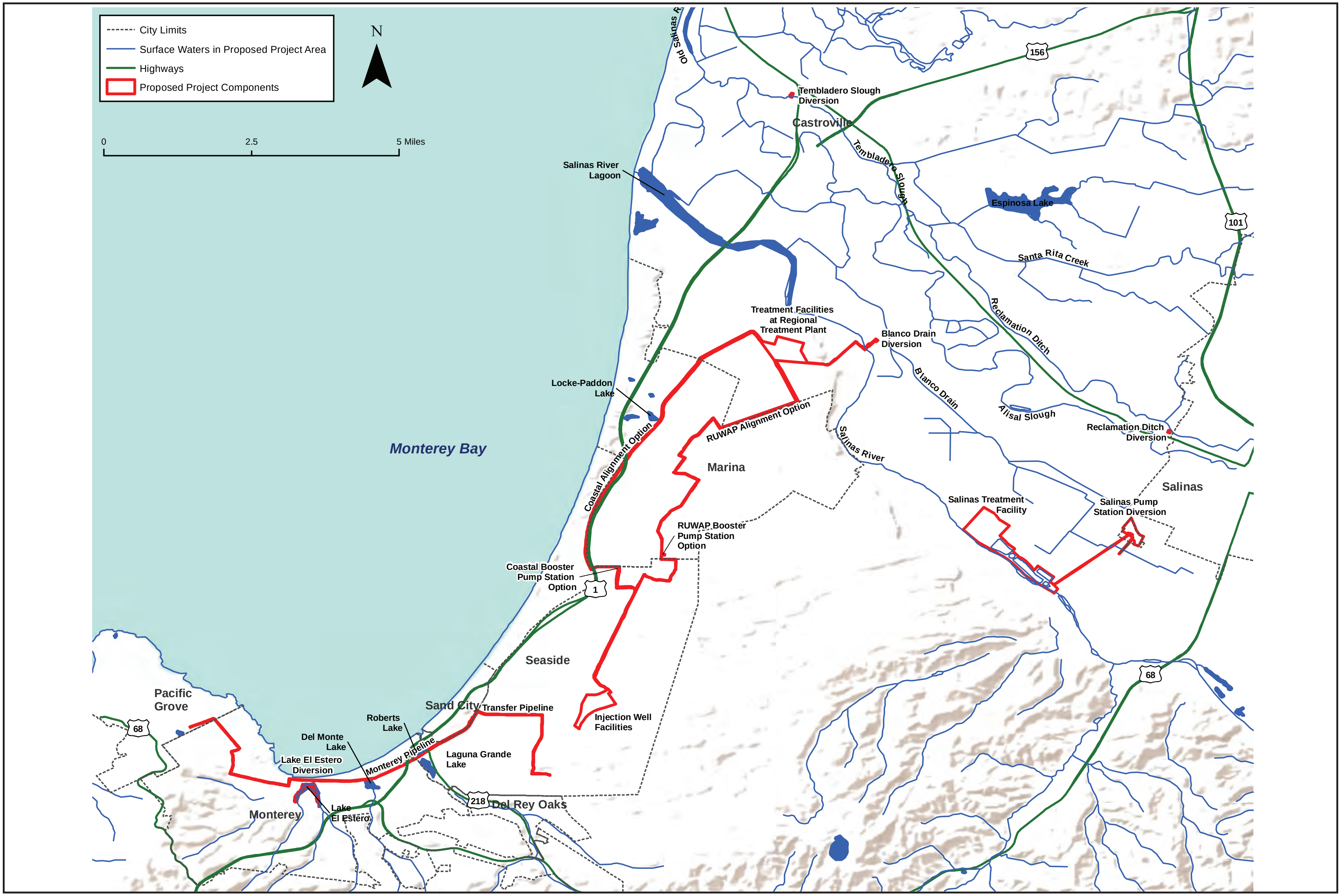


Surface Waters in Proposed Project Area

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-1

Source: Schaaf & Wheeler, 2014b

DD&A

Salinas River Watershed

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-2

Lagoon closed to the ocean (left) and open (right). Arrow indicates gated outlet to Old Salinas River.

Source: Schaaf and Wheeler, 2014b

DD&A

Salinas River Lagoon and Gated Outlet to Old Salinas River Channel

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-3

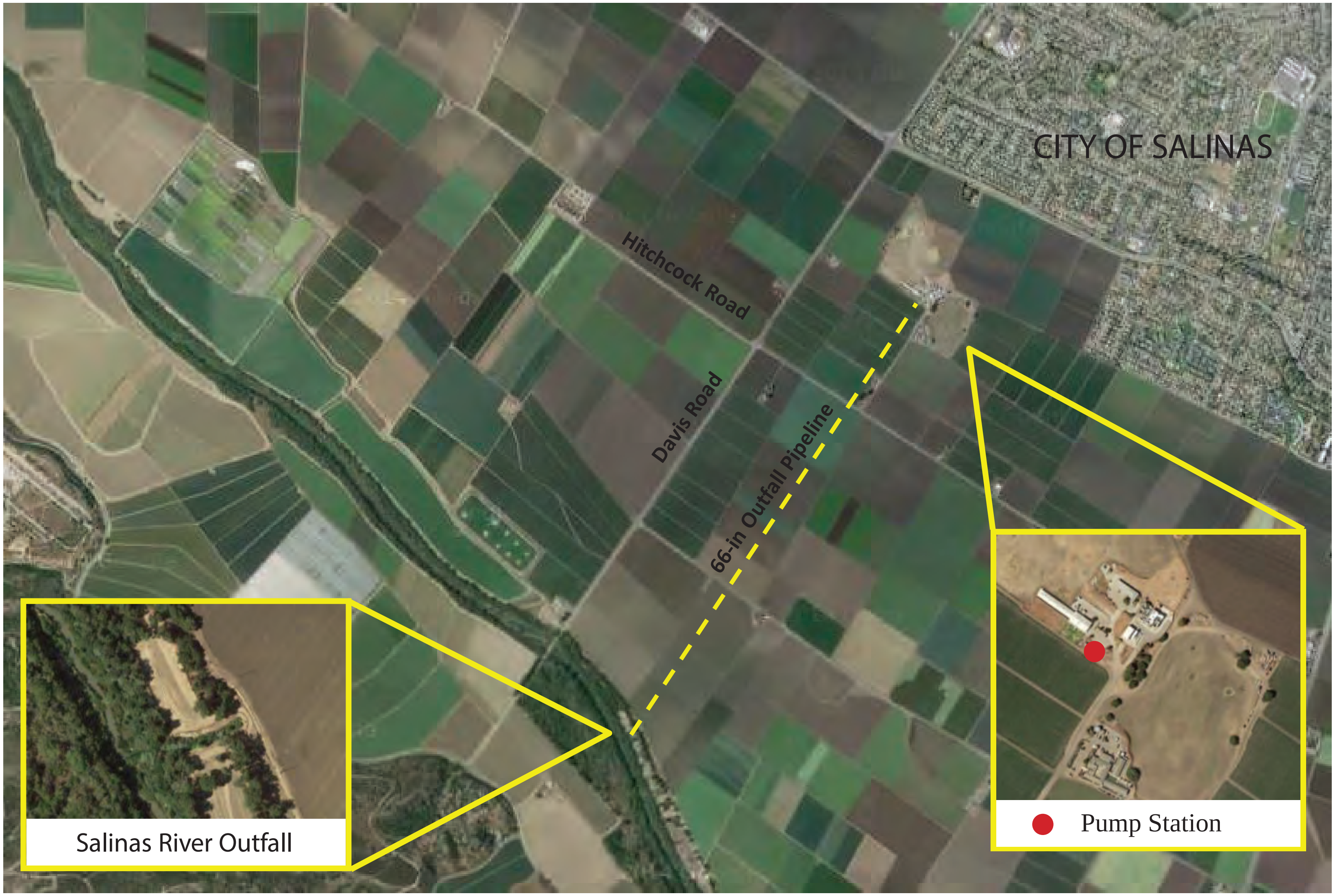
Source: City of Salinas Stormwater Master Plan, CDM, 2004

City of Salinas Urban Stormwater Watersheds

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 4.11-4



Not to scale

Source: Schaaf and Wheeler, 2014b

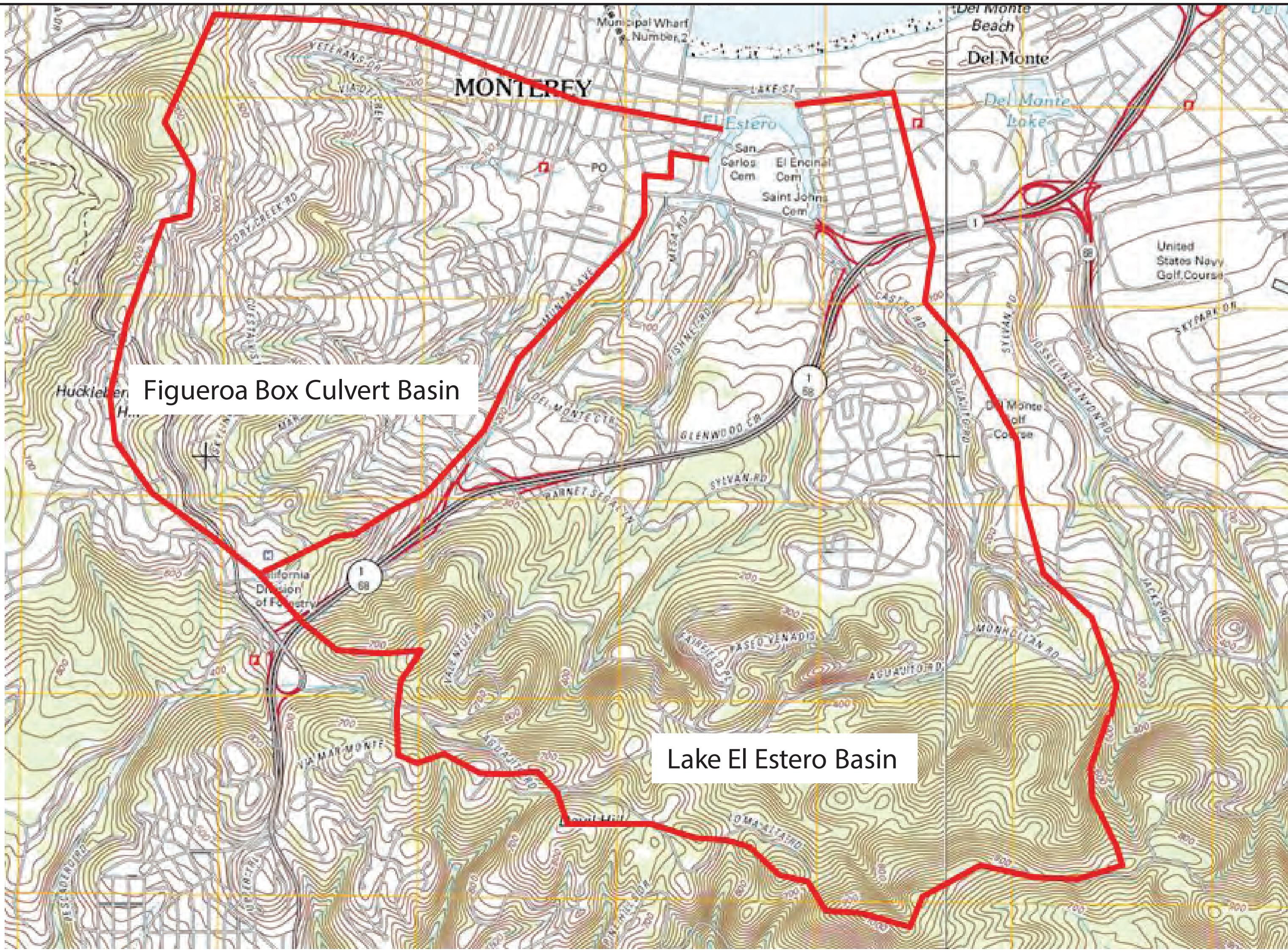
DD&A

Salinas Stormwater Pump Station and Outfall Locations

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-5



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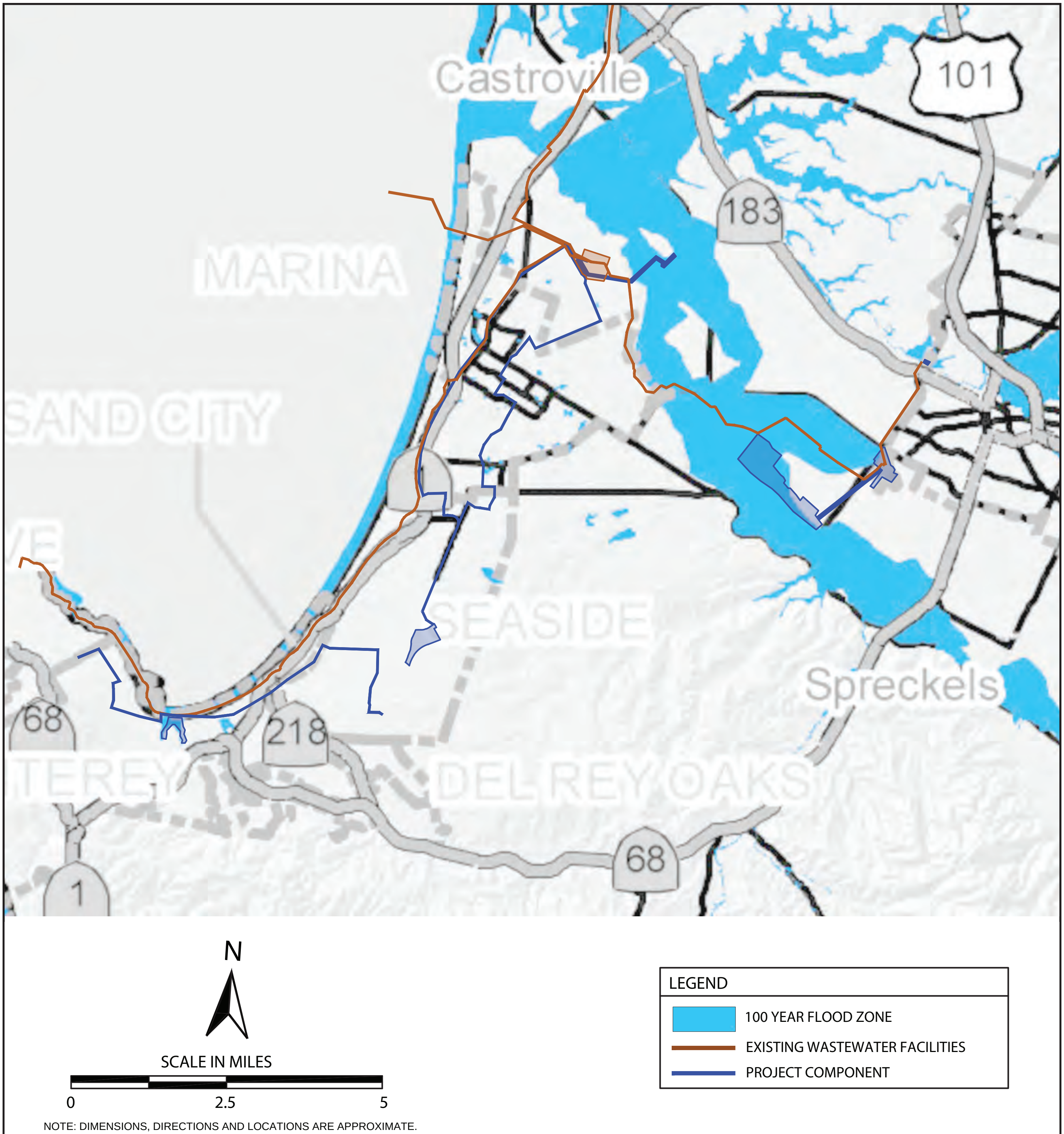
Source: Schaaf and Wheeler, 2014a

Lake El Estero Drainage Basins

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-6



Source: Ninyo & Moore, 2015

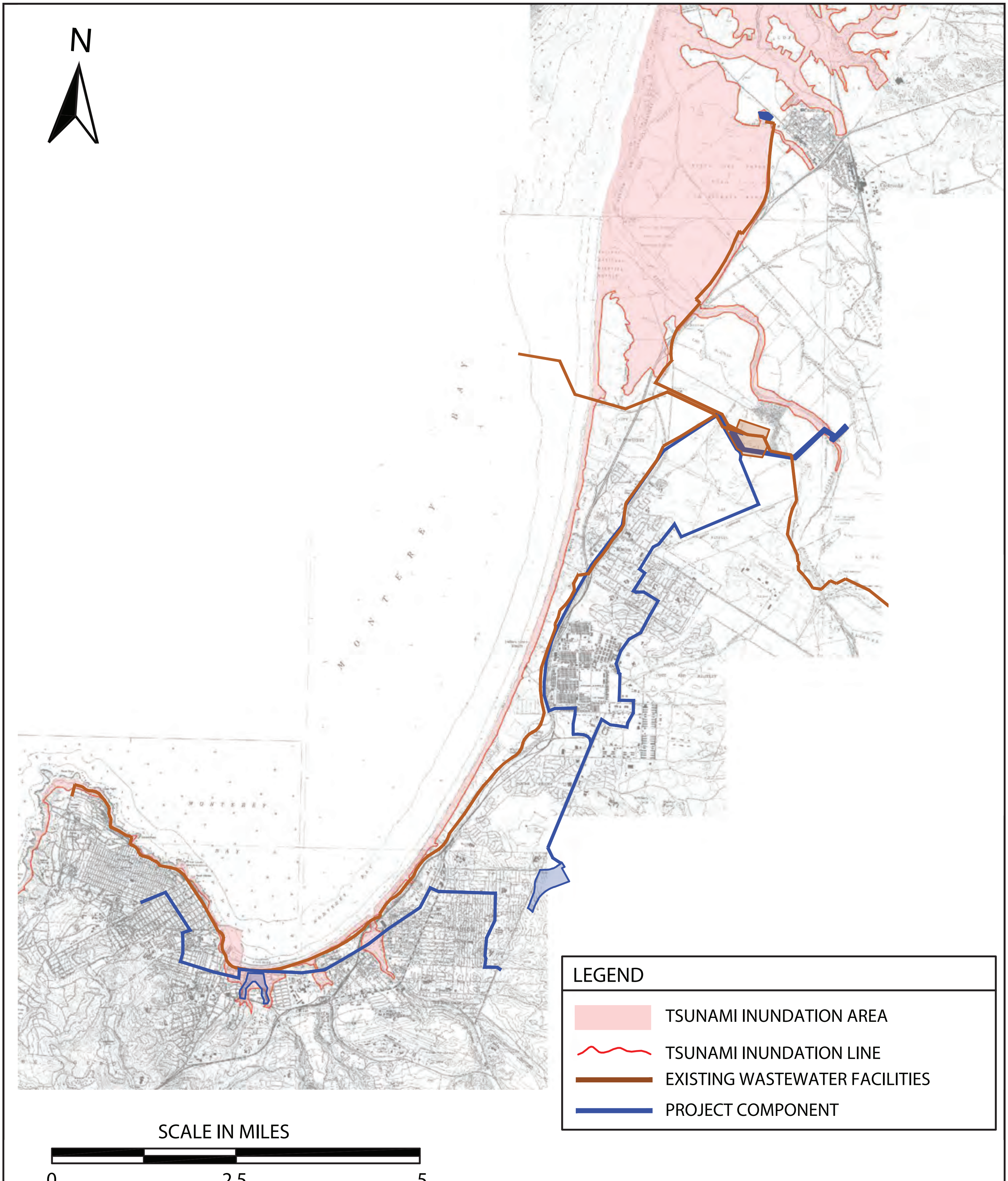
DD&A

100-Year Flood Zones in the Proposed Project Area

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-7



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Source: Ninyo & Moore, 2015

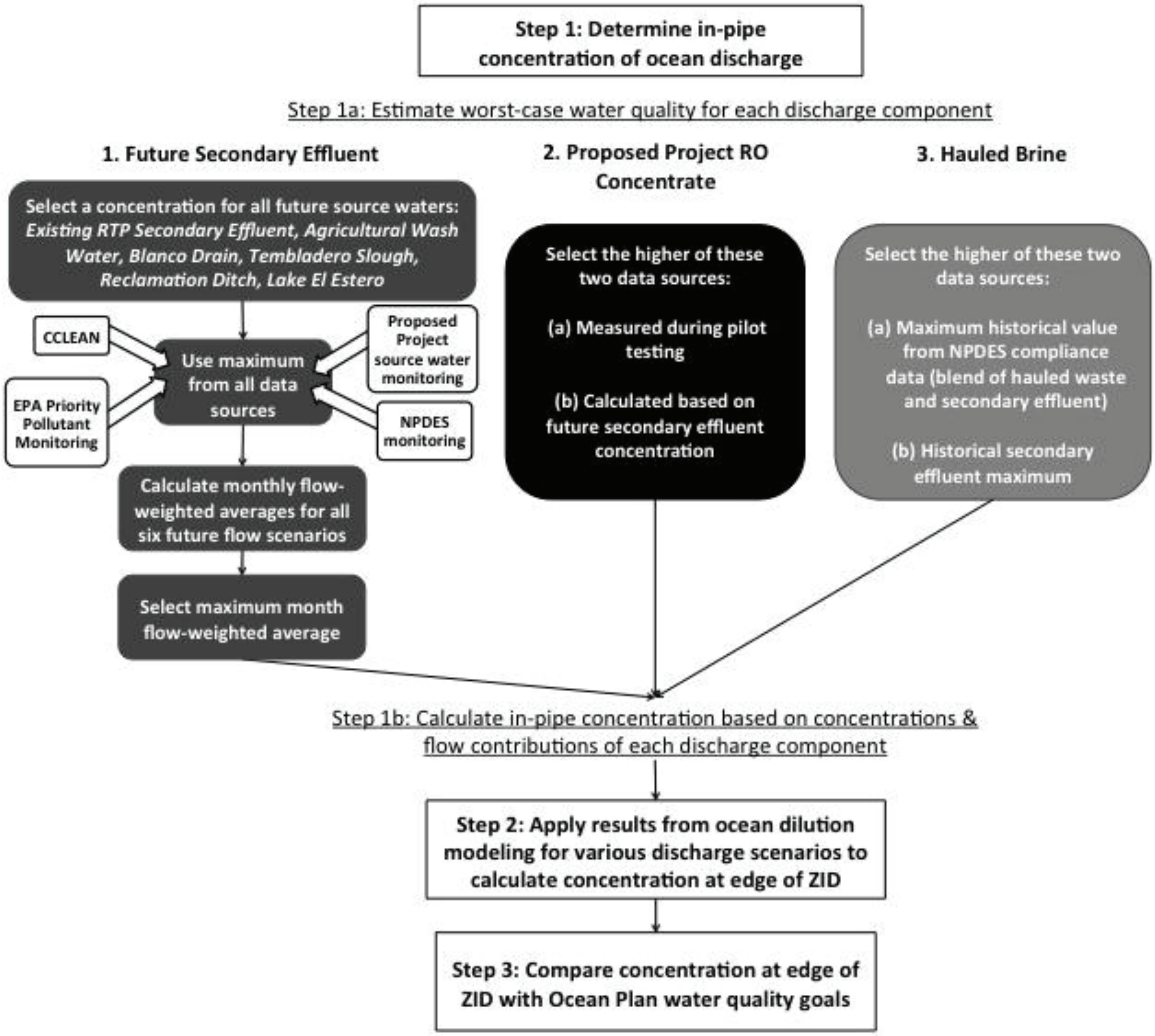
DD&A

Tsunami Inundation Areas in the Proposed Project Area

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-8



DD&A

California Ocean Plan Compliance Methodology

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.11-9

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4.12 LAND USE, AGRICULTURE, AND FOREST RESOURCES

Sections	Tables	Figures
4.12.1 Introduction 4.12.2 Environmental Setting 4.12.3 Regulatory Framework 4.12.4 Impacts and Mitigation Measures 4.12.5 References	4.12-1 Designated Land Uses of Proposed Project Sites 4.12-2 Farmland Classifications of Proposed Project Components 4.12-3 Applicable State, Regional, And Local Land Use Plans, and Policies – Land Use, Agriculture, and Forest Resources 4.12-4 Summary of Impacts - Land Use, Agriculture, and Forest Resources 4.12-5 Mitigation Measures Required for Consistency with Policies 4.12-6 Water Quality Parameters Related to Agricultural Crop Irrigation	4.12-1 Land Use Designation Map 1: Monterey County and Marina 4.12-2 Land Use Designation Map 2: Salinas 4.12-3 Land Use Designation Map 3: Monterey County and Marina 4.12-4 Land Use Designation Map 4: Marina and Seaside 4.12-5 Land Use Designation Map 5: Seaside and Monterey 4.12-6 Farmland Classifications

4.12.1 Introduction

This section addresses potential impacts to land use, agriculture, and forest resources that would occur if the Proposed Project is implemented. It describes the existing land uses and agricultural and forest resources in the vicinity of the Proposed Project sites and the applicable plans, policies, and regulations that address land use, agriculture, and forestry resources. Potential impacts from Proposed Project construction and operation are evaluated and analyzed to determine the potential for the Proposed Project to affect such resources through the displacement, disturbance, or direct conversion of these uses.

Public and agency comments received during the public scoping period in response to the Notice of Preparation are summarized in **Appendix A, Scoping Report**. No comments were received related to land use, agriculture and forest resources.

4.12.2 Environmental Setting

The Proposed Project would be located in unincorporated areas of northern Monterey County, and the cities of Salinas, Marina, Seaside, Sand City, Monterey and Pacific Grove. The Proposed Project area for the land use impact analysis includes the area within and surrounding the Proposed Project component sites. Land uses in the Proposed Project area are governed by local general plans, coastal programs, and zoning codes of the local jurisdictions, except on state and federal lands. State and federal areas of ownership in the region include the California State Department of Parks and Recreation, California State University system (Monterey Bay), University of California system (U.S. Monterey Bay Education, Science and Technology), the U.S. Department of Defense (Department of Army and Department of Navy), and the U.S. Department of Interior (Bureau of Land Management). The former Fort Ord area has been transferred to state and local jurisdictions; however, certain land use decisions affecting transferred land are subject to discretionary review by the Fort Ord Reuse Authority.

Land uses in the northern portion of the Proposed Project area are predominantly public facilities and agriculture; however, from the city of Marina's northern boundary to the southern boundary of the Proposed Project area, the Proposed Project would occur within urbanized areas or on the boundary of urban and open space. Some underground pipeline components of the Proposed Project would be located within the coastal zone, as defined by the California Coastal Act and thus would be subject to regulation by the California Coastal Commission (CCC). The California Coastal Commission is responsible for administering the California Coastal Act and managing development on approximately 1.5 million acres of the 1,100 miles of coastline. **Figures 4.12-1** through **4.12-5** provide the local government jurisdictional boundaries, land use designation types, and extent of coastal zone in the Proposed Project area.

4.12.2.1 Existing Land Use

This section summarizes the land uses at and adjacent to each Proposed Project component site. **Table 4.12-1, Designated Land Uses of Proposed Project Sites** below summarizes existing land uses, land use jurisdictions, applicable plans and codes, zoning of each site, and General Plan land use designations by Proposed Project component.

Many of the Proposed Project components would be buried entirely underground, and predominantly within existing roadway public rights of way. The Proposed Project components that would be located underground within existing public right of ways and at existing water/wastewater public facility sites include the Salinas Pump Station Diversion site, portions of the Salinas Treatment Facility, the Reclamation Ditch Diversion site, the Tembladero Slough Diversion site, portions of the Blanco Drain Diversion site, the Lake El Estero Source Water Diversion and Storage Site, portions of the Product Water Conveyance Systems (both the RUWAP and Coastal options), and the CalAm Distribution System Pipelines.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion Site

The proposed Salinas Pump Station Diversion site is located adjacent to MRWPCA's sanitary sewer pump station that serves the city of Salinas. The site is on Hitchcock Road in Salinas, a half mile southeast of the intersection of Blanco and Davis Roads. The site is located within the city of Salinas at the site of the city's former municipal wastewater treatment plant, known as Treatment Plant No. 1 or "TP1." The site currently contains existing stormwater, municipal wastewater (or sanitary sewer), and agricultural wash water pipelines and pumps, in addition to administrative buildings. The site is surrounded by an animal shelter, storage/stockpiling for agricultural equipment and supplies, and land within unincorporated Monterey County that is currently used for agricultural production.

Salinas Treatment Facility Storage and Recovery Site (including Facility and Pipeline Modifications)

The existing Salinas Treatment Facility is located within the jurisdiction of Monterey County, but it is operated by the City of Salinas. The entrance to the facility is located on Davis Road, approximately 1.5 miles southwest of the City of Salinas boundary. The facility is surrounded by agricultural land uses to the north, east and west, and the Salinas River to the south. The facility currently treats industrial water from approximately 25 agricultural processing and related businesses located east of Sanborn Road and south of U.S. Highway 101. This wastewater collection system is completely separate from the Salinas municipal sewage collection system and includes 14-inch to 33-inch diameter gravity pipelines that flow from the City of Salinas to the Salinas Pump Station Diversion site, and then flow into a 42-inch gravity pipeline to the Salinas Industrial Wastewater Treatment Facility. The Salinas Treatment Facility consists of an influent pump station, an aeration lagoon, percolation ponds, and rapid infiltration beds to treat, percolate and evaporate the water.

Reclamation Ditch Source Water Diversion Site

The proposed Reclamation Ditch Diversion site is located within the jurisdiction of Monterey County, immediately adjacent to the City of Salinas boundary. On either side of the Reclamation Ditch canal, the site is surrounded by industrial uses. Lands within the unincorporated area west of the site and Davis Road are in agricultural production. The diversion structure would consist of an intake structure on the channel bottom, connecting to a new wet well on the channel bank via a gravity pipeline. Submersible pumps would be installed in the wet well; these pumps would discharge through two short force mains (approximately 50-ft each), discharging to an existing manhole on the City of Salinas 54-inch sanitary sewer main.

Tembladero Slough Diversion Site

The Tembladero Slough Diversion site is located with the jurisdiction of Monterey County, near the northwest edge of the town of Castroville. It is surrounded by agricultural land uses. The diversion structure would consist of an intake structure on the channel bottom, connecting to a new lift station wet well on the channel bank via a gravity pipeline. Submersible pumps would be installed in the wet well; these pumps would discharge through a short force main (approximately 100-feet in length), discharging to the existing wet well at the existing MRWPCA Castroville Pump Station.

Blanco Drain Pump Station and Pipeline Sites

The Blanco Drain Diversion pump station site is located within the jurisdiction of Monterey County. It is surrounded by agricultural and industrial land uses. The proposed pipeline that would take diverted water to the Regional Treatment Plant would cross the Salinas River. The new pump station would be located adjacent to the existing seasonal pump station operated by Monterey County Water Resources Agency. The new pump station would consist of an intake structure on the channel bottom, connecting to a new wet well (manhole) on the channel bank via a gravity pipeline. The pump station would discharge through an 18-inch force main and 36-inch gravity main, running from the pump station to the existing headworks of the Regional Treatment Plant.

Lake El Estero Diversion Site

The Lake El Estero Diversion Site is an existing city of Monterey pumping facility located within a developed park between Lake El Estero and Del Monte Boulevard near its intersection with Camino Aguajito Road. The site is entirely paved and contains numerous above-ground pipelines, valves and other infrastructure used for lake and stormwater management. Just beyond the small paved area adjacent to the lake are a landscaped lawn, a decomposed granite trail, several trees, and the sidewalk on the south side of Del Monte Boulevard. The lake shore in this area is man-made rock rip-rap and includes a concrete box culvert within which the lake pumps are located.

Treatment Facilities at Regional Treatment Plant

The proposed Treatment Facilities at the Regional Treatment Plant include an Advanced Water Treatment Facility, a Brine Mixing Facility, and Salinas Valley Reclamation Plant modifications. Because the site is owned by the MRWPCA, no land use, building, or grading permits would be required from the County for construction of the facilities at the Regional Treatment Plant. The Advanced Water Treatment Facility site would consist of several structures as tall as 25 feet totaling approximately 60,000 square feet. The proposed brine mixing facility would be up to 16 feet tall totaling approximately 10,000 square feet. The area adjacent to the Advanced Water Treatment Facility currently contains industrial-type wastewater and solid waste management equipment and facilities similar to the Proposed Project facilities, including the Monterey Regional Waste Management District regional landfill, leased land on which composting and other industrial-type operations occur, and open grazing land to the west and south.

Product Water Conveyance System (RUWAP and Coastal) Alignments

RUWAP Alignment Option

RUWAP Pipeline Alignment Option

The proposed RUWAP Pipeline Alignment Option is located within several jurisdictions including Monterey County, the City of Marina and the City of Seaside. The northernmost part of the pipeline alignment traverses Armstrong Ranch, which is currently used for grazing and other agricultural uses. In the City of Marina, the pipeline would be entirely within the public road right of way. Once on the CSUMB campus, the pipeline would be within a utility corridor and bicycle/pedestrian trail. For the rest of the distance to the Injection Well Facilities site, the pipeline would be within the public road right of way. Once within the Injection Well Facilities site, the pipeline would cross through a small distance of undeveloped land.

RUWAP Booster Pump Station Option

The proposed RUWAP Booster Pump Station Option would be located on a site that is currently partially developed and paved as a Corporation Yard for the City of Marina. The site is approximately ¼ acre and is located on the east side of Fifth Avenue between Eighth Street and Inter-Garrison Road. The land use designation for the site is Public / Institutional which allows for water supply facilities. The pump station site would consist of electrical and control equipment, maintenance access, electrical supply transformer and a surge tank for the pumps. This equipment would be housed in a building approximately 30 feet by 70 feet and up to 25 feet tall with architectural treatment consistent with nearby facilities. The site is located within the City of Marina, just north of the CSUMB campus. Campus housing is located several hundred feet to the west, and classrooms are located to the east and south.

Coastal Alignment Option

Coastal Pipeline Alignment Option

The proposed Coastal Pipeline Alignment Option is located within several jurisdictions including Monterey County, the City of Marina and the City of Seaside. The northernmost part of the pipeline alignment traverses Armstrong Ranch, which is currently used for grazing and other agricultural uses. In the City of Marina, a portion of the alignment is located within the Transportation Agency for Monterey County rail line corridor, including on or near the Monterey Bay Recreational Trail. The rest of the pipeline, including the portion in the City of Seaside would be within the public road right of way until reaching the Injection Well Facilities Site. Once within the Injection Well Facilities site, the pipeline would cross through a small distance of undeveloped land.

Coastal Booster Pump Station Option

The Coastal Booster Pump Station Option would be located on a ¼-acre site that is currently undeveloped. The pump station would be located within the city of Seaside and on California State University Monterey Bay (CSUMB) land on the southwest corner of Divarty Street and Second Avenue. The majority of the parcel is owned by the city of Seaside, however a portion of the pump station site is owned by CSUMB. Across Divarty Street, north of the proposed pump station site is vacant military housing and an unused parking lot in the city of Marina. The land use designation for the site is Public / Institutional which allows for water supply facilities. The pump station site would consist of electrical and control equipment, maintenance access, electrical supply transformer and a surge tank for the pumps. This equipment would be housed in a building approximately 30 feet by 70 feet and up to 25 feet tall with architectural treatment consistent with nearby facilities. The adjacent lands are currently undeveloped or vacant.

Injection Well Facilities

The proposed Injection Well Facilities site is undeveloped (with the exception of unpaved access roads and utility lines) within the former Fort Ord military base that has been annexed into the city of Seaside but is still owned by the Fort Ord Reuse Authority. The facilities at the Injection Well Facilities site would cover up to a 1-acre portion of the site. The land use designation for the site is single-family residential, and the site is bordered to the east by lands designated for habitat management. Adjacent lands to the east are undeveloped, owned by the Bureau of Land Management and intended primarily for open space, and are part of the Fort Ord National Monument. The Injection Well Facilities site would consist of four motor control buildings, eight injection wells (four deep injection wells, four vadose zone wells), six monitoring wells, backflush facilities, and electrical conduits and pipelines buried underground within a proposed utility road. In addition, multiple water storage tanks in Seaside neighborhoods are located less than one mile west of the site.

CalAm Distribution System

The proposed CalAm Distribution System Pipelines (Monterey and Transfer) would run through a number of jurisdictions including the City of Seaside, Sand City, the City of Monterey and the City of Pacific Grove. The surrounding land use is mostly residential, with a small amount of commercial and recreational land uses. Most of the proposed pipelines would be within the public right of way with the exception of a portion of the Monterey Pipeline that would be located partially within the Transportation Agency for Monterey County rail line corridor and within the Monterey Bay Recreational Trail.

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Table 4.12-1
Designated Land Uses of Proposed Project Sites

Proposed Project Site	Location Description	Jurisdiction	Applicable Plans	Zoning Designation	General Plan Designation
Salinas Pump Station Diversion Site	Located at the former wastewater treatment plant site, southeast of the city (146 Hitchcock Road, Salinas)	City of Salinas	City of Salinas General Plan, City of Salinas Zoning Ordinance	Public / Semi-Public (PSP)	Public / Semi-Public
Salinas Treatment Facility Storage and Recovery Site	Located at the existing Salinas Treatment Facility, approximately 1.5 miles southwest of the City of Salinas. The proposed pipeline will connect the Salinas Pump Station Diversion Site to the Salinas Treatment Facility.	Monterey County	Monterey County General Plan, Greater Salinas Area Plan	Public/Quasi-Public (PQP), Farmlands 40 acre minimum (F/40)	Farmlands 40 acre minimum, Public / Quasi-Public
Reclamation Ditch Diversion Site	Located north and east of the Davis Road bridge over the railroad tracks and the Reclamation Ditch (north of Market Street).	Monterey County	Monterey County General Plan, Greater Salinas Area Plan	Farmlands 40 acre minimum (F/40)	Undesignated (County Right-of-Way)
Tembladero Slough Diversion Site	Located at the terminus of Watsonville Road just southwest of the town of Castroville.	Monterey County	Monterey County General Plan, North County Land Use Plan	Resource Conservation (RC)	Farmlands 40 acre minimum, Permanent Grazing 10-160 acre minimum
Blanco Drain Pump Station and Pipeline Sites	Located approximately 0.7 miles north west of the intersection of Nashua Road and Cooper Road. The proposed pipeline will connect the Blanco Drain Diversion Site to the existing headworks at the Regional Treatment Plant.	Monterey County	Monterey County General Plan, Greater Monterey Peninsula Area Plan, Greater Salinas Area Plan	Public/Quasi-Public (PQP-D-S)	Farmlands 40 acre minimum, Permanent Grazing 10-80 Acres, Public / Quasi-Public
Lake El Estero Diversion Site	Near the southwest corner of the intersection of Del Monte Blvd and Camino Aguajito, adjacent to Lake El Estero	City of Monterey	City of Monterey General Plan, City of Monterey Zoning Ordinance	Open Space (OS)	Parks and Open Space
Treatment Facilities at Regional Treatment Plant	Located at the existing Regional Treatment Plant, approximately 1.4 miles east of Highway 1 and 0.5 miles south of the eastern terminus of Charles Benson Road (14811 Del Monte Blvd., Marina)	Monterey County	Monterey County General Plan and Zoning Ordinance, Greater Monterey Peninsula Area Plan,	Public/Quasi-Public (PQP)	Farmlands 40-160 acre minimum
Product Water Conveyance System (RUWAP Option)	The pipeline would begin at the AWT Facility and run southeast along its western boundary and then depart the Regional Treatment Plant site in a southeasterly direction across the open country of the Armstrong Ranch before turning southwest along the boundary of, and north of, the Fort Ord Natural Reserve (University of California property)	Monterey County	Monterey County General Plan and Zoning Ordinance, Greater Monterey Peninsula Area Plan	Public/Quasi-Public (PQP) and Permanent Grazing, 40 acres per unit, Urban Reserve with Design Control and Site Plan Review overlays (PG/40-UR-D-S)	Public/Quasi-Public and Agriculture
	The alignment would follow the northern boundary of the city, turn south on Crescent Avenue and continue south for about 4,000 feet. The alignment would then turn East on Carmel Avenue, south on Vaughn, east on Reindollar, and south on California Avenue until it becomes Fifth Avenue (where it would be within the CSUMB campus. At Inter-Garrison Road, the pipeline would be within the City of Seaside turn east.	City of Marina, portion within California State University Monterey Bay	City of Marina General Plan, Municipal Code, CSUMB Master Plan (only portion along Fifth Avenue), and FORA Reuse Plan	Single Family Residential (R-1), Retail Business District (C-1), Multiple Family Residential (R-4),Open Space (O), Specific Plan – University Village (SP-UV), Public Facility (PF), Marina Heights Residential (R-MH), CSUMB Master Plan, General Commercial (C-2)	Habitat Reserve and other Open Space, Single Family / Multi-Family Residential, Public Facilities, Mixed Use, Public/Quasi-Public, Retail/Service, Commercial
	The pipeline would be within CSUMB (and the City of Marina) along Fifth Avenue from just south of Eighth Street to Inter-Garrison Road, then it would turn east on Inter-Garrison Road to the south easterly portion of Fifth Avenue (south). The pipeline would be located within a utility and bicycle path corridor through CSUMB campus heading generally south and west eventually intersecting General Jim Moore Boulevard and heading south along General Jim Moore to Lightfighter Drive where it would exit the CSUMB campus.	City of Seaside and California State University Monterey Bay	CSUMB Master Plan, City of Seaside General Plan and Municipal Code, FORA Reuse Plan	Public Institutional (PI)	Public Facilities, Multi-Family Residential
	From Inter-Garrison and south the pipeline route would be within the City of Seaside outside the CSUMB campus (see above for the portion within CSUMB). From the intersection of General Jim Moore with Lightfighter Drive, it would follow along the eastern side of the right of way of General Jim Moore, past developed, military housing area (called Fitch Park), through the open land around a water reservoir used by the nearby golf courses, connecting to Eucalyptus Road, then southerly to the Injection Well Facilities.	City of Seaside	City of Seaside General Plan, FORA Reuse Plan	Military (M), Public/Institutional (PI), Visitor Serving Commercial (V-FO), Open Space Recreation (OSR), Single Family Residential (RS-8)	Public/Institutional, Mixed Use, Military, Recreational Commercial
Product Water Conveyance System (Coastal Option)	The Product Water Pipeline Coastal Alignment would depart from the Regional Treatment Plant site and run along its western boundary northerly to the Monterey Peninsula interceptor right of way. From there, it would turn southwesterly along the Monterey Peninsula interceptor right of way to Del Monte Boulevard. The pipeline would turn south on Del Monte Boulevard and be located within Transportation Agency land.	Monterey County	County of Monterey General Plan and Greater Monterey Peninsula Area Plan, Monterey County Zoning Ordinance	Public/Quasi Public (PQP), Permanent Grazing 40 acres per unit, Urban Reserve with Design Control and Site Plan Review overlays (PG/40-UR-D-S)	Public /Quasi-Public, Permanent Grazing
	The pipeline through Marina would be within land owned by the Transportation Agency adjacent to Del Monte Boulevard to its crossing under Highway 1 and along the State Parks boundary with the Transportation Agency through Marina to Divarty Street.	City of Marina	City of Marina General Plan and Local Coastal Land Use Plan, FORA Reuse Plan	Transition Zoning District, Residential (R-1, R-4), Business Park (BP/P), Planned Commercial (PC), Retail Business District (C-1), Public Facilities (PF), and Open Space (OS)	Residential, Retail, Habitat Preservation, Open Space, Parks/ Recreation, Public Facilities
	The pipeline would follow Divarty Street to Second Avenue (the Booster Pump Station site). The pipeline would turn south on the west side of Second Avenue to Lightfighter Drive, then turn eastward on the south side of the Lightfighter Drive to the intersection with General Jim Moore; then onto the southbound ramp from Lightfighter Drive onto General Jim Moore where it would merge to the same alignment as the RUWAP alignment south to the Injection Well Facilities site	City of Seaside	City of Seaside General Plan, FORA Reuse Plan	Regional Commercial (CRG), Public/Institutional (PI) and Military (M), Visitor Serving Commercial (V-FO), Open Space Recreation (OSR), Single Family Residential (RS-8)	Regional Commercial, Recreational Commercial, Public Institutional, Mixed Use, and Military
Product Water Booster Pump Station (RUWAP and Coastal Options)	*RUWAP Option*: On the east side of Fifth Avenue between Eighth Street and Inter-Garrison Road	City of Marina	City of Marina General Plan, FORA Reuse Plan	Public Facility(PF)	Public Facility
	Coastal Option: On the southwest corner of the intersection of Divarty Street and Second Avenue	City of Seaside and CSUMB	City of Seaside General Plan, City of Seaside Zoning Ordinance, FORA Reuse Plan CSUMB Master Plan, FORA Reuse Plan	Regional Commercial (CRG), and Public / Institutional (PI)	Regional Commercial and Public/Quasi-Public
Injection Well Facilities Site	East of General Jim Moore Road and South of Eucalyptus Road	City of Seaside	City of Seaside General Plan, City of Seaside Zoning Ordinance [1]	Single Family Residential (RS-8)	Low Density Single-Family Residential

[1] The City has also prepared, but not approved, a Draft Seaside East Conceptual Master Plan that was developed for the Injection Well Facilities site and designates the site as Mixed Use and Business Park/Employment.

Table 4.12-1
Designated Land Uses of Proposed Project Sites

CalAm Distribution System Pipelines	Beginning at the intersection of Del Monte Boulevard/Auto Center Parkway, the alignment would go east along La Salle Avenue to Yosemite Street, turn south and continues along Yosemite Street to the intersection with Hilby Avenue, then turn east and continue along Hilby Avenue to General Jim Moore Boulevard. It would be located within road rights-of-way and in existing urban residential areas.	City of Seaside	City of Seaside General Plan,	Regional Commercial (CRG), Community Commercial (CC), Open Space – Recreational, Public Institutional (PI), Low Density Single Family Residential (RS-8), Medium Density Single Family Residential (RS-12), High Density Residential (RH)	Commercial, Residential, Public Facilities, Institutional, and Open Space Uses
	From La Salle Avenue, south along the west side of Del Monte Boulevard, generally following the Transportation Agency right-of-way and Monterey Peninsula Recreational Trail. The northern portion of the Monterey Pipeline alignment, between Auto Center Parkway and Contra Costa Street, is bounded by Seaside (non-coastal) to the east and Sand City (coastal zone) to the west.	City of Seaside	City of Seaside General Plan, City of Seaside Zoning Ordinance	Heavy Commercial (CH), Automotive Commercial (CA), Regional Commercial (CRG)	Regional Commercial, Community Commercial, Public Institutional, Low, Medium, and High Density Single Family Residential, Heavy Commercial, Regional Commercial,
	Along the west side of Del Monte Boulevard, between Auto Center Parkway and Contra Costa Street.	City of Sand City	City of Sand City General Plan, Local Coastal Program, Municipal Code	Coastal Regional Commercial (CZ-C4), Coastal Manufacturing (CZ-M), Coastal Planned Mixed Use (CZ-MU-P)	Commercial, Manufacturing, and Mixed Uses
	Along Del Monte Boulevard, between Laguna de Rey (e.g., Roberts Lake) and Figueroa Street.	City of Monterey	City of Monterey General Plan, Monterey Harbor and Del Monte Beach Land Use Plans	Visitor Accommodating Facilities (VAF), Community Commercial (C-2), General Commercial (C-3), Open Space (O)	Commercial, Residential – Low Density, Public/Semi-Public, Parks and Open Space
	From the intersection of Del Monte Boulevard and Figueroa Street to the intersection of High Street and Stillwell Avenue			Community Commercial (C-2), Office and Professional District (CO), Open Space (O), Planned Community (PC), Visitor Accommodation Facility (VAF), Residential Single-Family (R-1), Residential Medium Density Multifamily (R-3)	Public/Semi-Public, Commercial, Parks and Open Space, Residential – Medium Density, Residential – Low Density
	Along Stillwell Avenue, between High Street and Private Bolio Road	Presidio of Monterey	U.S. Army Presidio of Monterey, Real Property Master Plan	No zoning designation for federal lands	Professional/Institutional
	From the intersection of Stillwell Avenue and Private Bolio Road to the Eardley Pump Station.	City of Pacific Grove	City of Pacific Grove General Plan and Zoning Code	Single Family Residential (R-1)	Low Density Residential

4.12.2.2 Farmland Classifications

Farmland Mapping and Monitoring Program

The California Natural Resources Agency's Department of Conservation, Division of Land Resource Protection, maps important farmlands throughout California. Land is classified into the categories listed below on the basis of soil conditions (their suitability for agriculture) and current land use.

- Prime Farmland - This category represents farmland with the best combination of physical and chemical characteristics for long-term agricultural production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed. In addition, the land must have been used for irrigated agricultural production in the last four years to qualify under this category.
- Farmland of Statewide Importance - Farmland of Statewide Importance is similar to Prime Farmland in that it has a good combination of physical and chemical characteristics for crop production, but with minor shortcomings, such as greater slopes and less ability to store moisture.
- Unique Farmland - This land does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, but is land that has been used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones of California. Unique Farmland must have been cropped at some time during the four years prior to the mapping date.
- Farmland of Local Importance - This category applies to land of importance to the local agricultural economy, as determined by the jurisdiction within which the land is located. This land is either currently producing crops or has the capability of production, but does not meet the criteria of the preceding categories.
- Grazing Land - Grazing Land is land on which the vegetation is suited to the grazing of livestock.
- Urban and Built-up Land - This land is occupied by structures with a building density of at least one structure to 1.5 acres, or approximately six structures on a 10-acre parcel. This land generally provides unfavorable conditions for agricultural production.
- Other Land - This is land that is not included in any of the categories above and may include brush, timber, wetlands, confined livestock areas, strip mines, and gravel pits, among other land types.

Figure 4.12-6, Farmland Classifications and **Table 4.12-2, Farmland Classifications of Proposed Project Components** show the farmland designations for the Proposed Project components.

Table 4.12-2
Farmland Classifications of Proposed Project Components

Farmland Classification	Salinas Pump Station Diversion	Salinas Treatment Facility	Reclamation Ditch Diversion	Tembladero Slough Diversion	Blanco Drain Diversion (Pump Station and Pipeline)	Lake El Estero Diversion	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance Pipeline Options (RUWAP and Coastal Alignments)	Booster Pump Station Options (RUWAP and Coastal)	Injection Well Facilities	CalAm Distribution System Pipelines
Prime Farmland	-	X	-	X	X	-	-	-	-	-	-
Farmland of Statewide Importance	-	-	-	-	X	-	-	-	-	-	-
Unique Farmland	-	-	-	-	-	-	-	-	-	-	-
Farmland of Local Importance	-	-	-	-	-	-	-	-	-	-	-
Grazing Land	-	-	-	-	X	-	-	X	-	-	-
Urban and Built-Up Land	-	X	X	X	X	X	X	X	-	-	X
Other Land	X	-	-	-	-	-	-	X	X	X	X

Williamson Act Farmland Designations in the Project Area

As described below in **Section 4.12.3.3** (State Regulations), the California Land Conservation Act (commonly referred to as the Williamson Act) is the State's primary program for the conservation of private land for agricultural and open space uses. The California Department of Conservation prepares countywide maps of lands enrolled in Williamson Act contracts and classifies them into the categories described below.

- Prime Agricultural Land - This category represents the State's highest quality agricultural land. Land under this category is typically used for the production of irrigated crops or to support livestock.
- Non-prime Agricultural Land - This category represents Open Space Land of Statewide Significance, as defined under the California Open Space Subvention Act. Most land under this category is in agricultural uses such as grazing or non-irrigated crops and may also include other open space uses that are compatible with agriculture and consistent with local general plans.
- Land in Non-renewal - This category represents land under contracts that are in the process of being terminated at the option of the landowner or local government.

No lands in the Proposed Project area are enrolled in the Williamson Act program (California Department of Conservation, 2012). Within the Castroville Seawater Intrusion Project area that receives recycled water from the Salinas Valley Reclamation Plant at the Regional Treatment Plant, there are numerous properties enrolled in the Williamson Act program these are shown in **Figure 4.12-6**.

4.12.2.3 Forest Resources

Section 12220(g) of the California Public Resources Code defines forest land as "land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation and other public benefits." Timberland is land that is available for and capable of growing a crop of trees of any commercial species used to produce lumber and other forest products (Public Resources Code Section 4526). Under this definition, timberland does not include land owned by the federal government and land designated by the California Board of Forestry and Fire Protection as experimental forest land. There is no forest or timberland land within the Proposed Project area.

4.12.3 Regulatory Framework

4.12.3.1 Federal

Real Property Master Plan – Presidio of Monterey

The U.S. Army's Real Property Master Plan – Presidio of Monterey (2009) provides for the orderly development and maintenance of land, facilities, and infrastructure within the Presidio of Monterey Installation, which includes the Presidio of Monterey and the Fort Ord Military Community. The Master Plan depicts Army Land Use Categories assigned to lands within these military units. Use categories identified within these units include: Community, Professional/Institutional, Troop, and Residential. The Master Plan also describes the types of uses appropriate within each category. The document does not prohibit development of utilities in any of the land use categories.

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) requires an evaluation of the relative value of farmland that could be affected by decisions sponsored in whole or part by the federal government. The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with State, local units of government, and private programs and policies to protect farmland (U.S. Department of Agriculture, 2015). For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements includes forest land, pastureland, cropland, or other land.

4.12.3.2 State

Fort Ord Reuse Authority and Fort Ord Reuse Plan

The 1994 Fort Ord Reuse Authority Act (California Government Code section 67650-67700); hereafter referred to as the "FORA Act") was passed with the goals of facilitating the transfer, reuse, and management of lands within the former Fort Ord military reservation. Pursuant to the Act, on May 20, 1994, the Fort Ord Reuse Authority (FORA) was established as a corporation of the State of California. The purpose of the FORA is to prepare, adopt, finance, and implement a plan for the land formerly occupied by Fort Ord. The FORA is governed by a 13-member board (FORA Board) comprised of representatives from the Monterey County Board of Supervisors, and city council members from each of the cities of Marina, Seaside, Carmel, Del Rey Oaks, Sand City, Monterey, Pacific Grove, and Salinas (member agencies). The FORA Act directs the Board to prepare and adopt a plan (Reuse Plan) for the future use and development of lands within the former Fort Ord area (Fort Ord Reuse Authority, 1997).

The FORA Act requires that, with a few exceptions for universities, all Fort Ord land that has been transferred from the federal government must be used in a manner consistent with the Reuse Plan. This provision is affirmed and explained further in the Fort Ord Master Resolution, adopted in March of 1997 (Fort Ord Reuse Authority, 1997). For member agencies with jurisdiction over lands within the former Fort Ord territory, the Master Resolution (Section 8.01.010(c)) requires all general plans, and "all policies and programs relating to the land use or the construction, installation, or maintenance of capital improvements or public works within the Fort Ord Territory, shall be consistent with the Reuse Plan…" Before any such plans or regulations may take effect, the member agency must first obtain from the FORA Board a determination that the plan or regulation is consistent with the Reuse Plan. Upon certification by the Board, development review authority is transferred to the member agency with jurisdiction over the FORA lands. However, pursuant to the FORA Act and Master Resolution (Section 8.01.030(c)), after certification of said general plan, policies, and programs, the Board may continue to conduct consistency review of member agencies' development entitlement decisions in the former Fort Ord area (Fort Ord Reuse Authority, 1997).

The FORA adopted the Fort Ord Reuse Plan on June 13, 1997. The Reuse Plan is divided into four main sections. Section 1 provides an overview of the plan. Section 2 describes the historic, economic, and legal context of the Reuse Plan. The FORA Act envisioned the Reuse Plan as being developed in a way that would allow local agencies with jurisdiction over lands within the territory of Fort Ord to adopt and rely on the Reuse Plan as the local agencies' general plan. Accordingly, the third and fourth sections of the Reuse Plan include the information normally found in a general plan. Section 3 of the Reuse Plan establishes the general plan context and rationale, addressing matters of community visioning, existing setting, use concepts, and implementation. Section 4 includes the Reuse Plan Elements, setting forth goals, objectives, policies, and programs by land use and jurisdiction for: land use, circulation, recreation and open space, conservation, noise, and safety (Fort Ord Reuse Authority, 1997).

Proposed Project components within the former Fort Ord area and subject to the Reuse Plan include portions of the RUWAP and Coastal alignments of the Product Water Conveyance Pipelines, both booster pump station sites, and the Injection Well Facilities. Each of these components would occur within the City of Seaside's jurisdiction and be subject to the Seaside General Plan. On December 12, 2004, the FORA Board found the Seaside General Plan to be consistent with the Fort Ord Reuse Plan. Therefore, Seaside has development review authority for these project components. However, as noted above, the FORA Board may, at its discretion or at the request of the public, review the city's decision with respect to Fort Ord Reuse plan consistency for any legislative decision affecting land use on the former Fort Ord land.

California State Lands Commission

The State Lands Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The State Lands Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions. All tidelands and submerged lands, granted and ungranted, as well and navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

Fort Ord Dunes State Park

Fort Ord Dunes State Park (FODSP) consists of approximately 990 acres of parkland located in an unincorporated area of Monterey County. FODSP includes 4 miles of ocean beach. The FODSP property is dominated by a continuous coastal sand dune formation that rises steeply to block ocean views. The property includes the remnants of fifteen small arms firing ranges, the former Fort Ord ammunition storage area that includes twelve bunkers, and other military era structures that are not in use, including a wastewater treatment plant. FODSP also includes an internal road system and utility lines (California Department of Parks and Recreation, 2004). Existing land use at FODSP is limited and consists of ongoing revegetation efforts by the California Department of Parks and Recreation, operation of existing pump stations, U.S. Army hazardous materials cleanup efforts, storm water facility maintenance, and other facility maintenance efforts. No public land use currently occurs at Fort Ord Dunes and the majority of Fort Ord Dunes is currently maintained as undeveloped open space (California Department of Parks and Recreation, 2004).

California Coastal Act

The California Coastal Act (Public Resources Code Section 30000 et seq.) was enacted by the State Legislature in 1976 to provide long-term protection of the state's 1,100-mile coastline for the benefit of current and future generations. The Coastal Act provides for the long-term management of lands within California's coastal zone boundary, as established by the Legislature and defined in Coastal Act (Section 30103). The width of the coastal zone varies across the State, extending inland a couple hundred feet in some locations to 5 miles in others, and offshore out to 3 miles. The coastal zone in the project vicinity is shown in **Figures 4.12-1** through **4.12-5**.

The Coastal Act includes specific policies for management of natural resources and public access within the coastal zone (see Division 20 of the Public Resources Code). These policies constitute the statutory standards applied to coastal planning and regulatory decisions made by the CCC and by local governments, pursuant to the Coastal Act. **Section 4.12.3, Regulatory Framework** includes the relevant Coastal Act and Local Coastal Program policies and a policy consistency analysis for those polices that would be applicable to the Proposed Project and that are considered to be adopted for the purpose of avoiding, reducing, or mitigating an environmental effect.

Coastal Dependent Uses

The Coastal Act prescribes priorities for types of land uses within the coastal zone, focusing on whether a Proposed Project is "coastal-dependent" or "coastal-related." Section 30101 of the Coastal Act defines a coastal-dependent development or use as "any development or use which requires a site on or adjacent to the sea to be able to function at all." The Act defines coastal-related development as "any use that is dependent on a coastal-dependent development or use." These determinations are made on a case-by-case basis, taking into account the water source, geographic location, and proposed technology. In some cases, the CCC may determine that only portions of a project are coastal-dependent, due to their requisite proximity to the ocean. The Commission may deem other facilities that do not require physical proximity to the coast, but are connected to coastal-dependent project components, to be coastal-related (Public Resources Code, Division 20, California Coastal Act).

Priority Uses

The Coastal Act recognizes that there is a limited amount of coastal land in the State and prioritizes coastal-dependent development of coastal areas. Coastal-dependent developments have priority over other developments (Section 30255). Furthermore, oceanfront land that is suitable for coastal dependent aquaculture shall be protected for that use (Section 30222.5).

The use of private lands suitable for visitor-serving commercial recreational facilities have priority over private residential, general industrial, or general commercial development (Section 30222). Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible (Section 30223). Additionally, the maximum amount of prime agricultural land shall be maintained in agricultural production (Section 30241).

Public Access

A primary focus of the Coastal Act is to provide public access to the coast. The Act includes several policies related to public access and recreation, most of which provide strong support for the public's ability to use and enjoy coastal areas. The primary public access policies are:

- Access, recreational opportunities, and posting (Section 30210)
- Development not to interfere with access (Section 30211)
- Requirements for new development projects (Section 30212)
- Distribution of public facilities (Section 30212.5)
- Lower-cost visitor and recreation facilities (Section 30213)
- Implementation of public access policies (Section 30214)

Local Coastal Programs

The Coastal Act created a unique partnership between the State (acting through the CCC) and local government entities (15 coastal counties and 61 cities) to manage the conservation and development of coastal resources through a comprehensive planning and regulatory program. This is accomplished primarily through the preparation of local coastal programs, or policies and regulations adopted by coastal local governments to carry out Coastal Act policies at the local level. Upon CCC certification of a local coastal program, authority for issuance of coastal development permits is transferred from the State to the certified local government. Until such time, responsibility for issuance of coastal development permits remains with the CCC. The agency also retains jurisdiction over certain coastal areas, such as tidelands and public trust lands. The CCC also retains appeal authority from local jurisdictions' actions on coastal permits.

The local coastal program typically includes a land use plan and implementing regulations (also referred to as an "implementation plan"). The land use plan that is part of the local coastal program sets forth the types, locations, and intensities of land uses, along with applicable resource protection and development policies for lands within the coastal zone. The implementation plan typically consists of zoning regulations, zoning map, and permit procedures. In general, a local coastal program is not considered certified until the CCC approves both the land use plan and implementation plan.

California Land Conservation Act of 1965 (Williamson Act)

As noted above, the California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is the State's primary program aimed at conserving private land for agricultural use. It is a voluntary, locally-administered program that offers reduced property taxes on lands whose owners place enforceable restrictions on land use through contracts between the individual landowners and local governments. As also indicated in earlier in this section, there are no lands in the Proposed Project area that are enrolled in the Williamson Act program. Therefore, land use restrictions imposed by the Williamson Act are not applicable to the Proposed Project.

4.12.3.3 Regional and Local

California state law requires each county and city to adopt "a comprehensive, long-term general plan for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (Government Code section 65300). State Planning and Zoning Law (Government Code Section 65302(a)) establishes the requirements for elements to be included in the general plan. Applicability of general plan and local zoning codes to the Proposed Project are described below.

Monterey County

The proposed Salinas Treatment Facility Diversion and Storage, Reclamation Ditch Diversion, a portion of the Tembladero Slough Diversion, Blanco Drain Diversion, Treatment Facilities at the Regional Treatment Plant, and the northernmost portions of the proposed Product Water Conveyance Systems (Coastal and RUWAP Options) would be within the jurisdiction of Monterey County within the Greater Monterey County area. A portion of the Tembladero Slough Diversion would be located within the coastal zone part of Monterey County, as defined by the California Coastal Commission. However, the Treatment Facilities at the Regional Treatment Plant would be exempt from certain County codes due to the site being located entirely on land owned by a special district.

Monterey County General Plan

The unincorporated areas of Monterey County include a range of land uses, including agricultural, public open space, and rural residential lands with a few urbanized enclaves that make up a small portion of the total land area. Most of the urban and semi-urban development is concentrated in the northern one-third of the County. Agriculture is the largest land use, representing almost 60% of the total land area. The 2010 General Plan contains policies that protect important agricultural resources. These policies are designed to preserve prime farmland for agricultural use. The 2010 General Plan relies on the Farmland Mapping and Monitoring Program maps to identify important agricultural lands within Monterey County. The second largest land use consists of public and quasi-public uses (about 28%) such as educational, transportation, and military facilities as well as religious, parks and open space, recreational/cultural and community facilities. The remaining public and quasi-public uses include a significant amount of land within the County that is owned by the federal government (National Forest, Military Bases, and Bureau of Land Management). While Monterey County historically had timber production, there are currently no parcels of real property zoned for timberland production pursuant to the California Timberland Productivity Act of 1982 within the County (Monterey County, 2010).

There are various sub-plans under the Monterey County General Plan: seven Area Plans, two Master Plans, four Land Use Plans and an Agricultural and Winery Corridor Plan. Two of the Area Plans apply within the Proposed Project area, the Greater Monterey Peninsula and the North County Area Plans. Because only a very small portion (less than 50 feet) of the Coastal alignment option of the Product Water Conveyance Pipeline is located in the North County Area Plan, this plan is not addressed in detail.

Greater Salinas Area Plan

The Planning Area of this Plan contains a total of 102,792 acres. Of this figure, 12,545 acres (almost 12% of the Planning Area) is contained within the City of Salinas. This figure includes the City's May 1984 annexation of about 1,645 acres in the northeast area.

North County Land Use Plan

The majority of land in North County is in open space, agricultural, or low density rural residential use. The overall character of the North County coastal zone is decidedly rural; extensive areas are uncultivated or undeveloped. The coastline of North Monterey County along Monterey Bay is composed of sand beaches and dunes. An extensive estuarine area, Elkhorn Slough, is found in North County; the wetland area of Elkhorn Slough has been designated as a National Estuarine Sanctuary and the remainder a proposed National Wildlife Refuge. Other estuarine areas include: Bennett Slough, McClusky Slough, Moro Cojo Slough, and the Old Salinas River Channel. Two rivers, the Pajaro and the Salinas, flow through the coastal zone and Carneros Creek forms the major freshwater contributory to Elkhorn Slough. Grazing areas ranging from a few acres to a couple hundred acres are scattered throughout the area. Agriculture is the main economic activity in the area. The Pajaro Valley, Salinas Valley, and Springfield Terrace are extensively farmed in row crops.

Greater Monterey Peninsula Area Plan

The Greater Monterey Peninsula Planning Area contains a total of 140,222 acres. Of this figure, 20,462 acres (almost 15% of the Planning Area) is contained within the Cities of Carmel, Del Rey Oaks, Marina, Monterey, Pacific Grove, Sand City and Seaside; the remaining 119,760 acres is unincorporated. About 38% of the planning area is comprised of public and quasi-public uses, most notably within the former Fort Ord. Approximately 35% of the total land is designated as vacant/unimproved lands. Agricultural, grazing and rangeland uses cover about 21% of the land area. Residential uses take up about 4% of the total planning area. Streets, highways and railroads take up 1.5% of the land and about 0.16% of the land is designated commercial (Monterey County, 2010).

Monterey County Zoning Ordinance

The Zoning Ordinance is the primary implementation tool for the land use policies identified in the 2010 Monterey County General Plan and Greater Monterey Peninsula Area Plan. Land uses within the project area would be subject to the requirements of the Inland Zoning Ordinance (Title 21) and the Coastal Zoning Ordinance (Title 20). The Zoning Ordinance implements the goals and policies of the General Plan and Greater Monterey Peninsula Area Plan by identifying specific types of land uses, intensity of uses and development standards to be used in guiding the development and use of land within unincorporated areas of the County. The Zoning Ordinance is applicable to unincorporated areas of the county and allows for development where it has been deemed to be consistent with the General and Area Plans and where adequate public services and facilities exist to support such development.

City of Salinas

The Salinas Pump Station Diversion Site is within the jurisdiction of the City of Salinas.

City of Salinas General Plan

Approximately 4,200 acres or 31%, of the planning area within the City of Salinas is developed with residential uses including single family homes, condominiums, apartments, senior housing, and mobile homes. Residential uses are located throughout the City. Approximately 10%, or

1,275 acres, of the planning area is devoted to industrial use, and most of this land is used for agricultural product processing. Industrial uses are concentrated in the southern portion of the City, along Highway 101 and Abbott Street. Commercial/Office designations account for 770 acres, or 6%, of the planning area. Nonresidential uses also include Public/Semipublic uses, such as schools and community facilities, located throughout the planning area. The Salinas Municipal Airport is located in the southeastern portion of the City. Open space land uses comprise approximately 35%, or 4,670 acres, of the planning area. Most of the open space areas consist of agriculture. The 4,030 acres of agricultural lands, which are primarily concentrated within Carr Lake and the airport areas, are mainly used for the production of lettuce, broccoli, strawberries, grapes, nursery products, cauliflower, and celery (City of Salinas, 2002b).

City of Salinas Zoning Ordinance

The purpose of the Zoning Ordinance of the city of Salinas (Chapter 37 of the Salinas Code of Ordinances) is to "implement the policies of the Salinas General Plan, promote and protect the public health, safety, and general welfare of the people of the city, while respecting property rights, classify, designate, and regulate the location, use, and construction of buildings, structures, and land for residence, commerce, trade, industry, or other purposes, and promote new urbanism development in appropriate locations in the city." The document sets forth a plan of development for the city and establishes districts and standards to guide, control, and regulates the city's future growth and development.

City of Marina

Portions of the Product Water Conveyance Systems (RUWAP and Coastal Pipeline Alignment Options) and the RUWAP Booster Pump Station Option would be located within the jurisdiction of the city of Marina.

City of Marina General Plan

The Marina Planning Area has been divided into five sub-areas: Central Marina, the Fort Ord Area, the Airport Area, the Northern Area and the Dunes Area. Central Marina represents that portion of Marina that has already largely been developed. It is characterized primarily by residential development, with approximately 6,600 housing units on approximately 740 acres. Commercial activity is centered along several local roadways. Visitor-oriented development is concentrated on Reservation Road, Dunes Drive and the southerly section of Del Monte Boulevard. Industrial uses are found in the north part of the city. Most of the public facilities located within the Marina Planning Area are found within this sub-area as well as quasi-public facilities. Approximately 90 acres within the 2,165-acre existing service area are currently vacant (City of Marina, 2000).

City of Marina Local Coastal Land Use Plan

The City of Marina Local Coastal Land Use Plan, certified by the CCC in 1982, establishes appropriate land uses by type and density, and establishes a policy framework for plan implementation. The policy framework of the land use plan includes the policy statements, the plan guidelines, the land use map, and narrative descriptions of the land use map. Specific policies designed to minimize adverse environmental impacts on land use are presented in **Section 4.12.4, Impacts and Mitigation Measures**.

City of Marina Zoning Ordinance

The purpose of the Zoning Ordinance of the city of Marina (Title 17 of the Marina Municipal Code) is to “promote and protect the public health, safety, peace, morale, comfort, convenience and general welfare, and for the accomplishment thereof…” (Chapter 17.02.030). The document sets forth a plan of development for the city and establishes districts and standards to guide, control, and regulates the city’s future growth and development.

City of Seaside

Portions of the Product Water Conveyance System (RUWAP and Coastal Pipeline Alignment Options), the Coastal Booster Pump Station Option, the Injection Well Facilities, and portions of the CalAm Distribution System Pipelines would be located within the jurisdiction of the city of Seaside. The Injection Well Facilities site is located in an area currently undeveloped in the city of Seaside. Portions of the Product Water Pipeline Coastal Alignment Option and the CalAm Distribution System Pipelines would be located within the coastal zone part of the city of Seaside, as defined by the California Coastal Commission.

City of Seaside General Plan

The Seaside Planning Area consists of two distinct areas: Seaside Proper – the largely developed central core of the community; and North Seaside – the northern and eastern portions of the community that were, until recently, part of the Fort Ord Army Base. Uses in Seaside Proper consist mostly of medium density residential dwellings built between the 1950s and 1970s. Non-residential uses consist mostly of local commercial land use. Several community facilities and parks are also provided throughout the community (City of Seaside, 2004).

City of Seaside Local Coastal Program

The Seaside coastal zone encompasses approximately 90 acres of land that extend from the Pacific Ocean to the terminus of the Canyon Del Rey Creek on the southeastern portion of Laguna Grande. The coastal zone is completely bound on the southwest by the city of Monterey. To the northwest is the Pacific Ocean. Sand City and Canyon Del Rey Boulevard border most of the south and east portion of the coastal zone. The Seaside coastal zone contains approximately 500 feet of beach frontage along the Pacific Ocean. The Seaside portion of the Monterey Bay Coastal Recreational Trail runs along a portion of the railroad right-of-way, around Roberts Lake, and along the coastline through the Beach Subarea. Several commercial businesses are located along the northeastern portion of Del Monte Boulevard. Land uses within the coastal zone area include residential, commercial, and park/open space (City of Seaside, 2010).

Seaside East - Future Specific Plan

The Seaside East area is approximately 700 acres of undeveloped coastal upland that is bounded by Seaside’s border to the south, General Jim Moore Boulevard to the west, Eucalyptus Road and the planned Veteran’s Cemetery to the north, and Habitat Management area under the Bureau of Land Management to the east. The city is currently re-evaluating the land uses in the Seaside East. The City’s General Plan and a 2007 market study calls for varying densities of residential units with about 50 acres of neighborhood retail. A regional trade and convention center facility and district are being considered as additional future land uses in this area.

City of Seaside Zoning Ordinance

The City of Seaside adopted its updated Zoning Ordinance (Title 17 of the Seaside Municipal Code) in 2014. The purpose of the Seaside Zoning Ordinance is "to protect and to promote the public health, safety, comfort, convenience, prosperity, and general welfare of residents, and businesses in the City (Chapter 17.02.10)." This is accomplished through the provision of standards and guidelines for the continuing orderly growth and development of Seaside. The Zoning Ordinance is used by the city to carry out the goals, objectives, and policies of the General Plan and Local Coastal Program. The City's Coastal Zoning Ordinance (Title 18) serves as the City's Local Coastal Program - Coastal Implementation Plan, and sets forth additional regulations for properties within Seaside's coastal zone.

City of Sand City

Portions of the CalAm Distribution System Pipelines would be located within Sand City.

Sand City General Plan

The Sand City General Plan: 2002-2017 is organized into seven chapters covering all of the elements required by state law and optional issues of concern to the community. The plan identifies several themes to achieve the community vision, including economic diversification, active redevelopment, enhanced community appearance and image, organized and well-planned growth, elimination of land use conflicts, and cohesive residential neighborhoods. The General Plan was updated in 2002 with the purpose of incorporating new information and data, generating new technical data, and incorporating a Land Use Diagram and text changes designed to reflect community issues, trends, and values.

City of Sand City Local Coastal Program Land Use Plan

The Sand City Local Coastal Program Land Use Plan was incorporated into the Sand City General Plan by reference and readopted through the 2002 General Plan Update. The Local Coastal Program Land Use Plan was adopted by Sand City and certified by the California Coastal Commission in 1982. In 1996, the City signed a memorandum of understanding (MOU) with the Sand City Redevelopment Agency, California Department of Parks and Recreation, and Monterey Peninsula Regional Park District to designate much of the Sand City coastline for open space and recreational uses.

City of Sand City Zoning Ordinance

The Sand City Zoning Ordinance is codified in Title 18 of the Sand City Municipal Code. The Zoning Ordinance establishes zoning districts, standards, and regulations to guide future development within the City. The regulations set forth in the Sand City Zoning Ordinance implement the policies of the General Plan and the Sand City Local Coastal Program Land Use Plan.

City of Monterey

The Lake El Estero Diversion and portions of the CalAm Distribution System Pipelines would be within the jurisdiction of the city of Monterey. Portions of the CalAm distribution pipeline also would be within the Coastal Zone as defined by the California Coastal Commission.

City of Monterey General Plan

The majority of land in Monterey already contains some development. Primary land uses include residential development at low to moderate density and visitor-serving, professional office, and retail commercial uses. Commercial uses are predominant in the downtown area, along Lighthouse Avenue, the Cannery Row area, and along North Fremont Street. The city's industrial activity is focused in the existing 300-acre Ryan Ranch area and along the northern side of Highway 68. Industrial uses do not occur in any other parts of the city. A number of small, vacant parcels do exist within the city. Most are designated for single-family residential development (City of Monterey, 2010).

City of Monterey Local Coastal Program Land Use Plans

The city of Monterey has obtained California Coastal Commission certification of coastal land use plans for four of its five coastal zone subareas: Cannery Row, Monterey Harbor, Del Monte Beach, and Skyline areas. The city has yet to obtain certification of the Laguna Grande/Roberts Lake Land Use Plan, or an implementation plan for any subarea. Therefore, the city does not have a certified local coastal program and the CCC retains coastal development permit review authority within the city of Monterey's coastal zone. Nonetheless, applicable policies of Harbor and Del Monte Beach land use plans, both certified by the CCC in 2003, are considered in this document as they continue to influence land use planning and development decisions within the project area.

The Monterey Harbor subarea is bounded to the north by Private Bolio Road and Monterey Bay, to the south by Del Monte Boulevard, to the west by Van Buren Street, and to the east by the U.S. Naval Postgraduate School (at Sloat Avenue). The Monterey Harbor subarea encompasses portions of the Presidio of Monterey, Fisherman's Wharf, and Municipal Beach. The Del Monte Beach subarea encompasses shoreline property along Monterey Bay from the U.S. Naval Postgraduate School (at Sloat Avenue), east to the city of Monterey's eastern limits at Humboldt Street.

The Harbor and Del Monte Beach land use plans (City of Monterey 2003a; 2003b) call for protection of physical and visual access to and along the coast, and enhancement of recreational opportunities, including increased beach parking and widening of the Monterey Peninsula Recreational Trail. These land use plans also establish policies regarding habitat preservation, coastal erosion, transportation, and marine resources, among other topics.

City of Monterey Zoning Ordinance

The purpose of the city of Monterey Zoning Ordinance (Chapter 38 of the City Charter) is to protect and promote the public health, safety, and general welfare of Monterey, and to implement the policies of the General Plan. This is done through the establishment of land use, development, and administrative regulations to control the use and development of property. The Zoning Ordinance applies equally to coastal and inland area of the city.

City of Pacific Grove

Portions of the CalAm Distribution System Pipelines would be within the jurisdiction of the city of Pacific Grove.

City of Pacific Grove General Plan

The predominant land use in Pacific Grove is residential, and most of that is single-family. Residential uses comprise approximately 838 acres, or 45.8% of the city area, Approximately 92.5 acres are commercial land uses. Commercial uses are largely related to goods and services, with almost no land available for industrial uses. With approximately 342 acres in Parks and Open Space, a generous amount of land is devoted to parks and natural areas, including Asilomar State Beach and Conference Grounds as well as the Pacific Grove Golf Links, a municipally owned course. Pacific Grove is almost fully built-out (City of Pacific Grove, 1994).

City of Pacific Grove Zoning Ordinance

The purpose of the Pacific Grove Zoning Ordinance (Title 23 of the City of Pacific Grove Municipal Code) is to: promote and protect the public health, safety, peace, comfort, and general welfare; and promote the growth and redevelopment of the city of Pacific Grove in an orderly manner. The city's Zoning Ordinance implements the Pacific Grove General Plan and Local Coastal Program. This is done through the establishment of land use, development, and administrative regulations to control the use and development of property.

California State University at Monterey Bay (CSUMB) Master Plan

Portions of the Product Water Conveyance System (RUWAP and Coastal Alignments Options) and the Coastal Booster Pump Station Option would be within the jurisdiction of CSUMB. California State University at Monterey Bay is located on the former Fort Ord. The CSUMB campus is within and surrounded by three jurisdictions: the city of Marina to the north and west, the city of Seaside to the south and west, and Monterey County to the north, east, and south (CSUMB, 2007b).

The 1,377-acre campus is divided into three campus zones: West Campus, Central Campus, and East Campus. The West Campus is the site of the existing core of the CSUMB educational facilities and has the highest degree of proposed development of all the campus zones. The Central Campus is dominated by oak woodland with patches of maritime chaparral and grassland vegetation. The East Campus is developed with two residential subdivisions - Schoonover Park and Frederick Park (CSUMB, 2007b).

Special Districts

Transportation Agency for Monterey County (TAMC)

Portions of the Coastal Pipeline Alignment Option would be within the TAMC right-of-way. For these segments an easement or encroachment permit may be required from TAMC. TAMC has identified potential future plans to utilize its existing right-of-way to extend commuter service in Salinas and passenger service to and from the Monterey Peninsula. TAMC's future plan for the TAMC right-of-way is not an existing condition; therefore, it is not considered in the environmental baseline conditions for analysis of potential conflicts with existing plans, policies, and regulations. MRWPCA would need to coordinate with, and obtain permits from, TAMC for utilization of the TAMC right-of-way. This coordination process would ensure the proposed MRWPCA facilities would be compatible with the future rail service.

Plans and Polies Consistency Analysis

Table 4.12-3, Applicable State, Regional, And Local Land Use Plans, and Policies – Land Use, Agriculture, and Forest Resources describes the state, regional, and local land use plans, policies, and regulations pertaining to land use, agriculture, and forest resources that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.12-3** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.12.4, Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

Table 4.12-3
Applicable State, Regional, And Local Land Use Plans, and Policies – Land Use, Agriculture, and Forest Resources

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
Cities of Marina and Monterey (Coastal Zone)	California Coastal Act (CCC)	Development	Product Water Conveyance: Coastal Alignment Monterey Pipeline	***Section 30250:*** Location; existing developed area. (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50% of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.	**Consistent**: The Product Water Conveyance: Coastal Alignment and the Monterey Pipeline would be constructed below ground and within existing developed areas. The Product Water Conveyance: Coastal Alignment and the Monterey Pipeline would impose no long-term demands on area public services.
Cities of Marina and Monterey (Coastal Zone)	California Coastal Act (CCC)	Development	Product Water Conveyance: Coastal Alignment Monterey Pipeline	***Section 30254***: Public works facilities. New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.	**Consistent**: Discussed more fully in Chapter 2, the project is sized to partially meet a portion of the requirements of SWRCB Orders 95-10 and 2009-0060 and would not accommodate new development in the coastal zone.
Cities of Marina and Monterey (Coastal Zone)	California Coastal Act (CCC)	Development	Product Water Conveyance: Coastal Alignment Monterey Pipeline	***Section 30255***: Priority of coastal-dependent developments. Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.	**Consistent**: All project components proposed within the coastal zone would be buried/underground and would be located within or proximate to existing developed areas and would not necessarily be in competition with other coastal-dependent uses.
Cities of Marina and Monterey (Coastal Zone)	California Coastal Act (CCC)	Public Access	Product Water Conveyance: Coastal Alignment Monterey Pipeline	***Section 30212:*** New development projects (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated access way shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the access way.	**Consistent**: No Proposed Project components would be adjacent to the shoreline; nor would any obstruct vertical or lateral access to or along the shoreline. The Product Water Conveyance: Coastal Alignment and the Monterey Pipeline would ultimately be buried below ground and not preclude access to the numerous access points that exist in the vicinity of the proposed alignment.
Cities of Marina and Monterey (Coastal Zone)	California Coastal Act (CCC)	Public Access	Product Water Conveyance: Coastal Alignment Monterey Pipeline	***Section 30211:*** Development not to interfere with access. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.	**Consistent**: Project construction may have short-term indirect effects on shoreline access (i.e., increased traffic and parking demand) during the construction period. The only project components proposed in the coastal zone are pipeline alignments that would be buried and would not preclude public access to or along the coast. The Monterey Pipeline would potentially be exposed due to coastal erosion, but this potential would not constitute an inconsistency with this policy and this issue is address more fully in Section 4.8 of this EIR.
City of Monterey (Coastal Zone)	California Coastal Act (CCC)	Recreation	Monterey Pipeline	***Section 30221:*** Oceanfront land; protection for recreational use and development. Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.	**Consistent**: Although there may be potential temporary impacts to access to recreational facilities, these are areas within which alternative access would be available during the short-term construction period. In addition, all of the facilities proposed within the coastal zone would be buried underground and would not preclude public access to the sea. With coastal erosion, there is potential for portions of the CalAm Distribution System Monterey Pipeline to be exposed within the life of the facility; however, that would not interfere with access to the coast and ocean and this issue is address more fully in Section 4.8 of this EIR.
Monterey County	Monterey County General Plan	Agriculture	Tembladero Slough Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Product Water Conveyance: Coastal Alignment Reclamation Ditch Diversion Site Salinas Treatment Facility Storage and Recovery Blanco Drain Pump and Pipeline Diversion Site	***Policy AG-1.1***: Land uses that would interfere with routine and ongoing agricultural operations on viable farmlands designated as Prime, of Statewide Importance, Unique, or of Local Importance shall be prohibited.	**Consistent**: The Proposed Project would not interfere with routine and ongoing operations on viable farmlands
Monterey County	Monterey County General Plan	Agriculture	Tembladero Slough Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Product Water Conveyance: Coastal Alignment Reclamation Ditch Diversion Site Salinas Treatment Facility Storage and Recovery Blanco Drain Pump and Pipeline Diversion Site	***Policy AG-1.2:*** The County shall require that well-defined buffer areas be provided as partial mitigation for new non-agricultural development proposals that are located adjacent to agricultural land uses on farmlands designated as Prime, of Statewide Importance, Unique, or Local Importance.	**Consistent**: No land uses are proposed that would require a buffer from adjacent agricultural land.
Monterey County	Monterey County General Plan	Agriculture	Tembladero Slough Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Product Water Conveyance: Coastal Alignment	***Policy AG-1.4***: Viable agricultural land uses, including ancillary and support uses and facilities on farmland designated as Prime, of Statewide Importance, Unique, or of Local Importance shall be conserved, enhanced, and expanded through agricultural land use designations and encouragement of large lot agricultural zoning, except as provided in a Community Plan. Agriculture shall be established as the top land use priority for guiding	**Consistent**: The Proposed Project would not have any permanent impact related to conversion of lands designated as Prime, of Statewide Importance, Unique, or of Local Importance. In addition, the Proposed Project enhances the ability of the existing designated agricultural land in the Castroville Seawater

Table 4.12-3
Applicable State, Regional, And Local Land Use Plans, and Policies – Land Use, Agriculture, and Forest Resources

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
			Reclamation Ditch Diversion Site Salinas Treatment Facility Storage and Recovery Blanco Drain Pump and Pipeline Diversion Site	further economic development on agricultural lands.	Intrusion Project area to remain productive even in times of drought.
Monterey County	Monterey County General Plan	Land Use	Tembladero Slough Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Product Water Conveyance: Coastal Alignment Reclamation Ditch Diversion Site Salinas Treatment Facility Storage and Recovery Blanco Drain Pump and Pipeline Diversion Site	***Policy LU-1.11***: Development proposals shall be consistent with the General Plan Land Use Map designation of the subject property and the policies of this plan.	**Consistent**: Lands with a General Plan land use designation of Permanent Grazing would allow underground pipelines that would be permitted through the requisite local planning and permit review processes. The proposed Treatment Facilities at the Regional Treatment Plant would be compatible with the adjacent landfill.
Monterey County	Monterey County General Plan	Land Use	Tembladero Slough Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Product Water Conveyance: Coastal Alignment Reclamation Ditch Diversion Site Salinas Treatment Facility Storage and Recovery Blanco Drain Pump and Pipeline Diversion Site	***Goal LU-6***: Encourage uses on public lands that are compatible with existing and planned uses on adjacent lands.	**Consistent**: All Proposed Project components located on public lands would be pipeline segments or underground facilities (either within existing roadway or transit facility rights-of-way). These pipelines would be buried beneath the ground surface and therefore be compatible with onsite and adjacent land uses.
County of Monterey	Monterey County General Plan	Public Services	Source Water Diversions, Treatment Facilities at the Regional Treatment Plant, and Product Water Conveyance; RUWAP and Coastal Alignments	**Policy PS-13.2:** All new utility lines shall be placed underground, unless determined not to be feasible by the Director of the Resource Management Agency.	**Consistent**: All proposed pipelines would be placed below ground.
County of Monterey	Monterey County General Plan	Land Use	Treatment Facilities at the regional Treatment Plant	***Policy LU-5.7:*** Industrially designated areas shall be compatible with surrounding land uses.	**Consistent**: The proposed Advanced Water Treatment Facility and Salinas Valley Reclamation Plant Modifications would be sited within the Regional Treatment Plant, and would not preclude continued use of nearby lands for agriculture and grazing.
County of Monterey	Greater Monterey Peninsula Area Plan	Public Services and Facilities	Product Water Conveyance; RUWAP and Coastal Alignments	***Policy GMP-5.2:*** Each development proposal shall be evaluated to determine the extent to which such development may help further the County's park and recreation facility goals, objectives, and policies.	**Consistent**: Proposed Project construction would temporarily restrict access to recreational facilities, but the project would not hinder the County's park and recreation facility goals, objectives and policies. This issue is addressed further in Impact 4.17-2.
Monterey County	North County Land Use Plan	Agriculture	Tembladero Slough Diversion Site	***Key Policy 2.6.1***: The County shall support the permanent preservation of prime agricultural soils exclusively for agricultural use. The County shall also protect productive farmland not on prime soils if it meets State productivity criteria and does not contribute to degradation of water quality. Development adjacent to prime and productive farmland shall be planned to be compatible with agriculture.	**Consistent**: The Proposed Project would not have long-term impacts on prime farmlands and would not change the use of any productive farmland.
Monterey County	North County Land Use Plan	Agriculture	Tembladero Slough Diversion Site	***Policy 2.6.2.1***: Prime and productive farmland designated for Agricultural Preservation and Agricultural Conservation land use shall be preserved for agricultural use to the fullest extent possible as consistent with the protection of environmentally sensitive habitats and the concentration of development.	**Consistent**: The Proposed Project would not have long-term impacts on farmland designated for Agricultural Preservation and Agricultural Conservation.
Monterey County (Coastal Zone)	North County Land Use Plan	Land Use and Development	Tembladero Slough Diversion Site	***Key Policy 4.3.4***: All future development within the North County coastal segment must be clearly consistent with the protection of the area's significant and human resources, agriculture, natural resources, and water quality.	**Consistent**: The environmental impacts of the proposed Product Water Conveyance facilities related to the issues in this policy are addressed in the following sections of this EIR: • 4.12 (agricultural), • 4.4, 4.5, 4.14 (biological, including fisheries, terrestrial, and marine, respectively), • 4.6 (cultural and paleontological resources) • 4.3 (air quality and greenhouse gases), • 4.10, 4.11, and 4.18 (water quality) • 4.7 (energy resources) The project's implications are discussed in EIR Sections. Specifically, please refer to policy consistency tables within each section above for additional discussion of the project's conformity with applicable Monterey County General Plan policies related to these resource areas, respectively.
Monterey County (Coastal Zone)	North County Land Use Plan	Land Use and Development	Tembladero Slough Diversion Site	***Policy 4.3.5.4:*** Where there is limited land, water, or public facilities to support development, coastal dependent agriculture, recreation, commercial and industrial uses shall have priority over residential and other non-coastal dependent uses.	**Consistent**: Proposed Project components for unincorporated Monterey County's Coastal Zone are limited to a small site along the Coastal Product Water Pipeline alignment and would not adversely impact coastal resources.
Monterey County (Coastal Zone)	North County Land Use Plan	Land Use and Development	Tembladero Slough Diversion Site	***Policy 2.3.5.6***: Industrial uses shall be located near major transportation facilities and population centers. The only industrial facilities appropriate for the area are coastal or agriculture-dependent industries which do not demand large quantities of fresh water and contribute low levels of air and water pollution. Industries not compatible with the high air quality needed for the protection of agriculture shall be restricted.	**Consistent**: Project components proposed for unincorporated Monterey County's coastal zone would not adversely impact coastal resources.
Monterey County (Coastal Zone)	North County Land Use Plan	Land Use and Development	Tembladero Slough Diversion Site	***Policy 4.3.5.8***: Development within the North County coastal zone shall be consistent with the land uses shown on the plan map and as described in the text of this plan.	**Consistent**: The proposed sites for Proposed Project components are consistent with existing land uses, and land use designation defined in the plan.

Table 4.12-3
Applicable State, Regional, And Local Land Use Plans, and Policies – Land Use, Agriculture, and Forest Resources

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
Monterey County (Coastal Zone)	North County Land Use Plan	Land Use and Development	Tembladero Slough Diversion Site	***Specific Policy 4.3.6 F4***: A basic standard for all new or expanded industrial uses is the protection of North County's natural resources. Only those industries determined to be compatible with the limited availability of freshwater and the high air quality required by agriculture shall be allowed. New or expanded industrial facilities shall be sited to avoid impacts to agriculture of environmentally sensitive habitats.	**Consistent**: The Tembladero Slough Diversion would not result in incompatible industrial uses because the site currently contains hardscape and an existing wastewater pump station that has similar industrial-type uses.
City of Salinas	City of Salinas General Plan	Land Use	Salinas Pump Station Diversion Site	***Policy LU-2.5***: Ensure that negative impacts of future growth on environmental quality and quality of life are minimized and adequate levels and quality of urban services and facilities are maintained.	**Consistent**: The Proposed Project would not create or enable new growth that might negatively impact the environment or quality of life; the project would replace municipal water supplies and enhance crop irrigation supplies.
City of Marina	City of Marina General Plan	Community Infrastructure	Product Water Conveyance: RUWAP and Coastal Alignment	***Primary Policy 3.3.14:*** Support water resource programs, including desalinization and reclamation efforts, to provide an adequate water supply to accommodate General Plan permitted growth.	**Consistent**: The Proposed Project would increase use of recycled water in the region and would enhance the ability of the City to implement this policy.
City of Marina	City of Marina General Plan	Community Design and Development	Product Water Conveyance: RUWAP and Coastal Alignment	***Policy 4.112***: The policies of the Community Land Use Element are designed to protect areas with significant agricultural or natural-habitat value from being displaced by development, and they are designed to protect and conserve air, water and energy resources.	**Consistent**: The environmental impacts of the proposed Product Water Conveyance facilities' related to the issues in this policy are addressed in the following sections of this EIR: • 4.12 (agricultural), • 4.4, 4.5, 4.14 (biological, including fisheries, terrestrial, and marine, respectively), • 4.3 (air quality and greenhouse gases), • 4.10, 4.11, and 4.18 (water resources) • 4.7 (energy resources) The project's implications are discussed in EIR Sections. Specifically, please refer to policy consistency tables within each section above for additional discussion of the project's conformity with applicable Marina General Plan policies related to these resource areas, respectively.
City of Marina	City of Marina General Plan	Soils and Mineral Resources	RUWAP Alignment Option RUWAP Booster Pump Station Option Product Water Conveyance: Coastal Alignment	***4.124 (MarGP):*** 1. The City shall continue to require erosion-control and landscape plans for all new subdivisions or major projects on sites with potentially high erosion potential. Such plans should be prepared by a licensed civil engineer or other appropriately certified professional and approved by the City Public Works Director prior to issuance of a grading permit. All erosion control plans shall incorporate Best Management Practices to protect water quality and minimize water quality impacts and shall include a schedule for the completion of erosion and sediment-control structures, which ensures that all such erosion-control structures are in place by mid-October of the year that construction begins. Site monitoring by the applicant's erosion-control specialist should be undertaken, and a follow-up report should be prepared that documents the progress and/or completion of required erosion-control measures both during and after construction is completed. 2. The City shall support continued agricultural uses on prime agricultural soils and other agricultural lands outside the City's designated Urban Growth Boundary, i.e., lands designated as "Agriculture" by this plan. The City should oppose any proposed subdivision or use of land which might result in conversion of such lands. 3. The City shall encourage continued agricultural production on lands within the City's existing and proposed Sphere of Influence as an interim use until such time that annexation and development is approved consistent with this plan. 4. The City recognizes the presence of designated mineral resources west of Highway One, and shall continue to allow the existing sand-mining operation on RMC Lonestar property west of Highway One in accordance with the provisions of Marina's local coastal plan (LCP) and the approved Reclamation Plan for that site. In accordance with the Marina LCP, new or expanded sand-mining operations shall be limited to the surf zone and already-disturbed areas, and shall be subject to completion and approval of the prerequisite environmental review, Reclamation Plan, and coastal permit process. A coastal permit for new or expanded mining operations may be granted only upon a finding, based upon conclusive evidence, that such an activity will not significantly accelerate shoreline erosion or have significant unavoidable adverse impacts upon the dune and coastal strand's biological resources. 5. The City recognizes the existence of designated mineral resources east of Highway One within the Armstrong Ranch portion of the City's Sphere of Influence area. Mineral extraction on a portion of the Ranch may constitute an appropriate interim use, recognizing also that Armstrong Ranch provides one of the last remaining large areas on the Central Coast suitable for housing and other urban development. 6. Mineral extraction on a portion of the Armstrong Ranch mineral resource area may be permitted, provided such use is reviewed and processed in accordance with applicable state laws, including environmental review pursuant to CEQA. Approval should also be contingent on completion and approval of a Reclamation Plan, use permit, and a determination that the proposed mining activity will not significantly conflict with other planned or approved uses within close proximity (i.e., a 1,000-foot radius from the perimeter of the mineral extraction site).	**Consistent**: The environmental impacts of the proposed Product Water Conveyance facilities' related to the issues in this policy are addressed in the following sections of this EIR: • 4.12 (agricultural), • 4.4, 4.5, 4.14 (biological, including fisheries, terrestrial, and marine, respectively), • 4.3 (air quality and greenhouse gases), • 4.10, 4.11, and 4.18 (water resources) • 4.7 (energy resources) The project's implications are discussed in EIR Sections. Specifically, please refer to policy consistency tables within each section above for additional discussion of the project's conformity with applicable Marina General Plan policies related to these resource areas, respectively.
City of Marina (Coastal Zone)	City of Marina Local Coastal Program Land Use Plan	Policies	Product Water Conveyance: Coastal Alignment	***Policy 28***: To support continuation of agricultural uses in the Coastal Zone.	**Consistent**: The Proposed Project would not inhibit or prevent any agricultural uses.
City of Marina (Coastal Zone)	City of Marina Local Coastal Program Land Use Plan	Policies	Product Water Conveyance: Coastal Alignment	***Policy 41***: To give priority to Coastal dependent development on or near the shoreline and ensure that environmental effects are mitigated to the greatest extent possible.	**Consistent**: The Proposed Project does not include components on or near the shoreline.

Table 4.12-3
Applicable State, Regional, And Local Land Use Plans, and Policies – Land Use, Agriculture, and Forest Resources

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
City of Marina (Coastal Zone)	City of Marina Local Coastal Program Land Use Plan	Policies	Product Water Conveyance: Coastal Alignment	***Policy 30***: To allow conversion from agricultural use to more intensive land uses in an orderly way, progressing sequentially within and from already urbanized areas of the city.	**Consistent**: The Proposed Project would not require the conversion of agricultural land to more intensive land uses.
City of Marina (Coastal Zone)	City of Marina Local Coastal Land Use Plan	Policies	Product Water Conveyance: Coastal Alignment	***Policy 32:*** To minimize adverse environmental affects, by concentrating new development within or adjacent to areas of existing development in the coastal zone.	**Consistent**: The proposed Product Water Conveyance: Coastal Alignment would be located primarily in existing utility corridors and roadway rights-of-way.
Fort Ord Reuse Authority (Seaside)	Fort Ord Reuse Plan	Land Use	Injection Well Facilities	***Residential Land Use Policy B-1:*** The City of Seaside shall encourage land uses that are compatible with the character of the surrounding districts or neighborhoods and discourage new land use activities which are potential nuisances and/or hazards within and in close proximity to residential areas.	**Consistent**: The Injection Well Facilities would be constructed in a mostly undeveloped area designated for future single-family residential development. The facilities would not conflict with existing or future land uses, as several water storage tanks, wells, and pump stations are located within Seaside neighborhoods. Pursuant to the Seaside Municipal Code (Title 17), which applies to the proposed Injection Well Facilities site and has been certified by FORA as consistent with the Base Reuse Plan Policies (FORA 2010), Utility Facilities are permitted in Seaside's Residential Zones with a Use Permit. Other proposed project components subject to the Base Reuse Plan's Seaside planning area would be constructed at or below ground, and therefore would be compatible with existing land use character.
City of Seaside (Coastal Zone)	City of Seaside Local Coastal Program Land Use Plan	Roberts Lake Subarea	Monterey Pipeline	***Policy PAR-DM 1.1.B** – Management of Public Access and Recreational Opportunities*: The City shall maintain and enhance the street rights-of-way for bicycle and pedestrian use. The City shall maintain (keep free of debris, trash, etc.) the portions of the Southern Pacific Railroad right-of-way transportation corridor that are within the Del Monte Subarea.	**Consistent**: The Monterey Pipeline alignment bisects the area between Roberts Lake and Laguna Grande. Bicycle and pedestrian use within this area may be temporarily restricted during pipeline construction; however, the facilities would be placed underground and construction activities would be limited in duration (i.e., lasting only several days to a week at any one geographic location along the Monterey Pipeline)..
City of Seaside (Coastal Zone)	City of Seaside Local Coastal Program Land Use Plan	Roberts Lake Subarea	Monterey Pipeline	***Policy PAR-RL 1.1.A** – Protection of Public Access and Recreational Opportunities:* The City shall maintain, and enhance pedestrian and bicycle connectivity within the Roberts Lake Subarea and to Laguna Grande, and the beach to maximize public access and recreation opportunities to these coastal resources.	**Consistent**: The Monterey Pipeline alignment bisects the area between Roberts Lake and Laguna Grande. Recreational opportunities within this area may be temporarily restricted during pipeline construction; however, the facilities would be placed underground and construction activities would be limited in duration (i.e., lasting only several days to a week at any one geographic location along the Monterey Pipeline).
City of Seaside (Coastal Zone)	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Monterey Pipeline	***Policy PAR-CZ 1.1.B –*** Protection of Public Access and Recreational Opportunities: Maximize and protect public access including pedestrian and bicycle connectivity and recreational opportunities in the coastal zone consistent with resource conservation principles, public safety, public rights, and the rights of private property owners.	**Consistent**: The Monterey Pipeline alignment bisects the area between Roberts Lake and Laguna Grande. Bicycle and pedestrian use and recreational opportunities within this area may be temporarily restricted during pipeline construction; however, the facilities would be placed underground and construction activities would be limited in duration (i.e., lasting only several days to a week at any one geographic location along the Monterey Pipeline).
City of Seaside (Coastal Zone)	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Monterey Pipeline	***Policy NCR-CZ 1.1.C** – Coastal Resources:* New development shall be located in areas where it will not have a significant adverse effect either individually or cumulatively on natural coastal resources and public access and recreation.	**Consistent**: The Monterey Pipeline alignment bisects the area between Roberts Lake and Laguna Grande. Public access within this area may be temporarily restricted during pipeline construction; however, the facilities would be placed underground and construction activities would be limited in duration (i.e., lasting only several days to a week at any one geographic location along the Monterey Pipeline).
City of Seaside (Coastal Zone)	City of Seaside Local Coastal Program Land Use Plan	Public Access and Recreation	Monterey Pipeline	***Policy PAR-DM 1.3** – Management of Public Access and Recreational Opportunities – Southern Pacific Railroad:* The City shall maintain (keep free of debris, trash, etc.) the portions of the Southern Pacific Railroad right-of way transportation corridor that are within the Del Monte Subarea (III.B.3.b.3).	**Consistent**: Construction of the Monterey Pipeline would temporarily limit access along the Southern Pacific Railroad right-of-way; however, the facilities would be placed underground and construction activities would be limited in duration (i.e., lasting only several days to a week at any one geographic location along the Monterey Pipeline).
City of Seaside (Coastal Zone)	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Monterey Pipeline	***Policy LUD-CZ 2.1.B:*** New development shall be required to demonstrate compliance with the Land Use Plan policies applicable to the particular project under consideration.	**Consistent**: The Monterey Pipeline would be buried below ground and would not conflict with applicable land use policies.
Sand City	Sand City General Plan	Marine Resources	Transfer Pipeline Monterey Pipeline	***Policy 2.9.c***: Within the coastal zone, Local Coastal Plan design policies that are most protective of significant coastal resources shall be overriding.	**Consistent**: The Monterey and Transfer pipelines would be buried below ground and would not conflict with applicable design policies.
Sand City	Sand City General Plan	Circulation and Public Facilities	Transfer Pipeline Monterey Pipeline	***Policy 3.10.2***: Require that construction of roadway, water, sewer, and storm drainage improvements be staged in areas where major new development is anticipated to minimize disruption to new road surfaces.	**Consistent**: Within Sand City the proposed Transfer and Monterey Pipelines are proposed within the railway (TAMC-owned) right of way.
City of Sand City (Coastal Zone)	Sand City Local Coastal Program Land Use Plan	Public Safety and Noise	Monterey Pipeline	***Policy 6.4.7:*** Ensure compatibility between existing coastal dependent and industrial uses with visitor serving and residential uses. Require buffers between uses and regulate landscaping access, parking, and on-site circulation in order to mitigate traffic impacts and other potential problems.	**Consistent**: The Monterey Pipeline would be buried below ground and would not interfere with existing land uses adjacent to the pipeline alignments.

Table 4.12-3
Applicable State, Regional, And Local Land Use Plans, and Policies – Land Use, Agriculture, and Forest Resources

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
City of Sand City (Coastal Zone)	Sand City Local Coastal Program Land Use Plan	Circulation and Public Facilities	Monterey Pipeline	***Policy 4.3.26:*** All off-road vehicles shall be prohibited on the dunes, except those necessary for emergency and to support coastal dependent uses and shall be limited to existing paths and stockpiles in order to protect dune vegetation.	**Consistent**: As discussed more fully in Chapter 2, Project Description, pipeline construction and equipment staging would generally occur within the TAMC right-of-way and/or along the Monterey Peninsula Recreational Trail. No construction activity or equipment staging is anticipated within Sand City dune areas.
City of Monterey (Coastal Zone)	Del Monte Beach Land Use Plan	Public and Coastal Related Use and Access	Monterey Pipeline	***Policy 1***: The existing vertical access in the LCP area shall be protected, including, but not limited to, the available access to the beach at Sand Dunes Drive, along Tide Street and at the ends of Surf and Beach Ways. The formalized parking areas along Beach Way and at the corner of Beach Way and Tide Avenue, as well as existing signage, shall be maintained.	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct public access to the shoreline.
City of Monterey (Coastal Zone)	Monterey Harbor Land Use Plan	Public Access	Monterey Pipeline	***Policy 3(b):*** Existing vertical access points, as described in **Figure 5**, shall be protected, improved, or replaced with equal or better access as new development is proposed.	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct public access to the shoreline.
City of Monterey (Coastal Zone)	Monterey Harbor Land Use Plan	Natural Coastal	Monterey Pipeline	***Policy 3(c):*** New development and facilities shall be located with a shoreline setback sufficient to prevent the need for protective structures during the expected life of the development, but not less than a setback to the 100-year coastal erosion line, as determined by qualified professionals using the most current methods and information. Coastal dependent uses may be protected by shoreline structures.	**Consistent**: The proposed project incorporates design measures, including setback from the shoreline and elevation (depth) of the pipeline, to avoid shore erosion impacts. This issue is addressed further in Section 4.8: Geology, Soils, and Seismicity.
City of Monterey (Coastal Zone)	Monterey Harbor Land Use Plan	Public Access	Monterey Pipeline	***Policy 3(e):*** No intervening development shall block potential visual access or physical access to the beach.	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct public views of or access to the shoreline.
City of Monterey (coastal zone)	California Coastal Act	Recreation	Monterey Pipeline	***Section 30223 Upland areas.*** Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.	**Consistent**: Monterey Pipeline construction may temporarily limit use of the Monterey Peninsula Recreational Trail along the city of Monterey waterfront. This issue is addressed further in Impact 4.17-2.
City of Monterey (Coastal Zone)	California Coastal Act	Development	Monterey Pipeline	***Section 30252 Maintenance and enhancement of public access:*** The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads, (3) providing nonautomobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings, and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.	**Consistent**: The Monterey Pipeline would be buried below ground and would not obstruct public access to the shoreline.

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4.12.4 Impacts and Mitigation Measures

4.12.4.1 Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, the project would have a significant impact on land use, agriculture and forest resources, if it would:[2]

a. Physically divide an established community.

b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance and with Coastal Zone Management Act) adopted for the purpose of avoiding or mitigating an environmental effect.

c. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

d. Involve other changes in the existing environmental that, due to their location or nature, could result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

e. Conflict with existing zoning for agricultural use, or a Williamson Act contract.

f. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), or timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).

g. Result in the loss of forest land or conversion of forest land to non-forest use.

h. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest to non-forest use.

No additional significance criteria are needed to comply with the CEQA-Plus[3] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

4.12.4.2 Approach to Analysis

Land Use

This analysis evaluates short-term impacts resulting from temporary construction of Proposed Project components, as well as long-term impacts resulting from the siting and operation of Proposed Project components, either of which may result in potential conflicts or inconsistencies with existing adopted plans and regulations. <u>Construction equipment and materials associated</u>

[2] In the CEQA Guidelines Appendix G, under the topic of “Land Use and Planning” the following question is posed: “Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?” The only applicable habitat conservation plan or natural community conservation plans in the Proposed Project vicinity are the Fort Ord Habitat Management Plan and the draft Ford Ord Habitat Conservation Plan. This criterion is addressed in **Section 4.5, Biological Resources: Terrestrial**. See **Section 4.5.4.4.**

[3] To comply with applicable federal statutes and authorities, EPA established specific “CEQA-Plus” requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

with the various components of the Proposed Project would be staged and stored within the respective construction work areas. Construction equipment and materials associated with pipeline installation would be stored along the pipeline alignments and at nearby designated staging areas. Staging areas would not be sited in sensitive areas such as riparian areas or critical habitat for protected species. To the extent feasible, parking for construction equipment and worker vehicles would be accommodated within the construction work areas and on adjacent roadways.

Before construction mobilization for the source water diversion facilities, AWT Facility, pipeline installation, and the proposed injection wells, the contractors would clear and grade construction areas (including temporary staging areas), and remove vegetation and debris as necessary, to provide a relatively level surface for the movement of construction equipment. Upon completion of construction activities, the construction contractor would remove any added gravel, contour the construction work areas and staging areas to their original profile, and hydro-seed or repave the areas, as appropriate.

The analysis compares the existing land use setting with the conditions of each Proposed Project site during construction and operations. Local planning documents and maps, as described above**,** were reviewed and site surveys were conducted to characterize existing land uses on and adjacent to the Proposed Project components. The evaluation of consistency with applicable plans, policies, and regulations included the following steps:

> (1) determining the applicability of relevant land use plans, policies and regulations to the Proposed Project based on location, applicability to this type of project, and authority of each jurisdiction,
>
> (2) assessing whether the plan, policy, or regulation was adopted for the purpose of reducing an environmental effect, and
>
> (3) analyzing whether the Proposed Project would be fundamentally inconsistent with each policy, plan or regulation.

For those plans, policies and regulations that were found to require a consistency analysis per items 1 and 2, above, a discussion of consistency and/or potential conflicts with adopted plans is included in tables in relevant topical sections in **Chapter 4**, including **Table 4.12-3**. The discussion in Impact LU-2, below, addresses identified potential conflicts and inconsistencies.

Agricultural Resources

To determine the potential for the Proposed Project to result in adverse effects related to conversion of farmland to non-agricultural use, two types of analyses are provided: direct and potential indirect conversion of farmland to non-agricultural uses as explained below.

Direct conversion of designated agricultural land to non-agricultural use. The approach for evaluating environmental impacts related to criteria c and e, above, is to compare the anticipated direct temporary and permanent ground disturbance areas associated with the Proposed Project to the farmland mapped on the California Department of Conservation's FMMP Important Farmland Series Maps as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and to maps of Williamson Act contracts, and zoning maps for the project area (herein referred to as "Designated Farmland"). Unless covered by a Williamson Act contract or zoned for agriculture by a local agency, areas designated in the FMMP maps as Farmland of Local Importance or Grazing Land are not considered in this analysis.

Indirect conversion of agricultural land due to other changes to the environment (see Criterion d). The focus of the analysis for this criterion is on the Proposed Project's potential to result in changes to the availability of recycled water, surface water, and groundwater quantities, qualities, and delivery systems such that a conversion of agricultural land to non-agricultural uses may occur. This analysis focuses on waters used to irrigate farmland designated by the California Resource Agency as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or lands that are covered by a Williamson Act contract or zoned for agriculture by a local agency (or “Designated Farmland”). The scope of the evaluation is limited to areas within the project area, including the Castroville Seawater Intrusion Project area and to a lesser extent the areas in the vicinity of the Salinas Treatment Facility Storage and Recovery site. As described within this section, some of the Proposed Project sites and surrounding areas contain Designated Farmland.

Indirect effects related to potential incompatibilities between agricultural uses (such as access for agricultural vehicles, dust/air pollutant emissions, and noise from agricultural operations) and adjacent or nearby non-agricultural land uses (such as schools, hospitals or residences) would not occur due to the type and nature of Proposed Project facilities. The Proposed Project includes only new and modified water supply and wastewater facilities that would not result in conflicts or be incompatible with adjacent agricultural operations.

Water for agricultural irrigation in the Salinas Valley near the project area is supplied by groundwater wells, as well as recycled and surface water systems to supplement groundwater supplies. MRWPCA operates the tertiary treatment plant known as the Salinas Valley Reclamation Plant (located at the Regional Treatment Plant), where it treats water for agricultural irrigation and delivers it to agricultural users via a project known as the Castroville Seawater Intrusion Project (CSIP). MRWPCA operates the system by agreement with the Monterey County Water Resources Agency (MCWRA) and in partnership with the MCWRA and growers in the Salinas Valley. This analysis considers whether the Proposed Project would affect the continued supply of an adequate quantity and quality of water for irrigation to support continued farming of Designated Farmland, and whether any resulting changes as a result of the Proposed Project could indirectly lead to conversion of agricultural land to non-agricultural uses.

With regards to agricultural water quantity, the Proposed Project would increase recycled water availability to the Castroville Seawater Intrusion Project area by approximately 4,500 to 4,750 acre feet per year (AFY) and up to 5,900 AFY in drought years as shown in **Appendix B rev**, Tables 6 through 9. This is considered a beneficial impact related to the quantity of water available for agricultural lands. The analysis, therefore, focuses on the quality of recycled water, based on a technical analysis by Dr. Bahman Sheikh (January 2015); see **Appendix S, Predicted Impact of Farming from Use of Recycled Water with Higher Salinity.** The technical analysis describes existing use of recycled water by growers in the CSIP area and analyzes how the addition of the Proposed Project source waters to the recycled water supply may affect the quality of recycled water delivered to growers. The effects of diverting water from the Salinas Industrial Wastewater Treatment Facility on groundwater seepage and recharge is also addressed based on a technical report prepared by Todd Groundwater (2015).

Forest Resources

For the purposes of this analysis, each Proposed Project element was considered in relation to forest land as defined Public Resources Code section 12220(g), or timberland as defined by Public Resources Code section 4526, or timberland zoned Timberland Production as defined by Government Code section 51104(g). "Forest land" under Public Resources Code section 12220(g) is defined as “land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The definition is part of the California Forest Legacy Program Act of 2007 that encourages the long-term conservation of productive forest lands by providing an incentive to owners of private forest lands to prevent future conversions of forest land and forest resources. The Z'berg-Nejedly Forest Practice Act (Public Resources Code Section 4526) defines "timberland" as "land……which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products."

There are no forested areas or any area that meet the above definitions in the Proposed Project area. Therefore, the evaluation of forest resources is presented in the following section, Areas of No Project Impact.

Areas of No Project Impact

The Proposed Project would not result in impacts related to the some of the significance criteria (a, c [operations], e, f, g, and h), as explained below. Impact analyses related to the other criteria (b, c [construction], and d) are addressed below under **Subsections 4.12.4.4 (Construction Impacts)** and **4.12.4.5 (Operational Impacts)** as applicable.

- *(a) Physically divide an established community. (No impact due to construction or operations.)* Criterion "a" is not applicable to the Proposed Project because of the nature and scale of Proposed Project component facilities. None of the proposed facilities or construction activities would physically divide an established community. During construction, immediate access to neighborhoods, commercial areas, schools, and parks could be temporarily disrupted by pipeline construction in the public right-of-way due to lane closures or detours; but only for short (less than one month) periods of time as discussed in **Section 4.17, Traffic and Transportation**. All proposed above-ground facilities, including the Treatment Facilities at the Regional Treatment Plant, the Booster Pump Station Options, and the Injection Well Facilities would be located at sites that are part of existing public facilities and, as such, they would not divide an established community or established land uses. The Treatment Facilities at the Regional Treatment Plant would be constructed at the existing Regional Treatment Plant, not within an established community. The Booster Pump Station Options would be located either within the community of Seaside or Marina but would not divide an established community because each would be located on a rectangular shaped, less than a quarter acre site adjacent to urban uses. The RUWAP Booster Pump Station option would be located on existing city of Marina corporation yard site. The Coastal Booster Pump Station option would be located on an undeveloped site near the intersection of two established roadways and adjacent to large paved parking lots and dilapidated, unoccupied former Army buildings. The Injection Well Facilities are proposed on a currently vacant site east, and on the periphery, of nearby existing and planned community urban areas.
- *(b) Conflicts with plans, policies or regulations during construction*. Construction activities would not result in land use impacts other than those identified elsewhere in this EIR. These potential inconsistencies during construction were identified in Table 4.12-5 on pages 4.12-39 through 4.12-43. The temporary potential inconsistencies with plans, policies and regulations and associated impacts have been identified in Table 4.12-5 and addressed by environmental topic in the sections referenced above, and thus do not result in any other conflicts with plans, policies, and programs adopted for the purpose of reducing an environmental impact.

- *(c) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. (No impact due to operations.*) None of the permanent Proposed Project above-ground facilities would be located on lands designated prime, unique or statewide important farmlands, and thus, would not result in conversion of Prime Farmland, Unique Farmland or Farmland of Statewide Importance. Temporary disruption to agricultural lands or uses during construction of certain Proposed Project facilities is addressed in Impact LU-1, below.
- *(e) Conflict with existing zoning for agricultural use, or a Williamson Act contract. (No impact due to construction and operations.)* There are no properties under a Williamson Act contract within or adjacent to any of the Proposed Project component sites. The northernmost portions of the Product Water Conveyance System Options would be located in open space areas between the Regional Treatment Plant and the city of Marina northern border that are zoned for Permanent Grazing. The 33-inch pipeline slip-lining portion of the Salinas Treatment Facility project component, the Tembladero Slough Diversion site, and a portion of the Banco Drain Diversion pipeline alignment are located on land zoned for agriculture (Farmlands 40 acre minimum (F/40)) by Monterey County. Water and wastewater infrastructure are allowable uses in both the permanent grazing and F/40 zoning districts and the Proposed Project would not conflict with the County's zoning code.[4] Implementation of the Proposed Project would not prevent continued use of these lands for agricultural production and would not require rezoning or a zoning amendment.
- *(f) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), or timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)). (No impact due to construction or operations.)* There is no forest or timber land meeting the above definitions, or lands zoned Timberland Production in the Proposed Project area.
- *(g) Result in the loss of forest land or conversion of forest land to non-forest use.* (*No impact due to construction and operations*.) There is no forest land within the Proposed Project area.
- *(h) Convert forest to non-forest use due to other changes. (No impact due to construction and operations.)* There is no forest land within the Proposed Project area and the Proposed Project would not affect other forest land outside of the area due to the nature and location of proposed construction and operations.

Summary of Impacts

Table 4.12-4, Summary of Impacts provides a summary of potential impacts related to land use, agriculture, and forest resources and significance determinations at each Proposed Project component site.

[4] Additionally, a similar RUWAP pipeline was proposed by Marina Coast Water District and received a conditional use permit from Monterey County in 2009 and in that permit, they explicitly stated that the proposed pipeline would not conflict with the site zoning (Monterey County Zoning Administrator, 2009).

Table 4.12-4
Summary of Impacts – Land Use, Agriculture, and Forest Resources

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System		
Impact Title	**Salinas Pump Station**	**Salinas Treatment Facility Storage and Recovery**	**Reclamation Ditch**	**Tembladero Slough**	**Blanco Drain (Pump Station and Pipeline)**	**Lake El Estero**	**Treatment Facilities at Regional Treatment Plant**	**RUWAP Alignment Option**	**Coastal Alignment Option**	**Injection Well Facilities**	**Transfer Pipeline**	**Monterey Pipeline**	**Project Overall**
LU-1: Construction Temporary Farmland Conversion	NI	LSM	NI	NI	LSM	NI	NI	LS	LS	NI	NI	NI	LSM
LU-2: Operational Consistency with Plans, Policies, Regulations	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM
LU-3: Operational Indirect Farmland Conversion	LS							NI	NI	NI	NI	NI	LS
Cumulative Impact	LS: There would be no significant construction or operational cumulative impacts to land use, and the Proposed Project would not contribute to a significant cumulative impact related to conversion of agricultural lands within unincorporated Monterey County.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.12.4.3 Construction Impacts and Mitigation Measures

Impact LU-1: <u>Temporary Farmland Conversion during Construction.</u> The Proposed Project would result in a temporary disruption to agricultural production on designated prime, unique and statewide important farmlands during construction, but would not directly or indirectly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use. (Criterion c, d) (Less than Significant with Mitigation)

Salinas Treatment Facility (Slip-Lining of 33-inch Pipeline)

The Proposed Project includes the slip-lining of an existing 33-inch industrial wastewater pipeline. This existing pipeline is within land that is designated as Prime Farmland by the Farmland Mapping and Monitoring Program of the California Resources Agency (see **Figure 4.12-6**), and is located within an area in agricultural production that is zoned as Farmlands in Monterey County. Installing a new pipeline inside the existing pipeline would require excavating access pits every 600-feet to 800-feet along the existing alignment, cutting into the existing pipe, pulling the new assembled pipe into the existing pipe and connecting the new pipe segments before closing the pit. The work area at each pit would be up to 20-feet wide, approximately 60-feet long and up to 10-feet deep. There would be approximately 12 excavation pits, each of which would be under construction for approximately one week. The total area that would be excavated within Prime Farmland would be approximately 0.33 acres. Construction-related disturbance and disruption of agricultural uses in areas designated as Prime Farmland would be temporary; however, the impact is considered a potentially significant impact due to location on designated prime agricultural land. With implementation of Mitigation Measure LU-1 (Minimize Disturbance to Farmland), which requires that construction contractors minimize ground disturbance in designated important farmland areas and restore the site to pre-construction conditions, the impact would be reduced to less-than-significant.

Tembladero Slough Diversion

The Tembladero Slough Diversion would consist of a new intake structure on the channel bottom, connecting to a new lift station wet well (manhole) on the channel bank via a new gravity pipeline. Construction of the Tembladero Slough diversion would include minor grading, installation of a new wet well/diversion structure, modification of the existing wet well at the Castroville Pump Station and construction of a short pipeline from the wet well to the new pump station. The approximate construction footprint of the Tembladero Slough Diversion is 0.23 acres.

The Tembladero Slough Diversion location is located within an area designated as Prime Farmland by the State Farmland Mapping and Monitoring Program (see **Figure 4.12-6**). However, the Proposed Project site is located at the existing Castroville Pump Station facility, which is developed and paved, and no agricultural uses have occurred on the site since the pump station facility was built. Therefore, no existing agricultural farmland would be converted to a non-agricultural use, and no agricultural operations would be disrupted during construction. Therefore, project construction would not result in disruption to prime farmlands or agricultural operations.

Blanco Drain Diversion (Pipeline Connection)

Portions of the Blanco Drain Diversion site and connection pipeline to the Regional Treatment Plant would be located within land designated as Prime Farmland and Farmland of Statewide Importance by the Farmland Mapping and Monitoring Program of the California Resources Agency (see **Figure 4.12-6**). Construction would temporarily disturb approximately 0.15 acres of land at the pump station, including the Blanco Drain banks and channel bottom, and approximately five acres along the pipeline alignment including the excavation pits for constructing the pipeline under the Salinas River. The diversion site is located at an existing pump station and within roadway alignments (farm roads); therefore no existing farmland would be permanently converted to a non-agricultural use at this location. However, the majority of the pipeline would be located on designated agricultural lands that are in agricultural production. The approximate construction foot print of the Blanco Drain Diversion Pump Station and Pipeline that would be within designated Prime Farmland is 2.9 acres and the portion within Farmland of Statewide Importance is 2.1 acres out of a total construction footprint of approximately five acres. Construction-related disturbance and disruption of agricultural uses in areas designated as prime and state important farmland, albeit temporary, is considered a potentially significant impact. However, with implementation of Mitigation Measure LU-1 (Minimize Disturbance to Farmland), which requires that construction contractors minimize ground disturbance in designated farmland areas and restore the site to pre-construction conditions, the impact would be reduced to less-than-significant.

Product Water Conveyance

Segments of the Product Water Conveyance Pipeline Options would traverse land that is used for grazing and some limited row crop production and is zoned for permanent grazing; however, these lands are not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide

Importance. The pipeline would be constructed at a rate of approximately 400 feet per day on an approximately 100-foot wide swath (12,000 linear feet for the RUWAP alignment and 5,000 linear feet for the Coastal alignment). Therefore, direct, temporary impacts to grazing and row crop production would be limited to a total of only a few weeks to a month, and would not result in permanent conversion of agricultural lands or uses. This is considered a less-than-significant impact.

All Other Proposed Project Components

Construction of the proposed Salinas Pump Station Diversion would occur within the boundaries of the City of Salinas' former treatment plant site, called TP1, and would not affect agricultural lands. Additionally, construction of the Reclamation Ditch Diversion and the Treatment Facilities at the Regional Treatment Plant would not occur on agricultural lands. These sites are in proximity to agricultural lands, but none that are mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, construction activities would not result in any conflicts between uses or indirect impacts to agricultural operations on Designated Farmland.

Land uses in the vicinity of all other proposed facilities (Lake El Estero Diversion, Injection Well Facilities, and CalAm Distribution Pipelines) are predominantly urban and are not associated with agricultural uses.

Impact Conclusion

Construction of the Proposed Project improvements at the Salinas Treatment Facility and a portion of the Blanco Drain pipeline could temporarily disrupt agricultural uses in designated important farmland areas, a potentially significant impact. However, implementation of Mitigation Measure LU-1 (Minimize Disturbance to Farmland) would reduce the impact to a less-than-significant level.

Mitigation Measures

Mitigation Measure LU-1: <u>Minimize Disturbance to Farmland.</u> (Applies to the Salinas Treatment Facility and a portion of the Blanco Drain Diversion)

To support the continued productivity of designated Prime Farmland and Farmland of Statewide Importance, the following provisions shall be included in construction contract specifications:

- Construction contractor(s) shall minimize the extent of the construction disturbance, including construction access and staging areas, in designated important farmland areas.
- Prior to the start of construction, the construction contractor(s) shall mark the limits of the construction area and ensure that no construction activities, parking, or staging occur beyond the construction limits.
- Upon completion of the active construction, the site shall be restored to pre-construction conditions.

4.12.4.4 Operational Impacts and Mitigation Measures

Impact LU-2: <u>Operational Consistency with Plans, Policies, and Regulations.</u> The Proposed Project would have one or more components that would potentially conflict, or be inconsistent with, applicable land use plans, policies, and regulations without implementation of mitigation measures identified in this EIR. (Criterion b) (Less than Significant with Mitigation)

All Proposed Project Components

Many of the Proposed Project components would be located within existing public road rights-of-way and public facility sites, including the following:

- Portions of the Product Water Conveyance System Options within the cities of Marina and Seaside
- Salinas Pump Station Diversion site at the city of Salinas' TP1 site,
- Salinas Industrial Wastewater Treatment Facility Storage and Recovery Site at the existing Salinas Treatment Facility,
- Reclamation Ditch Diversion Site at Davis Road,
- Tembladero Slough Diversion Site,
- Blanco Drain Diversion Site and portions of the associated pipeline,
- Lake El Estero Storage Management Diversion Site,
- RUWAP Booster Pump Station Option at the city of Marina's Corporation Yard site,
- All treatment facilities at the Regional Treatment Plant, including Advanced Water Treatment Facility, Brine Mixing Facility, and Salinas Valley Reclamation Plant Modifications, and
- Portions of the CalAm Distribution System Improvements within the cities of Seaside, Sand City, Monterey, and Pacific Grove.

The other facilities are located on sites that have land use designations and zoning that allow water and wastewater infrastructure (Coastal Booster Pump Station Option and the Injection Well Facilities). Information regarding the proposed facility siting and construction is described in **Chapter 2, Project Description**. Potential physical environmental effects of Proposed Project operations on existing allowable uses onsite and on adjacent sites are analyzed in other sections of Chapter 4, including the following types of environmental effects:

- aesthetic impacts on views from adjacent sensitive viewsheds (see **Section 4.2, Aesthetics Resources**),
- air pollutant emissions effects on sensitive nearby receptors that include land uses such as residential, schools, hospitals (see **Section 4.3, Air Quality**),
- geologic hazards and soils stability impacts on site and surrounding areas (see **Section 4.8, Geology and Soils**),
- hazard and hazardous materials risks on people residing or working in surrounding areas (see **Section 4.9, Hazards and Hazardous Materials**),

- surface water quality impacts (see **Section 4.10, Hydrology and Water Quality: Surface Water**),
- noise impacts on sensitive receptors, (see **Section 4.13, Noise**), and
- traffic and access impacts (see **Section 4.16, Traffic**).

This subsection summarizes the evaluation of the Proposed Project's consistency with the California Coastal Act, and with municipal and county general plans, area plans, specific plans, local coastal programs/plans, and municipal and zoning codes, of the jurisdictions that have land use authority for one or more components of the Proposed Project. Tables in each section contain the consistency analysis of the Proposed Project with plans, policies, and regulations that have been deemed by the MRWPCA in consultation with local agencies to be: (1) relevant to one or more component of the project, and (2) adopted for the purpose of mitigating an environmental impact. The results of the consistency analysis for many applicable plans, policies, and regulations are provided in the pertinent topical sections of **Chapter 4, Environmental Setting, Impacts, and Mitigation Measures**, in the Regulatory Framework subsection.

The Proposed Project components may conflict with applicable land use plans, policies, and regulations without implementation of mitigation measures in this EIR. **Table 4.12-5, Mitigation Measures Required for Consistency with Policies** provides an overview of the findings of the policy consistency analyses in Sections 4,2 through 4.18 of this EIR, including applicable mitigation measures that, if implemented would ensure that the proposed Project would be consistent with the relevant policies.

Table 4.12-5
Mitigation Measures Required for Consistency with Policies

Jurisdiction	Plan	Proposed Project Components	Policy	Applicable Mitigation Measures Needed for Ensuring Proposed Project Consistency with Policies
4.3 Air Quality and Greenhouse Gas				
Cities of Marina and Monterey (coastal zone)	California Coastal Act	Product Water Conveyance: Coastal Alignment; Monterey Pipeline	Section 30253	AQ-1: Construction Fugitive Dust Control Plan. (Applies to All Project Component Sites where ground disturbance would occur.)
Monterey County	Monterey County General Plan	Reclamation Ditch Diversion Tembladero Slough Diversion Salinas Treatment Facility Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	Policy OS-10.6	AQ-1: Construction Fugitive Dust Control Plan. (Applies to All Project Component Sites where ground disturbance would occur.)
Monterey County	Monterey County General Plan	Tembladero Slough Diversion Treatment Facilities RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Salinas Treatment Facility Storage and Recovery Blanco Drain Diversion	Policy OS-10.9	AQ-1: Construction Fugitive Dust Control Plan. (Applies to All Project Component Sites where ground disturbance would occur.)
City of Monterey	Monterey Harbor Land Use Plan	Monterey Pipeline	Section 30253	AQ-1: Construction Fugitive Dust Control Plan. (Applies to All Project Component Sites where ground disturbance would occur.)
4.4 Biological Resources: Fisheries				
Monterey County	Monterey County General Plan	Salinas Pump Station Diversion Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion	OS-4.1	BF-1a: Construction during Low Flow Season. (Applies to Reclamation Ditch and Tembladero Slough Diversions) BF-1b: Relocation of Aquatic Species during Construction. (Applies to Reclamation Ditch and Tembladero Slough Diversions) BF-2a: Maintain Migration Flows. (Applies to the Reclamation Ditch Diversion) Alternate BF-2b: Modify San Jon Weir. (Applies to the Reclamation Ditch Diversion)
Monterey County	North County Land Use Plan	Tembladero Slough Diversion	Policy 2.3.3.B2	BF-1a: Construction during Low Flow Season. (Applies to Reclamation Ditch and Tembladero Slough Diversions) BF-1b: Relocation of Aquatic Species during Construction. (Applies to Reclamation Ditch and Tembladero Slough Diversions)
Monterey County	North County Land Use Plan	Tembladero Slough Diversion	Policy 2.3.3.B6	BF-1a: Construction during Low Flow Season. (Applies to Reclamation Ditch and Tembladero Slough Diversions) BF-1b: Relocation of Aquatic Species during Construction. (Applies to Reclamation Ditch and Tembladero Slough Diversions)
4.5 Biological Resources: Terrestrial				
Monterey County	Monterey County General Plan	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Policy OS-5.4 Policy OS-5.6 and Policy OS-5.16 Policy OS-5.25 Policy OS-4.1	BT-1a: Implement Construction Best Management Practices. (Applies to All Project Components) BT-1b: Implement Construction-Phase Monitoring. (Applies to Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Project Water Conveyance: RUWAP and Coastal Pipeline Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) BT-1c: Implement Non-Native, Invasive Species Controls. (Applies to All Project Components) BT-1d: Conduct Pre-Construction Surveys for California Legless Lizard. (Applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) BT-1e: Prepare and Implement Rare Plant Restoration Plan to Mitigate Impacts to Sandmat Manzanita, Monterey Ceanothus, Monterey Spineflower, Eastwood's Goldenbush, Coast Wallflower, and Kellogg's Horkelia. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline; does not apply to HMP species within the former Fort Ord.) BT-1f: Conduct Pre-Construction Protocol-Level Botanical Surveys within the Product Water Conveyance: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch; and the remaining portion of the Project Study Area within the Injection Well Facilities site. (Applies to Product Water Conveyance: Coastal Alignment Option and non-HMP species at the Injection Well Facilities site.) BT-1g: Conduct Pre-Construction Surveys for Special-Status Bats. (Applies to Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options and Booster Stations, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) BT-1h: Implementation of s BT-1a and BT-1b to Mitigate Impacts to the Monterey Ornate Shrew, Coast Horned Lizard, Coast Range Newt, Two-Striped Garter Snake, and Salinas Harvest Mouse. (Applies to Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, Injection Well Facilities, and CalAm Distribution System: Monterey Pipeline) BT-1i: Conduct Pre-Construction Surveys for Monterey Dusky-Footed Woodrat. (Applies to Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities) BT-1j: Conduct Pre-Construction Surveys for American Badger. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options) BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark. (Applies to All Project Components) BT-1l: Conduct Pre-Construction Surveys for Burrowing Owl. (Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options and CalAm Distribution System: Monterey Pipeline) BT-1m: Minimize effects of nighttime construction lighting. (Applies to Injection Well Facilities and CalAm Distribution System: Monterey Pipeline) BT-1n: Mitigate Impacts to Smith's blue butterfly. (Applies to Product Water Conveyance: Coastal Alignment Option and CalAm Distribution System: Monterey Pipeline) BT-1o: Avoid and Minimize Impacts to Monarch butterfly. (Applies to CalAm Distribution System: Monterey Pipeline) BT-1p: Avoid and Minimize Impacts to Western Pond Turtle. (Applies to Blanco Drain Diversion and Product Water Conveyance: Coastal Alignment Option) BT-1q: Avoid and Minimize Impacts to California Red-Legged Frog. (Applies to Salinas Treatment Facility and Blanco Drain Diversion)

Table 4.12-5
Mitigation Measures Required for Consistency with Policies

Jurisdiction	Plan	Proposed Project Components	Policy	Applicable Mitigation Measures Needed for Ensuring Proposed Project Consistency with Policies
4.5 Biological Resources: Terrestrial (cont.)				
Monterey County	Monterey County General Plan	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump & Pipeline Diversion	Policy OS-5.18	BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.) BT-2c: Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River (Applies to Blanco Drain Diversion)
Monterey County	Greater Monterey Peninsula Area Plan	Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Blanco Drain Pump and Pipeline Diversion Site	Policy GMP-3.6	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.)
Monterey County	North County Land Use Plan	Tembladero Slough Diversion Site	Policy 2.3.2.1 Policy 2.3.2.2 Policy 2.3.2.5 Policy 2.3.2.10 Policy 2.3.3.B1	BT-1a: Implement Construction Best Management Practices. (Applies to All Project Components) BT-1c: Implement Non-Native, Invasive Species Controls. (Applies to All Project Components) BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark. (Applies to All Project Components)
Monterey County	North County Land Use Plan	Tembladero Slough Diversion Site	Policy 2.3.3.B2 Policy 2.3.3.B4	BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option)
Monterey County	North County Land Use Plan	Tembladero Slough Diversion Site	Policy 2.3.3.B6 Policy 2.3.3.C2 Key Policy 4.3.4	BT-1a: Implement Construction Best Management Practices. (Applies to All Project Components) BT-1c: Implement Non-Native, Invasive Species Controls. (Applies to All Project Components) BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark. (Applies to All Project Components) BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option)
Monterey County	Monterey County Code	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	Section 21.64.260	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
City of Marina	Marina General Plan	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	4.114 (MarGP) 4.116 4.118 4.119	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option)
City of Marina	Marina General Plan	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	Policy 2.4.4	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.)
City of Marina	Marina General Plan	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	Policy 4.112 Policy 2.10	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.)
City of Marina	City of Marina Land Use Plan	Coastal Alignment Option	Policy 24	BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.)
City of Marina	City of Marina Land Use Plan	Coastal Alignment Option	Policy 26	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
City of Marina	City of Marina Land Use Plan	Coastal Alignment Option	Rare and Endangered Species: Habitat Protection.	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
City of Marina	City of Marina Land Use Plan	Coastal Alignment Option	Wetlands Protection	BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.)
City of Marina	Marina Municipal Code	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option	Chapter 17.51 – Tree Removal, Preservation and Protection	BT-1a (as applicable, see Mitigation Measures titles and applicable components, above)

Table 4.12-5
Mitigation Measures Required for Consistency with Policies

Jurisdiction	Plan	Proposed Project Components	Policy	Applicable Mitigation Measures Needed for Ensuring Proposed Project Consistency with Policies
4.5 Biological Resources: Terrestrial (cont.)				
City of Seaside	Seaside General Plan	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facility Site Transfer Pipeline Monterey Pipeline	COS-4.1	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
City of Seaside	Seaside General Plan	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facility Site Transfer Pipeline Monterey Pipeline	Policy COS-4.2	BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.)
City of Seaside	City of Seaside Land Use Plan	Coastal Alignment Option Monterey Pipeline	Policy NCR-CZ 1.1.C	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.) BT-2b: Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to Monterey Pipeline)
City of Seaside	City of Seaside Land Use Plan	Coastal Alignment Option Monterey Pipeline	Policy NCR-CZ 3.1.A	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.) BT-2b: Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to Monterey Pipeline)
City of Seaside	City of Seaside Land Use Plan	Monterey Pipeline	Policies NCR-CZ 1.2.A, 1.2.B, 1.3.A, 1.3.B, LUD-CZ 3.1.A, 3.1B	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2b: Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to Monterey Pipeline)
City of Seaside	Seaside Municipal Code	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facility Site Transfer Pipeline Monterey Pipeline	Chapter 8.54	BT-1a (see Mitigation Measures titles and applicable components, above)
City of Sand City	Sand City Land Use Plan	Monterey Pipeline	Policy 4.3.22	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above) BT-2b: Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to Monterey Pipeline)
City of Monterey	Del Monte Beach Land Use Plan	Monterey Pipeline	Policy 2 and 3	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
City of Monterey	Del Monte Beach Land Use Plan	Monterey Pipeline	Policies 3.d, 3.e, 3.k, 3.l, 4, and 10	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
City of Monterey	CCC	Monterey Pipeline	Section 30240	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
City of Monterey	CCC	Monterey Pipeline	Section 30233	BT-2b: Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to Monterey Pipeline)
City of Monterey	Monterey City Code	Monterey Pipeline	Chapter 37	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)
Fort Ord Reuse Authority	Fort Ord Reuse Plan	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option Coastal Booster Pump Station Injection Well Facility Site Transfer Pipeline	Biological Resources Policies A-9 and C-3	BT-1a through BT-1q (as applicable, see Mitigation Measures titles and applicable components, above)

Table 4.12-5
Mitigation Measures Required for Consistency with Policies

Jurisdiction	Plan	Proposed Project Components	Policy	Applicable Mitigation Measures Needed for Ensuring Proposed Project Consistency with Policies
4.6 Cultural and Paleontological Resources				
Monterey County	Monterey County General Plan	Tembladero Slough Diversion site Blanco Drain Diversion site Reclamation Ditch Diversion site Salinas Treatment Facility Storage and Recovery Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	Policy PS-12.1.6	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
Monterey County	North County Land Use Plan	Tembladero Slough Diversion site	2.9.1 Key Policy 2.9.2 General Policies 2.9.3 Specific Policies	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
City of Marina	City of Marina General Plan	RUWAP Alignment Option Coastal Alignment Option	Policy 4.126	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
City of Seaside	City of Seaside Local Coastal Program Land Use Plan	CalAm Distribution System Monterey Pipeline	Policy LUD-CZ 3.7.A	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
City of Seaside	Seaside General Plan	Product Water Conveyance Pipeline -RUWAP & Coastal Alignment Options Coastal Booster Pump Station Option Injection Well Facilities CalAm Distribution System (Transfer and Monterey) Pipeline	COS-5.1.1	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
Sand City	Sand City Local Coastal Program Land Use Plan	CalAm Distribution System (Transfer and Monterey) Pipelines	Policy 4.4.30	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
City of Monterey	California Coastal Act	CalAm Distribution System Monterey Pipeline	Section 30244	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
Fort Ord Reuse Authority	Fort Ord Base Reuse Plan	Injection Well Facilities CalAm Distribution System Transfer Pipeline	Cultural Resources Policy A-1	CR-2a: Archaeological Monitoring Plan. (Applies to the segment of the CalAm Distribution Pipeline through the Presidio of Monterey and along W. Franklin Street and to the Lake El Estero Diversion Site) CR-2b: Discovery of Archaeological Resources or Human Remains. (Applies to All Project Components) CR-2c: Native American Notification. (Applies to All Project Components)
4.7 Energy and Minerals				
City of Marina	City of Marina Local Coastal Program Land Use Plan	Coastal Alignment Option	Section 30253	EN-1: Construction Equipment Efficiency Plan. (Applies to All Project Components)
4.8 Geology, Soils, and Seismicity				
City of Monterey (coastal zone)	Monterey Harbor Land Use Plan	Monterey Pipeline	*Policy 3.b* *Policy 3.c* *Policy 3.d*	GS-5: Monterey Pipeline Deepening. (Applies to CalAm Distribution System: Monterey Pipeline only)
Del Monte Beach, City of Monterey (coastal zone)	Del Monte Beach Land Use Plan	Monterey Pipeline	*Policy 3.1* *Policy 3.3* *Policy 3.4* *Policy 3.7* *Policy 3.11*	GS-5: Monterey Pipeline Deepening. (Applies to CalAm Distribution System: Monterey Pipeline only)

Table 4.12-5
Mitigation Measures Required for Consistency with Policies

Jurisdiction	Plan	Proposed Project Components	Policy	Applicable Mitigation Measures Needed for Ensuring Proposed Project Consistency with Policies
4.14 Noise and Vibration				
Monterey County	General Plan	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	Policy S-7.10	NV-2a: Construction Equipment. (Applies to Source Water Diversion and Storage Sites – Reclamation Ditch, Tembladero Slough and Blanco Drain, Product Water Conveyance Pipeline segments within the City of Marina and RUWAP Booster Station) NV-2b: Construction Hours. (Applies to Product Water Conveyance Pipelines and Booster Pump Station in the City of Marina)
City of Monterey	City of Monterey General Plan	Monterey Pipeline Lake El Estero Diversion Site	Policy d.2	NV-1b: Monterey Pipeline Noise Control Plan for Nighttime Pipeline Construction. (Applies to CalAm Distribution Monterey Pipeline) NV-1c: Neighborhood Notice. (Applies to Injection Well Facilities and CalAm Distribution Monterey Pipeline)
4.16 Public Services, Recreation, and Utilities				
All	California Green Building Standards Code California Code of Regulations, Title 24, Part 11 (CALGreen)	All Project Components	Diversion rates related to construction are from the California Green Building Standards Code. Section 5.408.1	PS-3: Construction Waste Reduction and Recycling Plan (relevant to All Project Components).
4.17 Traffic and Transportation				
Monterey County	Monterey County General Plan	Salinas Treatment Facility and Pipeline Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant Product Water Conveyance: RUWAP and Coastal Alignment Options	Policy C-4.3	TR-2: Traffic Control and Safety Assurance Plan.
City of Marina (coastal zone)	City of Marina Local Coastal Program Land Use Plan	Product Water Conveyance: Coastal Alignment Option	Policy 1	TR-2: Traffic Control and Safety Assurance Plan.
Seaside	Seaside General Plan	Product Water Conveyance: RUWAP and Coastal Pipeline options and Coastal Booster Pump Station Injection Well Facilities Transfer Pipeline Monterey Pipeline	Policy C-1.7	TR-2: Traffic Control and Safety Assurance Plan.
City of Monterey	Monterey Harbor Land Use Plan	Monterey Pipeline	Section 30210	TR-2: Traffic Control and Safety Assurance Plan.
City of Monterey	Monterey Harbor Land Use Plan	Monterey Pipeline	Section 30211	TR-2: Traffic Control and Safety Assurance Plan.
City of Monterey	Del Monte Beach Land Use Plan	Monterey Pipeline	Policy 13	TR-2: Traffic Control and Safety Assurance Plan.
City of Monterey	Del Monte Beach Land Use Plan	Monterey Pipeline	Policy 3.K	TR-2: Traffic Control and Safety Assurance Plan.

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Impact LU-3: <u>Operational Indirect Farmland Conversion.</u> The Proposed Project would not change the existing environment such that Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is converted to non-agricultural use. (Criterion d) (Less than Significant)

Source Water Diversion and Storage Sites, and Treatment Facilities at the Regional Treatment Plant

As discussed above in **Section 4.12.4.2**, indirect effects related to potential incompatibilities between agricultural uses (such as access for agricultural vehicles, dust/air pollutant emissions, and noise from agricultural operations) and adjacent or nearby non-agricultural land uses (such as schools, hospitals or residences) would not occur due to the type and nature of Proposed Project facilities. The Proposed Project includes only new and modified water supply and wastewater facilities, the operation of which would not result in conflicts or be incompatible with adjacent agricultural operations.

The following analysis considers the ability of the Proposed Project to enable continued supply of recycled water of adequate quantity and quality for agricultural irrigation to support continued farming of prime, unique and statewide important farmlands designated in the State Farmland Mapping Program. The analysis considers whether any changes as a result of the Proposed Project operations could indirectly lead to conversion of agricultural land to non-agricultural uses. As described in **Chapter 2, Project Description**, the Proposed Project would increase recycled water availability to the Castroville Seawater Intrusion Project area by approximately 4,500 to 4,750[5] AFY, which would have an overall beneficial impact on availability of irrigation water for agricultural lands in the region. The following discussion, therefore, focuses on the quality of recycled water that would be delivered to the CSIP area when the Proposed Project is operational. In addition, a discussion about the effects of source water diversions on local wells is provided.

Indirect Impacts: Quality of Irrigation Water for Designated Farmland

Water qualities critical to plant growth and development include salinity (as measured by total dissolved solids or electrical conductivity), sodicity (represented by a non-dimensional parameter called Sodium Adsorption Ratio [SAR]), and specific ions (primarily sodium, chloride, and boron). Salinity is the most critical of these constituents with regard to impacts on agriculture in the CSIP area with implementation of the Proposed Project. Salinity of an irrigation water source is the most important short-term and long-term predictor of crop productivity, as measured by the yield potential of crops irrigated with that water. SAR is a measure of the potential for impact on soil permeability. A high SAR is indicative of problems in infiltrating water into the soil profile. However, the impact potential of SAR in a given irrigation water source is strictly related to the salinity of that irrigation water.

The Proposed Project would add new source waters as influent to the Regional Treatment Plant. A one-year monitoring program was conducted from July 2013 to June 2014 for five of the proposed source waters to help assess potential changes in the quality of recycled water. Monthly and quarterly sampling was carried out for the Regional Treatment Plant secondary effluent, agricultural wash water, and Blanco Drain drainage water. Limited sampling of stormwater from Lake El Estero was performed due to seasonal availability, and there was one sampling event for the Reclamation Ditch/ Tembladero Slough drainage water. The agronomic water quality parameters of greatest importance with regard to sustainable soil productivity and

[5] In a drought year, the Proposed Project would deliver up to 5,900 AFY.

maximum crop yield potential are shown on **Table 4.12-6, Water Quality Parameters Related to Agricultural Crop Irrigation**.

Table 4.12-6
Water Quality Parameters Related to Agricultural Crop Irrigation

Sustainability Guidelines	Salinity (EC) dS/m[1]	Sodium Adsorption Ratio (SAR)	Sodium, mg/L[2]	Chloride, mg/L	Boron, mg/L
Generally No Problem	**0.5 - 2.0**	**<6**	**< 70**	**<100**	**<0.5**
Slight to Moderate Problem	**2.0 - 4.0**	**7 - 9'**	**70 - 230**	**100 - 250**	**0.5 - 5**
Problem	**> 4.0**	**>9**	**>230**	**>250**	**>5**
Source Waters	**Average Values of Parameters**				
Municipal Wastewater	1.44	4.75	174	264	0.31
Agricultural Wash Water	1.59	4.15	177	237	0.23
Blanco Drain	2.84	3.32	241	274	0.66
Lake El Estero	2.56	4.96	235	423	0.18
Tembladero Slough	2.94	4.41	333	394	0.51
Reclamation Ditch	1.17	2.45	96	130	0.51[3]
Blended Mix[4]	**1.75**	**4.75**	**174**	**264**	**<0.5**

1. **EC – electrical conductivity; dS/m – deci Siemans per meter.**
2. **mg/L – milligrams per liter.**
3. **Reclamation Ditch boron is assumed to be equal to the concentration of boron in Tembladero Slough since they are both part of the same ditch system, and no data on boron concentrations was available.**
4. **These water quality parameters reflect the worst-case scenarios of source water flow diversions for the purpose of assessing water quality of the treated secondary effluent/tertiary-treated water (i.e., full diversions in a drought year). Under all other scenarios, these values would be less.**

SOURCE: Bahman Sheikh, January 2015

The anticipated monthly flows of various source waters into the Regional Treatment Plant were used to compute predicted salinity concentrations in the blended recycled water under various scenarios (see **Appendix S** for details). While most of the new source water salinities are significantly higher than the salinity of the existing Regional Treatment Plant recycled water, the future blend salinity would be based on the actual composition of blends of the different source waters that would be combined with wastewater and treated to produce future recycled water. Blended recycled water would have a different composition every month and under various blending scenarios.

When the build-up of soluble salts in the soil becomes or is expected to become excessive, the salt build-up can be addressed by applying more water than is needed by the crop during the growing season. This extra water moves at least a portion of the salts below the root zone by deep percolation (called leaching). Leaching is the key factor in controlling soluble salts delivered in the irrigation water. Over time, salt removal by leaching must equal or exceed the salt additions from the applied water or salts will build up and eventually reach damaging concentrations.

The Proposed Project source waters likely would increase the recycled water salinity above that currently produced at the Regional Treatment Plant. This change in water quality is not expected to impact the agricultural activities within the CSIP service area to a significant extent because of the various management tools and expertise available to the growers, some of which are already in practice as discussed below. It is estimated that the increased salinity of the recycled water resulting from the blend of existing wastewater with the new source waters may result in an up to 13% reduction in total crop production value in the Castroville Seawater Intrusion Project service area; however, this would only occur in estimated drought-year conditions and only if the following two conditions occur simultaneously: (1) Salinas River water is not available for dilution with recycled water for irrigation and (2) if salinity control crop management practices are not implemented to maintain yield.

The change in recycled water quality as a result of the Proposed Project, while potentially affecting crop yield, is not expected to indirectly lead to the conversion of Designated Farmland to non-agricultural uses. Furthermore, several types of management strategies are already in use for salinity control and would likely continue as described below. Additionally, as an example, even though the calculations provided in **Appendix S** indicate a yield reduction for strawberries grown with the new blend of Regional Treatment Plant recycled water, actual field experience of the growers does not bear this out. In fact, over the entire history of recycled water delivery, much of the farmland in the CSIP service area has been shifted from growing artichoke (a salt-tolerant plant) to producing strawberries (a salt-sensitive crop). This shift indicates that the growers are obtaining adequate (possibly superior) yields and high-quality harvests from their investment, under the existing recycled water irrigation regime.

Recycled water used in the CSIP area currently is blended with Salinas River water during most parts of the irrigation season (April 1 through October 31) and in most years, except following multiple drought years, before delivery to the growers. Salinas River water has a much lower salinity than any of the proposed source waters (except the storm water). This blending practice is expected to continue in the future. Therefore, few if any of the growers will be irrigating at all times with only recycled water; it will typically be blended to some degree.

Of the new source waters to be used for the Proposed Project, agricultural wash water would be the highest volumetric contributor. The greatest extent of blending with Salinas River water and recycled water containing agricultural wash water is expected to occur during the peak summer period when crops would be growing at the highest rate and would benefit the most from a reduced salinity level in irrigation water. The beneficial effect of the Salinas River water cannot be readily quantified because of the variable and temporal rates at which it will be introduced to the irrigation system. Additional Salinas River water would further dilute the salinity of the blended recycled water from all sources.

Appendix S also indicates that growers in the Salinas Valley are some of the most sophisticated and technologically advanced growers in the world. They would, in all likelihood, respond to a higher salinity blend of recycled water by employing agronomic management practices, including the following: regular monitoring using sensors; increasing the leaching fraction; modifying irrigation scheduling; leaching during the cool seasons to improve leaching efficiency; scheduling leaching at periods of low crop water use or postponing leaching until after the cropping season; land leveling for better water distribution; installing additional tile drains to improve leaching; scheduling timing of irrigation to prevent crusting and water stress; placement of seed to avoid areas likely to be salinized; careful selection of materials, rate and placement of fertilizers; and addition of agricultural amendments, as needed. Potassium chloride is used as a soil amendment in the Salinas Valley as a fertilizer to replenish the essential macronutrient, potassium.

Growers in the CSIP service area have been growing high value crops under a recycled water irrigation regime for the past 17 years. With the choice of crop varieties, management practices, and a sophisticated irrigation management system, there have been no complaints about yield, quality of crops, or sales of crops sent to market. In fact, the availability of recycled water has ensured the continued cultivation of high-value crops in this region. Recycled water has served as a valuable regional resource to replace groundwater wells that historically provided irrigation water, but were abandoned as a result of seawater intrusion caused by overdraft of the local aquifers. A monitoring study of soil characteristics has been underway since 2000 at several test sites and control sites to track changes attributable to long-term use of recycled water in the CSIP service area. Based on 13 years of data, the monitoring study found that, the average soil salinity parameters at each site were highly correlated with the average water quality values of the recycled water. Soil salinity did increase, though not deleteriously. Of most concern was the accumulation of chloride at four of the sites, to levels above the critical threshold values for chloride-sensitive crops.

Indirect Impacts: Effects on Agricultural Wells

Industrial wastewater currently treated at the Salinas Treatment Facility is one of several sources of water for the Proposed Project. The facility treats and disposes of water primarily used to wash and prepare vegetable crops at industrial food processing facilities in Salinas via a system of percolation ponds that dispose of water by percolation and evaporation. Water that percolates from the ponds either flows a short distance through the subsurface and emerges as seepage into the Salinas River or flows downward to the shallow aquifer that is present in some places at depths of 0 to 80 feet, above the regionally extensive Salinas Valley Aquitard. The shallow aquifer is not used directly as a source of water supply, but gradual downward percolation from the shallow aquifer is a source of recharge to the 180-Foot aquifer, which is used for water supply in the Salinas region.

A technical analysis was prepared by Todd Groundwater (February 2015, hereinafter referred as the “Pond Percolation Memorandum”, which is included in in **Appendix N**. The analysis assesses the effect of the proposed diversion of Salinas agricultural wash water directly to the Regional Treatment Plant and the effects of this change on Salinas River flows, groundwater levels, and local well operations. Effects on yield or capacity of nearby wells was also assessed.

The impact of decreased 180-Foot Aquifer recharge near the Salinas Treatment Facility on the regional groundwater balance and seawater intrusion would be less than significant because it would be more than offset by other elements of the Proposed Project, specifically decreased groundwater pumping in the CSIP area. The Proposed Project is expected to increase the delivery of recycled water from the Regional Treatment Plant to CSIP growers by approximately 4,500 to 5,900 AFY (see **Appendix B rev**). CSIP growers use water from three sources: recycled water from the Regional Treatment Plant, Salinas River water supplied by the Salinas Valley Water Project (SVWP), and groundwater from 15 wells within the CSIP service area. Since the SVWP came on-line in 2010, CSIP groundwater use has ranged from 2,700 to 6,500 AFY (averaging 3,870 AFY). The Proposed Project would be able to decrease CSIP pumping to zero in most years and to a small fraction of existing pumping in the remaining years. The decrease in groundwater pumping in the CSIP area would be about 10 times greater than the decrease in recharge at the Salinas Treatment Facility, and the Proposed Project would thus have a net beneficial effect with respect to seawater intrusion in the coastal region.

Locally, it is unclear whether the decrease in 400-Foot Aquifer pumping near the CSIP wells would raise water levels in the 180-Foot Aquifer beneath the Salinas Treatment Facility enough to completely offset the effect of decreased recharge. The CSIP wells are all screened in the 400-Foot Aquifer and are located 3 to 6 miles north of the Salinas Treatment Facility (between Salinas and Castroville). They are inland of the intrusion front in the 400-Foot Aquifer but beneath the intruded part of the 180-Foot Aquifer. In the 180-Foot Aquifer, the seawater intrusion front is 1.5 miles northwest of the Salinas Treatment Facility. Locally, leakage between the 180-Foot and 400-Foot Aquifers is limited due to the intervening aquitard, but the two depth intervals are hydraulically connected in the East Side Area that is located approximately 4 to 5 miles northeast of the Salinas Treatment Facility.

Recharge from Salinas Treatment Facility pond percolation to the 180-Foot aquifer occurs over a broad area due to the low permeability of the Salinas Valley Aquifer. The ponds are 1.5 miles long, and if 490 AFY of recharge is assumed to be distributed uniformly over a circular area with a radius of 1.5 miles, such recharge would raise water levels in the 180-Foot aquifer by approximately 1.4 feet. Conversely, a decrease in percolation by that amount would tend to lower water levels by 1.4 feet.

The median elevation of the top of the screen in the 23 wells used to monitor water levels in the 180-Foot aquifer is 160 feet below sea level. The water level in wells screened in the 180-Foot Aquifer near the Salinas Treatment Facility is approximately 18 feet below sea level or 142 feet above the top of the screen in a typical well. A decline of 1.4 feet would not lower the water level to below the top of the screen. Therefore, no potential impacts due to loss of well yield and resulting effects on water supplies for local groundwater users would occur due to the Proposed Project, including due to screen corrosion or pump failure.

Performance curves for typical deep-well turbine pumps indicate that a change in water level of 1.4 feet would in most cases decrease the pump output by 3% to 4%. This small decrease in pump output can typically be accommodated by increased pumping duration.

The amount of recharge to the 180-Foot Aquifer during drought years would be about 450 AFY less than under baseline conditions, which is a slightly smaller impact than during normal and wet years. Impacts on well yields and pumping capacity would also be less than significant during drought years.

The analysis in **Section 4.10, Hydrology and Water Quality: Groundwater Resources,** also demonstrates that potential changes in groundwater and pumping regimes would not damage or otherwise cause wells to become unusable in the Salinas Valley area,; crop growing on the overlying Designated Farmlands would remain viable and agricultural land will remain in productive use.

Based on the technical analysis in **Appendix N**, potential changes to Salinas River flows from pond percolation changes were assessed; it was determined that the changes would not result in a substantial adverse change in the ability to divert surface water for the benefit of the Castroville Seawater Intrusion Project area (see additional information in the Salinas River Inflow Impacts Study in **Appendix O** rev**).**

All Other Proposed Project Components

None of the other Proposed Project Components (Project Conveyance Pipeline, Injection Well Facilities, CalAm Distribution System Pipelines) would have an indirect impact on Designated Farmland due to their location and nature of the use as a water or wastewater treatment facility.

Impact Conclusion

Operation of the Proposed Project with a mix of new water sources to the Treatment Facilities at the Regional Treatment Plant would not indirectly result in conversion of Designated Farmland to non-farmland uses. Although the salinity of recycled water may increase intermittently in some hydrologic years due to the Proposed Project and potentially affect crop yields, this change would not result in conversion of Designated Farmland to non-farmland uses. Additionally, continued implementation of management practices currently in effect and expected to continue in the future likely would not substantially reduce crop yields. Diversion and recycling of wastewater that currently flows to the Salinas Treatment Facility would not adversely impact local wells in the vicinity of that facility. In addition, the Proposed Project would result in a net benefit to groundwater levels in the Salinas Valley Groundwater Basin as a whole. Based on these factors, the Proposed Project would have a less-than-significant indirect impact related to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance land to non-agricultural uses.

4.12.4.5 Cumulative Impacts and Mitigation Measures

Land Use. The geographic scope for cumulative impact analysis related to land use consists of the immediate area of each of the Proposed Project component sites. Potential project conflicts or inconsistencies with applicable adopted plans, policies and regulations would be specific to an individual project component, and would not combine to result in a cumulative impact related to plan consistency. Furthermore, in cases where a potential conflict or inconsistency is identified, the Proposed Project would be consistent with implementation of mitigation measures recommended in this EIR, thus resulting in no contribution to cumulative land use impacts. The Proposed Project would not result in conflicts with existing zoning for, or cause rezoning of, forest land or timberland, or result in the loss or conversion of these lands. There is no forest land within the Proposed Project area and the Proposed Project would not affect other forest land outside of the area due to the nature and location of proposed construction and operations. impacts related to forest resources; therefore, it would not contribute to any cumulative impacts on forest resources.

A*gricultural Resources*. The geographic scope for cumulative impact analysis related to agricultural resources consists of Monterey County.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects identified on **Table 4.1-2, Project Considered for Cumulative Analysis (listed by primary geographic area in which project is located)**:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[6] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR projects. The overall estimated construction schedule would be from June 2016 through March 2019 for the combined projects, during which time the construction schedules could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- Overall Cumulative Projects: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPWSP (with the 6.4 mgd Desalination Plant. Specific components such as the Desalinated Water Pipeline (or Transmission Main) of the MPWSP would be within the immediate geographic area of the Proposed Project.

Table 4.12-4 above provides a summary of potential impacts related to land use, agriculture, and forest resources and significance determinations at each GWR Proposed Project component site. None of the Proposed Project above-ground facilities would be located on lands designated prime, unique or statewide important farmlands. Temporary disruption to agricultural lands or uses during construction of certain Proposed Project facilities is addressed with mitigation. The Proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. (No impact due to construction and operations.) There are no properties under a Williamson Act contract within or adjacent to any of the Proposed Project component sites. Implementation of the Proposed Project would not prevent continued use of these lands for agricultural production and would not require rezoning or a zoning amendment.

Temporary effects of the GWR Facilities and the CalAm Facilities of the MPSWP on agricultural uses in designated important farmland would be additive. Construction of the MSRP Variant Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, and Desalinated Water Pipeline could temporarily disrupt agricultural uses in designated important farmland areas, a potentially significant impact of the MPSWP. Construction of the Proposed GWR Project facilities and improvements at the Salinas Treatment Facility and a portion of the Blanco Drain pipeline could temporarily disrupt agricultural uses in designated important

[6] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

farmland areas, a potentially significant impact of the Proposed Project; however, both projects would include mitigation to minimize disturbance to farmland. Therefore, the combined impact would be mitigated to a less-than-significant level by measures requiring both projects to minimize disturbance to Designated Farmland, and to restore such farmland to its prior uses upon completion of project construction activities.

Construction of the MPWSP Source Water Pipeline and Desalinated Water Pipeline could result in temporary conflicts with Williamson Act contracts and land zoned for agricultural uses. However, the GWR Facilities would not contribute to any conflicts with Williamson Act contracts or agricultural zoning.

Overall Cumulative Impacts. Agricultural lands within and adjacent to the Proposed Project sites are generally located within the unincorporated area of Monterey County. The Monterey County General Plan EIR indicates that the adoption and implementation of the General Plan would result in a significant and unavoidable cumulative impact related to conversion of agricultural land to non-agricultural uses. However, the Proposed Project would not result in any permanent conversion of prime, unique or statewide important farmlands, and thus, would not contribute to a significant cumulative agricultural impact within the unincorporated Monterey County area.

Cumulative Impact Conclusion.

There would be no significant cumulative land use impacts, and the Proposed Project would not contribute to a significant cumulative impact related to conversion of agricultural lands within unincorporated Monterey County.

4.12.5 References

California Department of Conservation, Division of Land Resources Protection, 2011. *Monterey County Important Farmland 2010, Sheet 1 of 2, 2012*, August 2011.

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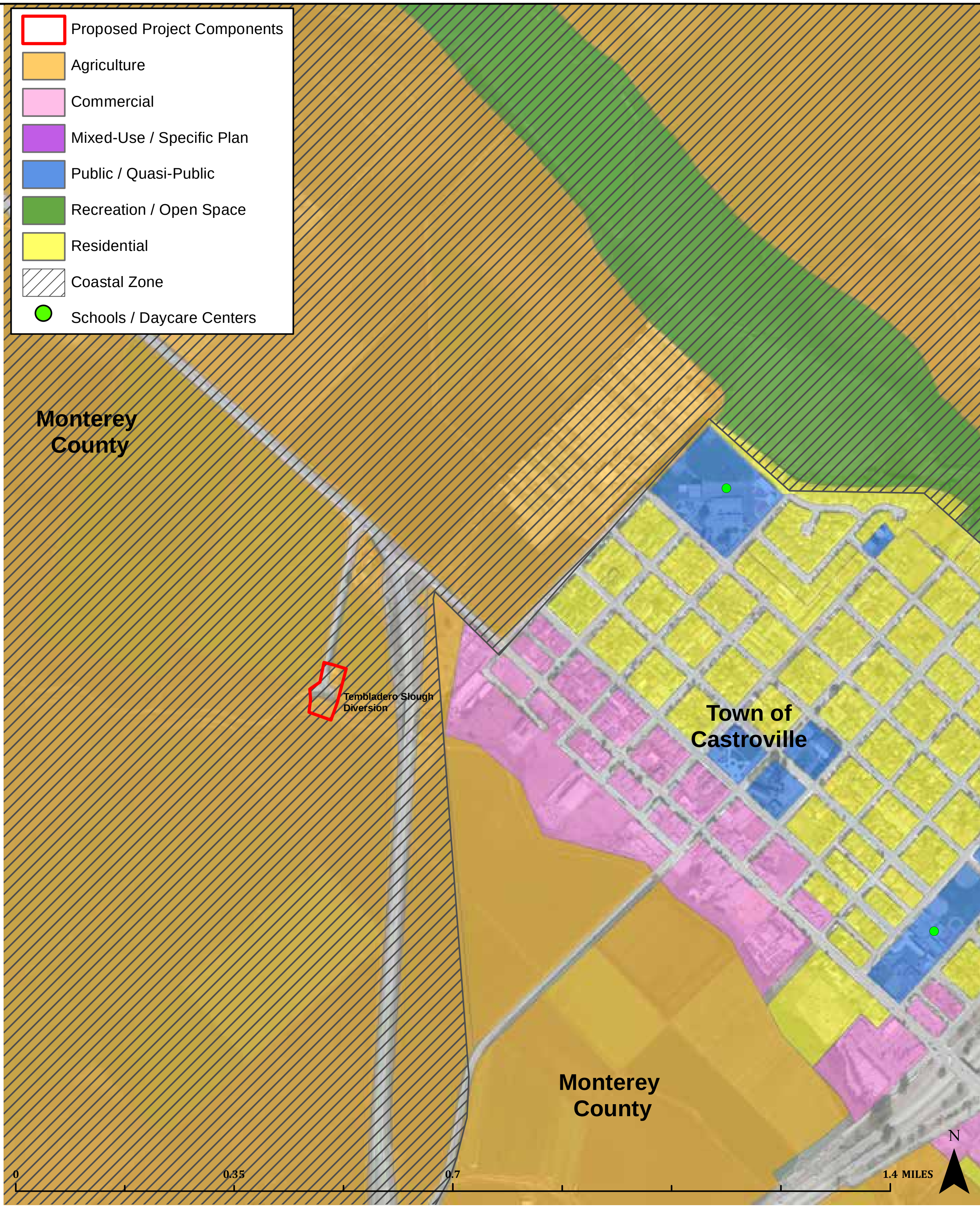


Source: DD&A, 2014, North Land Use Plan, 1982, North County Area Plan, 1985

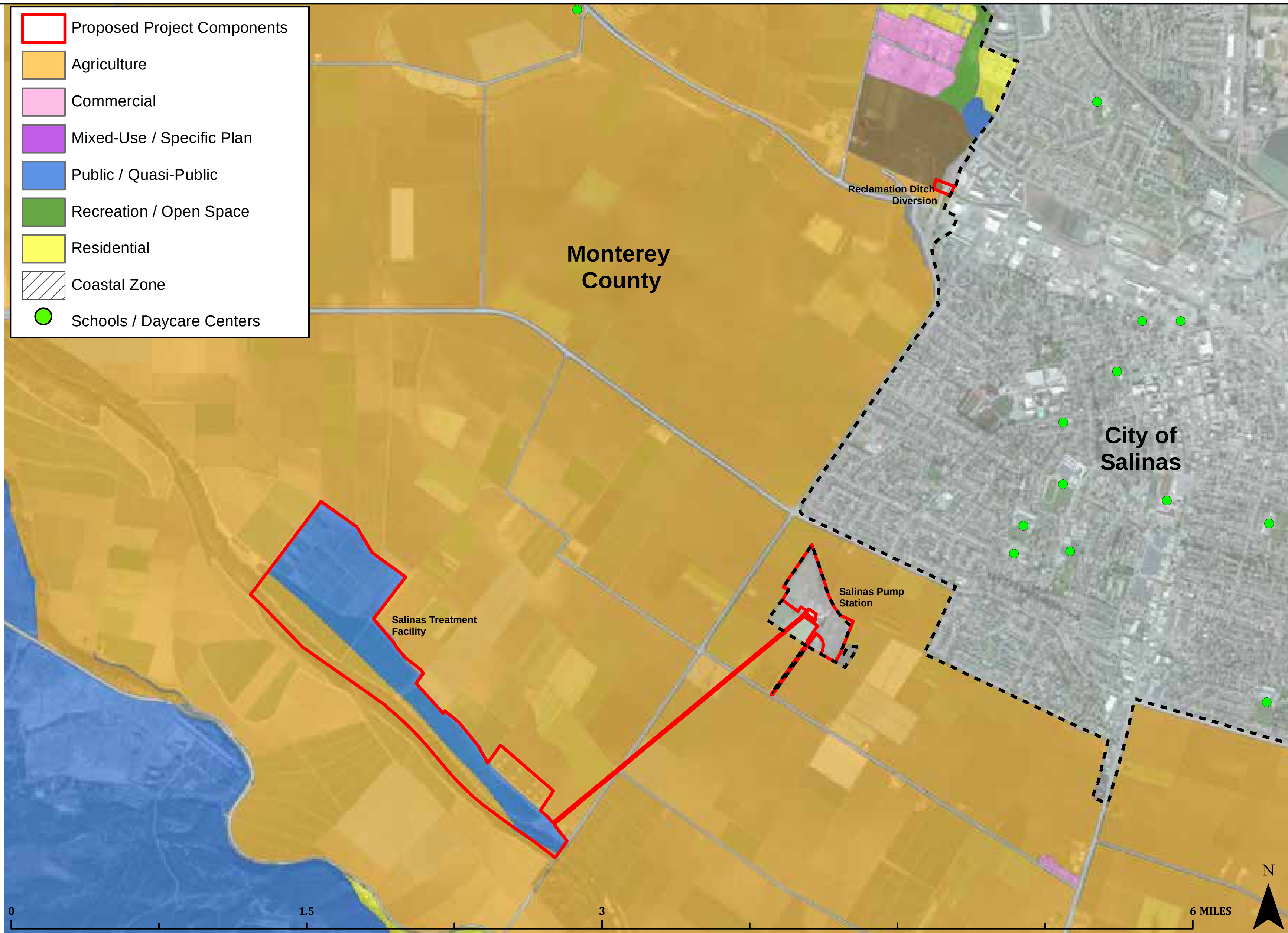
DD&A

Land Use Designation Map 1: Monterey County and Marina

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.12-1



Source: DD&A, 2014, Greater Salinas Area Plan, 1984

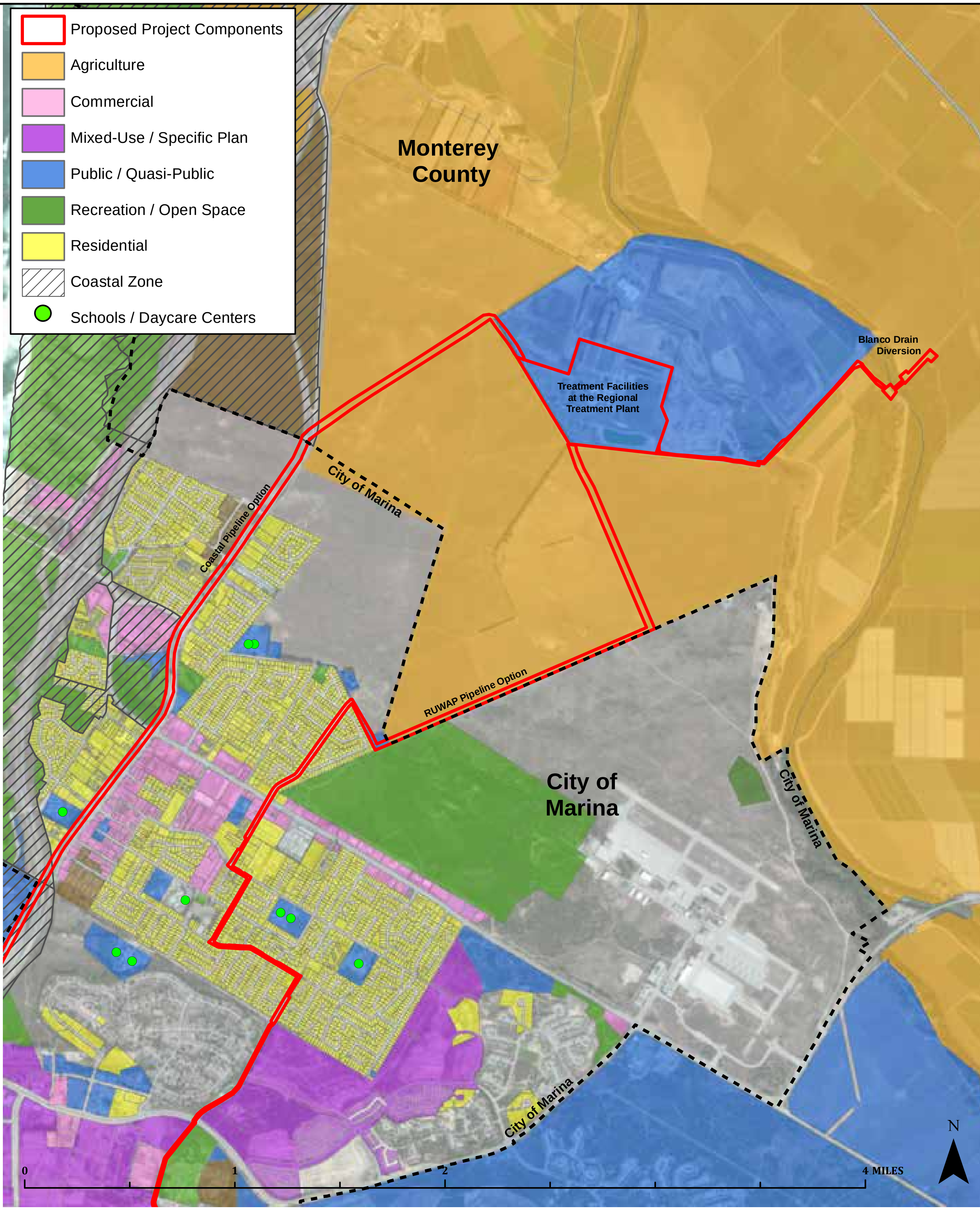
DD&A

Land Use Designation Map 2: Salinas

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.12-2



Source: DD&A, 2014, North County Land Use Plan, 1982, Greater Monterey Peninsula Area Plan, 1984, City of Marina General Plan, 2005

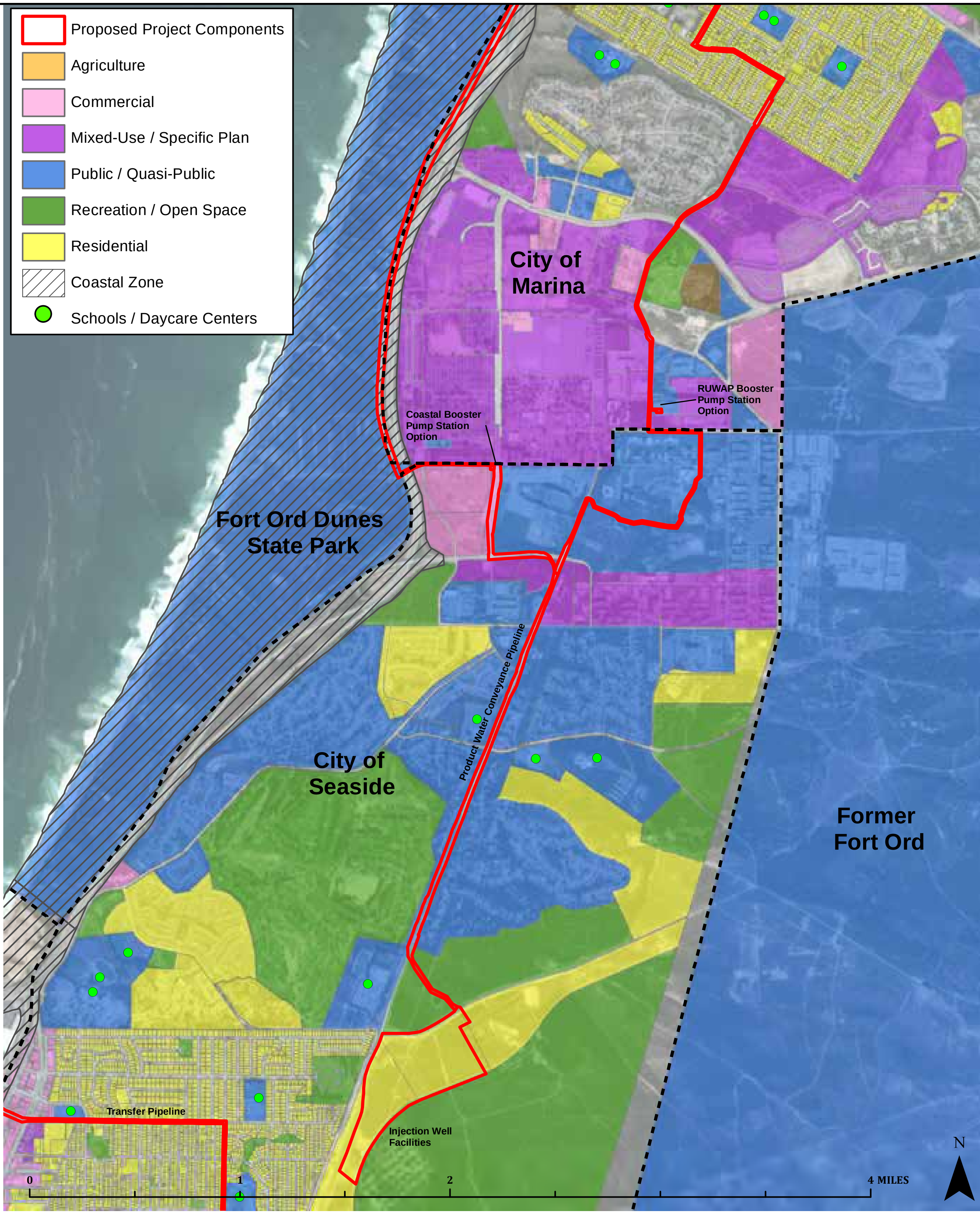
DD&A

Land Use Designation Map 3: Monterey County and Marina

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.12-3



Source: DD&A, 2014, Fort Ord Master Plan, 2010, City of Marina General Plan, 2005, City of Seaside General Plan, 2002

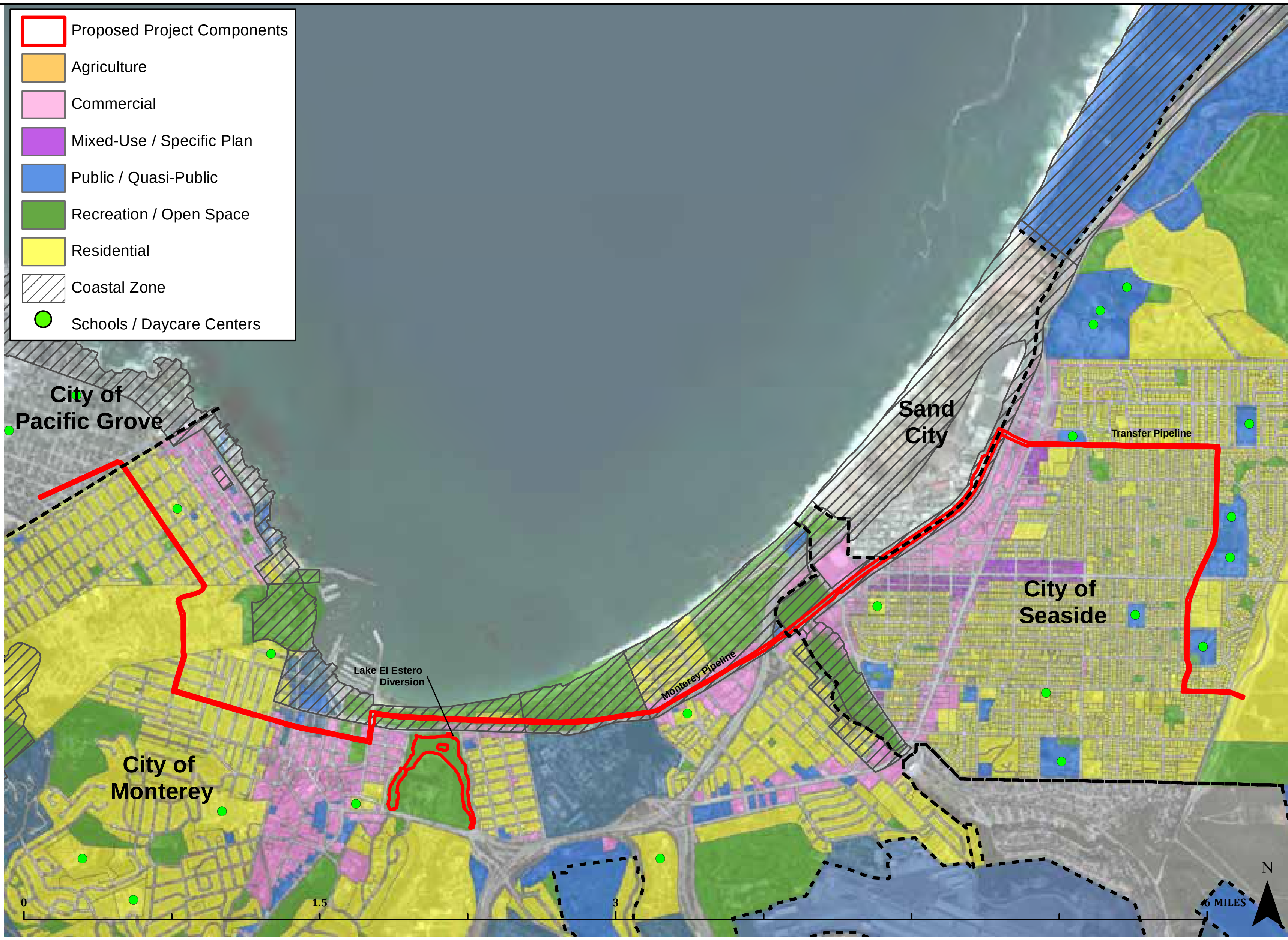
DD&A

Land Use Designation Map 4: Marina and Seaside

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.12-4



Source: DD&A, 2014, City of Monterey General Plan, 2005, Cannery Row Land Use Plan, 2004, Laguna Grande Roberts Lake Land Use Plan, 1981, Del Monte Beach Land Use Plan, 2003a, Monterey Harbor Land Use Plan, 2003b, City of Seaside General Plan, 2002

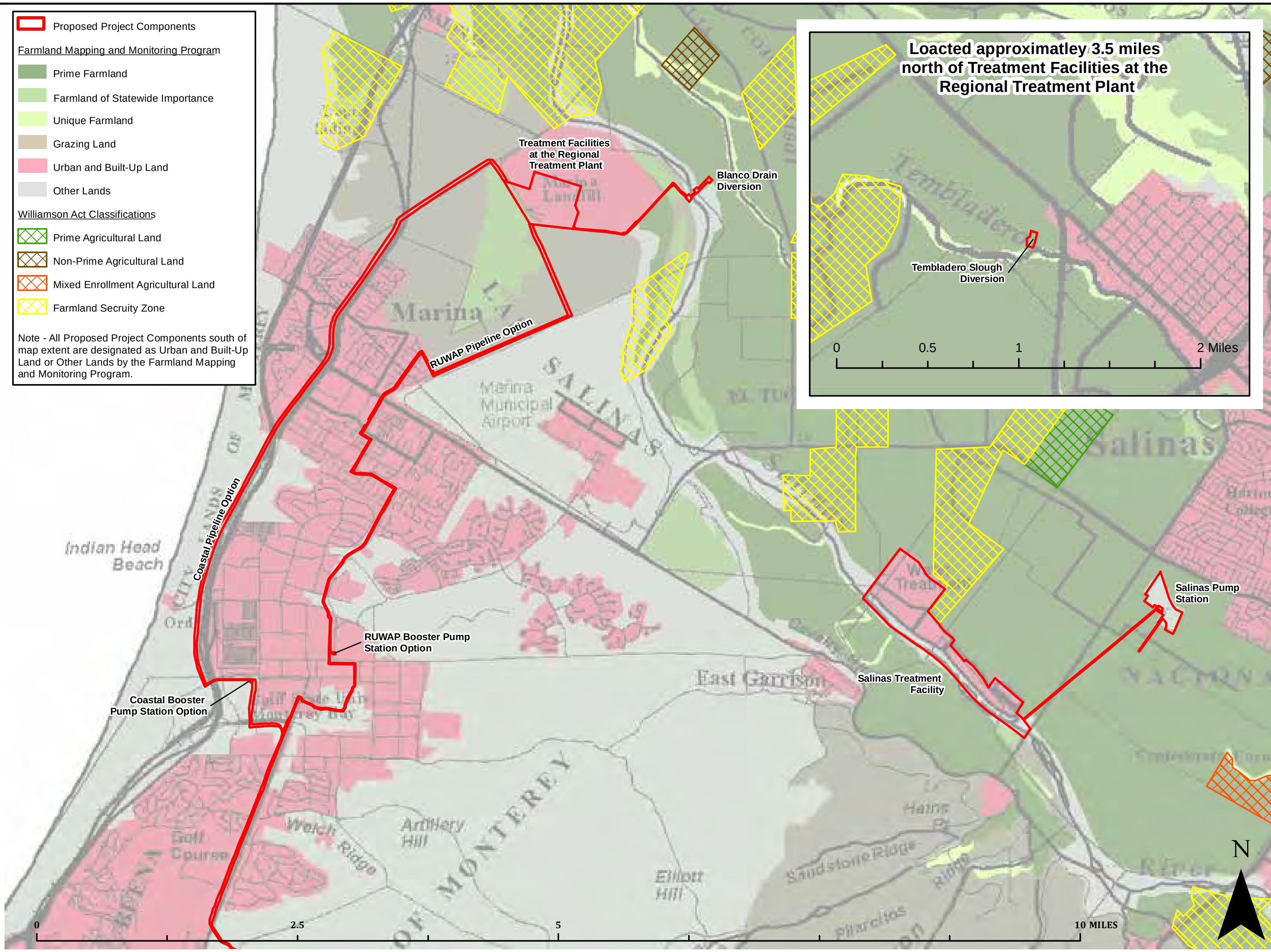
DD&A

Land Use Designation Map 5: Seaside and Monterey

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.12-5



Source: California Department of Conservation, 2012

Farmland Classifications

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure 4.12-6

4.13 MARINE BIOLOGICAL RESOURCES

Sections	Tables	Figures
4.13.1 Introduction 4.13.2 Environmental Setting 4.13.3 Regulatory Framework 4.13.4 Impacts and Mitigation Measures 4.13.5 References	4.13-1 Applicable Regional and Local Land Use Plans and Policies Relevant to Marine Biological Resources 4.13-2 Summary of Impacts – Marine Biological Resources 4.13-3 Potential Water Quality Objectives Exceedances at the Edge of the ZID	4.13-1 Marine Biological Resources Study Area

4.13.1 Introduction

This section addresses the potential for the Proposed Project to affect marine habitats and associated marine biological resources within the project marine biological resources study area. The only potential effect of the Proposed Project on marine habitats and associated marine biological resources would be operational impacts associated with discharges of wastewater from the proposed Treatment Facilities at the Regional Treatment Plant, specifically, the Advanced Water Treatment (AWT) Facility. Applicable federal, state, and local regulations are identified. The analysis of discharge of wastewater from the proposed AWT Facility relies on water quality information presented in **Section 4.11, Hydrology and Water Quality: Surface Water**. Terrestrial biological resources including marine bird species are discussed separately in **Section 4.5, Biological Resources: Terrestrial**. Impacts to fresh water and anadromous fish species are discussed in **Section 4.4, Biological Resources: Fisheries**.

Public and agency comments related to marine biological resources that were received during the public scoping period in response to the Notice of Preparation public are summarized below:

- Evaluate discharge of reject concentrate into Monterey Bay or removal of pollutants from the receiving water (Monterey Bay).
- Describe the quality of water sent to the outfall location as opposed to that of the water proposed for injection into the Seaside Groundwater Basin.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report**.

4.13.2 Environmental Setting

This section describes the regional oceanographic conditions and marine biological resources of Monterey Bay. The impact analysis presented in **Section 4.13.4**, below, focuses only on those resources located within the marine biological resources study area (also referred to as marine study area). For the purposes of this EIR, the marine study area encompasses the nearshore waters of Monterey Bay and extends to the areas surrounding the MRWCPA ocean outfall as shown in **Figure 4.13-1, Marine Biological Resources Study Area**.

The only aspect of the Proposed Project with the potential to adversely affect marine resources is operational discharge of reverse osmosis by-product wastewater generated by the proposed AWT Facility (herein referred to as reverse osmosis concentrate) via the Monterey Regional Water Pollution Control Agency (MRWPCA) existing ocean outfall.

The advanced water treatment process would generate 0.80 to 0.94 million gallons per day (mgd) of reverse osmosis concentrate that would be discharged via the existing MRWPCA ocean outfall. The outfall is currently used to discharge treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant. The outfall terminates at the diffuser located approximately 2 miles offshore in 90 to 110 feet below sea level where a soft mud substrate predominates.

4.13.2.1 Monterey Bay National Marine Sanctuary

The marine study area is located in the coastal area of the Monterey Bay National Marine Sanctuary (MBNMS), which was designated as a federally protected area in 1992. The MBNMS is managed by the National Oceanographic Atmospheric Administration (NOAA) and includes coastal waters from Marin to Cambria. The MBNMS includes approximately 276 miles of shoreline, extends an average distance of 30 miles from shore, and encompasses 5,322 square miles of ocean and is more than two miles deep at its deepest point. The MBNMS was established for the purpose of research, education, public use, and resource protection. The MBNMS includes a variety of habitats that support extensive marine life. (Monterey Bay National Marine Sanctuary, 2008).

Section 4.11, Hydrology and Water Quality: Surface Water, describes the hydrology and water quality of Monterey Bay. Monterey Bay has three ocean climate seasons: upwelling, oceanic, and Davidson current (Pennington and Chavez, 2000). The upwelling period, typically occurring mid-February through November, is characterized by higher nutrient concentrations at the surface, where sunlight and stratification of the water column often lead to high primary production and chlorophyll values (see the discussion of pelagic habitat, below, for more details). During the oceanic period, which usually begins in mid-August and continues through mid-October, phytoplankton blooms are intermittent and primarily composed of small phytoplankton. Phytoplankton productivity is lowest in winter months and during the Davidson current period.

4.13.2.2 Special Status Species

MBNMS includes a variety of habitats that support extensive marine life, including 34 species of marine mammals, over 180 species of seabirds and shorebirds, at least 525 fish species, 4 sea turtle species, 31 different invertebrate phyla, and over 450 species of marine algae. Its natural resources include central California's largest contiguous kelp forest, one of North America's largest underwater canyons, and the closest-to-shore deep ocean environment off the continental United States. Its highly productive biological communities host one of the highest levels of marine biodiversity in the world, including 27 federally listed threatened and endangered species (MBNMS, 2008). Federally listed species include six species of large whales, the Southern sea otter (*Enhydra lutris nereis*), Steller sea lion (*Eumetopias jubatus*), Guadalupe fur seal (*Arctocephalus townsendi*), California clapper rail (*Rallus longirostris obsoletus*), western snowy plover, marbled murrelet (*Brachyramphus marmoratus*), four species of sea turtles, six species of salmon or steelhead, the tidewater goby (*Eucyclogobius newberryi*), and black abalone (*Haliotis cracherodii*) (MBNMS 2008). MBNMS is also a meeting place for the geographic ranges of many species. It lies at the southern end of the range for some species, like the Steller sea lion (occurring from central

California north to Alaska and Japan), and the northern end of the range for other species, like giant kelp (*Macrocystis pyrifera*) (occurring from San Francisco south to Baja California, Mexico) (MBNMS, 2008).

MBNMS includes one of four major coastal upwelling regions worldwide. The MBNMS Final Management Plan describes the upwelling process as follows:

> *"Coastal upwelling occurs along the western edges of continents, where winds from the northwest drive oceanic surface waters away from shore due to the Coriolis effect. These shallow, relatively warm waters are replaced by deep, colder and nutrient rich waters driving high primary productivity, allowing phytoplankton to bloom, which in turn support zooplankton, providing a key prey resource for higher-order predators such as fishes, birds, and whales. Globally, these upwelling regions rival the productivity of tropical rain forests, and account for nearly 95 percent of the annual global production of marine biomass, in spite of only representing 0.1 percent of the ocean's total surface area."*

The seasonal upwelling that occurs within MBNMS makes Monterey Bay extremely productive in terms of being able to support a variety of species, including some whales and small schooling fish (e.g., sardine, herring). The nearshore midwater zone contains over 80 species of fish, sharks, and rays including flatfish such as halibut, sand dabs, flounder, turbot, and sole, which are closely associated with sandy habitats, as well as surfperch, rockfish, gobies, and sculpins which are normally associated with rocky habitats. Midwater schooling fish include anchovy, herring, smelt, sardines, and silversides. **Figure 4.13-1** shows the existing setting of the marine study area, including habitat designations.

Marine Mammals

All MBNMS marine mammals are protected under the Marine Mammal Protection Act. Several marine mammals are also protected under the ESA. Marine mammals that are known to occur within MBNMS include:

- Steller sea lion (*Eumetopias jubatus*) – Federally threatened
- Guadalupe fur seal (*Arctocephalus townsendi*) – State and Federally Threatened
- Southern sea otter (*Enhydra lutris nereis*) – Federally threatened, State fully protected
- Blue whale (*Balaenoptera musculus*) – Federally endangered
- Fin whale (*Balaenoptera physalus*) – Federally endangered
- Humpback whale (*Megaptera novaeangliae*) – Federally endangered
- North Pacific right whale (*Eubalaena glacialis*) – Federally endangered, State fully protected
- Sperm whale (*Physeter macrocephalus*) – Federally endangered
- Sei whale (*Balaenoptera borealis*) – Federally endangered
- Killer whale (*Orcinus orca*) – Federally endangered
- Gray Whale (*Eschrichtius robustus*) – Delisted, though known to occur during migration
- Short-finned pilot whale (*Globicephala macrorhynchus*) – Not listed

- Baird's beaked whale (*Berardius bairdii*) – Not listed
- Beaked whales (*Mesoplodon* spp.) – Not listed
- Cuvier's beaked whale (*Ziphius cavirostris*) – Not listed
- Northern elephant seal (*Mirounga angustirostris*) – State fully protected
- Northern fur seal (*Callorhinus ursinus*) – Not listed, but considered vulnerable
- Harbor porpoise (*Phocoena phocoena*, San Francisco-Russian River stock, Monterey Bay stock, and Morro Bay stock) – Not listed

Marine mammals most likely to occur in the vicinity of the MRWPCA outfall include the California sea lion, Harbor seal, southern sea otter, and humpback whale. The southern sea otter is common along the Monterey Bay Coast and the humpback whale is sometimes seen at the head of Monterey Canyon and is somewhat likely to be present in the project area. Seasonally, grey whales come in close to shore, and there are sightings of harbor porpoise and multiple species of dolphins. For more information see: http://sanctuarysimon.org/monterey/sections/specialSpecies/index.php) (MBNMS, 2015).

Special Status Fish Species

Several federally or state listed fish species are known to occur in MBNMS:

- Steelhead (*Onchorhynchus mykiss irideus,* south-central California coast distinct population segment [DPS], and central California coast DPS) – Federally threatened[1]
- Chinook salmon (*Oncorhynchus tshawytscha,* central Valley Spring evolutionarily significant unit [ESU]) – Federally and state threatened
- Chinook salmon (*Oncorhynchus tshawytscha,* Central Valley Fall and Late Fall ESU) – Federal and state species of special concern
- Chinook salmon (*Oncorhynchus tshawytscha,* Sacramento River winter-run ESU)– Federally and state endangered
- Coho salmon (*Oncorhynchus kisutch,* central California Coast ESU) – Federally and state endangered
- River lamprey (*Lampetra ayresii*) – State species of special concern
- North American Green sturgeon (*Acipenser medirostris*, Southern DPS) – Federally threatened and state species of special concern
- White sturgeon (*Acipenser transmontanus*) – Federally endangered
- Longfin smelt (*Spirinchus thaleichthys*) – State threatened
- Eulachon (*Thaleichthys pacificus*, Southern DPS) – Federally threatened and state species of special concern

[1] This special status species is also addressed in **Section 4.4, Biological Resources: Fisheries**, related to the freshwater and anadromous fishery biological resources located in the vicinity of the Proposed Project sites.

- Tidewater goby (*Eucyclogobius newberryi*) – Federally endangered and state species of special concern
- Cowcod (*Sebastes levis*) – Federal species of concern and considered overfished
- Bocaccio (*Sebastes paucispinis*) – Federal species of concern and considered overfished and state critically endangered
- Basking shark (*Cetorhinus maximus*, N. Pacific subpopulation) –State endangered

Steelhead and salmon are anadromous species that use both fresh and salt water at different stages in their life cycle (incubation and juvenile rearing in freshwater, maturation at sea, and adult migration into rivers for reproduction). Adults or smolts may use the marine study area in migration to and from coastal streams, and as rearing during early marine residency. Like salmon, sturgeon are anadromous, migrating to the ocean and returning to fresh water to spawn. Green sturgeon are known to forage in estuaries and bays ranging from Monterey Bay to British Columbia. Tidewater goby can be flushed from Elkhorn Slough during tidal events, and the basking shark has been sighted in nearshore waters in Monterey Bay. (For more information see: http://sanctuarysimon.org/monterey/sections/specialSpecies/index.php) (MBNMS, 2015)

Invertebrates

Invertebrate species in MBNMS include squid, sponges, anemones, jellies, worms, corals, tunicates, snails, octopus, clams, and arthropods such as barnacles, crabs, and spot prawns. Thousands of various species of invertebrates populate MBNMS. Most invertebrate species are not harvested commercially, with the exception of squid, spot prawn, and Dungeness crab, rock crab, and octopus. Various types of invertebrates are found in all habitats from the sandy beach to intertidal, mid-water, and deep sea.

Black abalone (*Haliotis cracherodii*) is a federally endangered marine invertebrate known to occur in MBNMS. Black abalone are herbivorous gastropods (the same taxonomic class as snails and slugs) that live in rocky ocean waters. Black abalone are reported to be most abundant intertidally, from the mid to lower intertidal zones and potentially down to depths of 6 meters (19.7 feet).

Sea Turtles

Four species of federally listed sea turtles are known to exist within MBNMS: green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta caretta*), and olive ridley sea turtle (*Lepidochelys olivacea*). In the Pacific Ocean, breeding colony populations on the Pacific coast of Mexico of both green sea turtles and olive ridley sea turtles are listed as endangered; all others are listed as threatened.

4.13.2.3 Habitats and Natural Communities

MBNMS encompasses eight different marine and shoreline habitat areas, including rocky shores, kelp forests, sandy bottoms, estuaries, submarine canyons, deep sea, open ocean, and seamounts. Areas that would potentially be affected by the discharges through the MRWPCA ocean outfall are described below. Other areas, including rocky shores, estuaries, submarine canyons, deep sea and seamounts, are located outside of the marine study area. The marine study area contains designated critical habitat for leatherback sea turtles and green sturgeon, and is also located within designated essential fish habitat (EFH) for groundfish, coastal pelagic species, and Pacific salmon. Each of these habitats is briefly discussed below.

Kelp Forests

Kelp provides a unique and diverse habitat utilized by numerous species, including marine mammals, fishes, other algae, and invertebrates. Just beyond the breaking waves, several species of kelp grow from the hard substrates. Although some individuals can persist for up to three years, the overall structure of the kelp forest is very dynamic. Kelp canopy cover varies seasonally; it is thickest in late summer and thins or disappears when large winter swells remove weakened older adults. The following spring, the next generation of individuals takes advantage of the thin canopy cover and increase in available light to grow rapidly. This, in addition to nutrient rich waters caused by upwelling, allows some species of kelp to grow up to 12 inches per day. The measured productivity (per square foot of sea floor) of a kelp forest is among the highest of any natural community.

In central coastal California, the two primary canopy-forming species in kelp forests are giant kelp (*Macrocystis pyrifera*) and bull kelp (*Nereocystis luetkeana*). Both can be found in the same kelp forest, but giant kelp is more typical of the Monterey Bay area. Some vertebrates, such as sea otters and many fishes, reside within kelp forests; others, such as seabirds, harbor seals, sea lions, and gray whales, visit kelp forests while foraging for food. Giant kelp and other algae also support large populations of benthic invertebrates, which in turn attract higher-order predators.

Sandy Bottoms

Most of the ocean floor within MBNMS is covered with sand or mud. The lack of hard substrate and shifting sand prevent algae or seaweeds from growing. However, many organisms live in the sand, generally in two broad zones: a shallow region dominated by infaunal crustaceans, and a deeper area dominated by tube-dwelling and sedentary polychaete worms. Nearshore areas may have dense beds of sand dollars, and deeper areas may have high numbers of brittle stars and sea pens.

Open Ocean

Although oceans cover 70 percent of the Earth’s surface, only 5 percent of the Earth’s surface consists of typical marine ecosystems, like coral reefs or kelp forests. The remaining 65 percent make up the open ocean ecosystem, which typically lies well offshore where the water depth is greater than 330 feet. The waters of MBNMS are part of the eastern Pacific Ocean. Open ocean waters are 13,100 feet deep on average and in the Pacific basin reach a maximum depth of 36,000 feet.

Essential Fish Habitat

The MRWPCA’s ocean outfall through which the AWT Facility reverse osmosis concentrate would be disposed is located within designated Essential Fish Habitat (EFH) for groundfish, coastal pelagic species, and Pacific salmon. EFH is broadly defined by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Sustainable Fisheries Act to include “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” EFH is identified for any species managed under a federal fishery management plan. The MSA requires that federal agencies consult with

NOAA Fisheries when taking any action that may adversely affect EFH. The MSA defines an adverse effect as any impact that reduces the quality and/or quantity of EFH (50 CFR 600.810). Additional information about the MSA and the Sustainable Fisheries Act is provided in **Section 4.13.3.1**.

Critical Habitat

The marine study area includes designated critical habitat for green sturgeon and leatherback sea turtle (See **Figure 4.13-1**). NOAA Fisheries designated critical habitat for the threatened southern DPS of green sturgeon in 2009, which extends from Monterey Bay north to Cape Flattery in Washington. Green sturgeon are long-lived, slow-growing fish, and are the most marine-oriented of the sturgeon species. Green sturgeon utilize both freshwater and saltwater habitat and are believed to spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. Younger green sturgeon reside in freshwater, with adults returning to freshwater to spawn when they are approximately 15 years in age and over 4 feet in length. (http://www.fisheries.noaa.gov/pr/species/fish/green-sturgeon.html)

The leatherback sea turtle is the largest turtle and one of the largest living reptiles on earth. The leatherback is the only sea turtle that does not have a hard bony shell, but rather a carapace make of thick, leathery connective tissue. Leatherbacks are known as pelagic (open ocean) animals, but also forage in coastal waters and are the most migratory and wide ranging of sea turtle species. NOAA Fisheries designated approximately 16,910 square miles of critical habitat for leatherbacks along California's central coast in January 2012, stretching from Point Arena in Mendocino County to Point Arguello in Santa Barbara County. (http://www.nmfs.noaa.gov/pr/species/turtles/)

Although not in the marine study area, critical habitat for black abalone is designated along the majority of California's central coast both approximately 20 miles north and 10 miles south of the project area. Critical habitat for Steller sea lions includes the rookeries at Año Nuevo Island, approximately 40 miles northwest of the project marine study area.

Non-native Species

The presence of non-native aquatic species, some of which can be highly invasive and difficult to control, are increasingly common in coastal habitats worldwide. Estuaries, in particular, harbor large numbers of introduced species. Within MBNMS, approximately 40 non-native species are known to exist in Elkhorn Slough approximately 6.5 miles north of the project marine study area, and another small number of species recently were reported in nearshore coastal waters. Non-native species in MBNMS include terrestrial plants and algae (European dune grass, sea rocket, brown alga), invertebrates (sponges, anemone, snails, mussel, clams), and vertebrates (yellowfin goby, American shad, striped bass).

4.13.3 Regulatory and Legal Setting

4.13.3.1 Federal

Federal Endangered Species Act

Under the Federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 United States Code [USC] 1533(c)). Multiple species of fish and marine mammals are listed by the USFWS under FESA, as discussed in **Section 4.13.1.3.**

Federal Regulation of Wetlands and Other Waters

The United States Army Corps of Engineers (USACOE) and the United States Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Sections 404 and 401 of the Federal Clean Water Act. Projects that would result in the placement of dredged or fill material into waters of the United States require a Section 404 permit from the USACOE. Some classes of fill activities may be authorized under General or Nationwide Permits if specific conditions are met. Nationwide permits do not authorize activities that are likely to jeopardize the existence of a threatened or endangered species listed or proposed for listing under the Federal Endangered Species Act. In addition to conditions outlined under each Nationwide Permit, project-specific conditions can be required by the USACOE as part of the Section 404 permitting process. When a project's activities do not meet the conditions for a Nationwide Permit, an Individual Permit may be issued.

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license, which may result in a discharge of pollutants into waters of the United States, must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. No license or permit may be issued by a federal agency until certification required by section 401 has been granted. Further, no license or permit may be issued if certification has been denied.

The USACOE also regulates activities in navigable waters under Section 10 of the Rivers and Harbors Act. The construction of structures, such as tidegates, bridges, or piers, or work that could interfere with navigation, including dredging or stream channelization, may require a Section 10 permit, in addition to a Section 404 permit if the activity involves the discharge of fill.

Finally, the federal government also supports a policy of minimizing "the destruction, loss, or degradation of wetlands." Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act or MSA) (16 U.S.C. Sections 1801-1884) of 1976, as amended in 1996 (the Sustainable Fisheries Management Act) and reauthorized in 2007, is intended to protect fisheries resources and fishing activities within 200 miles of shore. Conservation and management of U.S. fisheries, development of domestic fisheries, and phasing out of foreign fishing activities are the main objectives of the MSA. The Magnuson-Stevens Act provided NOAA Fisheries with legislative authority to regulate U.S. fisheries in the area between 3 miles and 200 miles offshore and established eight regional fishery management councils that manage the harvest of the fish and shellfish resources in these waters.

The Magnuson-Stevens Act defines "essential fish habitat" as those waters and substrate that support fish spawning, breeding, feeding, or maturation. The Magnuson-Stevens Act requires that NOAA Fisheries, the regional fishery management councils, and federal agencies that take an action that may have an effect on managed fish species under MSA, identify essential fish habitat and protect important marine and anadromous fish habitat. The regional fishery management councils, with assistance from NOAA Fisheries, are required to develop and implement Fishery Management Plans. Fishery Management Plans delineate essential fish habitat and management goals for all managed fish species, including some fish species that are not protected under the MSA. Federal agency actions that fund, permit, or carry out activities that may adversely affect essential fish habitat are required under Section 305(b) of the MSA, in conjunction with required Section 7 consultation under FESA, to consult with NOAA Fisheries regarding potential adverse effects of their actions on essential fish habitat and to respond in writing to NOAA Fisheries' recommendations.

Monterey Bay is designated as essential fish habitat under four Fishery Management Plans. These plans provide protection for Pacific groundfish, coastal pelagics, highly migratory species, and Pacific coast salmon (i.e. Chinook salmon and Coho salmon). A total of 37 commercially important fish and shark species are managed through these four Fishery Management Plans. Within the marine study area, coastal pelagics, some groundfish species, thresher sharks, and occasionally salmon are known to be present, as discussed above in **Section 4.13.2.2.**

Rivers and Harbors Appropriations Act of 1899

Section 10 of the Federal Rivers and Harbors Appropriations Act of 1899 (RHA) (30 Stat. 1151, codified at 33 U.S.C. Sections 401, 403) prohibits the unauthorized obstruction or alteration of any navigable water (33 U.S.C. Section 403). Navigable waters under the RHA are tidally influenced waters that are presently used, have been used in the past, or could be used in the future to transport interstate or foreign commerce (33 C.F.R. Section 3294). Activities that commonly require Section 10 permits include construction of piers, wharves, bulkheads, marinas, ramps, floats, intake structures, cable and pipeline crossings, and dredging and excavation.

Marine Mammal Protection Act

The Marine Mammal Protection Act of 1972 (MMPA), as amended in 1981, 1982, 1984, and 1995, establishes a federal responsibility for the protection and conservation of marine mammal species by prohibiting the "take" of any marine mammal. The Marine Mammal Protection Act defines "take" as the act of hunting, killing, capture, and/or harassment of any marine mammal, or the attempt at such. The Act also imposes a moratorium on the import, export, or sale of any marine mammals, parts, or products within the U.S. These prohibitions apply to any person in U.S. waters and to any U.S. citizen in international waters.

The primary authority for implementing the act belongs to the USFWS and NOAA Fisheries. The USFWS is responsible for the protection of sea otters, marine otters, walruses, polar bears, three species of manatees, and dugongs. NOAA Fisheries is responsible for protecting pinnipeds (seals and sea lions) and cetaceans (whales and dolphins).

The Marine Mammal Protection Act, as amended, provides for the "incidental take" of marine mammals during marine activities (i.e. dredging, marine construction, boat racing, marine transport, recreational boating), as long as NOAA Fisheries finds the "take" would affect only a small number of individuals and would have a negligible impact on marine mammal species not listed under the FESA, would not result in the depletion of a regional population under the Marine Mammal Protection Act, and would not have an unmitigable adverse impact on subsistence harvests of these species. No permitted subsistence harvesting of whales or marine mammals occurs offshore central coastal California.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA), enacted by Congress in 1972, is administered by NOAA's Office of Ocean and Coastal Resource Management. The CZMA provides for management of the nation's coastal resources, including the Great Lakes, and balances economic development with environmental conservation. The CZMA outlines two national programs: the National Coastal Zone Management Program and the National Estuarine Research Reserve System. Thirty-four states have approved coastal management programs. The 34 coastal programs aim to balance competing land and water issues in the coastal zone, while estuarine reserves serve as field laboratories to provide a greater understanding of estuaries and how humans impact them. The overall program objectives of CZMA remain balanced to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

Under Section 307 of the CZMA (16 USC § 1456), activities that may affect coastal uses or resources that are undertaken by federal agencies, require a federal license or permit, or receive federal funding must be consistent with a state's federally approved coastal management program. California's federally approved coastal management program consists of the California Coastal Act, the McAteer-Petris Act, and the Suisun Marsh Protection Act. The California Coastal Commission implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay, including the marine study area.

Clean Water Act

The Clean Water Act (CWA) is described in **Section 4.11, Hydrology and Water Quality: Surface Water**. Under the CWA, the EPA seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters by implementing water quality regulations. **Section 4.11, Hydrology and Water Quality: Surface Water**, summarizes Sections 303(d) and 402(p) of the CWA. Section 303(d) requires states to identify impaired water bodies (i.e., 303(d) List of Impaired Water Bodies). In the marine study area, impaired water bodies that eventually drain into Monterey Bay include Elkhorn Slough, Moro Cojo Slough, Salinas Reclamation Canal, Tembladero Slough, Old Salinas River estuary, Salinas River, and Moss Landing Harbor. In addition, the nearshore waters of northern Monterey Bay are also on the 303(d) list. Section 402(p) requires National Pollutant Discharge Elimination System (NPDES) permits to control discharges of waste into waters of the United States and prevent the impairment of the receiving water for beneficial uses, which includes harm to marine biota. The *Waste Discharge Requirements for the Monterey Regional Water Pollution Control Agency Treatment Plant* (Order No. R3-2014-0013, NPDES Permit No. CA0048551) allow MRWPCA to discharge treated wastewater from the MRWPCA Regional Wastewater Treatment Plant to Monterey Bay via the existing outfall.

National Marine Sanctuary Program Regulations

NOAA has entered into a Memorandum of Agreement with the State of California, the EPA, and the Association of Monterey Bay Area Governments regarding the MBNMS regulations relating to water quality within state waters within the sanctuary (Monterey Bay National Marine Sanctuary, 2008). With regard to permits, the MOA encompasses:

- National Pollutant Discharge Elimination System (NPDES) permits issued by the State of California under Section 13377 of the California Water Code
- Waste Discharge Requirements (WDR) issued by the State of California under Section 13263 of the California Water Code.

The MOA specifies how the review process for applications for leases, licenses, permits, approvals, or other authorizations will be administered within State waters within the MBNMS in coordination with NPDES and WDR permitting processes.

The MBNMS implements the Water Quality Protection Program for the sanctuary and tributary waters. The program is a partnership of 27 local, state, and federal government agencies (Monterey Bay National Marine Sanctuary, 2008). The program includes implementation of education, funding, monitoring, and development of treatment facilities and assessment programs to protect water quality. The goal of the program is to enhance and protect the chemical, physical, and biological integrity of the sanctuary.

4.13.3.2 State

California Endangered Species Act

Under the California Endangered Species Act, CDFW maintains lists of threatened and endangered species, candidate species, and species of special concern. Marine species that are protected by the California Endangered Species Act and have the potential to occur in the marine study area are listed in the section, above.

The California Endangered Species Act listed endangered and threatened species may not be taken or possessed at any time without a permit from CDFW (Section 3511 Birds, Section 4700 Mammals, Section 5050 Reptiles and Amphibians, and Section 5515 Fish).

Marine Life Protection Act

Within California, most of the legislative authority over fisheries management is enacted within the Marine Life Protection Act. This law directs CDFW and the Fish and Game Commission to issue sport and commercial harvesting licenses, as well as license aquaculture operations. CDFW, through the commission, is the state's lead biological resource agency and is responsible for enforcement of the state endangered species regulations and the protection and management of all state biological resources. To improve the design and management of that system, the California Fish and Game Commission, pursuant to Section 2859, adopted a Marine Life Protection program in 1999, that has all of the following goals:

1. To protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems.
2. To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted.
3. To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity.
4. To protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value.
5. To ensure that California's Marine Protected Areas (MPAs) have clearly defined objectives, effective management measures, and adequate enforcement and are based on sound scientific guidelines.
6. To ensure that the state's MPAs are designed and managed, to the extent possible, as a network. (California Fish and Game Code Section 2853)

Section 4.11, Hydrology and Water Quality: Surface Water, discusses and presents the MPAs located in the Proposed Project area.

Ocean Plan

The Ocean Plan (Ocean Plan) is described in **Section 4.11, Hydrology and Water Quality: Surface Water**. The Ocean Plan establishes water quality objectives and beneficial uses for waters of the Pacific Ocean adjacent to the California Coast (State Water Recourse Control Board, 2012). NPDES waste discharge permits set discharge limits that are required to prevent exceedances of the water quality objectives in the Ocean Plan. The Proposed Project would discharge into Monterey Bay and therefore is subject to all Ocean Plan water quality objectives and NPDES requirements. The most relevant objectives to this project include:

- Marine communities, including vertebrate, invertebrate, and plant species shall not be degraded;
- Waste management systems that discharge into the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community; and
- Waste discharged to the ocean must be essentially free of substances that will accumulate to toxic levels in marine waters, sediments or organisms.

The basis for water quality objectives established in the Ocean Plan is the protection of beneficial uses designated for each section of coastline by Regional Water Boards. The designated beneficial uses relevant to marine resources in the marine study area are as follows:

- Marine Habitat - Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (i.e., marine mammals, shorebirds).
- Shellfish Harvesting - Uses of water that support habitats suitable for the collection of filter- feeding shellfish (i.e., clams, oysters, and mussels) for human consumption, commercial, or sport purposes. This includes waters that have in the past, or may in the future, contain significant shellfisheries.
- Commercial and Sport Fishing - Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.
- Rare, Threatened, or Endangered Species - Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

For typical wastewater discharges, when released from an outfall, the wastewater and ocean water undergo rapid mixing due to the momentum and buoyancy of the discharge. The mixing occurring in the rising plume is affected by the buoyancy and momentum of the discharge, a process referred to as initial dilution. The Ocean Plan objectives are to be met after the initial dilution of the discharge into the ocean. The initial dilution occurs in an area known as the zone of initial dilution (ZID). The extent of dilution in the ZID is quantified as the minimum probable initial dilution (Dm). The water quality objectives established in the Ocean Plan are adjusted by the Dm to derive the NPDES ocean discharge limits for a wastewater discharge prior to ocean dilution.

The current MRWPCA wastewater discharge is governed by NPDES permit R3-2014-0013 issued by the Central Coast Regional Water Quality Control Board (RWQCB).

4.13.3.3 Regional and Local

Plans and Policies Consistency Analysis

Table 4.13-1 describes the state, regional, and local land use plans, policies, and regulations pertaining to marine biological resources that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.13-1** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.13.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

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Table 4.13-1
Applicable State, Regional and Local Land Use Plans and Policies Relevant to Marine Biological Resources

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific Policy, or Program	Project Consistency with Policies, and Programs
CCC Original Jurisdiction	California Coastal Act	Marine Environment	Treatment Facilities at the Regional Treatment Plant (specific to the discharge of AWT Facility reverse osmosis concentrate wastewater)	**Section 30230 Marine resources; maintenance.** Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.	**Consistent**: Based on pilot testing and modeling of the proposed discharge of reverse osmosis concentrate through the MRWPCA outfall, the Proposed Project would comply with Ocean Plan regulatory requirements for concentrations at the edge of the zone of initial dilution in all scenarios; therefore the discharge wastewater would be within regulatory requirements established for protection of marine organisms. The diversion and treatment of contaminated surface waters would beneficially impact marine life. See also **Section 4.11 Hydrology and Water Quality: Surface Waters and** Impact MR-1, below. No other Proposed Project components would impact marine resources.
CCC Original Jurisdiction	California Coastal Act	Marine Environment	Treatment Facilities at the Regional Treatment Plant (specific to the discharge of AWT Facility reverse osmosis concentrate wastewater); other surface water diversions	**Section 30231 Biological productivity; water quality**. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.	**Consistent**: Based on pilot testing and modeling of the proposed discharge of reverse osmosis concentrate through the MRWPCA outfall, the Proposed Project would comply with Ocean Plan regulatory requirements for concentrations at the edge of the zone of initial dilution in all scenarios; therefore the discharge wastewater would be within regulatory requirements established for protection of marine organisms. The diversion and treatment of contaminated surface waters would beneficially impact marine life. See also **Section 4.11 Hydrology and Water Quality: Surface Waters and** Impact MR-1, below. No other Proposed Project components would impact marine resources.
CCC Original Jurisdiction	California Coastal Act	Marine Environment	Product Water Conveyance: Coastal Alignment Monterey Pipeline	**Section 30232 Oil and hazardous substance spills**. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.	**Consistent**: Appropriate precautions would be taken in handling any petroleum or hazardous material during construction of the pipelines in the Coastal Zone to ensure that any spills would be contained onshore in the immediate vicinity of spillage. Operation of the Treatment Facilities at the Regional Treatment Plant would be conducted in accordance with the Waste Discharge Requirements (California Regional Water Quality Control Board, 2014) such that any spills of petroleum or hazardous materials would be prevented from entering the outfall and being discharged to the bay.
CCC Original Jurisdiction	California Coastal Act	Marine Environment	Treatment Facilities at the Regional Treatment Plant (specific to the discharge of AWT Facility reverse osmosis concentrate wastewater)	**Section 30234.13 Economic, commercial, and recreational importance of fishing**. The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.	**Consistent**: The Proposed Project, including the proposed discharge of reverse osmosis concentrate through the MRWPCA outfall would not adversely impact fishing. See above.
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Policy 2.3.2.1:** With the exception of resource dependent uses, all development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be prohibited in the following environmentally sensitive habitat areas: riparian corridors, wetlands, dunes, sites of known rare and endangered species of plants and animals, rookeries, major roosting and haul out sites, and other wildlife breeding or nursery areas identified as environmentally sensitive. Resource dependent uses, including nature education and research hunting, fishing and aquaculture, where allowed by the plan, shall be allowed within environmentally sensitive habitats only if such uses will not cause significant disruption of habitat values.	The analysis of impacts on Tembladero Slough Diversions on fisheries (including anadromous fish that live in both fresh and marine environments) is addressed in **Section 4.4, Biological Resources: Fisheries.**
Monterey County	North County Land Use Plan	Resource Management	Tembladero Slough Diversion Site	**Policy 2.3.3.B6**: Dredging or other major construction activities shall be conducted so as to avoid breeding seasons and other critical phases in the life cycles of commercial species of fish and shellfish and other rare, endangered, and threatened indigenous species.	The analysis of impacts on Tembladero Slough Diversions on fisheries (including anadromous fish that live in both fresh and marine environments) is addressed in **Section 4.4, Biological Resources: Fisheries.**
Monterey County	Monterey County General Plan	Conservation and Open Space	Tembladero Slough Diversion Site Treatment Facilities at the Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option Reclamation Ditch Diversion Site Salinas Treatment Facility Blanco Drain Pump and Pipeline Diversion Site	**Policy OS-4.1:** Federal and State listed native marine and fresh water species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant shall be protected. Species designated in Area Plans shall also be protected.	**Consistent**: Based on pilot testing and modeling of the proposed discharge of reverse osmosis concentrate through the MRWPCA outfall, the Proposed Project would comply with Ocean Plan regulatory requirements for concentrations at the edge of the zone of initial dilution in all scenarios; therefore the discharge wastewater would be within regulatory requirements established for protection of marine organisms. The diversion and treatment of contaminated surface waters would beneficially impact marine life. See also **Section 4.11 Hydrology and Water Quality: Surface Waters and** Impact MR-1, below. No other Proposed Project components would impact marine resources.
City of Seaside	City of Seaside Land Use Plan	Coastal Zone	Monterey Pipeline	**Policy NCR-CZ 1.3.B: Protection of Wetlands**. The biological health and productivity of wetland areas shall be maintained, and where feasible, restored. Development that may have an adverse effect on a wetland shall not be allowed. The biological productivity of coastal waters, streams, wetlands, estuaries, and lakes, shall be maintained and restored, where feasible, to maintain optimum populations of marine organisms and to protect human health where applicable. Maintenance and restoration efforts shall support biological productivity by minimizing adverse effects of wastewater discharges and entrainment; controlling runoff, preventing substantial interference with surface water flow, and minimizing alteration of natural	**Consistent:** The Monterey Pipeline construction would not occur in any areas inhabited by marine biological resources (more than 200 feet from the mean high tide of shoreline) and thus no direct impacts would occur due to this component. In addition, construction of the component would not have any indirect adverse impacts to marine resources. Based on pilot testing and modeling of the proposed discharge of reverse osmosis concentrate through the MRWPCA outfall, the Proposed Project would comply with Ocean Plan regulatory requirements for concentrations at the edge of the zone of initial dilution in all scenarios; therefore the discharge wastewater would be within regulatory requirements established for protection of marine organisms. The diversion and treatment of contaminated surface waters would beneficially impact

Table 4.13-1
Applicable State, Regional and Local Land Use Plans and Policies Relevant to Marine Biological Resources

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific Policy, or Program	Project Consistency with Policies, and Programs
				streams; preventing depletion of groundwater supplies; encouraging wastewater reclamation; and maintaining natural vegetation buffer areas that protect riparian habitats.	marine life. See also **Section 4.11 Hydrology and Water Quality: Surface Waters and** Impact MR-1, below. No other Proposed Project components would impact marine resources.
City of Monterey	Del Monte Beach Land Use Plan	Natural Coastal Resources	Monterey Pipeline	**Policy 4:** For any proposed development in the environmentally sensitive habitat areas of the Del Monte Beach area, as shown in, but not limited to, Figure 3A in the LCP, a resource survey shall be conducted, according to established protocols, for all sensitive species, including dune plants, snowy plover, black legless lizard, and marine mammals known to occur in the vicinity.	**Consistent:** See **Section 4.5, Biological Resources: Terrestrial.**
City of Monterey	Monterey Harbor Land Use Plan	Natural Resources	Monterey Pipeline	**Policy 3.e**: For any proposed development in the environmentally sensitive habitat areas of the Harbor LUP area, as shown in, but not limited to, Figure 2 in the LUP, a resource shall be conducted, according to established protocols, for all sensitive species, including dune plants, snowy plover, black legless lizard, and marine mammals known to occur in the vicinity.	**Consistent**: The Monterey Pipeline construction would not occur in any areas inhabited by marine biological resources (more than 200 feet from the mean high tide of shoreline) and thus no direct impacts would occur due to this component. No indirect adverse impacts to marine resources would occur due to the Proposed Project.

4.13.4 Impacts and Mitigation Measures

4.13.4.1 Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, the project would have a significant impact on marine biological resources if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any *marine* species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW, USFWS, *or NOAA Fisheries*;

b. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan governing the marine study area; or

c. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

4.13.4.2 Impact Analysis Overview

Approach to Analysis

The impact analysis in this section describes if, and to what degree, the Proposed Project would change the existing ocean conditions affecting marine biological resources described in **Section 4.13.2** and how the Proposed Project would comply, or be consistent, with the regulatory requirements described in **Section 4.13.3**. The significance of an impact is determined using the criteria identified in **Section 4.13.4.1**.

No construction activities are proposed within the marine study area. No direct construction impacts to marine resources would occur because none of the Proposed Project components involve construction within the marine study area defined above. Indirect temporary construction impacts on the marine environment relative to discharges to surface waters that may lead to the ocean are addressed in **4.10 Hydrology and Water Quality: Surface Water** and are not repeated here.

Potential adverse impacts to marine biological resources considered below are those that would result from operation of the Proposed Project Advanced Water Treatment Facility (AWT Facility), specifically discharges of reverse osmosis concentrate to Monterey Bay through the existing ocean outfall. In this analysis, the special-status species considered are those with a moderate or high probability of occurring in the marine study area.

The discharge of reverse osmosis concentrate would not involve high salinities causing toxicity or avoidance behavior on marine biological species because the concentrate would be far less saline than ambient ocean water (5,800 mg/L of total dissolved solids compared to 33,000 to 34,000 mg/L). In addition, the reverse osmosis concentrate discharge would not result in a negatively buoyant (or sinking) plume.

To determine whether impacts to marine biological impacts would be significant, this analysis is based on compliance with the Ocean Plan objectives (specifically, whether the discharge would meet quantified numeric limits in Tables 1 and 2 of the Ocean Plan).

Modeling of the Proposed Project ocean discharge was conducted by FlowScience, Inc. to determine minimum initial dilution values for the various discharge scenarios. The ocean modeling results were used to assess compliance with the Ocean Plan. Impacts to marine biological resources arising from reverse osmosis concentrate discharge were evaluated using scientific literature, analysis described in detail in **Section 4.11, Hydrology and Water Quality: Surface Water,** and other relevant reports. The information sources included the results of source water assessments, GWR pilot plant and water quality sampling, and monitoring, ocean dilution modeling by FlowScience (November, 2014), provided in **Appendix T** and water quality quantitative analysis of the Proposed Project's ability to meet the Ocean Plan objectives by Trussell Technologies (2015a) provided in **Appendix U-1**, and described in detail in **Section 4.11 Hydrology and Water Quality: Surface Water**.[2] Potential impacts on marine birds and birds that use the marine environment are evaluated in **Section 4.5, Biological Resources: Terrestrial**.

Areas of No Impact

As discussed above, no Proposed Project construction activities would be located within the marine study area. Therefore, the Proposed Project construction would result in no direct impacts on marine biological resources in accordance with Criteria a, b, or c. The Proposed Project would not have any indirect effects on marine resources due to construction activities because regulatory programs described in **Sections 4.11, Hydrology and Water Quality: Surface Water** would prevent substantial water pollution from traveling within runoff to the marine environment. Analysis in **Section 4.12 Noise and Vibration** supports the conclusion that construction and operational noise/vibration would not result in increased ambient noise levels within the marine study area. There are no applicable local, regional, or state habitat or natural community conservation plans; the Proposed Project would result in no impacts related to Criterion b.

Summary of Impacts

Table 4.13-2 (Summary of Impacts – Marine Biological Resources) provides a summary of potential impacts to marine resources and significance determinations for each Proposed Project component.

[2] In addition to the water quality analysis of Ocean Plan Table 1 and 2 constituents by Trussell Technologies, MRWPCA conducted a toxicity test on reverse osmosis concentrate produced during the pilot plant program for the Proposed Project and the results are summarized in this section.

Table 4.13-2
Summary of Impacts –Marine Biological Resources

Impact Title	Source Water Diversion and Storage Sites: Salinas Pump Station	Source Water Diversion and Storage Sites: Salinas Treatment Facility Storage and Recovery	Source Water Diversion and Storage Sites: Reclamation Ditch	Source Water Diversion and Storage Sites: Tembladero Slough	Source Water Diversion and Storage Sites: Blanco Drain Diversion (Pump Station and Pipeline)	Source Water Diversion and Storage Sites: Lake El Estero	Treatment Facilities at Regional Treatment Plant	Product Water Conveyance: RUWAP Alignment Option	Product Water Conveyance: Coastal Alignment Option	Injection Well Facilities	CalAm Distribution System: Transfer Pipeline	CalAm Distribution System: Monterey Pipeline	Project Overall
MR-1: Operational Impacts on Marine Biological Resources	BI	BI	BI	BI	BI	BI	LS	NI	NI	NI	NI	NI	LS
Cumulative Impacts	LSM: The Proposed Project would potentially result in a considerable contribution to significant cumulative impacts on marine biological resources due to the potential exceedance of the Ocean Plan water quality objectives for several constituents; however, with implementation of Mitigation Measure MR-C, the impact would be reduced to less than significant and the Proposed Project would not make a considerable contribution to a significant cumulative impact.												

NI – No Impact
BI – Beneficial Impact
LS – Less-than-Significant
LSM – Less-than-Significant with Mitigation
SU – Significant Unavoidable

4.13.4.3 Construction Impacts and Mitigation Measures

As discussed above in **Section 4.13.4.2**, construction of the Proposed Project would not result in substantial adverse effects on candidate, sensitive, or special-status species, would not substantially interfere with the movement of any native resident or migratory fish or wildlife species, and would not conflict with the provision of any habitat or natural community conservation plans.

4.13.4.4 Operational Impacts and Mitigation Measures

Impact MR-1: <u>Operational Impacts on Marine Biological Resources</u>. Operation of the Proposed Project would not result in substantial adverse effects on candidate, sensitive, or special-status species and would not interfere substantially with the movement of any native resident or migratory fish or wildlife species. (Criterion a) (Less than Significant)

Source Water Diversion and Storage

Section 4.10, Hydrology and Water Quality: Surface Water, provides a detailed description of pollutant load reduction benefits due to diversion of the various source waters to the Regional Treatment Plant for treatment and reuse. The Proposed Project would reduce the disposal of those waters to the environment, including to groundwater, surface waters, and in most cases, to the Monterey Bay portion of the Pacific Ocean.

Proposed new source waters to be treated and reused include: excess municipal wastewater, agricultural wash water, southern Salinas urban runoff that currently flows to Salinas River, Reclamation Ditch water, Tembladero Slough water, Blanco Drain water, and Lake El Estero water. Each of the proposed new source waters contain varying amounts and concentrations of pollutants as characterized in **Sections 4.10 Hydrology and Water Quality: Groundwater** and **4.11 Hydrology and Water Quality: Surface Waters**.

The existing water quality conditions of the Salinas River, Reclamation Ditch and Tembladero Slough system, Blanco Drain, and Lake El Estero are provided in **Section 4.11, Hydrology and Water Quality: Surface Water**, under **Section 4.11.2.3**, Environmental Setting. Waters in these water bodies currently discharge directly or indirectly to the Monterey Bay/Pacific Ocean. Under existing conditions, agricultural wash water, after it is treated and percolated at the Salinas Treatment Facility, seeps through subsurface soils to the Salinas River, which in turn discharges to the Monterey Bay/Pacific Ocean. Pure water is evaporated from the ponds. Water with some water pollutants percolates through the shallow aquifer and ultimately to seeps to either the Salinas River (estimated to be 80% of the percolated quantity) or to the Salinas Valley Groundwater Basin (estimated to be 20% of the percolated quantity) (Todd Groundwater, 2015a).

A benefit of the Proposed Project is that it would divert and treat contaminated waters rather than allowing those waters to flow to the Monterey Bay. The waters would be diverted to the municipal wastewater collection system for conveyance to the MRWPCA Regional Treatment Plant. All waters would receive primary and secondary treatment then a majority of the water would undergo additional treatment and reuse using one of two additional treatment systems:

1. the existing Salinas Valley Reclamation Plant (tertiary treatment system) that supplies agricultural irrigation water to cropland in the Castroville area, or
2. the proposed AWT Facility that would supply purified recycled water for injection into the Seaside Groundwater Basin for later extraction and use for potable supplies.

The proposed treatment processes would destroy many of the typical pollutants through biological and chemical treatment processes, and for other pollutants, through settling or filtration out of the wastewater stream. Most of the settled and filtered pollutants would remain in sewage sludge. Sewage sludge is the solid, semisolid or liquid untreated residue generated during the treatment of domestic sewage in a treatment facility. Sewage sludge would then be dried to form biosolids. Federal and state standards and regulations ensure that biosolids are safely recycled or disposed. Local governments make the decision whether to recycle the biosolids as a fertilizer, incinerate it, or bury it in a landfill. (Source: EPA, 2014) [3] MRWPCA disposes of biosolids at the adjacent MRWMD landfill and would continue to do so if the Proposed Project is implemented. Biosolids disposal at the MRWMD landfill would not add to pollutant loads on the marine environment because the landfill is regulated to ensure that solid waste disposal does not result in contamination of water resources, including groundwater, surface water bodies like the Salinas River, and the Monterey Bay and Pacific Ocean.

[3] See also: http://water.epa.gov/polwaste/wastewater/treatment/biosolids/genqa.cfm and http://water.epa.gov/scitech/wastetech/biosolids/503pe_index.cfm for more information on biosolids.

Treatment Facilities at the Regional Treatment Plant

In producing the purified recycled water, the proposed new AWT Facility would also produce the following waste streams: biologically active filtration backwash (if included in the system),[4] membrane filtration backwash, and reverse osmosis concentrate. The biologically active filtration backwash and membrane filtration backwash would be diverted back to the Regional Treatment Plant headworks. The reverse osmosis concentrate would be piped to a proposed new brine and effluent receiving, mixing, and monitoring facility where it would be mixed, at times, with secondary effluent that is not needed for recycling and hauled brine.

The analysis of impacts of the disposal of reverse osmosis concentrate on the marine biological resources in the Monterey Bay/Pacific Ocean focuses on the water quality changes that may occur in the vicinity of the MRWPCA ocean outfall. As described in **Section 4.11, Hydrology and Water Quality: Surface Water**, FlowScience modeled dilution factors for various combinations of source water flows and ocean climatic conditions, incorporating conservative assumptions regarding the MRWPCA ocean outfall, ocean conditions, and other factors that affect the dilution of wastewater in the area near the outfall's diffuser ports (i.e., the openings in the outfall through which discharges flow out). In addition to conservative assumptions about dilution characteristics of the discharge, numerous conservative assumptions were integrated into the approach for estimating the concentrations of contaminants in the reverses osmosis concentrate to be discharged into the MRWPCA ocean outfall. Those assumptions are provided in **Appendices T,** and **U-1 and U-2**. Additional discussion of this analysis is provided in **Section 4.11.4.2** and in **Section 4.11.4.3** under **Impact HS-5**. Detailed water quality concentrations and other assumptions are provided in **Tables 4.11-18** through **4.11-21**. For each Ocean Plan constituent, Trussell Technologies conducted a blended water quality analysis of concentrations expected in the various scenarios of discharge using worst-case measured concentrations and the range of expected flow rates of each source water and measured and calculated concentrations of each type of wastewater (i.e., in the reverse osmosis concentrate, brine waste hauled to the Regional Treatment Plant for discharge, and secondary-treated effluent discharges). Using the blended water quality concentrations, the relative flow volumes (by month), and the relevant minimum dilution modeled by Flow Science, Trussell Technologies estimated the combined discharge concentrations that could occur at the edge of the zone of initial dilution (ZID) and compared those to Ocean Plan water quality objectives.

The results of the analysis are provided in **Table 4.11-20, Predicted Concentrations of Ocean Plan Constituents at the Edge of the ZID,** which shows the concentration at the edge of the ZID using the minimum initial dilution factor (D_m) values calculated by FlowScience. The resulting concentrations for each constituent in each scenario were compared to the Ocean Plan objective to assess compliance. The estimated concentrations for all five flow-scenarios are presented as concentrations at the edge of the ZID (**Table 4.11-20**) and as a percentage of the Ocean Plan objective (**Table 4.11-21, Predicted Concentrations of all Ocean Plan Constituents, Expressed as Percent of Ocean Plan Objective**). As shown, none of the constituents are expected to exceed 80% of their Ocean Plan objective. See **Section 4.11, Hydrology and Water Quality: Surface Water,** and **Appendices U-1 and U-2**.

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[4] If other subsequent water quality analyses and/or the implementation of other treatment or dilution measures do not reduce cumulative marine water quality and biological impacts to a less than significant level, Mitigation measure HS-C in **Section 4.11, Hydrology and Water Quality: Surface Water**, of this EIR would require that this optional treatment process be required.

MRWPCA's consultant team conducted toxicity testing of the GWR pilot plant's reverse osmosis concentrate to estimate the ability of the GWR concentrate to meet Ocean Plan objectives for toxicity to marine species (Trussell Technologies, 2015a). On April 9, 2014, a sample of reverse osmosis concentrate was sent to Pacific EcoRisk for acute and chronic toxicity analysis. Based on these results (reverse osmosis concentrate values presented in **Table 4.11-20**), the Proposed Project concentrate would require a minimum D_m of 16:1 and 99:1 for acute and chronic toxicity, respectively, to meet the Ocean Plan objectives. These D_m values were compared to predicted D_m values for the discharge of the Proposed Project's reverse osmosis concentrate from the Proposed Project's full-scale AWT Facility and the discharge of concentrate combined with secondary effluent from the Regional Treatment Plant. The minimum dilution modeled for the various Proposed Project discharge scenarios was 137:1, which is when the secondary effluent discharge is at the maximum possible flow under the current port configuration as shown in **Appendix T** (FlowScience, 2014b).[5] Given that the lowest expected D_m value for the various Proposed Project ocean discharge scenarios is greater than the required dilution factor for compliance with the Ocean Plan toxicity objectives, this analysis for toxicity illustrates that the Proposed Project discharge would be expected to comply with Ocean Plan objectives related to toxicity even if the Regional Treatment Plant influents were to vary as proposed compared to those that occurred during GWR pilot plant testing in 2014. The Proposed Project would have a less-than-significant impact related to toxicity of ocean discharges on marine resources.

The Proposed Project would also reduce pollutant loads to the marine environment due to diversions of surface waters (or waters that are disposed directly or indirectly to surface waters) and that currently flow to the Monterey Bay. The quantitative analysis of these beneficial impacts is provided in detail in **Section 4.11, Hydrology and Water Quality: Surface Water**. Any amount of reduction in pollutant loads on the ocean would result in a benefit to all marine biological resources due to reductions in exposure of marine biological species to pollutants.

Impact Conclusion

Trussell Technologies used a conservative approach to estimate the water qualities of the Regional Treatment Plant secondary effluent, reverse osmosis concentrate, and hauled brine waste under anticipated worst-case scenario and conditions. These water quality data were then combined for various discharge scenarios, and a concentration at the edge of the ZID was calculated for each constituent and scenario. Based on the data, assumptions, modeling, and analytical methodology presented in Trussell Technologies technical memorandum, the Proposed Project would comply with the Ocean Plan objectives, including toxicity of the discharges. The Proposed Project would have a less than significant impact related to toxicity of ocean discharges on marine resources.

[5] The MRWPCA's current NPDES ocean discharge permit includes daily maximum effluent limitations for acute and chronic toxicity to marine species that are based on the current allowable Dm of 145. The acute toxicity effluent limitation is 4.7 TUa (acute toxicity units) and the chronic toxicity effluent limitation is 150 TUc (chronic toxicity units). The permit requires that toxicity testing be conducted twice per year, with one sample collected during the wet season when the discharge is primarily secondary effluent and once during the dry season when the discharge is primarily trucked brine waste. The MRWPCA ocean discharge has consistently complied with these toxicity limits (CCRWQCB, 2014).

4.13.4.5 Cumulative Impacts and Mitigation Measures

The geographic scope for cumulative impact analysis on marine biological resources includes the area near the MRWPCA ocean outfall diffusers (the marine study area shown in **Figure 4.13-1**). Based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis (listed by primary geographic area in which project is located)** (see **Section 4.1, Introduction**), no cumulative projects have been identified that would result in impacts to this area, except for the Monterey Peninsula Water Supply Project's (MPWSP) (with the 6.4-mgd Desalination Plant) (also referred to as the CalAm facilities of the MPWSP Variant).[6] The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd Desalination Plant) and then to address the overall combined impacts of the Proposed Project and all relevant past, present and probable future projects:

- *Combined Impacts of Proposed Project Plus MPWSP (with 6.4-mgd Desalination Plant) (referred to as the MPWSP Variant)*:[7] The CalAm MPWSP includes a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR projects, but not for both if they are both implemented. The cumulative impact analysis in this EIR anticipates that the Proposed Project could be implemented with a version of the MPWSP that includes a 6.4 mgd desalination plant. Similarly, the MPWSP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPWSP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPWSP (with the 6.4 mgd desalination plant)) could result in impacts that combine with the impacts of the Proposed Project.

The only other projects that may add with the Proposed Project's marine biological resources impacts would be projects that would also change the ocean environment in the immediate vicinity of the outfall. As documented above, the Proposed Project ocean discharges would

[6] Although in the future, Marina Coast Water District may propose to use the MRWPCA ocean outfall for the disposal of desalination brine; the currently approved program and project is called the Desalination component of the Regional Urban Water Augmentation Project (a portion of the Hybrid Alternative) that does not include discharge of brine through the MRWPCA outfall, but instead would discharge brine subsurface in the vicinity of Reservation Road and Marina State Beach (Marina Coast Water District, 2004).

[7] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

meet all Ocean Plan objectives (i.e., concentrations of the constituents in the ocean at the edge of the zone of initial dilution would be less than the Ocean Plan objectives) and thus, would have a less-than-significant impact on marine biological resources.

Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant). In addition to conducting the Proposed Project's technical analysis of the Ocean Plan compliance, Trussell Technologies also prepared a parallel analysis of the Ocean Plan compliance issues (and thus the impacts on marine water quality and biological resources) for the MPWSP (with the 6.4 mgd desalination plant) combined with the Proposed Project. That analysis is provided in **Appendix V, Ocean Plan Compliance Assessment for the Monterey Peninsula Water Supply Project and Project Variant** (herein referred to as the MPWSP/Variant Ocean Plan Assessment) (Trussell Technologies, 2015b).

The purpose of the MPWSP/Variant Ocean Plan Assessment was to assess the ability of the MPWSP (with the larger, 9.6 mgd desalination plant) and of the MPWSP (with the small, 6.4 mgd desalination plant) plus the Proposed Project (the "Variant") to comply with the Ocean Plan objectives using the same methodology and approach described above for the Proposed Project. For this assessment, Trussell Tech also used a conservative approach to estimate the water qualities of the secondary effluent, GWR concentrate, desalination brine, and hauled brine for these projects. The water quality data were then combined for various discharge scenarios, and a concentration at the edge of the ZID was calculated for each constituent and scenario. Compliance assessments could not be made for selected constituents, as noted, due to analytical limitations, but this is a typical occurrence for these Ocean Plan constituents.

Based on the data, assumptions, modeling, and analytical methodology presented in the MPWSP/Variant Ocean Plan Assessment, the MPWSP (with the 6.4 mgd desalination plant) combined with the Proposed Project would result in a significant cumulative impact due to potential exceedances of the Ocean Plan objectives at the edge of the ZID. Implementation of the MPWSP (with the 6.4-mgd Desalination Plant) and the Proposed Project would require mitigation measures to reduce the impact to a less than significant level to comply with the Ocean Plan objectives under some discharge scenarios.

Specifically, three types of exceedances were identified:

(1) PCBs, which are present in relatively high concentrations in the worst-case ocean water samples, were predicted to exceed the Ocean Plan objectives in several scenarios for the discharges from GWR Project combined with the MPWSP 6.4 mgd desalination plant at times when the desalination brine from the MPSWP represents a relatively large fraction (approximately 40% or more) of the total discharge water,

(2) Ammonia, which is consistently present at a relatively high concentration in secondary effluent from the Regional Treatment Plant, was predicted to potentially exceed the Ocean Plan objective for scenarios where both the desalination brine and a moderate secondary effluent flow from the Regional Treatment Plant are discharged. The exceedance would also potentially occur when the discharge contains the GWR reverse osmosis concentrate and moderate to no (approximately 6 mgd or less) of secondary effluent flow from the Regional Treatment Plant.

(3) Chlordane, DDT, TCDD equivalents, and toxaphene (along with PCBs and Ammonia), were predicted to exceed the Ocean Plan objective for scenarios where the combined discharge would consists of desalination brine and GWR reverse osmosis concentrate with either moderate to no flow (approximately 6 mgd or less) of secondary effluent.

The Proposed Project would not result in a considerable contribution to the significant cumulative impact pertaining to discharge of PCBs. The MPSWP standing alone would cause this significant impact, due to PCBs in existing in ocean water, which would be concentrated at levels above background ocean water in the desalination plant brine.

The Proposed Project would contribute to the significant cumulative impact pertaining to the discharge of ammonia. The exceedance would be a result of the combination of ammonia present in the secondary effluent and GWR concentrate combined with high salinity of the desalination brine[8]. Ammonia is not expected to exceed the Ocean Plan objective when the discharge consists of secondary effluent and/or GWR reverse osmosis concentration without desalination brine, or when the desalination brine is combined with approximately 6 mgd or more of secondary effluent, because in these cases there would be sufficient mixing in the ZID to adequately dilute the discharge. Similarly, no exceedance is expected when the discharge contains desalination brine with less than approximately 3 mgd of secondary effluent flow and no GWR reverse osmosis concentrate, due to the lower ammonia loading. This potential ammonia exceedance would occur for the MPSWP when desalination brine is combined with 3 to 6 mgd of secondary effluent or when combined with GWR reverse osmosis concentrate and 6 mgd or less of secondary effluent. The largest potential exceedance of ammonia is expected at times when the combined discharge consists of desalination brine and GWR reverse osmosis concentrate with no secondary effluent flow.

The Proposed Project also would contribute to a significant cumulative impact pertaining to the discharge of chlordane, DDT, and TCDD equivalents to a similar degree as it does to ammonia, where the exceedance would be a result of constituents in the secondary effluent and ocean water and inadequate dilution in the ZID due to the density of the desalination brine. Because these constituents would potentially not meet the Ocean Plan water quality objectives at the edge of the ZID in some combined discharge conditions, the Proposed Project would have a considerable contribution to a significant cumulative marine biological resources impact. Implementation of Mitigation Measure HS-C (provided in **Section 4.11, Hydrology and Water Quality: Surface Water**) would be required to reduce the cumulative impact to a less than significant level.

Cumulative Impact Conclusion

The marine water quality/biological resources impact has been studied for multiple discharge scenarios resulting from the operation of the GWR Project and the MPWSP with the 6.4 mgd desalination plant. The water quality analysis used the best available information and the impact conclusion is based on modeled constituents in the discharge streams and water quality data collected from Monterey Bay under CCLEAN to represent source water entering the MPWSP Desalination Plant. **Table 4.13-3** summarizes the exceedances of water quality objectives for constituents at the edge of the ZID from combined discharges

[8] The desalination brine has a relatively high salinity (approximately 57,500 mg/L of TDS), compared to ambient seawater (33,000 to 34,000 mg/L of TDS), such that when discharged on its own, the denser brine would sink and experience relatively less mixing with ocean water and thus less dilution in the ZID (approximately 10 times less). The secondary effluent (approximately 1,000 mg/L of TDS) and GWR reverse osmosis concentrate (approximately 5,000 mg/L of TDS) are relatively light and would rise when discharged. In the combined discharge, the secondary effluent and GWR reverse osmosis concentrate would dilute the salinity of the desalination brine and thus reduce the density. With sufficient dilution, the combined discharge would be less dense than the ambient ocean water, resulting in a rising plume with more dilution in the ZID.

composed of brine from the MPWPS with 6.4 mgd desalination project, GWR concentrate, and secondary effluent:

Table 4.13-3
Potential Water Quality Objectives Exceedances at the Edge of the ZID

Combined Discharge [a]	Desalination Brine	Secondary Effluent	GWR Concentrate	Potential Exceedances
Desalination brine only	X			PCBs
Desalination brine combined with 3-6 mgd of secondary effluent	X	X		PCBs and ammonia
Desalination brine combined with 0-3 mgd or 6-14 mgd of secondary effluent	X	X		PCBs
Desalination brine combined with greater than 14 mgd of secondary effluent	X	X	X	None
Desalination brine combined with GWR concentrate and 0-6 mgd of secondary effluent	X	X	X	Ammonia, chlordane, DDT, PCBs, TCDD Equivalents, toxaphene
Desalination brine combined with GWR concentrate and 6-14 mgd of secondary effluent	X	X	X	PCBs
Desalination brine combined with GWR concentrate and 14 mgd of secondary effluent	X	X	X	None
GWR concentrate combined with secondary effluent		X	X	None
GWR concentrate only			X	None
Secondary effluent only		X		None

[a] Indicated secondary effluent flow values are approximate estimations.

Based on the water quality analyses, the desalination brine-only, desalination brine-and- secondary effluent (at 3 to 6 mgd of flow), and blended discharges (with less than 14 mgd of secondary effluent) would result in a significant impact to marine water quality, which would be reduced to less-than-significant level through implementation of **Mitigation Measure HS-C / MR-SC (see Section 4.11, Hydrology and Water Quality: Surface Water at page 4.11-100)**. The mitigation would involve employing one or more of the design features and/or operational measures listed below prior to operating the MPWSP desalination plant. The design features and operational measures include short-term storage and release of brine from the MPWSP desalination plant, treatment of the MPWSP source water and/or brine discharge(s), and biologically active filtration at the Regional Treatment Plant. These operational changes or measures along with the additional analysis of the constituents in MPWSP source waters would be incorporated into the NPDES permit issued by the Regional Water Quality Control Board as part of the process of amending the MRWPCA NPDES Permit (R3-2014-0013). The Proposed GWR Project when implemented in combination with the MPWSP with 6.4 mgd desalination plant would result in a less-than-significant cumulative impact to marine water quality and marine biological resources with implementation of Mitigation Measure MR-C (that requires implementation of Mitigation Measure HS-C in **Section 4.11.4)**.

Mitigation Measure

Mitigation Measure MR-C. Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the Zone of Initial Dilution (ZID).

Implement Mitigation Measure HS-C.

Effects of Implementation of Mitigation Measure HS-C

Consistent with the discussion of Mitigation Measure HS-C in Section 4.11.4, implementation of MR-C would result in the same potential secondary effects as described in Section 4.11.4 on page 4.11-101.

Overall Cumulative Projects. No other cumulative projects would change the marine biological resources conditions in the area in the immediate vicinity of the MRWPCA ocean outfall, and thus, there would be no cumulative significant impacts besides those described above for the MPSWP (with the 6.4 mgd desalination plant) combined with the Proposed Project.

As discussed previously, the Proposed Project would also reduce pollutant loads to the marine environment due to diversion and treatment of surface waters (or waters that are disposed directly or indirectly to surface waters) that currently flow to the Monterey Bay. The quantitative analysis of these beneficial impacts is provided in detail in **Section 4.11, Hydrology and Water Quality: Surface Water**. Any amount of reduction in pollutant loads on the ocean would result in a benefit to marine biological resources due to reductions in exposure of marine biological species to pollutants. Thus, if you consider a larger geographic area of the marine environment than only the immediate vicinity of the ocean outfall, the Proposed Project would result in beneficial cumulative impacts.

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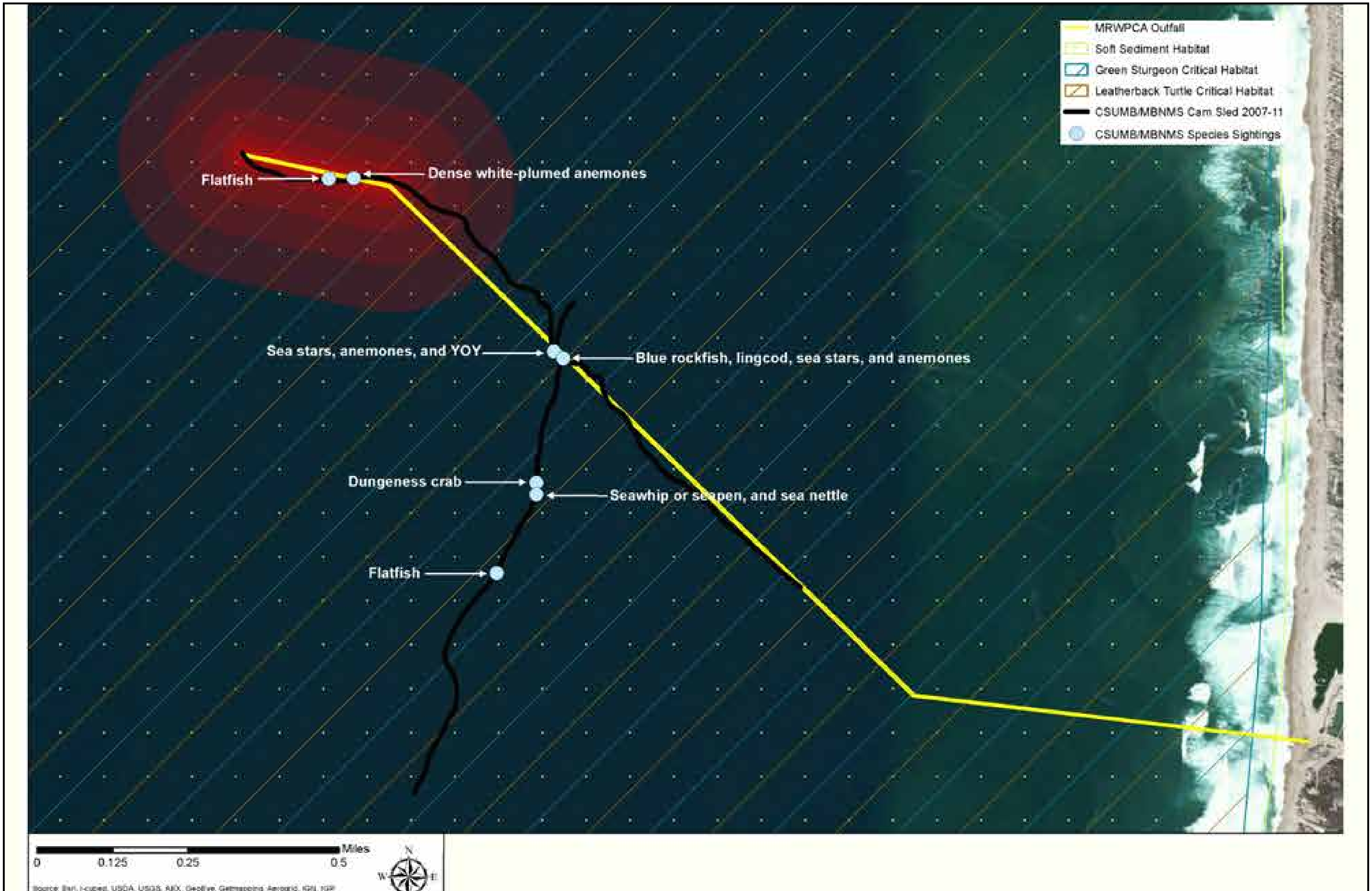

Source: SWCA, 2014

Existing Marine Biological Resources Study Area

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.13-1

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4.14 NOISE AND VIBRATION

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4.14.1 Introduction

This section evaluates the potential noise and vibration impacts that could result from implementation of the Proposed Project due to temporary construction impacts and long-term operational impacts. The section describes the existing noise environment, identifies sensitive receptors to noise and vibration that could be affected by the Proposed Project, presents relevant noise and vibration regulations and standards, evaluates the potential effects of construction and operation on these receptors, and identifies mitigation measures as appropriate. A discussion of cumulative impacts is provided at the end of the section. This section is based on a noise study prepared for this EIR by Illingworth & Rodkin (March 2015), which is included in **Appendix W**.

Public and agency comments received during the public scoping period in response to the Notice of Preparation are summarized in **Appendix A, Scoping Report**. No comments were received with regards to noise and vibration, except for potential noise and vibration impacts on fish and birds, which is evaluated in **Section 4.5, Biological Resources: Terrestrial** of this EIR.

4.14.2 Environmental Setting

4.14.2.1 Fundamentals of Environmental Noise and Vibration

Noise

Noise may be defined as unwanted sound that is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

There are several noise measurement scales. A *decibel* (*dB*) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, and 30 decibels is 1,000 times more intense. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in **Table 4.14-1, Definitions of Acoustical Terms**.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA).* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in **Table 4.14-2, Typical Noise Levels in the Environment**. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of specified duration.

Table 4.14-1
Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hertz (Hz) and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 PM and 7:00 AM
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 to 10:00 PM and after addition of 10 decibels to sound levels measured in the night between 10:00 PM and 7:00 AM
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998	

Table 4.14-2
Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, September 2013

Since the sensitivity to noise increases during the evening and at night (because excessive noise interferes with the ability to sleep), 24-hour descriptors have been developed that incorporate noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level* (*CNEL*) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 - 10:00 PM) and a 10 dB addition to nocturnal (10:00 PM - 7:00 AM) noise levels. The *Day/Night Average Sound Level* (L_{dn}) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the *Peak Particle Velocity (PPV)* and another is the *Root Mean Square (RMS)* velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. In this analysis, a PPV descriptor, with units of millimeters per second (mm/sec) or inches per second (in/sec), is used to evaluate construction generated vibration for building damage and human complaints. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

4.14.2.2 Existing Noise Levels and Conditions at Proposed Project Sites

Project components will be located at several sites within northern Monterey County, California. A noise monitoring survey was performed between December 20, 2013 and December 27, 2013 to establish existing noise levels at representative noise sensitive receptors located near project components. A summary of results is provided below.

Some land uses are considered more sensitive to ambient noise levels than others and are referred to as “sensitive receptors”. In general, residences, schools, hotels, hospitals, and nursing homes are sensitive receptors as these uses are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate are also sensitive to noise. Commercial and industrial uses and agricultural lands are considered the least noise-sensitive. **Figure 4.14-1** identifies sensitive receptors in proximity to Proposed Project sites.

Noise Survey

Noise measurements were taken as part of the noise study at representative project site locations. The noise survey consisted of four unattended long-term noise measurements (LT-1 through LT-4) and two attended short-term noise measurements (ST-1 and ST-2). Long-term (LT) reference noise measurements were made to quantify the daily trend in noise levels and to establish the existing day-night average noise level. Long-term noise measurement locations were selected to generally represent reference noise levels from a primary noise source or human activity areas along the project corridor. Care was taken to avoid those sites where extraneous noise sources such as barking dogs, pool pumps, or air conditioning units could contaminate the noise data. Short-term (ST) noise measurements were also made along the project corridor in concurrent time intervals with the data collected at the long-term reference measurement sites. This method facilitates a direct comparison between both the short-term and long-term noise measurements and allows for the identification of the day-night average noise level at land uses in the project vicinity where long-term noise measurements were not made. At all short-term locations, noise levels were measured five feet above the ground surface and at least 10 feet from structures or barriers. Site locations of the noise measurements are shown on **Figure 4.14-2, Location of Noise Measurements**, and equipment, methods and long-term measurement data are shown in

Appendix W to this EIR, the Noise Study Report. The results are summarized below and in **Tables 4.14-3,** and **4.14-4.**

Long-term noise measurement LT-1, adjacent to the Injection Well Facilities site, was 65 feet west of the centerline of General Jim Moore Boulevard and approximately 380 feet south of Coe Avenue in Seaside. The measurement was located near residential property lines (backyards) along General Jim Moore Boulevard at a height of twelve feet above the ground. Hourly average noise levels typically ranged from 57 to 66 dBA L_{eq} during the day, and from 47 to 56 dBA L_{eq} at night. Calculated day-night average noise levels at this location ranged from 61 to 63 dBA L_{dn} over six 24-hour periods.

Long-term noise measurement LT-2, across the street from the Lake El Estero Source Water Diversion and Storage Site, was 200 feet north of the centerline of Del Monte Avenue along the Monterey Peninsula Recreational Trail in Monterey. The measurement was located within the City of Monterey Waterfront Park/Window on the Bay just south of Municipal Beach at a height of twelve feet above the ground. Hourly average noise levels typically ranged from 56 to 66 dBA L_{eq} during the day, and from 53 to 61 dBA L_{eq} at night. Calculated day-night average noise levels at this location ranged from 63 to 66 dBA L_{dn} over eight 24-hour periods.

Noise measurement LT-3, near the Product Water Conveyance System, Coastal Alignment, was 20 feet west of the centerline of Vaughan Avenue, north of Reindollar Avenue in Marina. The measurement was located in a neighborhood of single-family residential houses at a height of twelve feet above the ground. Hourly average noise levels typically ranged from 54 to 66 dBA L_{eq} during the day, and from 43 to 56 dBA L_{eq} at night. Calculated day-night average noise levels at this location ranged from 56 to 61 dBA Ldn over seven 24-hour periods. The lower day-night average levels (56 dBA L_{dn} and 58 dBA L_{dn}) were measured and calculated on December 25th, 2013.

Noise measurement LT-4 was located at the dead-end of Las Cruces Way, at the border of an agricultural land use and a neighborhood of single-family residences in Salinas, near the Salinas Pump Station Source Water Diversion and Storage Site. The measurement was at a height of twelve feet above the ground. Hourly average noise levels typically ranged from 45 to 74 dBA L_{eq} during the day, and from 38 to 50 dBA L_{eq} at night. Calculated day-night average noise levels at this location ranged from 55 to 65 dBA L_{dn} over six 24-hour periods. Again, the lowest day-night average level was measured on December 25th, 2013.

Table 4.14-3
Summary of Long-Team Noise Measurements (dBA)

Noise Measurement Location-Project Facility	Average Daytime L_{eq}	Average Nighttime L_{eq}	L_{dn}
LT-1-Injection Well Facilities: 65 feet west of General Jim Moore Blvd., 380 feet south of Coe Avenue in City of Seaside	57-66 dBA	47-56 dBA	61-63 dBA
LT-2- Lake El Estero Source Water Diversion and Storage Site: 200 feet north of Del Monte Avenue along Monterey Peninsula Recreational Trail in City of Monterey	56-66 dBA	53-61 dBA	63-66 dBA
LT-3-Product Water Conveyance System Coastal Alignment: 20 feet west of Vaughan Avenue, north of Reindollar Avenue in City of Marina	54-66 DBA	43-56 dBA	56-61 dBA*
LT-4- Salinas Pump Station Source Water Diversion and Storage Site: La Cruces Way at border of an agricultural and residential area in City of Salinas	45-74 dBA	38-50 dBA	55-65 dBA*

* Lower L_{dn} levels at LT-3 and LT-4 were measured and calculated on December 25th, 2013.

Two attended short-term noise measurements were completed as part of the noise monitoring survey; the results are described below and summarized on **Table 4.14-4, Summary of Short-Term Noise Measurements (dBA)**. These measurements were made after 9:30AM after morning peak traffic hours and were made in concurrent time intervals with the data collected at the long-term measurement sites. This method facilitates a direct comparison between both the short-term and long-term noise measurements and allows for the identification of the day-night average noise level at land uses in the project vicinity where long-term noise measurements were not made.

Noise measurement ST-1 was taken to represent Proposed Project construction noise during drilling activity for MRWPCA's new GWR monitoring well and was located approximately 50 feet from a running truck engine and 75 feet from the operating drill rig. The drill rig and truck engine were dominant noise sources during the measurement and resulted in average noise levels of 83 dBA L_{eq} during drilling and 81 dBA L_{eq} while the drill was being removed. ST-1 was located more than 1,000 feet east of General Jim Moore Boulevard, along Eucalyptus Road, which is closed to through traffic. Noise measurement ST-2 was located along Juarez Street, 315 feet west of the centerline of General Jim Moore Boulevard. This location is representative of residences in the area at the nearest setback from General Jim Moore Boulevard, which was the dominant noise during the measurement, resulting in average noise levels of 47 and 48 dBA L_{eq}.

Short-term noise measurements were taken at three locations along the proposed alignment for the CalAm Distribution Pipelines as part of the CalAm Monterey Peninsula Water Supply Project EIR prepared by ESA. The measurement locations are shown on **Figure 4.14-1** and include one location near the eastern portion of the Transfer Pipeline and two representative locations along the Monterey Pipeline. The results, which are summarized on **Table 4.14-4,** indicate that the daytime noise levels in all three locations are approximately 60 dBA L_{eq}.

Table 4.14-4
Summary of Short-Term Noise Measurements (dBA)

Noise Measurement Location-Project Facility	Date Time	Leq	Lmax	L(10)	L(50)	L(90)	Ldn*
ST-1-Injection Well Facilities: GWR monitoring well drilling site in Seaside. 75 feet from drill rig, 50 feet from truck engine. [1]	12/19/2013 9:40-10:00 AM	83	89	84	83	82	89
	10:00-10:10 AM	81	84	83	82	67	
ST-2-Injection Well Facilities: Along Juarez Street, 315 feet from the centerline of General Jim Moore Blvd. [1]	12/27/2013 11:00-11:10 AM	48	60	49	46	44	49
	11:10-11:20 AM	47	55	48	46	45	48
ST-3-CalAm Distribution Transfer Pipeline: Mescal Street, Residential area in Seaside. [2]	3/20/13 12:22 - 12:32 PM	59.1	70.9	NA	NA	NA	NA
ST-4-CalAm Distribution Monterey Pipeline: Franklin Street, Private residence near Franklin Street/Van Buren Street intersection in Monterey, adjacent to Monterey Pipeline.	3/20/13 1:36 - 1:46 PM	60.2	69.3	NA	NA	NA	NA
	4/13/14 12:28 -12:38 AM	45.8	61.3	NA	NA	NA	NA
ST-5-CalAm Distribution Monterey Pipeline: Franklin Street, Private residence near Franklin Street/Van Buren Street intersection in Monterey, adjacent to Monterey Pipeline.	3/20/13 2:03 - 2:13 PM.	61.0	68.5	NA	NA	NA	NA
	4/13/14 12:48 - 12:34 AM	45.8	63.4	NA	NA	NA	NA

* L_{dn} levels at ST-1 assume continuous 24-hour operations of the drilling operation. L_{dn} levels at ST-2 were estimated based on noise levels measured at LT-1 during corresponding interval.
NA = Not Available
[1] SOURCE: ~~Illingworth & Rodkin (2014)~~ CPUC/ESA, Draft EIR for the Monterey Peninsula Water Supply Project, April 2015.

Sensitive Receptors

The following paragraphs provide summary descriptions of the sensitive receptor locations in the vicinity of the project sites.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion

New facilities at the Salinas Pump Station would include diversion structures and short pipelines to re-direct urban runoff and storm water, and agricultural wash water to the Regional Treatment Plant for treatment. The nearest sensitive receptors are several farmhouses located in an unincorporated area of Monterey County, one about 1,400 feet north of the pump station along Blanco Road, one about 1,500 feet west of the pump station along S. Davis Road, and several residences located about 1,700 to 2,000 feet south of the pump station along Hitchcock Road. Residences within the City of Salinas boundary are located about 2,200 feet east of the pump station along Las Cruces Court and Las Cruces Way. See **Figure 4.14-1A, Sensitive Noise Receptors Near Project Facilities-Diversion Facilities** for receptor locations.

Salinas Treatment Facility Storage and Recovery

The site is located along the Salinas River south of Blanco Road and west of Davis Road. Improvements are proposed that would enable the agricultural wash water to be conveyed from the ponds at the Salinas Industrial Wastewater Treatment Facility to the Regional Treatment Plant for recycling, and include a wet well/diversion structure, flow meter, onsite surge tank, and a new pipeline connection to the Salinas Pump Station. The nearest sensitive receptors are residences located more than 2,500 feet southeast of the project site, across Davis Road.

Reclamation Ditch Diversion

Improvements at this site near Davis Road would include diversion of surface water to a nearby manhole. Proposed facilities include a pump, electrical cabinet, flow meter, and short connecting pipelines. The nearest sensitive receptors are residences located about 1,000 feet west of the new equipment. There are also residences located about 1,000 feet south; however, they are separated from the site by topography and multiple roadways, including a bridge.

Tembladero Slough Diversion

Proposed improvements to divert water to the Regional Treatment Plant at the Tembladero Slough site would include the diversion of surface waters to an existing wet well. Proposed facilities include an electrical pump/cabinet, flow meter and valves, and short connecting pipelines. The nearest sensitive receptors are residences located about 750 feet north of the new equipment. Another residence is located across Highway 1, approximately 850 feet east of the new equipment.

Blanco Drain Diversion (Pump Station and Pipeline)

Proposed improvements at this site include the diversion of surface waters from a ditch that collects agricultural tile drain water with a new pump station at the site. Proposed facilities include a diversion structure, flow meter and valves, an on-site surge tank, electrical cabinet, concrete lining, and approximately 8,500 linear feet of force main gravity pipeline from the site to the Regional Treatment Plant. The nearest sensitive receptor is a residence located more than 2,400 feet northeast of the proposed new pump station. Additionally, a residence is located about 3,000 feet southeast of the proposed pipeline alignment and a residential neighborhood is located more than a mile to the southwest of the proposed pipeline.

Lake El Estero Diversion

New GWR facilities at Lake El Estero would include either an electrical pump or electrically operated motorized valve, and short connecting pipelines. The improvements would be within an existing structure or underground. The nearest sensitive receptors are the Monterey Bay Lodge located about 350 feet east-southeast of the facility, and residential land use about 500 feet southeast of the facility in the City of Monterey. The site lies within the Lake El Estero recreation area; recreational users of this area are also considered sensitive receptors**. Figure 4.14-1A** shows nearby sensitive receptor locations.

Treatment Facilities at Regional Treatment Plant

New facilities at the Regional Treatment Plant (RTP) would include the Advanced Water Treatment (AWT) Facility (including pre-treatment, a product water pump station, and concentrate disposal facilities) and improvements to the Salinas Valley Reclamation Plant (SVRP). The nearest sensitive receptors are a farm house off Monte Road in Monterey County located about one mile to the northwest of the RTP site, and residences along Cosky Drive in Marina located at a distance of about 5,400 feet to the southwest of the AWT Facility site. See **Figure 4.14-1B, Sensitive Noise Receptors Near Project Facilities-Regional Treatment Plant** for sensitive receptor locations.

Product Water Conveyance

The Proposed Project would include construction of a pipeline to convey the advanced treated product water from the proposed AWT Facility to the Seaside Groundwater Basin for injection, along one of two potential pipeline alignments. One option would generally follow the Regional Urban Water Augmentation Project (RUWAP) recycled water pipeline route through the City of Marina, CSUMB, and the City of Seaside. The other option, the Coastal Alignment, would follow in parallel with a portion of the proposed new CalAm Water Supply Project desalination product water pipeline along the eastern side of the Transportation Agency of Monterey County (TAMC) railroad tracks. The southern portion of the Coastal Alignment would also be located in the former Fort Ord within CSUMB and the City of Seaside.

Each of the product water conveyance pipeline options includes a new Booster Pump Station. The Booster Pump Station would receive flow from the Product Water Conveyance Pipeline and pump the product water into one of the proposed alignments; these alignments then merge to a single proposed alignment along General Jim Moore Boulevard. Because of noise considerations, the pump motors and discharge piping would be housed within a split-faced block, or similar building. There are two options for the site of the booster pump station depending upon the selected product water pipeline route as further described below.

RUWAP Alignment Option

The RUWAP Alignment would pass through open land and then follow Crescent Avenue and several local streets in the City of Marina, including California Avenue and 5th Avenue until intersecting General Jim Moore Boulevard in the City of Seaside. The pipeline route follows the eastern side of the right of way of General Jim Moore Boulevard approximately 2 miles, passes the developed military housing area (called Fitch Park), goes through the open land around a water reservoir used by the nearby golf courses, connects to Eucalyptus

Road, then turns southerly to the Injection Well Facilities area (this portion, south of Lightfighter Drive, of the conveyance system applies to both the Coastal and RUWAP Alignments). The Crescent Avenue to California Drive segment is in a residential area within the City of Marina until the intersection with Patton Parkway. South of Patton Parkway and the Booster Pump Station site, the alignment enters the City of Seaside and passes by CSUMB residential, classroom, student center, and dining facilities before continuing south down General Jim Moore Boulevard where sensitive receptors include residences, a church, recreation facilities, and mixed commercial/residential areas. **Figure 4.14-1B** shows the alignment route.

Coastal Alignment Option

The Coastal Alignment would be located between 50 to 100 feet east of residences along Del Monte Boulevard and Marina Drive from Marina Green Drive where it enters developed area in Marina to Palm Avenue. South of Palm Avenue, the pipeline would be approximately 100 feet east of play fields associated with the Marina Del Mar Elementary School and would be approximately 350 feet east of the nearest building associated with this elementary school. The Coastal Alignment would continue south, under the Highway 1 overpass, past MRWPCA's Fort Ord Pump Station and would be located in the TAMC rail line right of way from this point to the Divarty Street (1st Street) intersection. The GWR Coastal Alignment would cross under Highway 1 at the Divarty Street underpass. The pipeline would follow Divarty Street to 2nd Avenue, where the Booster Pump Station would be located. Land uses along 2nd Avenue include unoccupied buildings and open land. From the proposed Booster Pump Station site, the pipeline would turn south and follow on the west side of 2nd Avenue to Lightfighter Drive. At the intersection of 2nd Avenue and Lightfighter Drive the pipeline would be constructed under Lightfighter Drive by either directional drilling or bore and jack techniques to avoid disruption to this main thoroughfare. From this intersection the alignment would turn eastward and would be constructed on the south side of the Lightfighter Drive roadway, but off the pavement, up to the intersection with General Jim Moore Boulevard. The pipeline would follow the southbound ramp from Lightfighter Drive onto General Jim Moore Boulevard where it would merge to the same alignment as the RUWAP Alignment (shown in white on **Figure 4.14-1B**). There are no sensitive receptors in the vicinity of the Coastal Alignment south of the Booster Pump Station site until it joins the RUWAP Alignment.

RUWAP Booster Pump Station Option

The RUWAP Booster Pump Station option would be located in the City of Marina Corp Yard parking lot off 5th Avenue in Marina about 90 feet south of the existing Corp Yard building. The nearest sensitive receptors to this site are residents of the California State University Monterey Bay (CSUMB) campus housing located about 650 feet to the west of the booster pump station site and the CSUMB classroom building located about 450 feet southwest of the site. See **Figure 4.14-1C, Sensitive Noise Receptors Near Project Facilities-Product Water Pipeline and Injection Well Site** that shows the locations of these facilities. The Coastal Booster Pump Station option would be located on CSUMB property at the southwest corner of the intersection of 2nd Avenue and Divarty Street. There are no residential or other sensitive receptors in the vicinity of the site. Abandoned buildings are located to the north across Divarty Street from the site that is designated for office/research and commercial uses in the Marina General Plan. Vacant land is located to the west and south of the site. CSUMB recreation facilities are located to the east across 2nd Avenue. The nearest recreation facilities include a swimming pool located about 750 feet east of the booster pump station site and a child development center located about 875 feet northeast of the site. See **Figure 4.14-1B** for the location of these facilities.

Injection Well Facilities

The proposed new Injection Well Facilities would be located east of General Jim Moore Boulevard, south of Eucalyptus Road in the City of Seaside, and include a total of eight wells (four deep injection wells, four vadose zone wells), monitoring wells, and back-flush facilities. Each injection well would be equipped with a well pump to back-flush the well. Injection wells would require a permanent power supply to the site, including electrical equipment, two electrical control buildings for backflush pumps, external electrical control cabinets at the well clusters, wiring and connections of electrical power, and instrumentation and control facilities. Other than the wellheads, small electric control cabinets would be the only above ground electrical components at the injection wells. The nearest sensitive receptors to this site are residences located west of General Jim Moore Boulevard at distances of 500 to 700 feet from the nearest proposed well sites and about 1,200 feet from the proposed back-flush facility. The Seaside Middle School is located approximately 700 feet northwest of the Injection Well Facilities site. See **Figure 4.14-1C** for the location of these facilities.

CalAm Distribution Pipelines

The proposed CalAm Distribution Pipelines (Transfer and Monterey Pipelines) are located in residential and commercial areas. The primary noise sources are vehicle traffic. The Transfer Pipeline would be installed within the La Salle Avenue, Yosemite Street, and Hilby Avenue rights-of-way within the city of Seaside. The sensitive receptors along the Transfer Pipeline alignment are residences, schools, and a mobile home park.

The proposed Monterey Pipeline would convey water between the cities of Seaside and Pacific Grove. The pipeline alignment begins at the intersection of Del Monte Boulevard and Auto Center Parkway, where the Monterey Pipeline would connect to the Transfer Pipeline. The northern portion of the Monterey Pipeline alignment, between La Salle Avenue and Roberts Avenue, is bordered by Seaside to the east and Sand City to the west. This portion of the alignment is dominated by commercial uses catering to coastal visitors, other commercial land uses, and parks and open spaces.

The Monterey Pipeline alignment extends south along the west side of Del Monte Boulevard, generally parallel to the Monterey Peninsula Recreational Trail. The sensitive noise receptors along Del Monte Boulevard are residences, hotels, and educational institutions.

The Monterey Pipeline alignment continues south along the Monterey Peninsula Recreational Trail on the west side of Del Monte Boulevard through the city of Monterey. At the east end of El Estero Park the pipeline would turn south on Figueroa Street, continue west along Franklin Street, and then bear north at High Street. At High Street, the alignment would extend north and traverse the Presidio of Monterey (land owned by the U.S. Army that is not publicly accessible). At the western boundary of the Presidio of Monterey, the pipeline would continue to Spencer Street, extend southwest on Eardley Street, and terminate near the existing Eardley Pump Station in Pacific Grove. With the exception of institutional land uses in the Presidio of Monterey, the land uses that border the pipeline alignment in Monterey and Pacific Grove are primarily residential and commercial surrounded by public and open space areas.

4.14.3 Regulatory Framework

There are no federal or state regulations regarding noise and vibration that are applicable to the Proposed Project.

4.14.3.1 Local Plans and Policies

Land use-noise compatibility standards used by most jurisdictions are presented in **Table 4.14-5, Land Use and Noise Compatibility for Standards**. In addition to the general requirements of CEQA and California laws and regulations, noise and vibration issues are addressed in General Plans and municipal codes of local jurisdictions within the Proposed Project area. **Table 4.14-6, Salinas Maximum Noise Standards (Municipal Code Table 37-50.50)** summarizes state, regional, and/or local policies and regulations pertaining to noise and vibration that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. **Table 4.14-6** provides a review project consistency and/or conflicts with such plans, policies, and regulations. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. In some cases, a potential inconsistency or conflict will be avoided with implementation of mitigation measures included in this EIR, which is explained.

Monterey County

Monterey County, like many local jurisdictions, includes land use-noise compatibility standards in its General Plan for exterior noise exposure standards, which are based on parameters established by the California Department of Health, Office of Noise Control and provided by the Governor's Office of Planning and Research (see **Table 4.14-5**). Based on these standards, noise levels of 60 dBA L_{dn} or less at various noise-sensitive receptor locations, including single- and multi-family residences, schools, hospitals, churches, and nursing homes are considered "normally acceptable" and noise levels of 60 to 70 dBA L_{dn} are considered "conditionally acceptable".

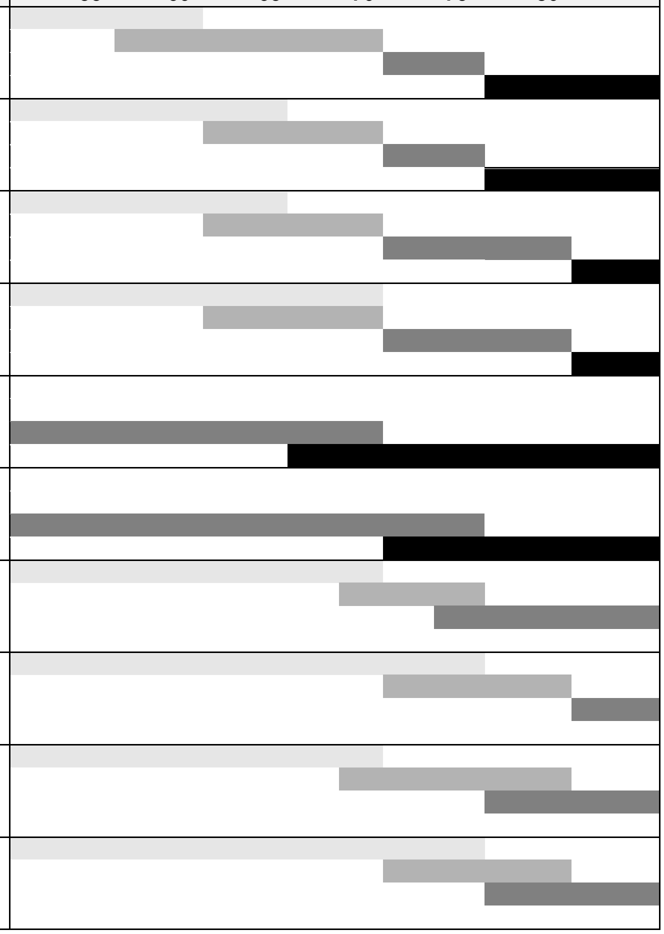
The Monterey County General Plan (2010) contains the policies related to noise in the Safety Element, Chapter 4. Policies pertinent to the Proposed Project are summarized in **Table 4.14-6**. Policy S-7.9 states that construction noise activities that exceed acceptable levels listed in **Table 4.14-5** are prohibited within 500 feet of a sensitive use during the evening hours of Monday through Saturday, or anytime on Sundays or holidays prior to completion of a noise mitigation study. Noise protection measures, in the event of an impact, may include constructing temporary barriers or using quieter equipment than normal. Policy S-7.10 provides that construction projects shall include the following standard noise projection measures:

- Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience;
- All equipment shall have properly operating mufflers; and
- Lay-down yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical.

The Monterey County Code section 10.60.030 prohibits the operation of “any machine, mechanism, device, or contrivance which produces a noise level exceeding eighty-five (85) dBA measured fifty (50) feet therefrom” within the unincorporated limits of the County. However, the regulations do not apply to machines or devices that are operated in excess of 2,500 feet of any occupied dwelling.

Table 4.14-5
Land Use and Noise Compatibility Standards

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dB) 55 60 65 70 75 80
Residential – Low Density Single Family, Duplex, Mobile Homes	
Residential - Multi. Family	
Transient lodging - Motels, Hotels	
Schools, Libraries, Churches, Hospitals, Nursing Homes	
Auditoriums, Concert Halls, Amphitheaters	
Sports Arenas, Outdoor Spectator Sports	
Playgrounds, Neighborhood Parks	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	
Office Buildings, Business Commercial and Professional	
Industrial, Manufacturing, Utilities, Agriculture	



Source: California Governor's Office of Planning and Research, October 2003.

INTERPRETATION

NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE: New construction or development should generally be discouraged. If new development or construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

Section 10.60.040 of the County Code applies to nighttime noise, in which it is prohibited to make, assist in making, allow, continue, create, or cause to be made any loud and unreasonable sound any day of the week from 10:00 p.m. to 7:00 a.m. the following morning within the unincorporated area of the County of Monterey. The ordinance adopted by the County that added this section to the County Code indicates that the ordinance is intended to "strengthen protection of the environment from loud and unreasonable nighttime sound" and "protect the public health, safety and welfare by increasing protections from loud and unreasonable sounds during the nighttime hours." During this time period, a loud and unreasonable sound includes any sound that exceeds the exterior noise level standards set forth below.

Nighttime hourly equivalent sound level (L_{eq} dBA)	45
Maximum level, dBA	65

Noise levels shall be measured at or outside the property line of the property from which noise is emanating. Commercial agricultural operations, emergency vehicles, bells and chimes used for religious purposes or services, and specified outdoor gatherings are exempt from these requirements.

City of Salinas

The Noise Element of the Salinas General Plan sets forth goals and policies to protect citizens from the harmful and annoying effects of excessive noise and also uses the Noise and Land Use Compatibility Standards (Table N-3) shown on **Table 4.14-5**. Relevant policies are shown on **Table 4.14-9, Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Noise**. Policy N-3.1 requires all construction activity to comply with the limits (maximum noise levels, hours and days of allowed activity) established in the City noise regulations. Chapter 21A of the Salinas Municipal prohibits unnecessary, excessive and annoying noise from specified noise sources, but does not specifically address construction noise.

Pursuant to section 37.50-180 of the Salinas Municipal Code, the following performance standard regarding noise shall apply to all use classifications in all zoning districts.

> Noise: No use shall create ambient noise levels which exceed the following standards in Table 37-50.50 (herein referred to as **Table 4.14-6**), as measured at the property boundary:
>
> 1) Duration and Timing. The noise standards in Table 37-50.50 (see **Table 4.14-6**) shall be modified as follows to account for the effects of time and duration on the impact of noise levels:
>
>   a. In residential zones, the noise standard shall be 5.0 dBA lower between 9:00 PM and 7:00 AM.
>
>   b. Noise that is produced for no more than a cumulative period of five minutes in any hour may exceed the standards above by 5.0 dBA.
>
>   c. Noise that is produced for no more than a cumulative period of one minute in any hour may exceed the standards above by 10.0 dBA.
>
>   Note: The interior noise level in any residential dwelling unit located in a mixed use building or development shall not exceed a maximum of forty-five dBA from exterior ambient noise.

The city planner may require an acoustic study for any proposed project or use that has the potential to create a noise exposure greater than that deemed acceptable by the above standard, and require appropriate mitigation measures.

Table 4.14-6
Salinas Maximum Noise Standards (Municipal Code Table 37-50.50)

Table 37-50.50 Maximum Noise Standards	
Zone of Property Receiving Noise	**Maximum Noise Level (CNEL, dBA)**
Agricultural District	70 dBA
Residential Districts	60 dBA
Commercial Districts	65 dBA
Industrial Districts	70 dBA
Mixed Use Districts	65 dBA(A)
Parks/Open Space Districts	70 dBA
Public/Semipublic District	60 dBA

City of Marina

The *City of Marina General Plan* (City of Marina, 2005) addresses noise in the "Community Design and Development" chapter 4; relevant policies are shown on **Table 4.14-9**. The General Plan (Table 4.1; herein referred to as **Table 4.14-7, City of Marina Allowable Noise Standards Measured in Ldn (dBA)**) establishes the maximum allowable exterior and interior noise levels for different land use categories as shown below. The noise standards apply to the siting of new noise-sensitive receptors (in particular residences, schools, and parks), and the siting of new or improved arterials and collectors near noise-sensitive receptors.

Table 4.14-7
City of Marina Allowable Noise Standards Measured in Ldn (dBA)

Land Use Category	Maximum Exterior		Maximum Interior*
	Acceptable	Conditionally Acceptable	
Residential	50	70	45
Live/Work	65	75	50
Hotel/Motel	65	75	50
Office	67	77	55
Other Commercial	70	80	60
Industrial/Agriculture	70	80	60
Schools, Libraries, Theaters, Churches, Nursing Homes	60	70	45
Parks and Playfields	65	70	NA
Golf Courses, Riding Stables, Cemeteries	70	75	NA
*It is preferred that the interior noise standard be attained with open windows. However, where the interior noise standard is attainable only with closed windows and doors, mechanical ventilation shall be required.			

The General Plan of the City of Marina (Table 4.2) indicates that new or modified stationary noise sources that adjoin or are in close proximity to residential or other noise-sensitive uses must adhere to the following noise standards:

City of Marina Noise Standards for Stationary Noise Sources

Duration	Maximum Allowable Noise	
	Day (7:00 a.m. to 10:00 p.m.)	Night (10:00 p.m. to 7:00 a.m.)
Hourly Leq in dB [1,2]	50	45
Maximum Level in dB [1,2]	70	65
Maximum Impulsive Noise in dB [1,3]	65	60

[1]As determined at the property line of the receptor. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property-line noise mitigation measures.

[2]Sound level measurements shall be made with slow meter response.

[3]Sound level measurements shall be made with fast meter response.

Chapter 9.24 of the City of Marina Municipal Code establishes noise regulations within Marina. Pursuant to section 9.24.040.D, operation or use of a range of tools and power equipment is limited to between the hours of 7 AM and 7 PM on Monday through Saturday and between the hours of 10 AM and 7 PM on Sundays and holidays, and until 8:00 PM when daylight savings time is in effect. However, section 9.24.050 exempts activities on or in publicly owned property and facilities, or by public employees or city franchisees, while in the authorized discharge of their responsibilities, provided that such activities have been authorized by the owner of such property or facilities or its agent. Section 15.04.055 identifies the same time limits when construction is adjacent to residential uses, including transient lodging. This section of the Municipal code further indicates that no construction, tools or equipment are allowed to produce a noise level of more than 60 decibels for 25% of an hour during construction at any receiving property line.

City of Seaside

The City of Seaside provides goals and policies and plans regarding noise in the Noise Element of the General Plan, and also uses the Noise and Land Use Compatibility Standards (Table N-2) shown on **Table 4.14-5**. Relevant policies are shown on **Table 4.14-9**. Implementation Plan N-3.1.3 requires all construction activity to comply with the limits (maximum noise levels, hours and days of allowed activity) established in the City noise regulations.

Chapter 9.12 of the City of Seaside Municipal Code establishes noise regulations within Seaside. Pursuant to section 9.12.030.D, operation or use of a range of tools and power equipment and any construction, demolition, excavation, erection, alteration, or repair activity is declared to be unlawful and a nuisance if it occurs before 7:00 AM or after 7:00 PM daily (except Saturday, Sunday, and holidays when the prohibited time shall be before 9:00 AM and after 7:00PM) unless authorized in writing by a building official. Written authorization may be issued in the case of an emergency, or where the building official determines that the peace, comfort and tranquility of the occupants of residential property will not be impaired because of the location or nature of the construction activity. Section 9.12.040.D exempts activity on or in publicly owned property and facilities, or by public employees or their franchisees, while in the authorized discharge of their responsibilities, provided such activities have been authorized by the owner of such property or facilities or its agency or by the employing authority.

Seaside's Municipal Code Section 17.30.060 of Title 17 (Zoning Ordinance) establishes noise standards to implement policies of the Noise Element of the General Plan and to protect the community health, safety and general welfare by limiting exposure to the unhealthful effects of noise. No "use, activity, or process shall exceed the maximum allowable noise levels" established in this section, except for "construction, maintenance, and/or repair operations by public agencies and/or utility companies or their contractors that are serving public interest and/or protecting the public health, safety, and general welfare" (section 17.30.060B.3). The maximum noise standards are included in this section (Table 3-3; herein referred to as **Table 4.14-8, City of Seaside Maximum Exterior and Interior Noise Standards**). The section also indicates that Chapter 9.12 regulates the noise generated from all uses, activities and processes conducted within the City.

Table 4.14-8
City of Seaside Maximum Exterior and Interior Noise Standards

Land Use	Noise Standard in Community Noise Equivalent Level (CNEL)	
	Exterior (dBA)	Interior (dBA)
Residential	65	45
Mixed-Use Residential	70	45
Commercial	70	---
Office	70	50
Industrial	75	55
Public Facilities	70	50
Schools	80	50

City of Monterey

The *City of Monterey General Plan* (City of Monterey, 2005) addresses noise in the Noise Element and also includes the Noise and Land Use Compatibility Standards shown on **Table 4.14-5**. Relevant policies are shown on **Table 4.14-9**. Policy d.2 specifies that hours of noise generating construction activities should be limited as a condition of project approval.

The City of Monterey Municipal Code Section 38-111 (A) identifies performance standards to be applied to all use classifications in all zoning districts:

A. Noise. All uses and activities shall comply with the provisions of the Monterey Noise Regulations (Sections 22 17 and 22 18). Decibel levels shall be compatible with neighboring uses, and no use shall create ambient noise levels which exceed the following standards:

MAXIMUM NOISE STANDARDS BY ZONING DISTRICT

	Zone of Property Receiving Noise	Maximum Decibel Noise Level (dB)
OS	Open Space District	60
R	Residential Districts	60
PS	Public and Semi Public District	60
C	Commercial District	65
I	Industrial Districts	70
PD	Planned Development	Study Required

1. Duration and Timing. The noise standards above shall be modified as follows to account for the effects of time and duration on the impact of noise levels:

a. In R districts, the noise standard shall be 5 dB lower between 10:00 PM and 7:00 AM.

b. Noise that is produced for no more than a cumulative period of five minutes in any hour may exceed the standards above by 5 dB. Noise that is produced for no more than a cumulative period of one minute in any hour may exceed the standards above by 10 dB.

c. Noise that is produced for no more than a cumulative period of one minute in any hour may exceed the standards above by 10 dB.

Section 38-112.2 of the City's Municipal Code limits construction to the following: Monday through Friday between the hours of 7:00 AM and 7:00 PM, on Saturday between 8:00 AM and

6:00 PM, and on Sunday between 10:00 AM and 5:00 PM. Pursuant to this section, the City a permit may be issued by the Zoning Administrator for requests to conduct construction activity outside listed hours for unique circumstances.

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Table 4.14-9
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Noise and Vibration

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific Policy or Program	Project Consistency with Policies and Programs
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.2:** Proposed development shall incorporate design elements necessary to minimize noise impacts on surrounding land uses and to reduce noise in indoor spaces to acceptable levels.	**Consistent:** Proposed Project operational noise would be less-than significant as discussed in this section.
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.3:** Development may occur in areas identified as "normally unacceptable" provided effective measures to reduce both the indoor and outdoor noise levels to acceptable levels are taken.	**Consistent:** The Proposed Project facilities would not be located in areas identified as "normally unacceptable".
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.4:** New noise generators may be allowed in areas where projected noise levels are "conditionally acceptable" (*Figure 10*) only after a detailed analysis of the noise reduction requirements is made and needed noise mitigation features are included in project design.	**Consistent:** The Proposed Project components' operational noise would not be a new noise generator and would not be located in areas identified as "conditionally acceptable". A noise study was conducted, and the Proposed Project's operational noise would be less-than significant.
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.5:** New noise generators shall be discouraged in areas identified as "normally unacceptable." Where such new noise generators are permitted, mitigation to reduce both the indoor and outdoor noise levels are required.	**Consistent:** The Proposed Project components' operational noise would not be a new noise generator and would not be located in areas identified as "normally unacceptable".
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.6:** Acoustical analysis shall be part of the environmental review process for projects when: a. Noise sensitive receptors are proposed in areas exposed to existing or projected noise levels that are "normally unacceptable" or higher according to the Land Use Compatibility for Community Noise Table. B. Proposed noise generators are likely to produce noise levels exceeding the levels shown in the adopted Community Noise Ordinance when received at existing or planned noise-sensitive receptors.	**Consistent:** An acoustic and vibration analysis was conducted for the Proposed Project and is provided in **Appendix W** (Illingworth and Rodkin, 2015). The Proposed Project does not include new noise sensitive receptors, and the Proposed Project components' operational noise would not be a new noise generator.
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.8:** All discretionary projects that propose to use heavy construction equipment that has the potential to create vibrations that could cause structural damage to adjacent structures within 100 feet shall be required to submit a pre-construction vibration study prior to the approval of a building permit. Projects shall be required to incorporate specified measures and monitoring identified to reduce impacts. Pile driving or blasting are illustrative of the type of equipment that could be subject to this policy.	**Consistent:** The Proposed Project construction sites within the county would not result in vibration to structures within 100 feet.
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.9:** No construction activities pursuant to a County permit that exceed "acceptable" levels listed in Policy S-7.1 shall be allowed within 500 feet of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Noise protection measures, in the event of any identified impact, may include but not be limited to: Constructing temporary barriers; or Using quieter equipment than normal.	**Consistent:** No construction would occur within 500 feet of a sensitive land use within the unincorporated County.
Monterey County	General Plan	Safety	Salinas Treatment Facility Storage and Recovery Reclamation Ditch Diversion Site Tembladero Slough Diversion Site Blanco Drain Pump and Pipeline Diversion Site Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**Policy S-7.10:** Construction projects shall include the following standard noise protection measures: Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience; All equipment shall have properly operating mufflers; and Lay-down yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical.	**Consistent, with Mitigation:** Implementation of Mitigation Measure NV-2b will ensure these standard construction measures are included in construction projects at components sites within the unincorporated County.
City of Salinas	City of Salinas General Plan		Salinas Pump Station Diversion Site	**Policy N-3.1**: Enforce the City of Salinas Noise Ordinance to ensure stationary noise sources and noise emanating from construction activities, private developments/residences, and special events are minimized.	**Consistent:** The Proposed Project would not result in a new stationary noise source, and construction impacts would be less than significant in the City of Salinas.
City of Seaside	Seaside General Plan	Noise Element	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option		

Table 4.14-9
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Noise and Vibration

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific Policy or Program	Project Consistency with Policies and Programs
			Injection Well Facilities Site Transfer Pipeline Monterey Pipeline		
City of Seaside	Seaside General Plan	Noise Element	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities Site Transfer Pipeline Monterey Pipeline	**N-1.1:** Ensure that new development and reuse/revitalization projects can be made compatible with the noise environment and existing development.	**Consistent:** The Proposed Project would be compatible with surrounding land noise environments and would not result in substantial increases in ambient noise levels due to project operations.
City of Seaside	Seaside General Plan	Noise Element	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities Site Transfer Pipeline Monterey Pipeline	**N-3.1:** Reduce the impacts of noise producing land uses, activities, and businesses on noise-sensitive land uses. *Implementation Plan N-3.1.1: Enforcement of non-transportation noise standards.* Enforce the noise limits and construction and operation regulations contained in this Noise Element and in the City's Municipal Code. *Implementation Plan N-3.1.3: Construction noise limits.* Require all construction activity to comply with the limits (maximum noise levels, hours and days of allowed activity) established in the City noise regulations (Title 24 California Code of Regulations, Zoning Ordinance and Chapter 17A of the Municipal Code).	**Consistent:** The Proposed Project consists of construction of a public water supply infrastructure project by public agencies. Noise standards established in the City's Zoning Ordinance (section 17.30.060) do not apply to "construction, maintenance, and/or repair operations by public agencies and/or utility companies or their contractors that are serving public interest and/or protecting the public health, safety, and general welfare". Similarly, section 9.12.040 of the City of Seaside Municipal Code exempts activities on publicly owned property and facilities, or by public employees or their franchisees, while in the authorized discharge of their responsibilities, provided that such activities have been authorized by the owner of such property or facilities or tis agency or by the employing authority.
City of Monterey	City of Monterey General Plan		Monterey Pipeline Lake El Estero Diversion Site	<u>**Policy d.2:**</u> Limit hours of noise generating construction activities. Include this requirement as a condition of project approval.	**Consistent, with Mitigation:** Construction of the CalAm Distribution Monterey Pipeline would include nighttime construction activities that would generate noise as discussed in Impact NV-1, but the Proposed Project would not conflict with this policy with implementation of Mitigation Measure NV-1b and NV-1c.
Former Fort Ord	I Base Reuse Plan	Noise	RUWAP Alignment Option RUWAP Booster Pump Station Option Coastal Alignment Option Coastal Booster Pump Station Injection Well Facilities Transfer Pipeline	***Noise Policy B-3****:* The City shall require that acoustical studies be prepared by qualified acoustical engineers for all new development that could result in noise environments above noise range I (normally acceptable environment), as defined in Table 4.5-3. The studies shall identify the mitigation measures that would be required to comply with the noise guidelines, specified in Tables 4.5-3 and 4.5-4, to ensure that existing or proposed uses will not be adversely affected. The studies should be submitted prior to accepting development applications as complete.	**Consistent:** A noise study was prepared by qualified acoustical engineers for the Proposed Project and mitigation measures were identified in that study that is included in **Appendix W** (Illingworth and Rodkin, 2015).

4.14.4 Impacts and Mitigation Measures

4.14.4.1 Significance Criteria

Based on Appendix G of the State CEQA Guidelines, the project would result in significant impacts related to noise and vibration if it would:

a. Expose people to or generate noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;

b. Expose people to or generate excessive groundborne vibration or groundborne noise levels;

c. Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

d. Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

e. For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, expose people residing or working in the area to excessive noise levels; or

f. For a project located in the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

No additional significance criteria are needed to comply with the CEQA-Plus[1] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

4.14.4.2 Impact Analysis Overview

Approach to Analysis

The noise and vibration impact assessment evaluates short-term impacts associated with construction of the Proposed Project. It also assesses long-term operational impacts (i.e., those resulting from operation of the Treatment Facilities at the Regional Treatment Plant, booster pump, and injection well/back-flush facilities). The impact discussion analyzes substantial increases in ambient noise levels in the vicinity of the Proposed Project component sites. In addition, the assessment uses local noise standards and applicable daytime exceptions as the basis for significance thresholds. The assessment of potential noise impacts was conducted using information on existing ambient noise levels and the anticipated noise that would be produced during construction and operation of the Proposed Project. The assessment of vibration impacts was conducted using information on anticipated vibration during construction and operation of the Proposed Project based on anticipated equipment and activities to occur at each site.

For the purposes of this analysis, only construction noise is considered under the criterion that addresses temporary or periodic increase in ambient noise. Periodic noise increases are

[1] To comply with applicable federal statutes and authorities, EPA established specific "CEQA-Plus" requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

defined herein as intermittent or short-term and, for this project, only construction activities are consistent with this definition.

Further consideration in determining noise and vibration thresholds and/or impact significance is provided below.

Noise

The project's short term construction impacts and long term operational impacts on the ambient noise environment would be considered substantial if it would expose sensitive receptors to noise levels in excess of regulatory standards or codes or result in a substantial permanent or temporary increase in ambient noise levels. In addition to concerns regarding the absolute noise level that might occur when a new source is introduced into an area, it is also important to consider the existing ambient noise environment. If the ambient noise environment is quiet and the new noise source greatly increases the noise exposure, even though a criterion level might not be exceeded, an impact may occur.

For both construction and operational noise, a "substantial" noise increase can be defined as an increase in noise levels that causes sustained interference with activities normally associated with established nearby land uses during the day and/or night. One indicator that noise could interfere with daytime activities normally associated with residential and school land uses (for example) would be speech interference; whereas, an indicator that noise could interfere with nighttime activities normally associated with residential uses would be sleep interference. This analysis, therefore, uses the following criteria to define whether a temporary or periodic increase in ambient noise levels in the Proposed Project vicinity above levels existing without the project would be substantial:

> Speech Interference. *Speech interference is an indicator of an impact on daytime and evening activities typically associated with residential and school land uses, but which is also applicable to other similar land uses that are sensitive to excessive noise levels. Therefore, a speech interference criterion, in the context of impact duration and time of day, is used to identify substantial increases in ambient noise levels.*
>
> Noise generated by construction equipment could result in speech interference in adjacent buildings if the noise level in the interior of the building were to exceed 45 to 60 dBA[2]. A typical building can reduce interior noise levels by 25 dBA if the windows are closed (Illingworth & Rodkin, 2015). This noise reduction could be maintained only on a temporary basis in some cases, since it assumes windows must remain closed while the loudest activity is occurring. Assuming a 25 dBA reduction with the windows closed, an exterior noise level of 70 dBA (Leq) adjacent to a building would maintain an acceptable interior noise environment of 45 dBA. In addition to the decibel level of noise, the duration of exposure at any given noise-sensitive receptor is an important factor in determining an impact's significance. Generally, temporary construction noise that occurs during the day for a relatively short period of time would not be significant because most people of average sensitivity who live in suburban or rural agricultural environments are accustomed to a certain amount of construction activity or heavy equipment noise from time to time. The loudest construction-related noise levels would be sporadic rather than continuous because different types of construction equipment

[2] For indoor noise environments, the highest noise level that permits relaxed conversation with 100% intelligibility throughout the room is 45 dBA. Speech interference is considered to become intolerable when normal conversation is precluded at three feet, which occurs when background noise levels exceed 60 dBA.

would be used throughout the construction process. Therefore, an exterior noise level that exceeds 70 dBA L_{eq} during the daytime is used as the threshold for substantial construction noise where the duration of construction noise exceeds two weeks

Sleep Interference. An interior nighttime level of 35 dBA is considered acceptable for residential uses (EPA 1974). Assuming a 25 dBA reduction for a residential structure with the windows closed, an exterior noise level of 60 dBA adjacent to the building would maintain an acceptable interior noise environment of 35 dBA. Thus, an exterior threshold of 60 dBA L_{eq} during the nighttime is a reasonable threshold for short term impacts resulting from construction activities.

Vibration

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction-related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the Peak Particle Velocity (PPV) descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration are the potential to damage a structure and the potential to interfere with the enjoyment of life, both of which are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at an existing high state of disrepair and the construction activity occurs immediately adjacent to the structure.

A numerical threshold to identify the point at which a vibration impact occurs has not been identified by local jurisdictions in the applicable standards or municipal codes. In the absence of local regulatory significance thresholds for vibration from construction equipment, this analysis uses the California Department of Transportation (Caltrans) Peak Particle Velocity (PPV) threshold for risk of architectural damage to older buildings, which is 0.30 in/sec, except for historic buildings that have a lower threshold for damage risk as discussed in **Section 4.6, Cultural and Paleontological Resources**. **Table 4.14-10A, Guideline Vibration Damage Potential Threshold Criteria,** displays the vibration damage potential on buildings of varying structure and condition that transient or continuous vibration levels produce. **Table 4.14-10B, Guideline Vibration Annoyance Potential Criteria,** displays the general reactions of people to transient or continuous vibration levels. The annoyance levels shown in **Table 4.14-10B** should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Table 4.14-10A
Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1*
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

* For damage to historic buildings, 0.12 PPV is used from Wilson, Ihrig & Associates et al., 2012 as discussed in Section 4.6.
Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013.

Table 4.14-10B
Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.035	0.01
Distinctly perceptible	0.24	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013.

Areas of No Impact

The Proposed Project would not result in impacts related to the some of the significance criteria, as explained below. Impact analyses related to the other criteria are addressed below under **subsections 4.14.4.4** (construction impacts), **4.14.4.5** (operational impacts), and **4.14.4.6** (cumulative impacts).

(b) *Excessive Groundborne Noise During Construction*. Groundborne noise occurs when vibrations transmitted through the ground result in secondary radiation of noise. Groundborne noise is generally associated with the movement of trains through tunnels and activities such as blasting, neither of which is proposed as part of the project. As a result, construction-related groundborne noise levels are not considered in the impact analysis below. However, the Proposed Project would result in groundborne vibration impacts during construction (see Impact NV-3, below).

(b) *Vibration During Operations*. The proposed underground pipeline components of the Proposed Project (Product Water Conveyance System and CalAm Distribution System Improvements) would not have any mechanical equipment that would result in vibration. None of the other permanent facilities have equipment that would result in generation of vibration. The permanent facilities (Treatment Facilities at the Regional Treatment Plant, Source Water Diversion and Storage Sites, Injection Well Facilities) would have equipment and/or pumps that would be enclosed or underground and would not result in excessive groundbourne vibration. However, the Proposed Project would result in groundborne vibration impacts during construction (see Impact NV-3, below).

(e-f) *Exposure to Aircraft Noise*. The Proposed Project would not involve the habitable development of noise-sensitive land uses that would be exposed to excessive aircraft noise. Therefore, there would be no impacts associated with exposure to airport or aircraft noise.

4.14.4.3 Summary of Impacts

Table 4.14-11, Summary of Impacts – Noise and Vibration provides a summary of potential impacts related to noise and vibration and significance determinations at each GWR component site.

Table 4.14-11
Summary of Impacts – Noise and Vibration

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System		
Impact Title	Salinas Pump Station	Salinas Treatment Facility	Reclamation Ditch	Tembladero Slough	Blanco Drain Diversion (Pump Station and Pipeline)	Lake El Estero	Treatment Facilities at Regional Treatment Plant	RUWAP Alignment Option	Coastal Pipeline Option	Injection Well Facilities	Transfer Pipeline	Monterey Pipeline	Project Overall
NV-1: Construction Noise	LS	LS	LS	LS	LS	LS	LS	LS	LS	LSM	LS	SU	SU
NV-2: Construction Noise Exceeds Local Standards	NI	NI	LSM	SU	LSM	NI	NI	LSM	LSM	NI	NI	NI	SU
NV-3: Construction Vibration	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
NV-4: Operational Noise	NI	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI	NI	LS
Cumulative Impacts	LS: There would be no significant construction or operational cumulative noise and vibration impacts.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.14.4.4 Construction Impacts and Mitigation Measures

Impact NV-1: <u>Construction Noise</u>. Construction activity would result in a temporary increase in ambient noise levels in the vicinity of all Proposed Project sites during construction that would not be substantial at most construction sites, except at the Injection Well Facilities and CalAm Distribution Monterey Pipeline sites. (Criteria d) (Significant and Unavoidable)

Construction activities for the Proposed Project would occur intermittently at several locations throughout northern Monterey County within a period of approximately 22 months. Such activities would result in the generation of noise associated with site preparation and building of each component of the project. The noise levels generated during construction of the project would vary during the construction period, depending upon the construction phase and the types of construction equipment used.

Noise would be generated by the operation of heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, compactors, cranes, pavers, and other heavy-duty construction equipment. Operating cycles for these types of construction equipment would involve fluctuations in power cycles that result in variations in noise levels, whereas other equipment such as directional drill rigs typically operate at a continuous level.

Construction noise levels were calculated using the Federal Highway Administration's Roadway Construction Noise Model (RCNM). The maximum (L_{max}) and hourly average (L_{eq}) noise levels for each phase of construction at the project construction component sites are presented in

Table 4.14-12, Construction Equipment Noise Levels Modeled at 50 feet. A discussion of construction noise impacts at each project component site follows the table. In some instances, maximum instantaneous noise levels are calculated to be slightly lower than hourly average noise levels. This occurs because the model calculates the maximum instantaneous noise level resulting from the single loudest piece of construction equipment operating during each construction phase. Hourly average noise levels add together multiple pieces of construction equipment, which results in hourly average noise levels that can be slightly higher than maximum instantaneous noise levels during construction phases involving several pieces of equipment.

Construction equipment noise levels were modeled at a distance of 50 feet from the center of the construction site, typical of the distance that the vast majority of receptors would be located from project construction activities conducted along the project corridor. From these source data, calculations were made to estimate construction noise levels at receptors within 50 feet of the construction site or at more distant receptors assuming that the noise attenuation rate was 6 dBA for each doubling of distance from the source where the distance is over roadways and 7.5 dBA for each doubling of distance from the source where the distance is over fields.

Truck trips generated by project construction would be dispersed throughout the day and over the local road network, and commute trips by construction workers would primarily occur before and after project truck trips occur. Daily transportation of materials and construction workers would not be a substantial source of traffic noise levels along local roadways serving the project area.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion

New facilities at the Salinas Pump Station are proposed for construction at a southwest portion of the City of Salinas and would include diversion structures and short pipelines to re-direct urban runoff, storm water, and agricultural wash water to the RTP for advanced water treatment. Construction activities at this site would include minor grading, demolition, and installation of a wet well/diversion structure and short pipeline segments over five months. General work hours would be between 7:00 AM and 8:00 PM, Monday through Saturday. Construction may occur up to 24 hours per day, 7 days per week due to the necessity of managing wastewater flows; however, major construction of new facilities would be limited to daytime hours. The site is surrounded by unincorporated agricultural lands in Monterey County. Three distant residences to the north, west, and south are in Monterey County and distant residences to the east are in the City of Salinas. Maximum noise levels generated by construction activities at the Salinas Pump Station are calculated to reach 90 dBA L_{max} and 86 dBA L_{eq} at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels ranging from 49 dBA L_{max} and 45 dBA L_{eq} at a distance of 2,200 feet to up to 54 dBA L_{max} and 50 dBA L_{eq} at 1,400-feet, which is the distance to the closest sensitive receptor (i.e., residence), as indicated in **Table 4.14-13, Maximum Construction Noise Levels – Source Water Diversion and Storage Sites**.

Table 4.14-12
Construction Equipment Noise Levels Modeled at 50 feet

Project Component	Duration	Construction Activities	L_{max} (dBA)	L_{eq} (dBA)
Treatment Facilities at Regional Treatment Plant	18 Months*	Site preparation	82	79
		Grading/Excavation	85	87
		Building Exterior	84	86
		Paving	85	87
Salinas Pump Station Source Water Diversion	5 Months	Site Preparation	84	80
		Grading/Excavation	84	83
		Trenching, Grading, Install Valves/Piping	90	86
Salinas Industrial Wastewater Treatment Facility—Storage and Recovery Additions, Return Facilities	13 Months	Construction of Facilities and Slip-lining	91	89
Reclamation Ditch Diversion Site	5 Months	Construction of Facilities and Pipelines (Trenching)	90	86
Blanco Drain Diversion Site	9 Months	Construction of Facilities and Pipelines (Trenching)	90	87
Tembladero Slough Diversion Site	5 Months	Construction of Facilities and Pipelines (Trenching), including vibratory driving	101	94
Lake El Estero Source Water Diversion and Storage Site	3 Months	Demolition	90	83
		Site Preparation	78	74
		Grading/Excavation	84	81
		Trenching	90	86
		Paving	83	78
Product Water Conveyance—Pipeline	15 Months*	Pipeline Installation (250 feet/day for roadways, 400 feet/day open areas)	85	87
Product Water Conveyance— Booster Pump Station Sites	12 Months	Structural work requiring heavy equipment will be completed in 2-3 months.	85	87
Injection Well Facilities Site	17 Months*	Site Preparation	82	81
		Grading/Excavating	85	85
		Deep Injection Wells	85	87
		Vadose Zone Wells	85	85
		Monitoring Well	85	86
		Backflush Pipes and Basin	85	85
CalAm Distribution Facilities	18 Months*	Pipeline Installation (150 feet/day for roadways)	85	87

*An additional three months of testing and start-up to follow construction at these sites.

As shown on **Table 4.14-13**, construction noise levels at the nearest residences would be below the significance threshold for speech interference during the day (70 dBA L_{eq}), and would not exceed the sleep disturbance threshold. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Table 4.14-13
Maximum Construction Noise Levels – Source Water Diversion and Storage Sites

Construction Activity Source	Receptors	Distance to Receptor (In Feet)	Lmax (dBA)	Leq (dBA)
Salinas Pump Station Diversion				
Construction of Diversion Structures and Pipelines (Trenching/Piping)	Farmhouse Residences (Monterey County)	1,400 (north)	54	50
		1,500 (west)	53	49
		1,700 – 2,000 (south)	50 – 52	46 – 48
	Salinas Residences	2,200 (east)	49	45
Salinas Treatment Facility Storage and Recovery				
Construction of Facilities and slip-lining	Monterey County residences	2,500 feet (southeast)	57	55
Reclamation Ditch Diversion				
Construction of Facilities and Pipelines (Trenching)	Monterey County residences	1,000 feet (west)	64	60
Tembladero Slough Diversion				
Construction of Facilities and Pipelines (Trenching)	Monterey County residences	750 feet (north)	77	70
		850 feet (east, across Hwy 1)	76	69
Blanco Drain Diversion				
Construction of Facilities and Pipelines (Trenching)	Monterey County residences	2,400 feet (northeast)	56	53
		3,000 feet (southeast)	54	51
Lake El Estero Diversion				
Construction of Facilities and Pipelines (Trenching)	Monterey Bay Lodge	350 (east-southeast)	73	69
	Residence (near First Street and Camino Aguajito)	500 (southeast)	70	66
Note: The noise attenuation (noise level reduction) rate is assumed to be approximately 7.5 dBA for each doubling of distance from the source where the distance is over fields.				

Salinas Treatment Facility Storage and Recovery

The site is located within the unincorporated area of Monterey County. Improvements are proposed that would enable the agricultural wash water to be conveyed from the ponds at the Salinas Industrial Wastewater Treatment Facility to the Regional Treatment Plant for recycling, and include a wet well/diversion structure, flow meter, onsite surge tank, and a new pipeline connection to the Salinas Pump Station. Construction phases include site preparation, grading, trenching, building of facilities, and paving that will take place over a six-month construction period. General work hours would be between 7:00 AM and 8:00 PM, Monday through Saturday. The site is surrounded by agricultural lands in Monterey County. One distant residence to the southeast is in unincorporated Monterey County. Maximum noise levels generated by construction activities at this site are calculated to reach 91 dBA Lmax and 89 dBA Leq at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 57 dBA Lmax and 55 dBA Leq at 2,500 feet, which is the distance to the closest sensitive receptor (residence) as shown on **Table 4.14-13**.

The nearest residence is about 2,500 feet away from the site. Given the noise attenuation that would result due to the relatively long distance from the construction site to the nearest residence, short-term construction noise impacts at this residence would be less than significant because construction noise levels would be below the significance threshold for speech interference during the day (70 dBA L_{eq}). Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Reclamation Ditch Diversion

New facilities at the Reclamation Ditch Diversion are proposed for construction and would include a wet well/diversion structure, connecting pipelines, flow meter and valves, electrical cabinet, and concrete lining. Construction phases include site preparation, grading, trenching, building of facilities, and paving, occurring over five months. General work hours would be between 7:00 AM and 6:00 PM, Monday through Saturday. During the period the channel is blocked with temporary coffer dams, bypass pumps will need to operate at night and may proceed 7 days a week. The site is surrounded by agricultural lands to the west in Monterey County and industrial land uses to the east in Salinas. One distant residence, located approximately 1,000 feet to the west, is in unincorporated Monterey County. Maximum noise levels generated by construction activities at the Reclamation Ditch Diversion site are calculated to reach 90 dBA Lmax and 86 dBA Leq at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 64 dBA Lmax and 60 dBA Leq at 1,000-feet, which is the distance to the closest sensitive receptor (i.e., residence) as indicated on **Table 4.14-13**.

Given the noise attenuation that would result due to the relatively long distance from the construction site to the residence locations about 1,000 feet away, short-term construction noise impacts at these residences would be less than significant because construction noise would be below the significance threshold for speech interference during the day (70 dBA L_{eq}). Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Tembladero Slough Diversion

New facilities at the Tembladero Slough Diversion site are proposed for construction and would include a wet well/diversion structure, connecting pipelines, flow meter and valves, electrical cabinet, and concrete lining. Construction phases include site preparation, grading, trenching, building of facilities, and paving, taking place over a five-month period. General work hours would be between 7:00 AM and 6:00 PM, Monday through Saturday. During the period the channel is blocked with temporary coffer dams, construction may proceed 7 days a week. The site is surrounded by agricultural lands in Monterey County with one residential land use to the north and a subdivision beyond Hwy 1 to the east. Maximum noise levels generated by construction activities (particularly vibratory driving) at the Tembladero Slough Diversion site are calculated to reach 101 dBA Lmax and 94 dBA Leq at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 77 dBA Lmax and 70 dBA Leq at 750 feet, which is the distance to the closest sensitive receptor (i.e., residence as shown on **Figure 4.14-1a)**.

Short-term construction noise levels at the nearest residences would be below the significance threshold for speech interference during the day (70 dBA L_{eq}) for one nearby sensitive receptor, and at, but not exceeding, 70 dBA L_{eq} for the other nearest sensitive receptor. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Blanco Drain Diversion (Pump Station and Pipeline)

New facilities at the Blanco Drain Diversion site would include a diversion structure, flow meter and valves, an on-site surge tank, electrical cabinet, concrete lining, and pipeline. Construction phases include grading, trenching, building of facilities, and paving, taking place over a nine-month period. General work hours would be between 7:00 AM and 6:00 PM Monday through Saturday. During the period the channel is blocked with temporary coffer dams, construction may proceed 7 days a week. A portion of the new pipeline must be installed using trenchless methods. That work may require 24-hour operations during the drilling phase. A portion of the pipeline would be installed within the existing Regional treatment Plant site that may be performed at night to minimize disruption to plant operations.

The site is surrounded by agricultural lands in Monterey County with an industrial land use to the west. Two distant residences, one to the northeast and another to the southeast, are in unincorporated Monterey County. Maximum noise levels generated by construction activities at the Blanco Drain Diversion site are calculated to reach 90 dBA Lmax and 87 dBA Leq at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 56 dBA Lmax and 53 dBA Leq at 2,400-feet, which is the distance to the closest sensitive receptor (i.e., residence) as shown on **Table 4.14-13**.

Given the noise attenuation that would result due to the relatively long distance from the construction site to the nearest residences, short-term construction noise impacts at these residences would be less than significant because construction noise levels would be below the significance threshold for speech interference during the day (70 dBA L_{eq}) and below the significance threshold for sleep interference (60 dBA L_{eq}) should come construction occur at night. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Lake El Estero Diversion

New facilities at Lake El Estero Diversion site would include either an electrical pump or electrically operated motorized valve, and short connecting pipelines. The improvements would be constructed within the existing lake management pump station structure or underground. Pavement demolition, trenching and installation of new pumps/pump motors, electrical facilities, and flow meters would all occur below grade using only equipment delivery trucks, loaders, and backhoes. Construction activities at these sites would occur 7 AM to 8 PM Monday through Saturday, and would take up to three months to complete.

The Lake El Estero Source Water Diversion and Storage Site and the nearest sensitive receptors southeast of the facility are in the City of Monterey. The site lies within the El Estero recreation area. Maximum noise levels generated by construction activities at the Lake El Estero site are calculated to reach 90 dBA L_{max} and 86 dBA L_{eq} during the loudest construction phase at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 70 dBA L_{max} and 66 dBA L_{eq} at a distance of 500 feet and 73 dBA L_{max} and 69 dBA L_{eq} at 350 feet, which is the distance to the closest sensitive receptor, as indicated in **Table 4.14-13**.

Construction noise levels identified in **Table 4.14-13** would be below the daytime significance threshold for speech interference (70 dBA L_{eq}) at the nearby sensitive receptors, and there would be no nighttime construction at this site. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Treatment Facilities at Regional Treatment Plant

New Advanced Water Treatment facilities are proposed for construction at the Regional Treatment Plant site in a northern portion of Monterey County, north of the city limits of Marina. Construction activities would include cutting, laying, and welding pipelines and pipe connections; pouring concrete footings for foundations, tanks, and other support equipment; constructing walls and roofs; assembling and installing major advanced treatment process components; installing piping, pumps, storage tanks, and electrical equipment; testing and commissioning facilities; and finish work such as paving, landscaping, and fencing the perimeter of the site. Construction may occur up to 24 hours per day, 7 days per week due to the necessity of managing wastewater flows and due to the desire to reduce the construction duration.

In addition, modifications to the existing Salinas Valley Reclamation Plant are proposed in order to enable increased use of tertiary treated wastewater for crop irrigation during winter months. The proposed modifications include new sluice gates, a new pipeline between the existing inlet and outlet structures within the storage pond, chlorination basin upgrades, and a new storage pond platform. All of the modifications would occur within the existing Salinas Valley Reclamation Plant footprint. (See **Section 2.8.2** for further details.) Construction activities would include cutting, laying, and welding pipelines and pipe connections; pouring concrete footings for foundations, and other support equipment; installing piping, sluice gates and electrical equipment; testing and commissioning facilities; and finish work such as repairing the existing storage pond lining. Construction activities related to the Salinas Valley Reclamation Plant Modifications are expected to occur over three months during normal daytime hours, 7:00 AM to 6:00 PM.

A residence to the northwest is in Monterey County, and residences to the southwest are in the City of Marina. Maximum noise levels generated by construction activities at the RTP would reach 85 dBA L_{max} and 87 dBA L_{eq} at a distance of 50 feet. As shown in **Table 4.14-14, Maximum Construction Noise Levels – Regional Treatment Plant**, the source noise level would be attenuated due to distance, resulting in noise levels up to 39 dBA L_{eq} at a distance of one mile and up to 38 dBA L_{eq} at 5,400 feet, which are the distances to the closest sensitive receptors.

Construction noise levels would not exceed the daytime speech interference or nighttime sleep disturbance thresholds at the nearest residences. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Table 4.14-14
Maximum Construction Noise Levels – Advanced Water Treatment Facility

Construction Activity Source	Receptors	Distance to Receptor (In Feet)	L_{max} (dBA)	L_{eq} (dBA)
Construction of AWT Facility (Grading/Excavating)	Monte Road Residence (Monterey County)	5,260 (northwest)	35	39
	Cosky Drive Residences (City of Marina)	5,400 (southwest)	34	38
Note: The noise attenuation rate is assumed to be approximately 6 dBA for each doubling of distance from the source where the distance is over roadways and would be approximately 7.5 dBA for each doubling of distance from the source where the distance is over fields.				

Product Water Conveyance

The Proposed Project would include construction of a pipeline to convey the product water from the proposed AWT Facility to the Seaside Groundwater Basin for injection, along one of two potential pipeline alignments. One option would generally follow the RUWAP recycled water pipeline route through the City of Marina, CSUMB, and the City of Seaside. The other option, referred to as the Coastal Alignment, would follow the MRWPCA's interceptor then along the eastern side of the Transportation Agency of Monterey County railroad right of way. The southern portion of the Coastal Alignment would also be located in the former Fort Ord within CSUMB and the City of Seaside. A pump station would be constructed with either alignment.

For the purpose of modeling construction noise, the location of the construction noise source (acoustic center) is assumed to be the center of the Area of Potential Effect as displayed in the Area of Potential Effect Maps, that are included in **Appendix J** to this EIR. Construction would occur during two daytime shifts between 7:00AM and 8:00 PM, Monday through Saturday, over a 12 to 13-month construction period for the RUWAP and Coastal Alignments, respectively.

RUWAP Alignment

The RUWAP Alignment and adjacent sensitive receptors are described in **Section 4.14.2.2** above. Following the pipeline alignment from north to south, the first sensitive receptors are residences along Quebrada Del Mar Road and Crescent Avenue in the City of Marina. The alignment continues along Carmel Avenue, Vaughan Avenue, Reindollar Avenue, and California Avenue to Patton Parkway within existing residential neighborhoods. These sensitive receptors would be located approximately 25 to 50 feet from the construction activities as discussed below.

The RUWAP Alignment enters the former Fort Ord within CSUMB and continues south of Patton Parkway along California Avenue to 5th Avenue, and continues south along 5th Avenue to the Booster Pump Station located adjacent to the City of Marina Corp Yard. No sensitive receptors border the alignment between Patton Parkway and the Booster Pump Station. CSUMB's Strawberry Apartments housing is located within 500 feet of the RUWAP Alignment where it approaches the Booster Pump Station.

From the Booster Pump Station, the RUWAP Alignment continues south along 5th Avenue and then, entering the City of Seaside, heads east along Inter-Garrison Road passing the CSUMB student dining halls and student center. The alignment heads south at 5th Avenue passing classroom buildings and the campus library. After passing the library, the alignment heads south and then west through open space connecting to General Jim Moore Boulevard south of the Veterans Administration Monterey Clinic. The alignment continues southward along General Jim Moore Boulevard and passes CSUMB outdoor recreation areas, crossing Lightfighter Drive, where the Coastal Alignment would join the RUWAP Alignment.

The two alignment options would both continue southward on General Jim Moore Boulevard passing within approximately 210 to 250 feet of the nearest residences along 4th Army Road and 6th Division Road, respectively, the Post Chapel, Stillwell Elementary School, and the Porter Youth Center at Normandy Road. South of Normandy Road, the alignment passes within 90 to 110 feet of residences, golf courses, and Seaside Middle School on its way to the Injection Well Facilities Site.

The installation of the product water pipeline would generally occur at a rate of 250 feet per day (400 feet per day in undeveloped areas). Pipeline trenching activities would proceed along the project alignment at a rate of 1,250 to 2,000 feet per five working days; approaching and departing any one receptor location over a fairly short duration, e.g. four days. Construction phases include site preparation, grading, trenching, building of facilities, and paving that will take place over a 15-month construction period. General work hours would be between 7:00 AM and 8:00 PM, Monday through Saturday.

Table 4.14-15, Maximum Construction Noise Levels – RUWAP Alignment, summarizes potential noise levels along the alignment. Short-term construction noise levels at the nearest residences would exceed the significance threshold for speech interference during the day (70 dBA L_{eq}) at residences and other sensitive receptors that are located 25 to 280 feet from the construction site. Assuming a source noise level of up to 87 dBA L_{eq} at a distance of 50 feet, and an attenuation rate of 6 dBA per doubling of distance between the noise source and receptor, pipeline construction activities occurring within 350 feet (in either direction) of a sensitive receptor would yield noise levels greater than 70 dBA L_{eq}. Construction noise levels exceeding 70 dBA L_{eq} for more than two weeks would represent a substantial temporary noise increase to nearby residences or other sensitive receptors. The proposed pipeline trenching activities at any one location along the alignment would be limited to approximately four days or less. Although, construction noise would exceed the speech interference significance criteria at most locations along the alignment, the duration would be less than two weeks at any one location, and construction would be limited to daytime hours. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Coastal Alignment

The Coastal Alignment and adjacent sensitive receptors are described in **Section 4.14.2.2**. The Coastal Alignment enters the City of Marina along the west side of Del Monte Boulevard. Between Marina Green Drive and Legion Way, the alignment would be located about 150 feet west of residences along Del Monte Boulevard. South of Legion Way to Beach Road, residences are located both west (as close as 115 feet) and east (150 feet) of the alignment. South of Beach Road, residential land uses are located about 200 feet east of the alignment and the Marina Library is located about 220 feet to the west. The Superior Court of California, Marina Division, located north of Reservation Road, is approximately 150 east of the alignment.

Table 4.14-15
Maximum Construction Noise Levels – RUWAP Alignment

Alignment Segment (Jurisdiction)	Receptors	Distance to Receptor (In Feet)	L_{max} (dBA)	L_{eq} (dBA)
Quebrada Del Mar Road to Patton Parkway (Marina)	Residences	25	91	93
		50	85	87
Patton Parkway to Booster Pump Station (Marina)	CSUMB Housing	500	65	57
5th Avenue to Lightfighter Drive (Seaside)	CSUMB Dining, Student Center, Classrooms	125	77	79
	CSUMB Library	65	83	85
	Veterans Administration Monterey Clinic	240	71	73
Lightfighter Drive to Injection Well Facilities Site (Seaside)	6th Division Road Residences	250	71	73
	4th Army Road Residences	210	73	75
	Post Chapel Porter Youth Center	85	80	82
	Stillwell Elementary School	225	73	75
	Residences between Normandy Road and Coe Avenue (west)	110	78	80
	Residences between Normandy Road and Coe Avenue (west)	90	80	82
	Seaside Middle School	280	70	72
Note: The noise attenuation rate is assumed to be approximately 6 dBA for each doubling of distance for pipeline construction.				

South of Reservation Road, residences are located as near as approximately 80 feet of the Coastal Alignment to Palm Avenue. South of Palm Avenue, the pipeline would be approximately 100 feet east of play fields associated with the Marina Del Mar Elementary School and would be approximately 350 feet east of the nearest building associated with this elementary school. Residences along Marina Drive are located as near as approximately 135 feet west of the Coastal Alignment.

The Coastal Alignment would continue south on Del Monte Boulevard, under the Highway 1 southbound onramp, past MRWPCA's Fort Ord Pump Station. The Coastal Alignment would follow the Transportation Agency of Monterey County rail-line corridor from the Fort Ord Pump Station to Divarty Street. There are no sensitive receptors along this segment. The GWR

Coastal Alignment would cross under Highway 1 at the Divarty Street underpass. The pipeline would follow Divarty Street to 2nd Avenue, where the Booster Pump Station would be located. Land uses along 2nd Avenue include unoccupied buildings and open land. From the proposed Booster Pump Station site, the pipeline would turn south and follow on the west side of 2nd Avenue to Lightfighter Drive. At the intersection of 2nd Avenue and Lightfighter Drive the pipeline would be constructed under Lightfighter Drive by either directional drilling or bore and jack techniques to avoid disruption to this main thoroughfare. From this intersection the alignment would turn eastward and would be constructed on the south side of the Lightfighter Drive roadway, but off the pavement, up to the intersection with General Jim Moore Boulevard. The pipeline would follow the southbound ramp from Lightfighter Drive onto General Jim Moore Boulevard where it would merge to the same alignment as the RUWAP Alignment. There are no sensitive receptors in the vicinity of the Coastal Alignment south of the Booster Pump Station site until it joins the RUWAP Alignment.

The alignment continues southward on General Jim Moore Boulevard passing residences, the Post Chapel, Stillwell Elementary School, and the Porter Youth Center at Normandy Road. South of Normandy Road, the alignment passes residences, golf courses, and Seaside Middle School on its way to the Injection Well Facilities Site.

The installation of the product water pipeline would generally occur at a rate of 250 feet per day (400 feet per day in undeveloped areas). Pipeline trenching activities would proceed along the project alignment at a rate of 1,250 to 2,000 feet per five working days; approaching and departing any one receptor location over a fairly short duration, e.g. four days. Construction phases include site preparation, grading, trenching, building of facilities, and paving that will take place over a 15-month construction period. General work hours would be between 7:00 AM and 8:00 PM, Monday through Saturday.

Table 4.14-16, Maximum Construction Noise Levels – Coastal Alignment summarizes potential noise levels along the alignment. As shown, noise levels resulting from the construction of the Coastal Alignment exceeding 70 dBA L_{eq} would result in speech interference at nearby residences and other sensitive receptors. Assuming a source noise level of up to 87 dBA L_{eq} at a distance of 50 feet from pipeline construction activities, and an attenuation rate of 6 dBA per doubling of distance between the noise source and receptor, pipeline construction activities occurring within 350 feet (in either direction) of a sensitive receptor would yield noise levels greater than 70 dBA L_{eq}. The proposed pipeline trenching activities at any one location along the alignment would be limited to approximately four days or less. Although, construction noise would exceed the speech interference significance criteria at most locations along the alignment, the duration would be less than two weeks. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Table 4.14-16
Maximum Construction Noise Levels – Coastal Alignment

Alignment Segment (Jurisdiction)	Receptors	Distance to Receptor (In Feet)	L_{max} (dBA)	L_{eq} (dBA)
Marina Green to Legion Way (Marina)	Residences	150	75	77
Legion Way to Beach Road (Marina)	Residences	115	78	80
	Residences	150	75	77
Beach Road to Reservation Road (Marina)	Residences	200	73	75
	Marina Library	220	72	74
	Superior Court	150	75	77
Reservation Road to Highway 1 (Marina)	Residences	80	81	83
	Marina Del Mar Elementary School Playfields	100	79	81
	Marina Del Mar Elementary School	350	68	70
	Marina Drive Residences	135	76	78
Highway 1 to Lightfighter Drive (Marina to Seaside)	No Sensitive Receptors	--	--	--
Lightfighter Drive to Injection Well Facilities Site (Seaside)	6th Division Road Residences	250	71	73
	4th Army Road Residences	210	73	75
	Post Chapel Porter Youth Center	85	80	82
	Stillwell Elementary School	225	73	75
	Residences between Normandy Road and Coe Avenue (west)	110	78	80
	Residences between Normandy Road and Coe Avenue (west)	90	80	82
	Seaside Middle School	280	70	72
Note: The noise attenuation rate is assumed to be approximately 6 dBA for each doubling of distance for pipeline construction.				

Booster Pump Station

Both of the proposed new Booster Pump Station options would receive flow from the Product Water Conveyance Pipeline and pump the product water into one of the two proposed alternative alignments that merge to a single alignment along General Jim Moore Boulevard. Construction crews would prepare the pump station site by removing vegetation and grading the sites to create a level work area. Construction activities would include excavations for wet wells, installing shoring and forms, pouring concrete footing for foundations; assembling and installing piping, pumps, and electrical equipment; constructing concrete enclosures and roofs; and finish work such as paving, landscaping, and fencing the perimeter of the pump station sites. Construction would occur over 10-12 months, generally between 7:00 AM and 8:00 PM, Monday through Saturday.

One Booster Pump Station option would be located along the RUWAP Alignment in the City of Marina. The nearest sensitive receptors are residents of the CSUMB campus housing located west of the pump station site and a classroom building southeast of the site. Maximum noise levels generated by structural work at the RUWAP Booster Pump Station option are calculated to reach 85 dBA L_{max} and 87 dBA L_{eq} during the loudest construction phase at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels of up to 66 dBA L_{max} and 68 dBA L_{eq} at a distance of 450 feet and up to 63 dBA L_{max} and 65 dBA L_{eq} at 650 feet, as indicated in **Table 4.14-17, Maximum Construction Noise Levels – RUWAP & Coastal Booster Pump Station Options**. This attenuation calculation is conservative because it does not take into account any additional attenuation that may occur due to topography, vegetation, nor buildings or fences between source and receptor. The RUWAP Booster Pump Station is located at a lower topographic area than nearby sensitive receptors and is surrounded by trees.

Table 4.14-17
Maximum Construction Noise Levels – RUWAP and Coastal Booster Pump Station Option

Construction Activity Source	Receptors	Distance to Receptor (In Feet)	Lmax (dBA)	Leq (dBA)
RUWAP Option				
Booster Pump Structural Work (Heavy Equipment)	Classroom Building	450 (southeast)	66	68
	Campus Housing (Strawberry Apartments)	650 (west)	63	65
Coastal Option				
Booster Pump Structural Work (Heavy Equipment)	Recreation Center	750 (east)	61	63
	Child Development Center	875 (northeast)	60	62

The Coastal Booster Pump Station option would be located on CSUMB property along the Coastal Alignment. There are no residential receptors in the vicinity of the site. A recreation area is located east of the Booster Pump Station site and a child development center is located about 875 feet northeast of the site. The recreation area is on CSUMB property within the City of Seaside while the project and child development center are within the City of Marina. Construction noise source generation would be the same as would occur under the RUWAP Booster Pump Station option. The source noise level would be attenuated due to distance, resulting in noise levels of up to 61 dBA L_{max} and 63 dBA L_{eq} at a distance of 750 feet and up to 60 dBA L_{max} 62 dBA L_{eq} at 875 feet, as indicated in **Table 4.14-17**. As with the RUWAP Booster Pump Station option, these attenuation estimates are conservatively low given the topographic change and structures between source and receptor.

Construction noise levels identified in **Table 4.14-17** at sensitive receptors for booster pump station options would be below the speech interference threshold of 70 dBA $L_{eq,}$ and construction would be limited to daytime or early evening hours (8PM).. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Injection Well Facilities Site

The proposed new Injection Well Facilities would be located east of General Jim Moore Boulevard, south of Eucalyptus Road in the City of Seaside, and would include a total of eight injection wells (four deep injection wells, four vadose zone wells), monitoring wells, and backflush facilities. Construction would occur over a 21-month construction period, and 24 hours/7 days a week construction activities are anticipated to be required at times during construction. For example, drill rigs typically run non-stop during drilling of the well. The deep injection wells would be drilled with rotary drilling methods as is likely for the monitoring wells. To construct the back-flush pipeline, the contractor would excavate pipe trenches, haul off (or spread on site) spoilage, import and install bedding material, and lay pipe, backfill and compact trench. A main electrical power supply/transformer and motor control building would be built for PG&E power supply. The following activities would be required to construct the pump motor control and electrical conveyance facilities:

- Excavation, haul spoilage, import and install bedding material, building foundation, trench, place concrete, backfill and compact trench, and finish concrete floor of electrical building;
- Install exterior electrical control cabinets on the paved area at the four clusters of vadose and deep injection wells; and
- For electrical building, construct block walls, install building windows, doors and louvers, then roof and appurtenances, then interior finishes, lighting and HVAC, and electrical equipment and wiring.

The project component site is within the boundary of former Fort Ord, and the nearest sensitive receptors are within the City of Seaside, which are residences located west of General Jim Moore Boulevard and the proposed well sites, back-flush facility, and operations buildings. Maximum noise levels generated during the loudest construction phase at the monitoring well sites are calculated to be 85 dBA L_{max} and 87 dBA L_{eq} at a distance of 50 feet. This source noise level would be attenuated due to distance, resulting in noise levels of up to 66 dBA L_{eq} at a distance of 500 feet, which is the distance to the closest sensitive receptor (i.e., residence). Maximum construction noise levels generated at the deep injection and vadose zone well sites would be the same as at the monitoring wells. This source noise level would be attenuated due to distance, resulting in noise levels of up to 64 dBA L_{eq} at a distance of 700 feet, which is the distance to the closest sensitive receptor (i.e., residence). Maximum noise levels generated by construction at the back-flush basin site could reach 85 dBA L_{eq} at a distance of 50 feet. This noise level would be attenuated due to distance, resulting in noise levels of 57 dBA L_{eq} at a distance of 1,200 feet, which is the distance to the closest sensitive receptor (i.e., residence).

Well drilling activity is assumed to occur for 24 hours a day at a noise level of 83 dBA L_{eq} at a distance of 50 feet. This noise level was measured during the drilling of the GWR monitoring well at measurement location ST-1, as shown in **Table 4.14-4** above, and is higher than the levels calculated by the noise model, so the actual measured level was used for a credible worst case assessment for the monitoring well. The noise level from drilling would be attenuated due to distance resulting in noise levels up to 63 dBA L_{eq} at a distance of 500 feet at the residence nearest to a monitoring well, and up to 67 dBA L_{eq} at a distance of 700 feet at the residence nearest to a deep injection or vadose well. **Table 4.14-18, Maximum Construction Noise Levels – Injection Well Facilities,** shows worst-case noise levels at nearest noise sensitive receptors to the Injection Well Facilities site.

Daytime construction activities would not exceed the daytime speech interference threshold of 70 dBA L_{eq}. Drilling activities during nighttime hours would result in noise levels up to 63 dBA L_{eq} at receiving properties, exceeding the sleep disturbance threshold of 60 dBA L_{eq} by up to 3 dBA. Therefore, temporary noise increases due to construction would be substantial during times of nighttime construction, and temporary construction noise impacts at this Proposed Project site would be significant. Implementation of Mitigation Measure NV-1a would reduce construction noise with use of equipment barriers or shields, reducing the impact to a less-than-significant level. Mitigation Measure NV-1c would also require notification of construction schedule be sent to sensitive receptors.

Table 4.14-18
Maximum Construction Noise Levels – Injection Well Facilities

Construction Activity Source	Receptors	Distance to Receptor (In Feet)	L_{max} (dBA)	L_{eq} (dBA)
Monitoring Well (Paving)	Residence near Gen. Jim Moore Blvd south of San Pablo Ave.	500 (west)	65	66
Deep Injection and Vadose Wells (Paving)	Residence near Gen. Jim Moore Blvd north of San Pablo Ave.	700 (west)	63	64
Backflush Basin (Grading/Excavating)	Residence along Sandpiper Ct.	1,200 (west)	57	57
Monitoring Well Drilling	Residence near Gen. Jim Moore Blvd south of San Pablo Ave.	500 (west)	69	63
Deep Injection and Vadose Well Drilling	Residence near Gen. Jim Moore Blvd north of San Pablo Ave.	700 (west)	66	60

CalAm Distribution Pipelines

The proposed pipelines would be constructed during daytime hours to the extent feasible. This analysis assumes that the Transfer Pipeline would be constructed only during daytime hours; however, nighttime construction could be required for the Monterey Pipeline component in order to meet the project schedule. All nighttime construction work would be conducted only with prior approval from the relevant jurisdictions. Pipeline installation would occur at a rate of approximately 150 to 250 feet per day.

Transfer Pipeline

The proposed Transfer Pipeline would traverse a residential neighborhood in Seaside. The alignment runs for about one mile, going west from Hilby Avenue to Yosemite Street and La Salle Avenue and west to section of Del Monte Boulevard/Auto Center Parkway. There are no sensitive receptors along Auto Center Parkway. Sensitive receptors in the other portion of the proposed alignment include a mobile home park, schools, and residences. Residences are within 50 feet of the alignment and border the alignment for most of its length. Short-term monitoring location ST-3 (see **Table 4.14-4**), where the ambient daytime noise level was measured at 59.1 dBA L_{eq}, represents the noise environment for the residential receptors.

During construction, the resultant daytime noise level at residential receptors could be as high as 79.2 dBA as shown on **Table 4.14-19, Maximum Construction Noise Levels – CalAm Distribution Pipelines**. Based on a pipeline installation rate of 250 feet per day, the maximum amount of time that any one receptor would be exposed to these noise levels would be limited to up to four days. Although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA L_{eq} as shown on **Table 4.14-19**, the duration of the impact would be less than two weeks. Therefore, temporary noise increases due to construction would not be substantial, and noise impacts at this Proposed Project site would be less than significant.

Table 4.14-19
Maximum Construction Noise Levels – CalAm Distribution Pipelines

Pipeline	Closest Sensitive Receptor(s)	Distance to Receptor (feet)[a]	Existing Ambient Daytime Noise Level at Receptor(s) (dBA L_{eq})	Attenuated Construction Equipment Noise Level at Receptor(s) (dBA L_{eq})[a]	Resultant Noise Level at Receptor(s) during Construction (dBA L_{eq})[b]
Transfer Pipeline	Residences along La Salle Avenue, Yosemite Street, and Hilby Avenue	50	Daytime – 59.1[c]	79.2	Daytime – 79.2 Nighttime – n/a
Monterey Pipeline	Residences (various)	50	Daytime – 60.2[d] Nighttime – 45.8	79.2	Daytime – 79.3 Nighttime – 79.2
		100	Daytime – 61.0[e] Nighttime – 45.8	74.0	Daytime – 74.2 Nighttime – 74.0

NOTES:
[a] Attenuated construction equipment noise levels at the nearest sensitive receptors were calculated using FHWA Roadway Construction Noise Model Version 1.1. This value represents hourly average noise levels based on the estimated percentage of time the various pieces of construction equipment would be operating.
[B] Resultant noise level is the result of logarithmic addition of the values in the two previous columns (i.e., the attenuated construction equipment noise in combination with the ambient noise level at the sensitive receptor). This represents the noise level that could be experienced by a human at the sensitive receptor location.
[C] Based on daytime ambient noise level at short-term noise monitoring location S5.
[D] Based on daytime and nighttime ambient noise level at short-term noise monitoring location S6.
[E] Based on daytime and nighttime ambient noise level at short-term noise monitoring location S7.
SOURCE: ESA, 2014.

Monterey Pipeline

The proposed Monterey Pipeline would extend for 5.4 miles from Seaside to the Monterey Peninsula and would require construction in the cities of Seaside, Monterey, and Pacific Grove. Pipeline construction would occur during daytime hours to the extent feasible, but nighttime construction could be required at certain locations to expedite pipeline installation and meet the project schedule. Approval would be obtained from the local jurisdictions for all nighttime construction activities.

Several residences are located within 50 feet of the pipeline alignment along Del Monte Boulevard, Figueroa Street, Franklin Street, High Street, Spencer Street, and Eardley Street, and thus, sensitive residential receptors are within 50 feet of the alignment in all three affected jurisdictions – Seaside, Monterey, and Pacific Grove. Other sensitive receptors along this pipeline route include hotels and motels, churches, and schools.

Table 4.14-19 presents the estimated construction-related noise levels at the closest sensitive receptors to the proposed Monterey Pipeline alignment. As shown, the resultant noise levels at the nearest residential receptors during daytime construction activities would range from 74.2 to 79.3 dBA, L_{eq}. Based on a pipeline installation rate of approximately 150 feet per day, the maximum duration of time that a receptor would be exposed to construction-related noise increases would be limited to a period of three to five days. Although daytime construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact would be less than two weeks and the construction noise impact associated with increases in daytime noise levels would be less than significant.

If nighttime construction is necessary for the Monterey Pipeline to meet the project schedule, nighttime noise levels at nearby receptors would be similar to daytime noise levels ranging as high as 74.0 and 79.2 dBA, L_{eq}. Because the resultant nighttime noise levels would exceed the sleep interference threshold of 60 dBA, the impact related to temporary increases in ambient nighttime noise levels during construction would be significant. Implementation of Mitigation Measure NV-1b (Noise Control Plan for Nighttime Pipeline Construction) would reduce the severity of this impact (16 dBA of reduction), but not to the degree necessary to reduce construction noise below the sleep interference threshold of 60 dBA, L_{eq} (19 dBA of reduction). Consequently, although the impact at any given receptor would be limited in duration, the impact would remain significant and unavoidable even with implementation of mitigation measures. Mitigation Measure NV-1c would also require notification of construction schedule be sent to sensitive receptors.

On some portions of the Monterey Pipeline where it is not feasible or desirable to perform open-cut trenching, trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, and/or microtunneling could be employed. Such work typically requires excavation and shoring of the jacking and receiving pits by using impact or vibratory sheet pile drivers. Jack-and-bore methods would also be used for pipeline segments that cross beneath Highway 1 or drainages. Should this method be used for the Monterey Pipeline, localized noise levels would be substantially increased (up to 88 dBA, Leq at 100 feet) during installation of sheet piles. The duration of this significant noise impact would be limited to 1 to 3 days at any given sensitive receptor. Although this noise level is above the speech interference threshold of 70 dBA, the construction duration at any one location would be less than two weeks, and thus, the impact associated with temporary increases in daytime ambient noise levels during sheet pile driving (if required) would be less than significant.

Impact Conclusion

Construction activities would result in temporary increases in noise that would not be substantial at Proposed Project construction sites, except for nighttime construction at the Injection Well Facilities and CalAm Distribution Monterey Pipeline sites. Construction noise at all other Proposed Project sites would be less than significant because construction noise levels at the nearest sensitive receptors would be below the significance threshold for speech interference during the day (70 dBA L_{eq}) or would result in exposure for less than two weeks.

For the Injection Well Facilities site, construction noise would not exceed daytime thresholds, but would exceed nighttime thresholds, resulting in a significant construction noise impact. Implementation of Mitigation Measure NV-1a would reduce nighttime construction noise levels to less than that 60 dBA L_{eq} at the nearest residence, which would reduce the impact to a less-than-significant level

Construction noise along the CalAm Distribution Pipelines would exceed the daytime speech interference thresholds, but the duration would be less than two weeks at any one location, resulting in a less-than-significant impact. Any nighttime construction along the Monterey Pipeline could exceed the sleep disturbance threshold, resulting in a significant temporary noise impact. Implementation of Mitigation Measures NV-1b and NV-1c would reduce nighttime construction noise, and limit evening construction times, but would not reduce the impact to a less-than-significant level. Therefore, nighttime construction noise impacts along the CalAm Distribution Monterey Pipeline would remain significant and unavoidable even with implementation of mitigation measures.

Mitigation Measures

Mitigation Measure NV-1a: Drilling Contractor Noise Measures. *(Applies to Injection Well Facilities)*

Contractor specifications shall include a requirement that drill rigs located within 700 feet of noise-sensitive receptors shall be equipped with noise reducing engine housings or other noise reducing technology and the line of sight between the drill rig and nearby sensitive receptors shall be blocked by portable acoustic barriers and/or shields to reduce noise levels such that drill rig noise levels are no more 75 dBA at 50 feet. This would reduce the nighttime noise level to less than 60 dBA L_{eq} at the nearest residence.

The contractor shall submit to the MRWPCA and the Seaside Building Official, a "Well Construction Noise Control Plan" for review and approval. The plan shall identify all feasible noise control procedures that would be implemented during night-time construction activities. At a minimum, the plan shall specify the noise control treatments to achieve the specified above noise performance standard.

Mitigation Measure NV-1b: Monterey Pipeline Noise Control Plan for Nighttime Pipeline Construction. *(Applies to CalAm Distribution System: Monterey Pipeline)*

CalAm shall submit a Noise Control Plan for all nighttime pipeline work to the California Public Utilities Commission for review and approval prior to the commencement of project construction activities. The Noise Control Plan shall identify all feasible noise control procedures to be implemented during nighttime pipeline installation in order to reduce noise levels to the extent practicable at the nearest residential or noise sensitive receptor. At a minimum, the Noise Control Plan shall require use of moveable noise screens, noise blankets, or other suitable sound attenuation devices be used to reduce noise levels during nighttime pipeline installation activities.

Mitigation Measure NV-1c: Neighborhood Notice. *(Applies to Injection Well Facilities and CalAm Distribution System: Monterey Pipeline)*

Residences and other sensitive receptors within 900 feet of a nighttime construction area shall be notified of the construction location and schedule in writing, at least two weeks prior to the commencement of construction activities. The notice shall also be posted along the proposed pipeline alignments, near the proposed facility sites, and at nearby recreational facilities. The contractor shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on construction site fences and included in the construction schedule notification sent to nearby residences.

Mitigation Measure NV-1d: RUWAP Pipeline Construction Noise. *(Applies to the RUWAP Alignment Option of the Product Water Conveyance)*

The following measures will be implemented by the project proponents in response to comments from the Marina Coast Water District if the RUWAP alignment option of the Product Water Conveyance Pipeline is selected for implementation:

- The construction contractor shall limit exterior construction related activities to the hours of restriction consistent with the noise ordinance of, and encroachment permits issued by, the relevant land use jurisdictions.[3]
- The contractor shall locate all stationary noise-generating equipment as far as possible from nearby noise-sensitive receptors. Where possible, noise generating equipment shall be shielded from nearby noise-sensitive receptors by noise-attenuating buffers. Stationary noise sources located 500 feet from noise-sensitive receptors shall be equipped with noise reducing engine housings. Where possible and required by the local jurisdiction, portable acoustic barriers

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shall be placed around stationary noise generating equipment that is located less than 200 feet from noise-sensitive receptors.

- The contractor shall assure that construction equipment powered by gasoline or diesel engines have sound control devices at least as effective as those provided by the original equipment manufacturer (OEM). No equipment shall be permitted to have an unmuffled exhaust.
- The contractor shall assure that noise-generating mobile equipment and machinery are shut-off when not in use.
- Residences within 500 feet of a construction area shall be notified of the construction schedule in writing, prior to construction. The project proponents and contractors shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on construction site fences and written into the construction notification schedule sent to nearby residences.

Impact NV-2: Construction Noise That Exceeds or Violate Local Standards. Construction activity would result in a temporary increase that at some locations could generate noise levels in excess of standards established in the local general plans and/or could violate local regulations. (Criteria a) (Significant and Unavoidable)

Two local jurisdictions have regulations regarding noise limits during construction: County of Monterey and City of Marina. In addition, the cities of Marina, Seaside, and Monterey have regulations that limit hours of construction and/or noise-producing activities. Potential conflicts with these regulations and/or standards are addressed below.

City of Salinas

Pursuant to the City of Salinas Zoning Ordinance (section 37-50-180), no use shall create ambient noise levels that exceed 70 dBA in an agricultural district and 60 dBA in a residential district, although construction activities are not specifically identified. For residential zones, the noise standard shall be 5 dBA lower between 9:00 PM and 7:00 AM, resulting in a maximum allowable nighttime noise level of 55 dBA in a residential zone.

Construction of new facilities at the Salinas Pump Station would occur within the city of Salinas. Construction may occur up to 24 hours per day, 7 days per week due to the necessity of managing wastewater flows; however, major construction of new facilities would be limited to daytime hours. As shown on **Table 4.14-13**, construction noise levels at the nearest residences within the City of Salinas (45 dBA L_{eq}) would be below the City's noise standards. Therefore, construction within the City of Salinas would not generate noise levels in excess of standards established in the local General Plan or noise ordinance.

Monterey County Ordinances

The Monterey County Code section 10.60.030 prohibits the operation of "any machine, mechanism, device, or contrivance which produces a noise level exceeding eighty-five (85) dBA measured fifty (50) feet therefrom" within the unincorporated limits of the County. However, the regulations do not apply to machines or devices that are operated in excess of 2,500 feet of any occupied dwelling. The following project sites are located within the unincorporated area of Monterey County, and potential conflicts with this regulation are addressed below.

Salinas Treatment Facility Storage and Recovery

The site is surrounded by agricultural lands in Monterey County. One distant residence to the southeast is in unincorporated Monterey County. Maximum noise levels generated by construction activities at this site are calculated to reach 89 dBA Leq at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 55 dBA Leq at 2,500 feet, which is the distance to the closest sensitive receptor (residence) as shown on **Table 4.14-13**. Since the nearest residence is located 2,500 away, construction at this site would not violate County Code section 10.60.030.

Reclamation Ditch Diversion

The site is surrounded by agricultural lands to the west in Monterey County and industrial land uses are to the east in Salinas. One distant residence, located approximately 1,000 feet to the west, is in unincorporated Monterey County. Maximum noise levels generated by construction activities at the Reclamation Ditch Diversion site are calculated to reach 86 dBA Leq at a distance of 50 feet, but would be attenuated due to distance, resulting in noise levels up to 60 dBA Leq at 1,000 feet, which is the distance to the closest sensitive receptor (i.e., residence) as indicated on **Table 4.14-13**. During the period the channel is blocked with temporary coffer dams, bypass pumps will need to operate at night. Construction noise could conflict with Monterey County Code Section 10.60.030 because some of the construction equipment was modeled to result in noise levels at or above 85 dBA at 50 feet, and construction would occur within 2,500 feet of residences within the unincorporated area of the county. Therefore, construction activities at this site could generate noise levels in excess of local standards, which is considered a significant impact. However, Mitigation Measure NV-2a requires that construction equipment have properly operating mufflers and stationary noise equipment be located as far as possible from sensitive receptors, consistent with County General Plan Policy S-7.10. Implementation of this measure would reduce noise levels generated by construction activities to below 85 dBA at 50 feet, and therefore would reduce the impact to a less-than-significant level.

Tembladero Slough Diversion

The site is surrounded by agricultural lands in Monterey County with one residential land use to the north and a subdivision beyond Hwy 1 to the east. Maximum noise levels generated by construction activities (particularly vibratory driving) at the Tembladero Slough Diversion site are calculated to reach 94 dBA Leq at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 70 dBA Leq at 750 feet, which is the distance to the closest sensitive receptor (i.e., residence) as indicated on **Table 4.14-13** and shown on **Figure 4.14-1a**. Construction noise could conflict with Monterey County Code Section 10.60.30 because some of the construction equipment was modeled to result in noise levels above 85 dBA at 50 feet, and construction would occur within 2,500 feet of residences within the unincorporated area of the county. Therefore, construction activities at this site could generate noise levels in excess of local standards, which is considered a significant impact. Mitigation Measure NV-2a will ensure consistency with General Plan Policy S-7.10 regarding construction equipment and would reduce construction noise levels, but may not reduce sound below 85 dBA at 50 feet, and therefore the construction may temporarily conflict with local noise standards, a significant unavoidable impact. However, as indicated in the Impact NV-1 discussion for this site, construction noise at this site would not exceed the significance threshold for speech interference during the day (70 dBA L_{eq}) at the nearest sensitive receptor.

Blanco Drain Diversion (Pump Station and Pipeline)

The site is surrounded by agricultural lands in Monterey County with an industrial land use to the west. Two distant residences, one to the northeast and another to the southeast, are in unincorporated Monterey County. Maximum noise levels generated by construction activities at the Blanco Drain Diversion site are calculated to reach 87 dBA Leq at a distance of 50 feet. The source noise level would be attenuated due to distance, resulting in noise levels up to 56 dBA Lmax and 53 dBA Leq at 2,400-feet, which is the distance to the closest sensitive receptor (i.e., residence) as indicated on **Table 4.14-13** and shown on **Figure 4.14-1a**. Construction noise could conflict with Monterey County Code Section 10.60.30 because some of the construction equipment would result in noise levels above 85 dBA at 50 feet, and construction would occur within 2,500 of a residence within the unincorporated area of the county. Therefore, construction activities at this site could generate noise levels in excess of local standards, which is considered a significant impact. However, Mitigation Measure NV-2a will ensure consistency with General Plan Policy S-7.10 regarding construction equipment and would reduce noise levels to below 85 dBA at 50 feet, which would reduce the impact to a less-than-significant level.

Section 10.60.040 of the County Code applies to nighttime noise, in which it is prohibited to make, assist in making, allow, continue, create, or cause to be made any loud and unreasonable sound any day of the week from 10:00 PM to 7:00 AM that exceeds 65 dBA L_{max} or 45 dBA L_{eq} as measured at or from the property line. Construction noise levels would reach 56 dBA L_{max} at the nearest receptor during nighttime construction, which is below the 65 dBA L_{max} noise level (**see Table 4.14-14**), and would not result in loud and unreasonable noise, consistent with the intent of the ordinance adopting the regulations. However, the temporary nighttime noise would result in 53 dBA L_{eq}, which would exceed the L_{eq} standard for the nighttime hours. The proposed facilities include improvements to the existing treatment facilities in order to provide additional agricultural irrigation water via the Castroville Seawater Intrusion Project, and commercial agricultural operations are exempt from the provisions of Section 10.60.040 of the County Code.

Treatment Facilities at Regional Treatment Plant

New Advanced Water Treatment facilities are proposed for construction at the Regional Treatment Plant site in a northern portion of Monterey County, north of the city limits of Marina. As shown in **Table 4.14-14**, the source noise level would be attenuated due to distance, resulting in noise levels up to 39 dBA L_{eq} at a distance of one mile and up to 38 dBA L_{eq} at 5,400 feet, which are the distances to the closest sensitive receptors. Some of the proposed construction equipment would result in noise levels at or above 85 dBA at 50 feet; however, no residences are within 2,500 feet of construction. Therefore, construction noise would be in conformance with the Monterey County Code Section 10.60.030. Section

Section10.60.040 of the County Code applies to nighttime noise, in which it is prohibited to make, assist in making, allow, continue, create, or cause to be made any loud and unreasonable sound any day of the week from 10:00 PM to 7:00 AM that exceeds 65 dBA L_{max} or 45 dBA L_{eq} as measured at or from the property line. Construction noise levels would reach 39 dBA L_{eq} and 35 dBA L_{max} at the nearest receptor during nighttime construction, which is below the 65 dBA L_{max} or 45 dBA L_{eq} noise levels (**see Table 4.14-14**), and would not result in loud and unreasonable noise, consistent with the intent of the ordinance adopting the regulations.

City of Marina

Chapter 9.24 of the City of Marina Municipal Code establishes noise regulations within Marina. Pursuant to section 9.24.040.D, operation or use of a range of tools and power equipment is limited to between the hours of 7 AM and 7 PM on Monday through Saturday, and between the hours of 10 AM and 7 PM on Sundays and holidays, and when daylight savings time is in effect, until 8:00 PM. However, section 9.24.050 exempts activities on or in publicly owned property and facilities, or by public employees or city franchisees, while in the authorized discharge of their responsibilities, provided that such activities have been authorized by the owner of such property or facilities or its agent. Section 15.04.055 identifies the same time limits when construction that is adjacent to residential uses, including transient lodging. This section of the Municipal code further indicates that no construction, tools or equipment are allowed to produce a noise level of more than 60 decibels for 25% of an hour during construction at any receiving property line.

Product Water Conveyance and Booster Pump Station

Segments of both the RUWAP and Coastal Alignment recycled water pipeline routes would be located in the City of Marina. Construction would occur during two daytime shifts between 7:00AM and 8:00 PM, Monday through Saturday. Pipeline construction activities occurring within 350 feet (in either direction) of a sensitive receptor would yield noise levels greater than 70 dBA L_{eq} as shown on **Tables 4.14-15** and **4.14-16**. Additionally, the RUWAP Booster Pump Station would be located in the City of Marina. Maximum noise levels generated by structural work at the RUWAP Booster Pump Station option are calculated to reach 85 dBA L_{max} and 87 dBA L_{eq} during the loudest construction phase at a distance of 50 feet.

Noise within the City of Marina exceeding 60 dBA for 25% of an hour at any receiving residential property in Marina could conflict with the City of Marina Municipal Code. Additionally, the City of Marina limits construction to the hours of 7:00 AM and 7:00 PM on Monday through Saturday and between 10:00 AM and 7:00 PM on Sundays and holidays, except construction until 8:00 PM is permitted when daylight savings time is in effect.

Construction of the pipeline segments and booster pump station within the City of Marina could result in noise levels that exceed the levels specified in the City of Marina code (exceeding 60 dBA for 25% of an hour adjacent to residential uses). Therefore, construction activities could generate noise levels in excess of local standards, including established construction time limits, which is considered a significant impact. Implementation of Mitigation Measures NV-2a and NV-2b would reduce this impact to a less-than-significant level by ensuring that construction activities on pipeline segments within the City of Marina do not exceed 60 dBA for more than 25 percent of an hour, and by limiting construction hours within the City of Marina to those allowed under the City's noise regulations.

City of Seaside

Chapter 9.12 of the City of Seaside Municipal Code establishes noise regulations within Seaside. Pursuant to section 9.12.030.D, operation or use of a range of tools and power equipment and any construction, demolition, excavation, erection, alteration, or repair activity is declared to be unlawful and a nuisance if it occurs before 7:00 AM or after 7:00 PM daily (except Saturday, Sunday, and holidays when the prohibited time shall be before 9:00 AM and after 7:00PM) unless authorized in writing by a building official. Section 9.12.040D exempts activities on or in publicly owned property and facilities, or by public employees or their franchisees, while in the authorized discharge of their responsibilities, provided that such activities have been authorized by the owner of such property or facilities or its agent or by the employing authority.

Seaside's Municipal Code Section 17.30.060 of Title 17 (Zoning Ordinance) establishes noise standards to implement policies of the Noise Element of the General Plan and provides noise mitigation standards that are intended to protect the community health, safety and general welfare by limiting exposure to the unhealthful effects of noise. No “use, activity, or process shall exceed the maximum allowable noise levels” established in this section, except for “construction, maintenance, and/or repair operations by public agencies and/or utility companies or their contractors that are serving public interest and/or protecting the public health, safety, and general welfare” (section 17.30.060B.3)..

Product Water Conveyance and Booster Pump Station

Segments of both the RUWAP and Coastal Alignment recycled water pipeline routes and Coastal Booster Pump Station would be located in the City of Seaside. Construction would occur during two daytime shifts between 7:00AM and 8:00 PM, Monday through Saturday. Pipeline construction activities occurring within 350 feet (in either direction) of a sensitive receptor would yield noise levels greater than 70 dBA L_{eq} as shown on **Tables 4.14-15** and **4.14-16**.

Daytime work shift times would violate Seaside regulations that prohibit construction after 7:00 PM and before 9 AM on Saturdays. Because the Proposed Project would be constructed on publicly owned property and would be undertaken by a public agency that is serving the public interest, the project would be exempt from the City of Seaside construction hours and noise standards.

Injection Well Facilities Site

The proposed new Injection Well Facilities would be located east of General Jim Moore Boulevard, south of Eucalyptus Road in the City of Seaside, and would include a total of eight injection wells (four deep injection wells, four vadose zone wells), monitoring wells, and backflush facilities. Construction would occur over a 21-month construction period, and 24 hours/7 days a week construction activities are anticipated to be required at times during construction. Monitoring well drilling would yield noise levels greater than 65 dBA Leq at the nearest residence, as shown on **Table 4.3-18.**

Because the Proposed Project would be constructed on publicly owned property and would be undertaken by a public agency that is serving the public interest, the project would be exempt from the City of Seaside construction hours and noise standards.

City of Monterey

The City of Monterey has not established quantitative construction noise limits. However, Section 38-112.2 of the City’s Municipal Code limits construction to the following: Monday through Friday between the hours of 7:00 AM and 7:00 PM, on Saturday between 8:00 AM and 6:00 PM, and on Sunday between 10:00 AM and 5:00 PM. Pursuant to this section, the City a permit may be issued by the Zoning Administrator for requests to conduct construction activity outside listed hours for unique circumstances.

Lake El Estero Diversion

Construction of new facilities at Lake El Estero Diversion site would occur Monday through Saturday, 7 AM to 8 PM, and would take up to three months to complete. Construction activities after 7 PM would conflict with City regulations, although a permit may be issued by the Zoning Administrator for construction activities outside hours specified in the City’s Municipal Code. Because the City of Monterey Municipal Code allows the Zoning Administrator to permit construction activity outside listed hours, the construction activities would not violate local regulations.

CalAm Distribution Pipelines

The proposed pipelines would be constructed during daytime hours to the extent feasible. However, nighttime construction could be required for the Monterey Pipeline component in order to meet the project schedule. All nighttime construction work would be conducted only with prior approval from the relevant jurisdictions. Because the City of Monterey Municipal Code allows the Zoning Administrator to permit construction activity outside listed hours, the construction activities would not violate local regulations.

Impact Conclusion

Construction activities at some of the Proposed Project components could generate noise levels that are in excess of local standards and/or regulations, as summarized below. This would be considered a significant impact. No impacts would occur at the remainder of the Proposed Project sites.

- Monterey County: Construction at the Reclamation Ditch, Tembladero Slough and Blanco Drain Diversion sites could conflict with County Code Section 10.60.030 as some construction equipment could result in noise levels at or above 85 dBA at 50 feet and construction would occur within 2,500 feet of residences within the unincorporated area of the county. However, Mitigation Measure NV-2a requires that construction equipment have properly operating mufflers and stationary noise equipment be located as far as possible from sensitive receptors, consistent with County General Plan Policy S-7.10. Implementation of this measure would reduce noise levels to below 85 dBA at 50 feet, except potentially for the Tembladero Slough Diversion site.
- City of Marina: Construction of segments of the RUWAP and Coastal Alignment Product Water Conveyance Pipelines and the RUWAP Booster Pump Station could violate Municipal Code Section 15.04.055 as construction activities could exceed 60 dBA for 25% of an hour and construction would occur after 7 PM.

Mitigation Measure NV-2a would reduce construction noise and ensure compliance with Monterey County and City of Marina noise standards. Mitigation Measure NV-2b would limit evening construction times to those specified by the Marina City Code. These measures would reduce the impact from inconsistency with local noise regulations to a less-than-significant level, except for some potential construction noise at Tembladero Slough Diversion site.

Mitigation Measures

Mitigation Measure NV-2a: Construction Equipment. *(Applies to Reclamation Ditch Diversion, Tembladero Slough Diversion, Blanco Drain Diversion, Product Water Conveyance Pipeline (RUWAP and Coastal Alignments) segments within the City of Marina and RUWAP Booster Station)*

Contractor specifications shall include a requirement that the contractor shall:

a. Assure that construction equipment with internal combustion engines has sound control devices at least as effective as those provided by the original equipment manufacturer. No equipment shall be permitted to have an un-muffled exhaust.

b. Impact tools (i.e., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler shall be placed on the compressed air exhaust to lower noise levels by approximately 10 dBA. External jackets shall be used on impact tools, where feasible, in order to achieve a further reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.

c. The construction contractor(s) shall locate stationary noise sources (e.g., generators, air compressors) as far from nearby noise-sensitive receptors as possible,

d. For Product Water Conveyance pipeline segments within the City of Marina, noise controls shall be sufficient to not exceed 60 decibels for more than twenty-five percent of an hour,

Mitigation Measure NV-2b: <u>Construction Hours</u>. *(Applies to Product Water Conveyance Pipelines (RUWAP and Coastal Alignments) and RUWAP Booster Pump Station in the City of Marina)*

The construction contractor shall limit all noise-producing construction activities within the City of Marina to between the hours of 7:00 AM and 7:00 PM on weekdays and between 9:00 AM and 7:00 PM Saturdays~~, except that construction may be allowed until 8:00 PM during daylight savings time~~.

Impact NV-3: <u>Construction Vibration.</u> Construction of the Proposed Project would not expose sensitive receptors to excessive groundborne vibration. (Criteria b) (Less than Significant)

To assess the potential for vibration to result in structural damage, Caltrans recommends a vibration limit of 0.5 in/sec PPV for structurally sound buildings that are designed to modern engineering standards, 0.3 in/sec PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and a conservative limit of 0.08 in/sec PPV for ancient buildings or buildings that are documented to be structurally weakened.

All buildings in the project vicinity appear to be structurally sound, but these buildings may or may not have been designed to modern engineering standards. To be conservative, vibration impacts would be considered significant if levels from proposed construction activities would exceed 0.3 in/sec PPV at nearby buildings. Vibration levels exceeding 0.3 in/sec PPV could result in cosmetic damage. No ancient buildings or buildings that are documented to be structurally weakened are known to exist near the project component sites, except along segments of the CalAm Distribution System Monterey Pipeline in the vicinity of historic structures. Potential vibration significance criteria and impacts to historic structures are addressed in **Section 4.6, Cultural and Paleontological Resources**, of this EIR.

In areas near existing buildings, the construction methods for the Proposed Project include both open trench installation and trenchless construction methods. Open trench construction activities with the potential of generating perceptible vibration levels would include the removal of pavement and soil, and the compacting of backfill after the new pipeline is installed. Trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, and/or microtunneling would be employed where it is not feasible or desirable to perform open-cut trenching. **Table 4.14-20, Vibration Source Levels for Construction Equipment,** summarizes typical vibration levels associated with varying pieces of construction equipment at a distance of 25 feet.

A review of the proposed equipment and the vibration level data provided in **Table 4.14-20** indicates that, with the exception of impact or vibratory pile driving (not proposed as a construction technique for any project component), vibration levels generated by the proposed equipment would be below the 0.3 in/sec PPV criterion used to assess the potential for cosmetic or structural damage to buildings located beyond a distance of 25 feet. The nearest buildings would be a minimum distance of 25 feet from the work areas for all project components. Trenchless construction methods results in less vibration than open trench construction activities because the equipment used in these processes are not high-powered vibratory devices, and the depth of the underground tunnel increases the distance between the equipment and structures on the surface and reduces vibration. Therefore, construction related vibration would not be excessive at nearby land uses, resulting in a less than significant impact.

Table 4.14-20
Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 ft. (in/sec)
Pile Driver (Impact)	upper range	1.158
	typical	0.644
Pile Driver (Sonic)	upper range	0.734
	typical	0.170
Clam shovel drop		0.202
Hydromill (slurry wall)	in soil	0.008
	in rock	0.017
Vibratory Roller		0.210
Hoe Ram		0.089
Large bulldozer		0.089
Caisson drilling		0.089
Loaded trucks		0.076
Jackhammer		0.035
Small bulldozer		0.003

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Federal Transit Agency, Office of Planning and Environment, May 2006.

Impact Conclusion

The Proposed Project would not result in excessive construction-related vibration at any of the Proposed Project sites, resulting in a less-than-significant impact, and no mitigation measures would be required.

4.14.4.5 Operation Impacts and Mitigation Measures

Impact NV-4: Operational Noise. Operation of the Proposed Project facilities would potentially increase existing noise levels, but would not exceed noise level standards and/or result in nuisance impacts at sensitive receptors. (Criteria a and c) (Less than Significant)

The Proposed Project would not locate any above-ground facilities in areas with noise levels that exceed a noise-land use compatibility standard. As shown on **Table 4.14-5**, utilities are normally acceptable in areas where ambient noise levels are up to 70 dBA, Ldn or CNEL. All of the above-ground facilities would be located in areas where ambient noise levels are below this level. Thus, project operations would not expose employees to noise levels that exceed standards.

Sources of noise associated with the operation of the Proposed Project would include new pumps and other equipment at the Source Water Diversion and Storage Sites, the Regional Treatment Plant, the Salinas Pump Station, the Product Water Conveyance Booster Station, and the new Injection Well Facilities. No operational noise sources would result from the Product Water Conveyance Pipeline or CalAm Distribution Pipelines. Employee traffic and maintenance activities would not be considerable sources of noise for the following reasons:

- Operational Traffic: **Table 2-10, Overview of Typical Facility Operations – Proposed Project** of the Project Description provides a summary of operational trips anticipated for each of the various project components; these trips are a combination of employee commute trips, maintenance trips, and delivery of materials to the various pump stations and well sites. The project would generate up to 10 employee trips and 2 truck trips per day at the AWT facility and fewer trips at any other facility. Noise generated by employee and truck traffic would not be considerable due to the minor number of trips generated at any one facility. Generally, an increase in one decibel would result from a significant number of trips (e.g., 26% more trips as compared to existing vehicle trips along a roadway). Thus, associated impacts not be perceptible and would be less than significant.

- Maintenance Activities: Noise that would be associated with plant, pipeline, and other facility maintenance would be short-term and infrequent resulting from activities that would not result in measureable increases of ambient noise levels in the surrounding area. Impacts related to project maintenance would be less than significant.

Source Water Diversion and Storage Sites

Salinas Pump Station Diversion

New facilities at the Salinas Pump Station include diversion structures and short pipelines to re-direct urban runoff, storm water, and agricultural wash water to the Regional Treatment Plant for advanced water treatment. No new permanent noise-generating equipment, such as pumps, are proposed at this location and there would be no impact related to noise generated by Proposed Project operations at this site.

Salinas Treatment Facility Storage and Recovery

The Proposed Project includes improvements that would enable the agricultural wash water to be conveyed from the ponds at the Salinas Industrial Wastewater Treatment Facility to the Regional Treatment Plant for recycling. Components of the project include a new pump station, pipeline, on-site piping, SCADA, and a return with valve and meter vaults. No new operations/maintenance staff is expected. The only source of noise associated with this component of the project would be a new submersible pump installed in the wet well. The sound of the submersible pump would be attenuated at the water/air interface because the acoustical characteristics of water and air are different given that the density of water is so much greater than the density of air. The sound of the submersible pump would be barely audible just outside of the wet well. Operational noise levels would not make a measurable contribution to ambient noise levels at the nearest receptors approximately 2,500 feet southeast of the site. The impact related to noise generated by operations of the Proposed Project at this site is less than significant.

Reclamation Ditch Diversion

New facilities at the Reclamation Ditch Diversion site east of Davis Road include improvements to divert water to the Regional Treatment Plant. Improvements include a wet well/diversion structure, connecting pipelines, flow meter and valve, electrical pump/cabinet, and concrete lining of channel banks. The only source of noise associated with this component of the project would be a new submersible pump installed in the wet well. The submersible pump and associated piping would be installed below grade and submersed in water. The sound of the submersible pump would be attenuated at the water/air interface because the acoustical characteristics of water and air are different given that the density of water is so much greater than the density of air. The noise from the new pump would be barely audible just outside of the wet well in the absence of traffic along Davis Road and inaudible at residences located approximately 1,000 feet away from the Davis Street site along West Market Circle (west), West Rossi Street (northwest), and Nacional Court (south). The impact related to noise generated by operations of the Proposed Project at this site is less than significant.

Tembladero Slough Diversion

Improvements to divert water to the Regional Treatment Plant at the Tembladero Slough site include a wet well/diversion structure, connecting pipelines, flow meter and valves, electrical cabinet, and concrete lining of channel banks. Similar to the Reclamation Ditch Diversion site east of Davis Road, the sound of the proposed submersible pump in the wet well would be barely audible just outside of the wet well in the absence of local traffic along Highway 1. Operational noise levels from new noise-generating equipment would not make a measurable contribution to ambient noise levels resulting from Highway 1 traffic at the nearest receptors along Watsonville Road (750 feet north of the project site) or Merritt Circle (850 feet east of the project site). The impact related to noise generated by operations of the Proposed Project at this site is less than significant.

Blanco Drain Diversion (Pump Station and Pipeline)

The Blanco Drain Diversion includes improvements that would allow for the diversion of water to the Regional Treatment Plant for recycling. Components of the project include a wet well/diversion structure, flow meter, valves, and on-site surge tank, connecting pipelines, electrical cabinet, concrete lining of channel banks, and pipelines. The only source of noise associated with this component of the project would be a new submersible pump installed in the wet well. As noted above, the sound of the submersible pump would be attenuated and barely audible just outside of the wet well. Operational noise levels would not make a measurable contribution to ambient noise levels at the nearest receptors approximately 2,400 feet east-northeast of the site along Nashua Road. The impact related to noise generated by operations of the Proposed Project at this site is less than significant.

Lake El Estero Diversion

New facilities at the Lake El Estero site include either an electrical pump or electrically operated motorized valve, and short connecting pipelines. The improvements would be housed within the existing lake management pump station structure or underground. The small diversion pump would be located within the pump vault that houses two larger pumps. The addition of the new pump would not measurably affect the noise emanating from the pump station, because the new pump would be used instead of the existing pumps. The impact related to noise generated by operations of the Proposed Project at this site is less than significant.

Treatment Facilities at Regional Treatment Plant

New facilities at the Regional Treatment Plant would include pre-treatment, the AWT Facility, product water pump station, and concentrate disposal facilities. As previously indicated, modifications to the existing Salinas Valley Reclamation Plant are proposed in order to enable increased use of tertiary treated wastewater for crop irrigation during winter months. The proposed modifications include new sluice gates, a new pipeline between the existing inlet and outlet structures within the storage pond, chlorination basin upgrades, and a new storage pond platform. All of the modifications would occur within the existing Salinas Valley Reclamation Plant footprint and would not include new sound-generating equipment.

The AWTF and concentrate disposal facilities (or brine mixing facility) would include several structures each. New pipes will be underground. The Product water pump station would be within a structure if not underground. The membrane filtration feed pumps may be in underground structure. The reverse osmosis feed pumps would be above ground but may be in an enclosure. In the analysis of operational noise, because mechanical equipment noise is constant, the L_{eq} noise level is used to assess operational noise against the relevant thresholds.

The proposed new AWT Facility would have a design capacity of between 3.5 and 4.0 million gallons per day (mgd) of product water. Noise resulting from new facilities would be generated from proposed stationary sources associated with facility operations, primarily electric water pumps. The estimated motor size for each pump is 400 hp or less. The pumps have an estimated combined noise level of 108 dBA L_{eq} at a distance of 3 feet. Typical operating conditions would result in pump noise levels of approximately 85 dBA L_{eq} at 50 feet assuming the pumps were at grade and not inside an enclosure. There are no other known sources of noise that would measurably increase the noise levels generated by the pumps. A residence to the northwest is in Monterey County and residences to the southwest are in the City of Marina. Maximum noise levels generated by operations at the RTP would be 37 dBA L_{eq} at a distance of approximately 1 mile as summarized on **Table 4.14-21, Operational Noise Levels – Regional Treatment Plant**.

Table 4.14-21
Operational Noise Levels – AWT at Regional Treatment Plant

Operational Source	Receptors	Distance to Receptor	L_{eq}
Treatment Facilities at the Regional Treatment Plant (i.e., new pumps at the AWT and Brine Mixing Facilities)	Monte Road Residence	5,260 feet/1 mile (northwest)	37
	Cosky Drive Residences	5,400 feet (southwest)	37
Note: The noise attenuation rate is assumed to be approximately 7.5 dBA for each doubling of distance from the source where the distance is over fields.			

Noise levels as a result of the operation of the new facilities at the RTP would not exceed the City of Marina or Monterey County noise standards at the nearest sensitive receptors. Noise levels would be substantially below ambient noise levels in the surrounding area, and plant operations would not result in an increase in ambient noise levels that would exceed local standards. The impact related to noise generated by operations of the Proposed Project at this site is less than significant.

Section 10.60.040 of the County Code applies to nighttime noise, in which it is prohibited to make, assist in making, allow, continue, create, or cause to be made any loud and unreasonable sound any day of the week from 10:00 PM to 7:00 AM that exceeds 65 dBA Lmax or 45 dBA Leq as measured at or outside the property line. As indicated above, noise levels would reach 37 dBA at the nearest sensitive receptor, which is below the 65 dBA Lmax or 45 dBA Leq noise levels, and operations would not result in loud and unreasonable noise, consistent with the intent of the ordinance adopting the regulations. Furthermore, the proposed facilities include improvements to the existing treatment facilities in order to provide additional agricultural irrigation water via the Castroville Seawater Intrusion Project which is in direct support of commercial agricultural operations, which are exempt from the provisions of Section 10.60.040 of the County Code.

Product Water Conveyance

The proposed new Booster Pump Station would receive flow from the Product Water Conveyance Pipeline and pump the product water into one of the two proposed alternative alignments that merge to a single alignment along General Jim Moore Boulevard. One Booster Pump Station option would be located along the RUWAP Alignment in the City of Marina. The nearest sensitive receptors would be residents of the CSUMB campus housing located west of the pump station site and a classroom building southeast of the site.

Noise resulting from the Booster Pump Station would primarily result from the operation of electric water pumps. Two nominal 250 hp pumps would be installed, but only one pump would operate at any given time. The estimated operational noise level would be 93 dBA L_{eq} at a distance of three feet. Typical operating conditions would result in pump reference noise levels of approximately 70 dBA L_{eq} at 50 feet assuming the pumps were at grade and not inside an enclosure. The additional attenuation provided by locating the pumps below ground and within an enclosure is conservatively estimated to be 20 dBA resulting in pump reference noise levels of approximately 50 dBA L_{eq} at 50 feet. The nearest sensitive receptors are residents of the CSUMB campus housing located west of the pump station site and a classroom building southeast of the site. Maximum noise levels generated by operations at Booster Pump Station RUWAP Option are calculated to result in noise levels of up to 31 dBA L_{eq} at a distance of 450 feet and up to 28 dBA L_{eq} at 650 feet, as indicated in **Table 4.14-22, Operational Noise Levels – RUWAP Booster Pump Station Option**.

Noise levels as a result of the operation of RUWAP Booster Pump Station Option would not exceed the City of Marina noise standards for daytime noise at the nearest classroom buildings or the daytime or nighttime noise standards at the campus housing. Operational noise levels would not result in a measurable contribution or increase to existing ambient noise levels at the nearest receptors.

Table 4.14-22
Operational Noise Levels – RUWAP Booster Pump Station Option

Operational Source	Receptors	Distance to Receptor	L_{eq}
RUWAP Booster Pump Station Option	Classroom Building	450 feet (southeast)	31
	Campus Housing (Strawberry Apartments)	650 feet (west)	28

The second Booster Pump Station option would be located on CSUMB property along the Coastal Alignment. There are no residential receptors in the vicinity of the site. A recreation area is located east of the Booster Pump Station site and a child development center is located about 875 feet northeast of the site. The recreation area is on CSUMB property within the City of Seaside while the project and child development center are within the City of Marina. Operational noise generation from the pump station would be the same as the RUWAP option. Maximum noise levels generated by operations at the Coastal Booster Pump Station Option are calculated to result in noise levels of up to 41 dBA L_{eq} at a distance of 750 feet and up to 40 dBA L_{eq} at 875 feet, as indicated in **Table 4.14-23, Operational Noise Levels – Coastal Booster Pump Station Option**.

Table 4.14-23
Operational Noise Levels – Coastal Booster Pump Station Option

Operational Source	Receptors	Distance to Receptor	L_{eq}
Coastal Booster Pump Station Option	Recreation Center	750 feet (east)	41
	Child Development Center	875 feet (northeast)	40

Noise levels as a result of the operation of the Coastal Booster Pump Station option would not exceed the City of Marina noise standards for daytime or nighttime noise. Operational noise levels would not make a measurable contribution to ambient noise levels at the nearest receptors. The impact related to noise generated by operations of the Product Water Conveyance system less than significant.

Injection Well Facilities

The proposed new Injection Well Facilities would be located east of General Jim Moore Boulevard, south of Eucalyptus Road in the City of Seaside, and include up to eight injection wells (four deep injection wells, four vadose zone wells), monitoring wells, and back-flush facilities. Each injection well would be equipped with a well pump to back-flush the well. The estimated motor size for each pump is approximately 400 hp. The back-flush pumps are the only considerable source of noise from these facilities. The back-flushing rate would be approximately 2,000 gallons per minute (gpm) and would require a well pump and motor. Based on the experience of the Monterey Peninsula Water Management District in the operation of its nearby Aquifer Storage and Recovery wells, back-flushing of each injection well would occur about weekly and would require discharge of the back-flush water to a percolation pond, or backflush basin, with a capacity of about 300,000 gallons. At this back-flush rate, the pump would operate for about 150 minutes during the daytime.

The 400 hp back-flush pump has an estimated noise level 85 dBA L_{eq} at 50 feet assuming the pumps are at grade and not inside an enclosure. The nearest residences to the proposed Deep Injection Well 4 (DIW4) as shown on **Figure 4.14-1C, Sensitive Noise Receptors Near Project Facilities-Product Water Pipeline and Injection Well Site** are located 700 feet to the west in Seaside. The maximum noise level, generated by backflush operations at DIW4, is calculated to be 56 dBA L_{eq} and 46 dBA CNEL, as indicated in **Table 4.14-24, Operational Noise Levels – Injection Well Facilities**. The impact related to noise generated by operations of the Proposed Project at this site is less than significant.

Table 4.14-24
Operational Noise Levels – Injection Well Facilities

Operational Source	Receptors	Distance to Receptor	L_{eq}	CNEL
Backflush Pump	Residence near Gen. Jim Moore Blvd north of San Pablo Ave.	700 feet (west)	56	46
Noise levels as a result of the operation of the backflush pump at DIW4, as well as the remaining wells located further from receptors, would not exceed the City of Seaside noise standard of 65 dBA CNEL.				

CalAm Distribution Pipelines

There are no pumps or emergency generators proposed as part of this project component. Therefore, there would be no impact related to noise generated by Proposed Project operations at this site.

Impact Conclusion

Operation at the Salinas Pump Station Source Water Diversion and the Product Water Conveyance and CalAm Distribution Pipelines would not result in operational noise impacts as no new permanent noise-generating equipment, such as pumps, is proposed at these locations. Operation at the remaining sites would generate operational noise levels at less-than-significant levels, and no mitigation measures are required.

4.14.4.6 Cumulative Impacts

The geographic scope for cumulative impact analysis of noise and vibration effects consists of the Proposed Project component sites and the immediate vicinity around each of these sites, in which noise could combine with noise from the Proposed Project to adversely affect the same sensitive receptors. Based on the list of cumulative projects provided on **Table 4.1-2** (see **section 4.1**), relevant projects with potential noise impacts that could combine with noise impacts resulting from the Proposed Project are summarized below. Cumulative project locations are shown on **Figure 4.1.1 rev**. The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant projects identified on **Table 4.1-2** for the cumulative analysis:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred[4] to as the MPWSP Variant): The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines to convey between the well. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR projects. The overall estimated construction schedule for the Proposed Project could overlap for approximately 18 months (mid-summer 2016 through December 2017 during GWR construction).The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). Both the Monterey Peninsula Water Supply Project desalination plant and the Proposed Project Treatment Facilities at the Regional Treatment Plant would be located in the unincorporated area of Monterey within a distance of approximately 0.5 miles. Due to the distance between the two sites (at least 0.5 miles or about 2,600 feet), construction-noise impacts to sensitive receptors would only result from the construction source closest to the receptor. As discussed in this section, the Proposed Project construction at the Regional Treatment Plant would result in a

[4] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

noise level of approximately 39 dBA L_{eq} at the closest receptor, which is about one mile from the construction site. The nearest sensitive receptor to the proposed desalination plant is about 0.5 mile west of the site, and construction noise would not combine with noise from the Proposed Project at that distance. Therefore, construction of these components would not result in a significant cumulative temporary noise impact.

The Transmission Pipeline component of the Monterey Peninsula Water Supply Project would be in the similar location as a segment of the Proposed Project Product Water Conveyance Coastal Alignment pipeline along the Transportation Agency's rail line corridor. Overlapping construction schedules in these locations could result in extended duration of construction-noise in any one location depending on the actual construction schedule. Given the limited area of the existing right-of-way to accommodate construction of two pipeline projects, it is likely that the two construction projects would not occur simultaneously. However, it would be expected that the overall construction duration could be extended with construction of two pipelines. The installation of both pipelines would occur in a similar amount of time (i.e., 250 feet per day), and even with two simultaneous or back-to-back construction schedules, construction duration in any one location would be less than two weeks. Thus, construction of the two pipelines in this location would result in a less-than-significant cumulative impact related to temporary construction-related noise increases at the nearest sensitive receptors.

Both the MPWSP and GWR projects include installation of new wells in the Seaside area. However, the well locations would be approximately 0.5 miles from each other. While each project would result in nighttime construction due to need to install wells on a continuous basis, the distance between the two construction sites would be far enough that there would be no cumulative noise impacts to the sensitive receptors closest to either construction site. Therefore, construction noise at either site would not combine to result in a significant cumulative construction noise impact.

Once constructed, no significant cumulative operational noise impacts would occur from the two projects due to the distance between the desalination plant and Regional Treatment Plant sites and distance to sensitive receptors. The pipelines of both projects would be underground and without noise-generating equipment. Therefore, the Proposed Project Conveyance pipelines and the MPSWP Transmission Pipeline would not generate significant cumulative noise and vibration during operations.

Thus, there would be no significant cumulative noise impacts resulting from the construction or operation of the two projects.

Overall Cumulative Impacts. None of the other identified cumulative projects would have overlapping short-term construction schedules that would result in cumulative construction noise and vibration impacts, except within the cities of Salinas and Marina. Cumulative development projects are summarized below by geographic area.

- Salinas Area – Salinas Pump Station Diversion and Salinas Treatment Plant sites. The pump station site is located within the City of Salinas, and the treatment plant site is located nearby within the unincorporated area of the county. No cumulative projects have been identified in the vicinity of these Project sites, except for several development projects along Highway 68 to the west of the project sites (#6,7,8) within the Monterey County area. The exact timing of construction is not known, but due to the distance from the Proposed Project sites (about three miles to #6 and #8 [Harper Canyon and Ferrini Ranch] as shown on **Figure 4.1-1rev**), there would be no overlapping cumulative impacts related to construction or operational noise or vibration in this area.

- The City of Salinas Solar Project (#34) includes construction of solar panels on approximately 18 acres at the existing Salinas Treatment Facility. The project would be constructed starting in 2015 and ending in 2016, which would not completely coincide with construction at the Salinas Pump Station Diversion site, which is planned to begin in the summer of 2016. Should an overlap of construction schedules occur, it is likely that the installation of the solar project would be nearing completion with the major noise-producing construction activities complete. Neither project at the Salinas Pump Station Diversion site would result in measurable increases in operational sound levels and would be located miles away from cumulative development projects along Highway 68. Therefore, no significant cumulative temporary construction or operational noise would occur in this area.
- Unincorporated Monterey County – Advanced Water Treatment Site and northern segment of the Product Water Conveyance Pipeline. Cumulative projects in the vicinity include two water projects (#1, #2) and a mixed-use project (#3).
    - The MPSWP Desalination Plant) (#1) would be located northwest of the existing Regional Treatment Plant site and is currently undergoing environmental review. As discussed above, noise from construction and operation of the MPSWP Desalination Plant and from construction and operation of the Facilities at the Regional Treatment Plant would not combine to create significant cumulative impacts due to the 0.5 mile distance between the construction sites, and the distance to sensitive receptors. Construction noise from simultaneous construction of the MPSWP Transmission Pipeline and the Proposed Project Product Water Conveyance (Coastal Alignment) could combine, but construction duration in any one location would be less than two weeks; therefore a significant cumulative impact would not occur.
    - The Salinas Valley Water Project Phase 2 (#2) would be located 1.6 miles from the Proposed Project Product Water Conveyance pipeline; the construction schedule for these proposed facility improvements would not coincide with the Proposed Project. Because the construction schedules do not coincide, no combined construction-related impacts would occur. The Proposed Project Conveyance pipelines would not generate noise and vibration during operations, and therefore would not contribute to any combined noise and vibration impacts during operation.
    - East Garrison Specific Plan (#3) at the former Fort Ord is a mixed-used development project, consisting of residential, commercial and institutional uses, planned for construction starting in 2014. The Proposed Project component closest to this project are facilities at the Regional Treatment Plant, which is located more than two miles from the East Garrison site. Due to the distance between the two sites, there would be no combined construction or operational noise impacts.
- City of Marina – Segments of the Product Water Conveyance Pipeline (both Alignments) and RUWAP Booster Pump Station. Cumulative projects in the vicinity include:
    - Two water projects – The Regional Urban Water Augmentation Desalination (#18) and a Recycle Project (#19), are both proposed by the Marina Coast Water District. Both projects would be located south of the

Regional Treatment Plant and north of the City of Marina. The Desalination project would be located on the Armstrong Ranch property. Both of these proposed projects are located in proximity to the RUWAP Product Water Conveyance alignment.

- California State University Monterey Bay (CSUMB) Projects – Student housing (#16) and an academic building (#17) are planned at the CSUMB campus in proximity to the proposed RUWAP Booster Pump Station location.

- Four development projects – The Dunes on Monterey Bay (#10) – a mixed-use residential, hotel, retail and office developments is scheduled for buildout in 2020 and an affordable housing project (#14) is estimated for construction in 2015. Another housing project (#15) and a mixed use project (#12) do not have an identified construction schedule.

Segments of the Product Water Pipeline (RUWAP option) would be in proximity to the proposed Marina Coast Water District Regional Augmentation Water Projects: Desalination (#18) and Recycled Water Project (#19). However, the construction schedule has not been identified for either of these projects, and no overlapping construction schedules are anticipated that would result in cumulative construction noise and vibration impacts. The Proposed Project Conveyance pipelines would not generate noise and vibration during operations, and therefore would not contribute to any combined noise and vibration impacts during operation.

Construction of segments of the proposed Product Water Conveyance Pipeline (RUWAP alignment option) and the RUWAP booster station would be in proximity to the planned CSUMB projects (#16, #17). According to the currently available information, the CSUMB housing project (#16) would be constructed prior to construction of the Proposed Project, and the timing of construction of the CSUMB academic building (#17) is not known. Accordingly, noise and vibration from construction of the CSUMB projects is not anticipated to combine with noise and vibration from construction of the Proposed Project. The Proposed Project Conveyance pipelines would not generate noise and vibration during operations, and therefore would not contribute to any combined noise and vibration impacts during operation.

A segment of the proposed Product Water Conveyance pipeline (Coastal alignment option) would be constructed west of The Dunes site (#10) that currently is under construction. Due to the daily extent of pipeline installation, there would be no combined construction noise impacts that would exceed two weeks in one location.

None of the other cumulative development projects identified above would result in substantial permanent operational noise impacts as most projects are residential, commercial and/or institutional land uses that would not result in substantial noise-producing equipment or uses. Thus, neither the proposed Product Water Conveyance Pipeline (either Coastal or RUWAP option) nor the RUWAP Booster Pump Station would contribute to a cumulative operational noise impact.

- City of Seaside – Segments of the Product Water Conveyance Pipeline, the Injection Well Facilities site and segments of the CalAm Distribution System pipelines would be located in Seaside. The following cumulative projects would be in the vicinity of the Proposed Project within the City of Seaside: the West Broadway Urban Village Specific Plan (#21); the Seaside Resort expansion (#22); Monterey Downs and Horse Park (#24); and the Seaside Groundwater Basin Aquifer Storage and Recovery Project (#27, #28) adjacent to the Injection Well Facilities, of which Phase 1 and Phase 2 were completed in 2014. The schedule for construction of the West Broadway Urban Village Specific Plan, the Seaside Resort expansion, and Monterey Downs and Horse Park are unknown.

The southern segment of the Production Water Conveyance Pipeline (Coastal Alignment option) would be located approximately 1,000 feet east of the Fort Ord Dunes State Park Campground project site (#34). This project is scheduled for construction in 2015 prior to the start of construction of the GWR project. Furthermore, given this distance, any overlapping construction would not result in cumulative construction noise impacts as the two sites would be separated by distance and topographical changes. Furthermore, there are no sensitive noise receptors in the area of the campground development. Thus, there would be no cumulative construction noise and vibration impacts within the city of Seaside. None of the identified cumulative projects would result in permanent operational noise impacts. Thus, the operation of the Injection Well Facilities would not contribute to a cumulative operational noise impact.

- City of Monterey – Lake El Estero Water Source Diversion Site and CalAm Distribution Pipelines. These two Project sites are located within the City of Monterey. No cumulative projects have been identified in the vicinity of these Proposed Project sites with construction schedules known to overlap with construction of the Proposed Project. Thus, there would be no cumulative impacts related to construction or operational noise or vibration in this area.

Cumulative Impact Conclusion

There would be no significant cumulative construction noise and vibration impacts to which the Proposed Project would contribute. Construction of the MPWSP Transmission Pipeline and GWR Product Water Conveyance Pipeline Coastal Alignment may have overlapping or close construction schedules, but due to the level of daily pipeline installation, cumulative construction noise impacts would not be significant. No cumulative noise impacts have been identified related to ongoing operation of cumulative projects.

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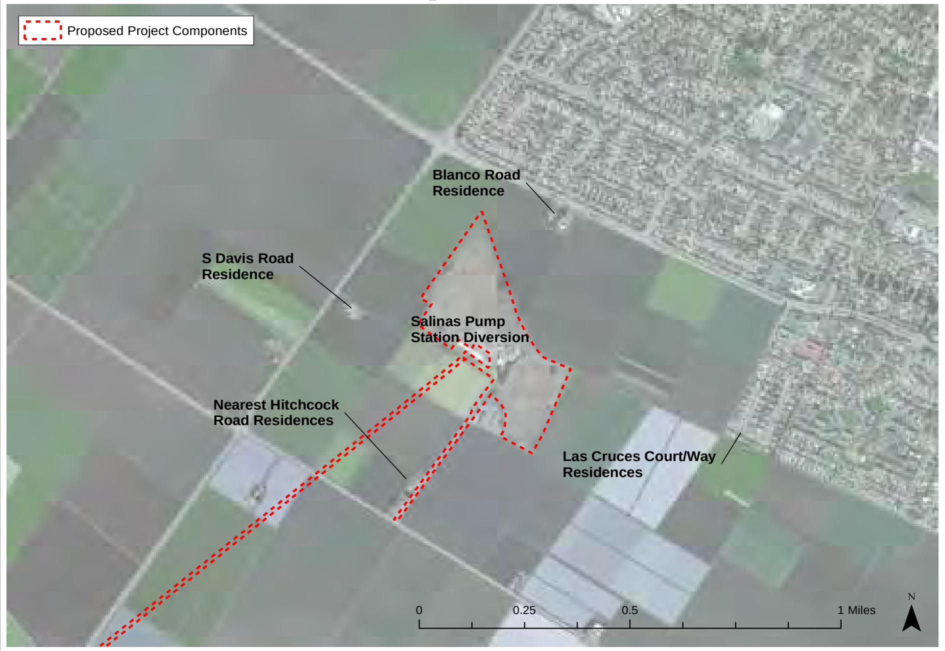
Salinas Pump Station Diversion

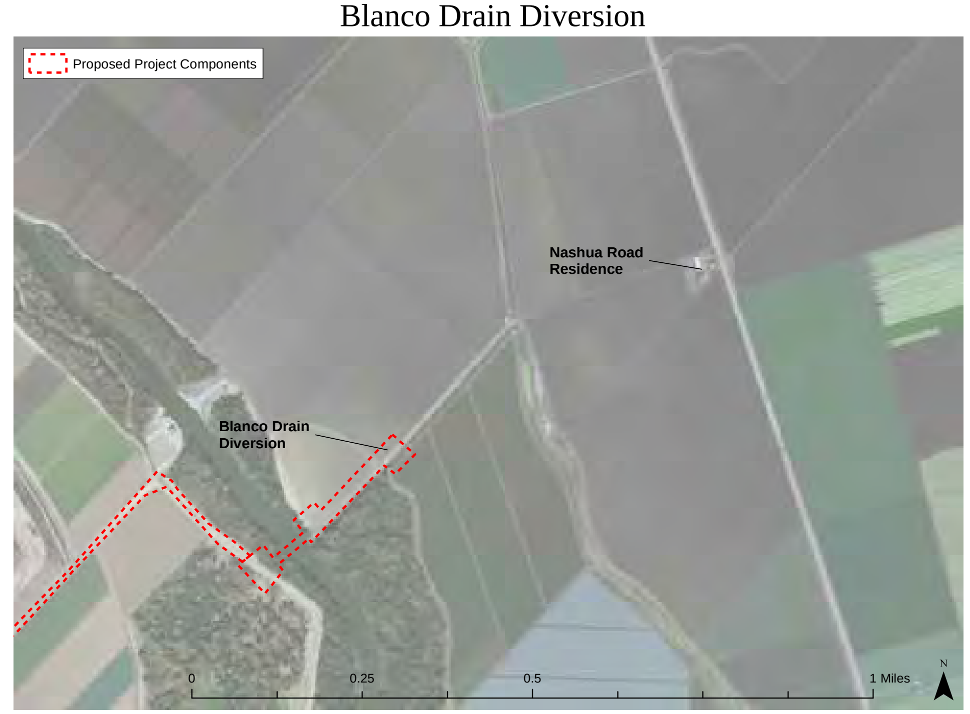


Salinas Treatment Facility

Reclamation Ditch Diversion

Tembladero Slough Diversion

Blanco Drain Diversion



El Estero Diversion

Source: Illingworth and Rodkin, 2014

DD&A

Sensitive Noise Receptors Near Project Facilities - Source Water Storage and Diversion Sites

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.14-1A

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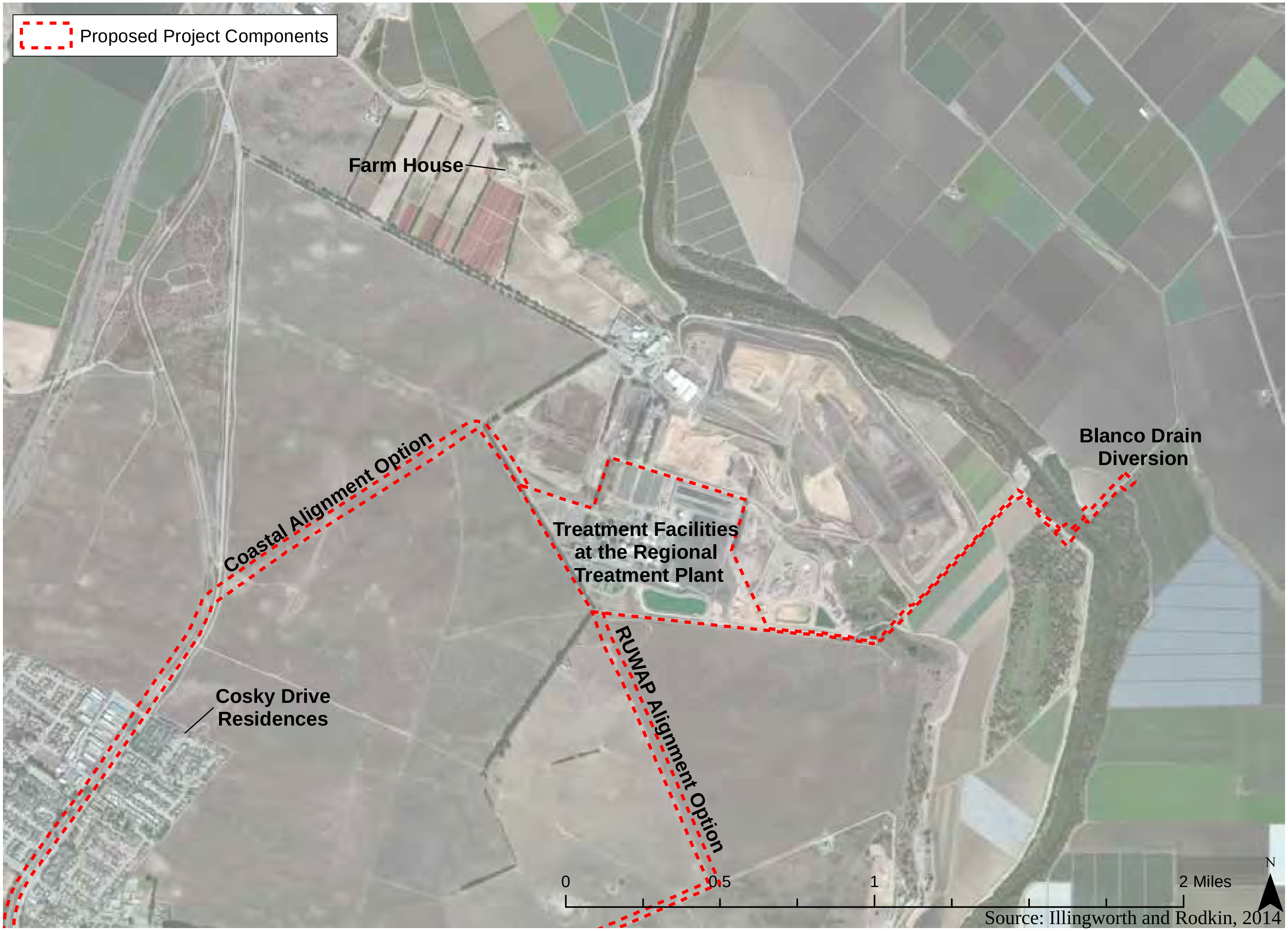

DD&A

Sensitive Noise Receptors Near Project Facilities - Treatment Facilities at Regional Treatment Plant

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.14-1B

Source: Illingworth and Rodkin, 2014

Sensitive Noise Receptors Near Project - Product Water Conveyance and Injection Well Site

April 2015

Pure Water Monterey GWR Project Draft EIR

Figure 4.14-1C

Source: Illingworth and Rodkin, 2014

DD&A

Location of Noise Measurements

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.14-2

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4.15 POPULATION AND HOUSING

Sections	Tables
4.15.1 Introduction 4.15.2 Environmental Setting 4.15.3 Regulatory Framework 4.15.4 Impacts and Mitigation Measures 4.15.5 References	4.15-1 Monterey County Estimated Population and Housing Units by Jurisdiction (2010) 4.15-2 Monterey County Projected Population Growth by Jurisdiction 4.15-3 Summary of Impacts – Population and Housing

4.15.1 Introduction

This section identifies existing and projected population and housing within local jurisdictions within which the Proposed Project components would be located. The section analyzes potential impacts on population growth and housing as a result of implementation of the Proposed Project. Facilities for the Proposed Project would be constructed and operated in the cities of Salinas, Marina, Seaside, Sand City, Monterey, and Pacific Grove, and within unincorporated area of northern Monterey County. These places comprise the Project study area for this analysis.

The analysis in this section is based on review of the 2010 U.S. Census population, 2013 population estimates provided by the California Department of Finance, population projections developed by the Association of Monterey Bay Area Governments (AMBAG), and an estimate of the number of construction and permanent employees anticipated for construction and operation of the Proposed Project provided by MRWPCA. The current regional population projections are included in the "2014 Regional Growth Forecast" (Association of Monterey Bay Area Governments, 2014a). The "Regional Housing Needs Allocation Plan 2014-2023" (Association of Monterey Bay Area Governments, 2014b) was also reviewed.

Public and agency comments related to population and housing received during the public scoping period in response to the Notice of Preparation are summarized below.

- Review the growth-inducing impacts associated with this project.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report.**

4.15.2 Environmental Setting

Monterey County has twelve incorporated cities with a total population of approximately 445,309 people and 147,221 total housing units. **Table 4.15-1, Monterey County Estimated Population and Housing Units by Jurisdiction (2010)** breaks down the total population and housing units by jurisdiction and **Table 4.15-2, Monterey County Projected Population Growth by Jurisdiction** shows the projected population growth by jurisdiction according to the 2014 Association of Monterey Bay Area Governments (AMBAG) Regional Forecast and the 2014 Regional Housing Needs Allocation Plan. The following sections discuss population and housing for each of the jurisdictions within the Proposed Project study area.

Table 4.15-1
Monterey County Population and Housing Units by Jurisdiction (2010)

Jurisdiction	2010 Population	2010 Total Housing Units
Carmel-by-the-Sea	3,722	3,417
Del Rey Oaks	1,624	741
Gonzales	8,187	1,989
Greenfield	16,330	3,752
King City	12,874	3,218
Marina*	19,718	7,200
Monterey*	27,810	13,584
Pacific Grove*	15,041	8,169
Salinas*	150,441	42,651
Sand City	334	145
Seaside*	33,025	10,872
Soledad	25,738	3,876
Unincorporated Areas*	100,213	39,434
Total	415,057	139,048
*There are Proposed Project components within this jurisdiction. Source: U.S. Census Bureau, American Factfinder (http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml) accessed February 10, 2014.		

Table 4-15-2
Monterey County Projected Population Growth by Jurisdiction

Jurisdiction	Estimated Populations by Year				
	2010	2020	2025	2030	2035
Carmel-by-the-Sea	3,722	3,541	3,661	3,789	3,917
Del Rey Oaks	1,624	1,889	2,345	2,806	3,468
Gonzales	8,187	13,340	13,955	16,194	19,333
Greenfield	16,330	21,341	22,061	22,835	23,609
King City	12,874	14,568	16,398	17,759	18,620
Marina	19,718	21,315	22,651	23,388	24,225
Monterey	27,810	28,004	28,839	29,743	30,647
Pacific Grove	15,041	15,394	15,914	16,472	17,030
Salinas	150,441	156,793	161,405	166,915	172,499
Sand City	334	1,048	1,198	1,414	1,550
Seaside	33,025	36,120	40,260	41,308	42,256
Soledad	25,738	31,316	32,050	32,839	33,628
Unincorporated Areas	100,213	102,847	103,147	104,028	104,304
Total	415,057	447,516	463,884	479,487	495,086
Source: Association of Monterey Bay Area Governments, 2014 Regional Growth Forecast					

4.15.2.1 Monterey County

According to the 2010 U.S. Census, unincorporated Monterey County had a population of approximately 415,057 persons in 2010. Approximately 24% of the county population lives in unincorporated areas (approximately 100,213), with the remaining 76% residing in the county's 12 cities and the State Correctional Institution at Soledad. Salinas is the largest city (150,441), followed by Seaside (33,025), Monterey (30,106), and Marina (27,810). **Table 4.15-2** presents projected population growth based on the current population and historic trends. These projections suggest that the county will experience an average annual growth rate of approximately 0.8% per year between 2010 and 2020. Based on current conditions and trends, population is projected to increase by approximately 32,459 people between 2010 and 2020 in Monterey County. Growth is projected throughout the County, with no major changes in the historical geographic distribution of population.

Monterey County's total population lives in approximately 139,048 housing units. The average persons per household is 2.98. Most of the County's housing stock (occupied or unoccupied dwelling units) is in the northern portion of the county. **Table 4.15-1** shows the distribution of housing stock among the cities and the unincorporated County.

AMBAG assigns each community within its jurisdiction a fair share of the regional housing needs in the Regional Housing Needs Allocation (RHNA). Each community then shows how they will endeavor to meet these needs in the required periodic Housing Element updates for each RHNA. Based on the 2014 AMBAG Regional Housing Needs Allocation Plan, the total number of housing units which need to be planned in unincorporated Monterey County between 2014 and 2023 in order to meet its fair share of the regional housing need is 1,551 new units, including 347 very low income, 244 low income, 282 moderate income, and 651 above moderate income households.

4.15.2.2 City of Salinas

The 2010 U.S. Census population of the City of Salinas was 150,441 persons; there were 42,651 existing and occupied housing units, resulting in an average of 3.53 persons per household. The estimated population as of January 2014 was 155,205 (California Department of Finance, 2014). Based on AMBAG projections, population is projected to increase in Salinas by approximately 6,352 people between 2010 and 2020. Based on the 2014 AMBAG Regional Housing Needs Allocation Plan, the total number of housing units which need to be planned for in Salinas between 2014 and 2023 in order to meet Salinas's fair share of the regional housing need was 2,229 new units, including 538 very low income, 350 low income, 406 moderate income, and 935 above moderate income households.

4.15.2.3 City of Marina

The 2010 U.S. Census population of the City of Marina was 19,718 persons, living in 7,200 households, resulting in an average household size of 2.74 persons per household. The estimated population as of January 2014 was 20,268 (California Department of Finance, 2014). Based on AMBAG projections, population is projected to increase in Marina by approximately 1,597 people between 2010 and 2020. Based on the 2014 AMBAG Regional Housing Needs Allocation Plan, the total number of housing units which need to be planned for in Marina between 2014 and 2023 in order to meet Marina's regional housing need allocation was 1,308 new units. This includes 315 very low income, 205 low income, 238 moderate income, and 550 above moderate income households.

4.15.2.4 City of Seaside

The 2010 U.S. Census population of the City of Seaside was 33,025 persons, and the City's housing stock contains 10,872 occupied residential units, resulting in an average household size of 3.04 persons per household. The estimated population as of January 2014 was 33,534 (California Department of Finance, 2014). Based on AMBAG projections, population is projected to increase in Seaside by approximately 3,095 people between 2010 and 2020. Based on the 2014 AMBAG Regional Housing Needs Allocation Plan, the total number of housing units which need to be planned in Seaside between 2014 and 2023 in order to meet Seaside's regional housing need allocation was 393 new units, including 95 very low income, 62 low income, 72 moderate income, and 164 above moderate income households.

4.15.2.5 City of Monterey

The 2010 U.S. Census population of the City of Monterey was 27,810 persons with 13,584 occupied housing units (households), resulting in an average of 2.05 persons per household. The estimated population as of January 2014 was 28,381 (California Department of Finance, 2014). Based on AMBAG projections, population is projected to increase in Monterey by approximately 194 people between 2010 and 2020. Based on the 2014 AMBAG Regional Housing Needs Allocation Plan, the total number of housing units which need to be planned for in Monterey between 2014 and 2023 in order to meet Monterey's regional housing need allocation was 650 new units, including 157 very low income, 102 low income, 119 moderate income, and 272 above moderate income households.

4.15.2.6 City of Pacific Grove

The 2010 U.S. Census population of the City of Pacific Grove was 15,041 persons with 8,169 existing and occupied housing units, resulting in an average of 1.84 persons per household. The estimated population as of January 2014 was 15,431 (California Department of Finance, 2014). Based on AMBAG projections, population is projected to increase in Pacific Grove by approximately 353 people between 2010 and 2020. Based on the 2014 AMBAG Regional Housing Needs Allocation Plan, the total number of housing units which need to be planned for in Pacific Grove between 2014 and 2023 in order to meet Pacific Grove's regional housing need allocation was 115 new units, including 28 very low-income, 18 low-income, 21 moderate-income, and 48 above moderate-income housing units.

4.15.3 Regulatory Framework

There are no federal, state, or local regulations governing population and housing that apply to the Proposed Project.

4.15.4 Impacts and Mitigation Measures

4.15.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, the project would have a significant population and housing impact if it project would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- Displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing.
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

No additional significance criteria are needed to comply with the CEQA-Plus considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

4.15.4.2 Impact Analysis Overview

Approach to Impact Analyses

This analysis evaluates the potential impacts on population growth and housing as a result of the implementation of the Proposed Project. For the construction phase, this analysis considers whether the Proposed Project would induce substantial population growth in an area directly, as a result of increased construction workers moving to the area. For operations and maintenance, this analysis evaluates whether the Proposed Project would directly result in population growth as a result of increased permanent workers moving to the area or indirectly by providing additional infrastructure to support an increased population.

Areas of No Project Impact

Some of the significance criteria outlined above (b, c,) are not applicable to the Proposed Project or the Proposed Project would not result in impacts related to these criteria, as explained below. The impact analyses related to criterion “a” are addressed below under **Subsections 4.15.4.4 (Construction Impacts)** and **4.15.4.5 (Operational Impacts).**

- *Displace Housing Units.* No housing units are located within the construction area boundary of any Proposed Project component. Therefore, neither construction nor operation of the Proposed Project would result in removal or displacement of existing housing that would create a new demand for housing. (No impact related to construction or operations)
- *Displace Substantial Numbers of People.* As indicated above, no housing units are located within the construction area boundary of any Proposed Project component. Neither construction nor operation of the Proposed Project would result in removal of housing that would displace existing residents and necessitate the construction of replacement housing elsewhere. (No impact related to construction or operations)

Summary of Impacts

Table 4.15-3, Summary of Impacts – Population and Housing provides a summary of potential impacts related to population and housing and significance determinations.

Table 4.15-3
Summary of Impacts – Population and Housing

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System		
Impact Title	**Salinas Pump Station**	**Salinas Treatment Facility Storage and Recovery**	**Reclamation Ditch**	**Tembladero Slough**	**Blanco Drain Diversion (Pump Station and Pipeline)**	**Lake El Estero**	**Treatment Facilities at Regional Treatment Plant**	**RUWAP Alignment Option**	**Coastal Alignment Option**	**Injection Well Facilities**	**Transfer Pipeline**	**Monterey Pipeline**	**Project Overall**
PH-1: Construction-Related Growth Inducement	LS For Project As A Whole												
PH-2: Operations and Infrastructure-Related Growth Inducement	NI For Project As A Whole												
Cumulative Impacts	LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts related to population and housing.												

NI – No Impact
LS – Less-than-Significant
LSM – Less-than-Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.15.4.3 Construction Impacts and Mitigation Measures

Impact PH-1: Construction-Related Growth Inducement. Proposed Project construction would result in temporary increases in construction employment, but would not induce substantial population growth. (Criterion a) (Less-than-Significant)

During the approximate 18 to 21 month construction period, the average daily number of persons necessary for all construction activities at all of the Proposed Project sites is estimated to be approximately 135. It is expected that the construction workforce requirements would be met with the local labor force within the Monterey Bay Area. This temporary employment condition would not create demand for additional housing. While some workers might temporarily relocate from other areas, the increase would be minor and temporary, and would not result in a substantial permanent increase in population. Thus, project construction would not indirectly induce substantial population growth in the region, and no mitigation measures are required.

4.15.4.4 Operation Impacts and Mitigation Measures

Impact PH-2: Operations and Infrastructure-Related Growth Inducement. Operation of the Proposed Project would not directly result in population growth, and would not indirectly result in inducement of substantial population growth. (Criterion a) (No Impact)

The Proposed Project consists of two components: the Pure Water Monterey Groundwater Replenishment improvements and operations (GWR Features) that would develop high quality replacement water for existing urban supplies; and an enhanced agricultural irrigation (Crop Irrigation) component that would increase the amount of recycled water available to the existing Castroville Seawater Intrusion Project (CSIP) in northern Monterey County that would help reduce groundwater pumping in that area. Thus, the Proposed Project is a groundwater replenishment project that includes construction and operation of water-related infrastructure. The Proposed Project would not include the construction of new homes or businesses in the area. Thus, the Project would not directly result in population growth.

Long-term operation and maintenance of the Proposed Project facilities is discussed in **Chapter 2, Project Description, Section 2.6**. Once construction is completed, the Proposed Project would employ up to nine additional employees at all facilities, including up to five additional staff at the MRWPCA Regional Treatment Plant, which is not a significant increase in jobs in the area. The new jobs would likely be operations and maintenance, and given the nature of these jobs, it is expected that new employees would be drawn from the local area and would not require recruitment of workers from out of the area. Thus, the Proposed Project would not foster population growth as a result of creation of new jobs.

The Proposed Project is an infrastructure project to provide replacement potable water for a portion of CalAm's withdrawals from the Carmel River system and to provide recycled water for agricultural irrigation in northern Monterey County as explained in **Chapter 2.** The Proposed Project would not extend roads or public services into an unserved area. As explained in **Chapter 2**, **Section 2.3.4**, CalAm is under state orders issued in 1995 and 2009 by the State Water Resources Control Board to secure replacement water supplies for its Monterey District service area by January 2017 and reduce its Carmel River diversions to 3,376 AFY by 2016-2017. A 2012 adjudication of the Seaside Groundwater Basin also requires CalAm to decrease its operating yield from the Seaside Basin by 10% triennially until it reaches its allotted portion of the court-defined "natural safe yield" of 1.494 AFY beginning in 2012. In its recent submittals (CalAm, 2012) to the California Public Utilities Commission, CalAm estimates that it needs 9,752 acre feet per year (AFY) of additional water supplies for its Monterey District service area to reduce its Carmel River diversions to the degree required by the State Water Resources Control Board, to reduce its pumping in the Seaside Groundwater Basin in accordance with the Watermaster's pumping mandates, to satisfy a requirement to return water to Salinas Valley to offset the amount of fresh water in the feedwater from CalAm's proposed desalination plant's coastal intake wells, and to provide water for lots of record within the Water Management District boundary.

As explained in **Chapter 2**, the Proposed Project would not produce all of the replacement water that CalAm would need to comply with the State Water Board's orders and the Seaside Basin adjudication. The primary objective of the Proposed Project is to replenish the Seaside Groundwater Basin to produce 3,500 AFY of high quality water that would replace a portion of CalAm's water supply as required by the state orders. CalAm can then extract the same amount and also reduce its Carmel River system diversions by that same amount. As a result, the Proposed Project represents a portion of the replacement water needed for existing demand and would not result in creation of an excess supply that could indirectly foster or induce new development or growth.

CalAm's forecasted total customer demand in its Monterey District is 15,296 acre-feet per year, as described by the California Public Utilities Commission in the Plant Size and Operation Agreement for CalAm's Monterey Peninsula Water Supply Project (California Public Utilities Commission, 2013). A portion of CalAm's forecasted total customer demand (approximately 2,000 AFY) is identified for Pebble Beach buildout, tourism bounceback, and development of legal lots of record (see **Chapter 2, Section 2.5.6**). The California Public Utilities Commission may decide to approve construction of a desalination plant that could accommodate CalAm's forecasted total customer demand in its Monterey District; therefore the Monterey Peninsula Water Supply Project may accommodate the growth included in that forecast. The Proposed Project, by contrast, is not designed or intended to accommodate this growth. Further, the Proposed Project is not additive to the Monterey Peninsula Water Supply Project. If the Proposed Project is approved and implemented in a timely manner, CalAm's proposed desalination plant would be reduced in size from a 9.6 mgd plant to a 6.4 mgd plant.

The Crop Irrigation component of the Proposed Project would increase the amount of recycled water available to the existing Castroville Seawater Intrusion Project (CSIP) in northern Monterey County, which would help reduce groundwater pumping in that area. As discussed in **Chapter 2** (see **Section 2.5.6**), the Proposed Project would result in production of additional recycled water supplies for the existing CSIP for agricultural irrigation. The existing Salinas Valley Reclamation Project (SVRP) tertiary treatment plant located at the Regional Treatment Plant was constructed in 1998 for the purpose of production of agricultural irrigation water for approximately 12,000 acres of farmland in the northern Salinas Valley via the CSIP. The Proposed Project would provide up to 5,290 AFY in source water to the SVRP to produce additional recycled water for CSIP. This would reduce use of CSIP supplemental wells by 4,260 AFY. The use of additional recycled wastewater for irrigation would reduce regional dependence on and use of local groundwater, which, in turn would reduce groundwater pumping-related seawater intrusion into the Salinas Valley aquifers. This component of the Proposed Project would not result in new population growth or indirectly induce population growth.

In conclusion, the Proposed Project would not result in population growth through development of new residential or commercial uses, and would not induce substantial population growth due to new permanent employees or extension of roads or public services to unserved locations. Although the Proposed Project would provide a new source of drinking water; the water provided by the Proposed Project would replace other existing sources that must be curtailed. Implementation of the Proposed Project would provide replacement water for CalAm's withdrawals from the Carmel River system, but would not provide new water to serve growth. The provision of additional recycled water for agricultural irrigation would not be available for potable use, and would not indirectly induce population growth. Therefore, the Proposed Project operations would not induce population growth.

4.15.4.5 Cumulative Impacts and Mitigation Measures

The geographic scope for cumulative impact analysis related to population and housing consists of the counties of Monterey, San Benito, and Santa Cruz in which construction and operational employees of the Proposed Project may live. The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the Monterey Peninsula Water Supply Project (MPWSP) (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant projects identified on **Table 4.1-2, Project Considered for Cumulative Analysis (listed by primary geographic area in which project is located)** and/or regional growth projections:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[1] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The overall estimated construction schedule would be from June 2016 through March 2019 for the combined projects, during which time the construction schedules could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis considers the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1, Introduction**), and is based on regional population growth and housing projections developed by the Association of Monterey Bay Area Governments (AMBAG). As the Metropolitan Planning Organization (MPO), AMBAG carries out many planning functions for the tri-county area including development of regional growth forecasts. The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP with the 6.4 mgd desalination plant) could result in cumulative growth impacts based on adopted regional growth forecasts.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). Both the Monterey Peninsula Water Supply Project and the Proposed Project would result in construction of new water supply infrastructure facilities. The combination of CalAm Facilities and the GWR Facilities would not induce substantial population growth due to construction employment or long-term operational employment. The projects would not result in population growth through development of new residential or commercial uses. The

[1] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

combined projects would result in a total of approximately 540 daily construction workers at all construction sites with an estimated average of about 290 daily construction workers. Operation of both projects would add 34 to 39 new permanent employees. It is expected that new jobs would be filled by local residents as the new jobs would not require specialized training or expertise that would only be available outside the local area.

Although the MPWSP and Proposed Project would provide new sources of drinking water; the water provided by the projects would replace CalAm's withdrawals from the Carmel River system and would replenish the Seaside Basin. The MPSWP may accommodate some population growth, but the Proposed Project would not contribute to such an impact because the Proposed Project would only provide replacement water to CalAm. The provision of additional recycled water for agricultural irrigation provided by the Proposed Project would not be available for potable use, and would not indirectly induce population growth.

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1.1 rev, Cumulative Projects Location Map.** The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**. Over half of the cumulative projects are public infrastructure (#1, 2, 4, 5, 11, 18-20, 23, 25-29, 32, 33,35), institutional (#16, 17) or public recreation (#34) projects. Of the remaining cumulative projects, approved development projects could result in future construction of nearly 4,270 new residential units primarily within the former Fort Ord military base and the cities of Marina and Seaside (#3, 8, 10, 15, 22). The remaining cumulative projects would result in commercial and/or hotel development or residential and mixed-used projects that have not yet been approved. Some of the approved projects would be developed over a phased period to the year 2020, while the buildout timeframe of other projects is not known.

Regional population forecasts are presented in **Table 4.15-2.** Population growth in Monterey County is projected to increase by nearly 22,000 residents and approximately 8,300 housing units by the year 2020.[2] Thus, it appears that cumulative projects and associated growth are accounted for in regional growth projections. Furthermore, based on the analysis in this section, no new residents would be expected to be added to this geographic area due to the Proposed Project. Construction-related employment resulting from the Proposed Project would result in minimal population growth, if any, for a temporary period. Operations-related employment resulting from the Proposed Project is not expected to result in any population growth; thus, the Proposed Project would not contribute to long-term cumulative population growth.

Cumulative Impact Conclusion

The Proposed Project would not make a considerable contribution to significant cumulative impacts related to population and housing.

[2] Based on existing Monterey County population of 405,686 and 138,817 housing units as of 2014 (California Department of Finance, 2014).

4.15.5 References

Association of Monterey Bay Area Governments, 2008a. Monterey Bay Area 2008 Regional Forecast, Population, Housing and Employment Projections for Monterey, San Benito and Santa Cruz Counties to the Year 2035, June 2008.

Association of Monterey Bay Area Governments, 2008b. Regional Housing Needs Allocation Plan 2007-2014 for Monterey and Santa Cruz Counties, June 2008.

Association of Monterey Bay Area Governments, 2014a. 2014 Regional Growth Forecast

Association of Monterey Bay Area Governments, 2014b. Regional Housing Needs Allocation Plan 2014-2023

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California Department of Finance. May 2014. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2014 with 2010 Census Benchmark. Available Online at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php. Date Accessed: November 23, 2014.

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4.16 PUBLIC SERVICES, UTILITIES, AND RECREATION

Sections	Tables
4.16.1 Introduction 4.16.2 Environmental Setting 4.16.3 Regulatory Framework 4.16.4 Impacts and Mitigation Measures 4.16.5 References	4.16-1 Emergency Service Providers and School Districts by Local Jurisdictions 4.16-2 Schools in the Vicinity of Project Components 4.16-3 Recreational Facilities within 0.5 miles of Proposed Project Components 4.16-4 Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Public Services, Utilities, and Recreation 4.16-5 Summary of Impacts – Public Services, Utilities, and Recreation

4.16.1 Introduction

This section addresses potential impacts to public services, recreation and specified public utilities that could occur if the Proposed Project were to necessitate provision of new or substantially altered public services facilities or cause substantial physical deterioration of a recreational facility. Public services discussed in this section include fire and police protection services, emergency services, schools, parks, and recreational facilities. Recreational resources include parks, trails, beaches, and similar facilities. The public utilities discussed include solid waste facilities. Water service and systems, wastewater service, and recycled water delivery are addressed under **Section 4.18~~7~~**, **Water and Wastewater**. Potential impacts on energy resources (electricity and natural gas) are addressed in **Section 4.7**, **Energy and Mineral Resources.** Storm water infrastructure and utility systems are described and addressed in **Section 4.11**, **Hydrology and Water Quality: Surface Water**.

Public and agency comments received during the public scoping period in response to the Notice of Preparation are summarized in **Appendix A Scoping Report.** No comments were received with regards to public services, utilities and recreation.

4.16.2 Environmental Setting

4.16.2.1 Fire Protection and Police Protection Services

Fire Protection

Several local agencies provide fire protection service in the project area (see **Table 4.16-1, Emergency Service Providers and School Districts by Local Jurisdictions**).

Two agencies provide fire protection service to the unincorporated area of Monterey County in the vicinity of the Proposed Project. The Monterey County Regional Fire District serves approximately 350 square miles east and northeast of the City of Marina, including the former Fort Ord military base, as well as areas southeast of the City of Monterey. The Monterey County Regional Fire District has 52 full-time employees and 40 volunteer firefighters (Monterey County Regional Fire District, 2013). The North County Fire Protection District serves the unincorporated area north of the City of Marina (North County Fire Protection District, 2013).

The Salinas Fire Department provides fire protection and education and emergency services to the City of Salinas. All engine companies are staffed with three personnel. The truck and rescue companies are staffed with two personnel each. The current minimum daily staffing is 23 personnel (including the Battalion Chief). The goal of the department is to arrive on the scene of emergencies within six minutes of notification, 90% of the time.

The Marina Fire Department serves the City of Marina including portions of the former Fort Ord military base (City of Marina, 2013).

The Seaside Fire Department provides both emergency response and fire prevention services to the City of Seaside; the Department also provides these services to the City of Del Rey Oaks and parts of the former Fort Ord military base on a contractual basis (City of Seaside, 2004; Seaside Fire Department, 2013).

The City of Monterey Fire Department provides fire protection to the City of Monterey and all areas within its jurisdictional boundaries, including the Army Defense Language Institute and Foreign Language Center, the Presidio of Monterey, and the Naval Postgraduate School and its military housing at La Mesa Village. The Monterey Fire Department also provides fire protection to the cities of Sand City and Pacific Grove. The Monterey Fire Department has 66 paid staff, 2 part-time fire inspectors, and 4 fire stations (City of Monterey Fire Department, 2013).

Police Protection Services

The Monterey County Sheriff's Office operates the county jail facilities and provides police services to nearly the entire unincorporated county area (Monterey County Sheriff's Office, 2013). The Cities of Salinas, Marina, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside have independent police forces that serve the areas within their city limits. The Seaside and Marina Police Departments also serve the annexed portions of the former Ford Ord community military base. The California Highway Patrol also has jurisdiction and law enforcement powers on county roads and state highways. The California Highway Patrol enforces the vehicle code and responds to other matters related to vehicle use such as traffic accidents. The University Police Department provides law enforcement service to California State University at Monterey Bay (CSUMB). The University Police provide full-service law enforcement services, responding to crime and other public safety incidents.

Emergency Services

The Monterey County Emergency Medical Services Agency is a Monterey County Health Department agency that incorporates over 100 participating agencies under one jurisdictional authority, including fire departments, ambulance companies, hospitals, and police departments. Monterey County has four major hospitals: Community Hospital of the Monterey Peninsula in Monterey, Natividad Medical Center in Salinas, Salinas Valley Memorial Hospital in Salinas, and George L. Mee Memorial Hospital in King City (Monterey County Health Department, 2013).

Table 4.16-1 lists public service providers for police and fire protection services, as well as school districts, by local jurisdiction.

Table 4.16-1
Emergency Service Providers and School Districts by Local Jurisdictions

	Emergency Services													School Districts					
Jurisdiction	**Monterey County Regional Fire District**	**Monterey County Sheriff's Office**	**North County Fire Protection District**	**Salinas Fire Department**	**Salinas Police Department**	**Marina Fire Department**	**Marina Police Department**	**Seaside Fire Department**	**Seaside Police Department**	**Sand City Police Department**	**City of Monterey Fire Department**	**City of Monterey Police Department**	**Salinas Rural Fire District**	**Pacific Grove Unified School District**	**Salinas City Elementary School District**	**Santa Rita School District**	**Alisal Union School District**	**Monterey Peninsula Unified School District**	**Salinas Union High School District**
Unincorporated Monterey County	✓	✓	✓			✓							✓	✓	✓	✓	✓	✓	✓
City of Salinas				✓	✓										✓	✓	✓		✓
City of Marina						✓	✓											✓	
City of Seaside								✓	✓									✓	
City of Sand City										✓	✓							✓	
City of Monterey											✓	✓						✓	
Federal Land: Ord Military Community (See Notes)				✓		✓	✓	✓	✓									✓	
Federal Land: Presidio of Monterey, Naval Postgraduate School and La Mesa Village (See Notes)											✓	✓						✓	

NOTES: Federal Lands in the project area refers to lands owned by the U.S. Army or U.S. Navy that are located in the City of Monterey and City of Seaside. These lands include the Presidio of Monterey and the portions of the former Fort Ord military base that are zoned and designated for military uses, often referred to as the Ord Military Community that includes areas such as the Fitch Park military housing area. Local jurisdictions do not have authority over land use decisions on federal lands; however, federal agencies have agreements with local jurisdictions for emergency services, and federal lands are included in school district boundaries.

4.16.2.2 Schools

Six school districts—the Salinas City Elementary School District, the Santa Rita School District, the Alisal Union School District, the Salinas Union High School District, the Monterey Peninsula Unified School District, and the Pacific Grove Unified School District serve the project area. The Salinas City Elementary School District, the Santa Rita School District, the Alisal Union School District, and the Salinas Union High School District serve the City of Salinas and are comprised of 27 elementary schools, 6 middle schools, 5 high schools and various community and continuation schools. The Monterey Peninsula Unified School District serves the cities of Marina, Seaside, Sand City, Del Rey Oaks, and Monterey, as well as the former Fort Ord military base (Monterey Peninsula Unified School District, 2013). The Pacific Grove Unified School District generally serves the City of Pacific Grove as well as Pebble Beach (between Pacific Grove and the Bird Rock area); the District has two elementary schools, one middle school, two high schools, and one adult education center (Pacific Grove Unified School District, 2013). **Table 4.16-2, Schools in the Vicinity of Project Components** lists the locations of schools in the project vicinity. **Figures 4.12-1 through 4.12-4** in **Section 4.12**, **Land Use, Agricultural, and Forest Resources**, show the locations of schools in the Proposed Project area.

Table 4.16-2
Schools in the Vicinity of Project Components

Project Component	Schools within ¼ Mile of Project Components
Source Water Diversion and Storage Sites	None
Treatment Facilities at Regional Treatment Plant	None
Product Water Conveyance (including pipeline options and booster pump station options)	• Olson Elementary School, 261 Beach Road, Marina • Marina Del Mar Elementary School, 3066 Lake Drive, Marina • Los Arboles Middle School, 294 Hillcrest Avenue, Marina • Marina Vista Elementary School, 390 Carmel Avenue, Marina • Crumpton Elementary School, 460 Carmel Avenue, Marina • Stillwell Elementary School, 225 Normandy Road, Seaside • Fitch Middle School, 999 Coe Avenue, Seaside • California State University at Monterey Bay
Injection Well Facilities	None
CalAm Distribution System	• Monterey Adult School/Cabrillo Family Center, 1295 La Salle Avenue, Seaside • Monterey Bay Christian Middle School, 1395 La Salle Avenue, Seaside • Ord Terrance Elementary School, 1755 La Salle Avenue, Seaside • International School of Monterey, 1720 Yosemite Street, Seaside • King Elementary School, 1713 Broadway Avenue, Seaside • Highland Elementary School, 1650 Sonoma Avenue, Seaside • Bayview Elementary School, 680 Belden Street, Monterey • Monterey High School, 101 Herrmann Drive, Monterey • Pacific Grove Middle School, 835 Forest Avenue, Pacific Grove • Robert Down Elementary School, 485 Pine Avenue, Pacific Grove

4.16.2.3 Parks and Recreation

There are a variety of recreational resources throughout Monterey County—from federal preserves to state beaches and small neighborhood parks. These resources include designated parks, trails, and open spaces that provide such opportunities as hiking and bird watching, and water bodies where people can enjoy boating, fishing, and swimming. Public access to the area's unique natural resources is an important component of recreation in Monterey County. The Monterey Bay shoreline hosts one of the most significant and rare dune landforms on the west coast. Public access to beaches, dunes, and hiking trails is available from numerous locations along the coast. (See **Section 4.17, Traffic and Transportation**, regarding bicycle and pedestrian networks.)

The California Department of Parks and Recreation (California State Parks) has approximately 990 acres of parkland, including four miles of ocean beach located west of Highway 1 and a system of trails and bikeways, generally between Marina and Sand City, called Fort Ord Dunes State Park. In addition, the Monterey State Beach, another State Park property, is located near Project Components in Monterey.

Figures 4.12-1 through 4.12-4 in the **Section 4.12**, **Land Use, Agricultural, and Forest Resources** section show parks and other recreational facilities in the project area. **Table 4.16-3, Recreational Facilities within 0.5 miles of Proposed Project Components** lists parks and recreational facilities within a half mile of the Proposed Project Component sites.

4.16.2.4 Solid Waste Services

The Monterey Regional Waste Management District manages the Monterey Peninsula's solid waste collection, disposal, and recycling system. It also receives most of Monterey County's sewage sludge. The Waste Management District serves an 853-square-mile area and a population of approximately 170,000 people. The service area encompasses the Cities of Marina, Seaside, Sand City, Del Rey Oaks, Monterey, Carmel-by-the-Sea, and Pacific Grove and the unincorporated areas of Big Sur, Carmel Highlands, Carmel Valley, Castroville, Corral De Tierra, Laguna Seca, Moss Landing, Pebble Beach, San Benancio, and Toro Park (Monterey Regional Waste Management District, 2013a).

The Waste Management District operates the Monterey Peninsula Landfill, a materials recovery facility, and a transfer station at a 475-acre site north of the City of Marina. Any solid waste generated by Project construction or operation would be disposed of at the landfill or diverted for recycling or reuse at the materials recovery facility. The landfill operates 6 days per week and is permitted to receive 3,500 tons of waste per day. The landfill has a remaining capacity of approximately 48.5 million cubic yards and is expected to reach its permitted capacity in 2161 (MRWMD, 2015). The landfill receives approximately 300,000 tons of waste per year, which averages to less than 1,000 tons of waste per day (Monterey Regional Waste Management District, 2013b). In addition to the more commonly recycled and reused materials (such as paper, cardboard, bottles, and cans), materials targeted by operators at the materials recovery facility include commercial waste, wood waste, and yard waste, construction and demolition debris, and materials in self-haul loads (Monterey Regional Waste Management District, 2013a).

Table 4.16-3
Recreational Facilities within 0.5 miles of Proposed Project Components

Project Component	Jurisdiction	Recreational Facility within ½ mile
Salinas Pump Station Diversion	City of Salinas	None
	Monterey County	None
Salinas Treatment Facility Storage and Recovery	Monterey County	None
Reclamation Ditch Diversion	City of Salinas	Within 0.5 miles of Rossi Rico Parkway
	Monterey County	None
Tembladero Slough Diversion	Monterey County	None
Blanco Drain Diversion	Monterey County	None
Lake El Estero Diversion	City of Monterey	Adjacent to El Estero Park and Monterey Peninsula Recreation Trail. Within 0.5 miles of Municipal Beach, Spanish Park, Jacks Park, and Laguna Niranda Park.
Treatment Facilities at the Regional Treatment Plant	Monterey County	None
Product Water Conveyance Pipeline Coastal Option	Monterey County	None
	City of Marina	Adjacent to Locke-Paddon Park, Fort Ord Dunes State Park, and Vince Dimaggio Park. Within 0.5 miles of Glorya Jean Tate Park and Marina State Beach.
	City of Seaside	Adjacent to Bayonet Black Horse Golf Course. Within 0.5 miles of CSUMB Athletic Fields/Facilities, Stillwell Park, Mission Memorial Park, and the Monterey Peninsula Recreation Trail.
Product Water Conveyance Pipeline RUWAP Option	Monterey County	None
	City of Marina	Within 0.5miles of Marina City Park.
	City of Seaside	Adjacent to Bayonet Black Horse Golf Course. Within ½ miles of Stillwell Park, and Mission Memorial Park.
Product Water Booster Pump Station (RUWAP)	City of Marina	Within 0.5 miles of CSUMB Athletic Fields.
Product Water Booster Pump Station (Coastal)	City of Seaside	Adjacent to Class 1 Bikeway. Within 0.5 mile of Fort Ord Dunes State Park and CSUMB Athletic Fields/Facilities.
Injection Well Facilities	City of Seaside	Adjacent to open space owned by the Bureau of Land Management called the Fort Ord National Monument. Within ½ miles of Encanto Park, a Class I bike path (General Jim Moore Boulevard), and a Class III bike route (Hilby Avenue).
CalAm Distribution System	City of Seaside	Adjacent to Portola Leslie Park. Within 0.5 miles of David Cutino Park, Metz Park, Lincoln Cunningham Park, Havana Soliz Park, Manzanita Stuart Park, Sabado Park, Highland Otis Park, Martin Park, Mescal Neil Park, Durant Park, Encanto Park, Beta Park, Capra Park, Fernando-Montgomery Park, Farallones Park.
	City of Sand City	Within 0.5 miles of Eolian Dunes Preserve and Calabrese Park.
	City of Seaside	Adjacent to Roberts Lake (Laguna del Rey) and Laguna Grande. Within ½ miles of Eolian Dunes Preserve and Calabrese Park, and David Cutino Park.
	City of Monterey	Adjacent to Monterey Peninsula Recreational Trail, Monterey State Beach, Del Monte Beach, Window by the Bay Park, El Estero Park, Jack’s Park, Hoffman Park, and Municipal Beach. Within 0.5 mile of Spanish Park, Larkin Park, Reeside Beach Access, Cannery Row Park Plaza, Fisherman’s Shoreline Park, Oak-Newton Park, and Cypress Park.
	Presidio of Monterey	Within 0.5 mile of Lower Presidio Historic Park.
	City of Pacific Grove	Within 0.5 mile of Forest Hill Playground.

4.16.3 Regulatory Framework

4.16.3.1 Federal and State

Building Codes

The Uniform Fire Code published by the International Fire Code Institute and the Uniform Building Code (adopted in California as the California Building Standards Code) published by the International Conference of Building Officials both prescribe performance characteristics and materials to be used to achieve acceptable levels of fire protection.

The 2013 California Green Building Standards Code in Title 24, California Code of Regulation (CALGreen) requires newly constructed buildings to divert from landfills at least 50% of the construction materials generated by a project (CALGreen Sections 4.408 and 5.408). In addition, certain additions and alterations to non-residential buildings or structures shall also recycle and/or salvage for reuse a minimum 50% of the nonhazardous construction and demolition debris (CALGreen Section 5.713).

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Board (CIWMB) was created to oversee, manage, and track waste generated in California. The authority and responsibilities of the CIWMB were promulgated in Assembly Bill (AB) 939 and Senate Bill 1322, which were signed into law as the California Integrated Waste Management Act of 1989 (Public Resources Code [PRC], Division 30). The California Integrated Waste Management Act, as modified by subsequent legislation, mandated all California cities and counties to implement programs to reduce, recycle, and compost at least 50% of wastes by 2000 (PRC Section 41780). In January 2010, the CIWMB changed its name to the Department of Resources, Recycling, and Recovery (CalRecycle).

AB 341, which amends the Integrated Waste Management Act of 1989 and was adopted by the California legislature in October 2011, directs CalRecycle to adopt a state policy that actively seeks to achieve a goal of diverting 75% of solid waste from landfills by 2020. The new legislation focuses largely on commercial waste generators, as this sector was identified as the most in need of improved waste management. AB 341 does not alter the 50% diversion mandate; rather, it is a “legislative declaration of policy” to guide CalRecycle’s administration of the California Integrated Waste Management Act (Theroux, 2012).

A jurisdiction’s diversion rate is the percentage of total generated waste it diverts from disposal through source reduction, reuse, and recycling programs. The state determines compliance with the 50% diversion mandate through a complex formula. Use of the formula requires cities and counties to conduct empirical studies to establish a base-year waste generation rate against which future diversion is measured. The diversion rate in subsequent years is determined through deduction instead of direct measurement. Rather than counting the amount of material recycled and composted, the city or county tracks the amount of material disposed of at landfills and then subtracts that amount from the base-year amount; the difference is assumed to be diverted (PRC Section 41780.2).

Utility Notification Requirements

California law (Government Code Section 4216 et seq.) requires owners and operators of underground utilities to become members of, participate in, and share the costs of a regional notification center. Underground Service Alert North (USA North) is the notification center for the project area. USA North receives planned excavation reports and transmits the information to all participating members that may have underground facilities at the location of excavation. The USA members will then mark or stake their facility, provide information, or give clearance to dig (USA North, 2013).

4.16.3.2 Regional and Local

Monterey County Integrated Waste Management Requirements

The Monterey County Integrated Waste Management Plan incorporates relevant provisions of the California Green Building Standards Code, which Monterey County has adopted. Diversion rates related to construction are from the California Green Building Standards Code. Section 5.408.1 of the code requires non-residential projects to recycle and/or salvage for reuse a minimum of 50% of nonhazardous construction and demolition waste. Further, Section 5.408.3, excavated soil and land clearing debris, requires that 100% of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled (unless the vegetation or soil is contaminated with disease or pest infestation). CalRecycle reviews the Monterey County Integrated Waste Management Plan every 5 years, most recently in December 2012. The latest update to the Integrated Waste Management Plan will ensure compliance with all current regulatory and reporting requirements.

Plans and Policies Consistency Analysis

Table 4.16-4, Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Public Services, Utilities, and Recreation describes the state, regional, and local land use plans, policies, and regulations pertaining to public services, utilities, and recreation that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.16-4** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.16.4, Environmental Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

Table 4.16-4
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Public Services, Utilities, and Recreation

Project Planning Region	Applicable Planning Document	Resource Topic	Project Component(s)	Specific Policy or Program	Project Consistency with Policies and Programs
All	California Green Building Standards Code California Code of Regulations, Title 24, Part 11 (CALGreen)	Chapter 5 (Section 5.408) / Monterey County permit form	All Project Components	**Diversion rates related to construction are from the California Green Building Standards Code**. Section 5.408.1 of the code requires non-residential projects to recycle and/or salvage for reuse a minimum of 50% of nonhazardous construction and demolition waste. Section 5.408.3, Excavated soil and land clearing debris, requires that 100% of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled (unless the vegetation or soil is contaminated with disease or pest infestation). CalRecycle reviews the Monterey County Integrated Waste Management Plan every 5 years, most recently in December 2012. NOTE: The Monterey County Integrated Waste Management Plan form incorporates relevant provisions of the California Green Building Standards Code, which Monterey County has adopted.	**Consistent with Mitigation**: As described in Impact PS-3, below, the Proposed Project has the potential to conflict with the Cal Green requirements in Section 5.408 during construction if specified percentages of construction-related debris are not diverted from a landfill. As mitigation, a Construction Debris Recycling and Reuse Plan would be required, which would demonstrate consistency with CalGreen requirements. See discussion in Impact PS-3 for more information.
Monterey County	Greater Monterey Peninsula Area Plan	Public Services and Facilities	Treatment Facilities (AWT Facility and SVRP Modifications) RUWAP Alignment Option Coastal Alignment Option Blanco Drain Pump and Pipeline Diversion site	**Policy GMP-5.2**: Each development proposal shall be evaluated to determine the extent to which such development may help further the County's park and recreation facility goals, objectives, and policies.	**Consistent**: The Proposed Project would not permanently interfere with the County's recreational goals, objectives, or policies.
City of Salinas	City of Salinas General Plan	Land Use	Salinas Pump Station Diversion site	**Policy LU-4.1**: Provide an effective and responsive level of fire protection, public education and emergency response service (including facilities, personnel, and equipment) through the Salinas Fire Department.	**Consistent**: The Proposed Project would not adversely impact the effectiveness or responsiveness of emergency services.
City of Seaside	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Coastal Alignment Option, Transfer Pipeline	**Policy NCR-CZ 1.1.C**: Minimize Adverse Effects to Natural Coastal Resources. New development shall be located in areas where it will not have a significant adverse effect either individually or cumulatively on natural coastal resources and public access and recreation.	**Consistent**: Proposed Project construction and operations would not have an adverse effect on public access and recreation; temporary impacts to recreational facilities during construction would be less-than-significant.
Sand City	Sand City General Plan	Public Safety and Noise	Transfer Pipeline Monterey Pipeline	**Policy 6.6.2**: Maintain the city's current response times of 3 to 5 minutes for emergencies and a response time of less than 10 minutes for all non-emergency calls.	**Consistent**: The Proposed Project would not impede the city's current emergency response times.
Monterey	California Coastal Commission	Development	Monterey Pipeline	**Section 30253**: Minimization of adverse impacts. New development shall do all of the following: e. Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.	**Consistent**: Construction of pipeline segments would result in temporary impacts to recreational areas; however, due to the short-term nature of these activities and the requirement to maintain access to surrounding recreational uses during construction, the Proposed Project would be consistent with this policy.
Monterey	California Coastal Commission	Public Access	Monterey Pipeline	**Section 30210**: Access; recreational opportunities; posting. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.	**Consistent**: If public access to coastal resources would be temporarily impeded, posting would be provided, as required by law.

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4.16.4 Impacts and Mitigation Measures

4.16.4.1 Significance Criteria

In accordance with Appendix G of the CEQA Guidelines, the project would have a significant impact on public services, utilities, and recreation if it would:

a. Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services; or

b. Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or

c. Be out of compliance with federal, state, and local statutes and regulations related to solid waste.

d. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

e. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

No additional significance criteria are needed to comply with the CEQA-Plus[1] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

4.16.4.2 Impact Analysis Overview

Approach to Analysis

This impact analysis focuses on the potential for project construction or operations to directly affect public services, utilities, and recreation. Potential effects related to wildland fire hazards are evaluated in **Section 4.9 Hazards and Hazardous Materials**. Potential construction-related effects on emergency access and access to schools and recreational facilities are addressed in **Section 4.16 Traffic and Transportation**.

Operational impacts affecting public services, utilities (solid waste disposal), and parks (and recreational facilities) considers whether Proposed Project implementation affects the ability of fire, police or emergency services, schools, parks and recreational facilities, and solid waste disposal facilities to maintain acceptable service or other performance objectives, resulting in the need for new or expanded facilities or deterioration of existing park facilities.

Areas of No Project Impact

The Proposed Project would not result in impacts related to the some of the significance criteria, as explained below. Impact analyses related to the other criteria are addressed below under

[1] To comply with applicable federal statutes and authorities, EPA established specific "CEQA-Plus" requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

Subsections 4.7.4.4 (Construction Impacts), 4.7.4.5 (Operational Impacts), and **4.7.4.6 (Cumulative Impacts).**

- *(d) Increased use of existing parks causing deterioration of facilities.* (No impact during construction or operations). Construction activities would not result in use of recreational facilities or result in an increase in permanent residents that would demand use of parks and recreational facilities. Thus, neither construction nor operation of the Proposed Project would result in use of parks and recreational facilities that would lead to physical deterioration of such facilities, and the significance criterion (d) is not discussed further.
- *(e) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.* (No impact during construction or operations). The Proposed Project does not include construction of recreational facilities. In addition, the Proposed Project would not result in the need for new or expanded recreational facilities because the Proposed Project would not permanently increase the local population or employees (i.e., only up to 9 new employees) such that there would be an increase in demand for recreational facilities. Thus, the significance criterion (e) related to the construction or expansion of recreational facilities is not applicable to the Proposed Project and is not discussed further.

Summary of Impacts

Table 4.16-5, Summary of Impacts – Public Services, Utilities, and Recreation provides a summary of potential public services, utilities, and recreation impacts and significance determinations at each Proposed Project component site.

Table 4.16-5
Summary of Impacts – Public Services, Utilities, and Recreation

	Source Water Diversion and Storage Sites							Product Water Conveyance			CalAm Distribution System		
Impact Title	**Salinas Pump Station**	**Salinas Treatment Facility Storage and Recovery**	**Reclamation Ditch**	**Tembladero Slough**	**Blanco Drain Diversion (Pump Station and Pipeline)**	**Lake El Estero**	**Treatment Facilities at Regional Treatment Plant**	**RUWAP Alignment Option**	**Coastal Alignment Option**	**Injection Well Facilities**	**Transfer Pipeline**	**Monterey Pipeline**	**Project Overall**
PS-1: Construction Public Services Demand	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
PS-2: Construction Landfill Capacity	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
PS-3: Construction Solid Waste Policies and Regulations	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM
PS-4: Public Services Demand during Operation	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
PS-5: Landfill Capacity for Operations	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Cumulative Impacts	LS: The Proposed Project would not contribute to cumulative impacts related to schools, parks, and recreational facilities. The Proposed Project would not make a considerable contribution to significant cumulative impacts to other public services and utilities (fire and police protection, solid waste).												

NI – No Impact
LS – Less-than-Significant
LSM – Less-than-Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.16.4.3 Construction Impacts and Mitigation Measures

Impact PS-1: <u>Construction Public Services Demand.</u> Construction of the Proposed Project would not result in public service demands for fire and police protection services, schools, or parks that would result in the need for new or physically altered facilities to maintain service capacity or performance objectives. (Criterion a) (Less-than-Significant)

All Project Facilities

The Proposed Project would entail construction activities at all project sites, which would not result in a demand for school or park services. During project construction, incidents requiring law enforcement, fire protection, or emergency services could occur for anticipated minor incidents. Any such calls for service would be spread out among several jurisdictions in which the Proposed Project sites are located. Any temporary increase in incidents would not be expected to exceed the capacity of local service providers to a degree that would require new or expanded facilities that would result in significant physical environmental impacts.

The Proposed Project would require a total of up to approximately 270 daily construction workers during the 18-21 month construction period that would be dispersed throughout the construction sites. On average, approximately 170 daily construction workers would be dispersed throughout all the construction sites. While it is possible that some workers might temporarily relocate from other areas, the Proposed Project would not substantially increase the local population such that it would lead to an increased demand for public services. Any temporary increase in the local population during project construction would be negligible, and resulting public service demand could be accommodated by existing service providers. Thus, impacts to public services during construction would be less-than-significant.

Impact Conclusion

Based on the above analysis, construction of the Proposed Project would not result in significant impacts on public services. Any demand for public services would be met through existing service providers without the need for new or physically altered governmental facilities to maintain existing service levels. Therefore, this is a less-than-significant impact, and no mitigation measures would be required.

Impact PS-2: <u>Construction Landfill Capacity.</u> Construction of the Proposed Project would result in generation of solid waste; however, the solid waste would be disposed at a landfill with sufficient permitted daily and overall capacity to accommodate the project's solid waste disposal needs. (Criterion b) (Less-than-Significant)

All Project Facilities

According to MRWPCA, construction of the Proposed Project, including the CalAm Distribution System pipelines, would generate approximately 35,000 cubic yards (or 11,700 tons) of excess spoils and construction debris. Most construction debris would consist of spoils, rock, and other excavated materials. Much of the excavated materials and construction waste would be diverted for recycling and reuse. In the absence of project-specific debris management measures and waste diversion estimates, this analysis conservatively assumes that all excess spoils and construction debris would be disposed of at the MRWMD Landfill.

The Monterey Peninsula Landfill is permitted to receive 3,500 tons of waste per day. The landfill has an estimated remaining capacity of 48,560,000 cubic yards and an expected life of approximately 100 years (CalRecycle, 2013). According to the Monterey Regional Waste Management District, the landfill receives an average of approximately 300,000 tons per year, or less than 1,000 tons per day (Monterey Regional Waste Management District, 2013b).

Based on the assumption that excess spoils and construction debris would be hauled to the landfill five days per week over an 18-month construction duration, project construction could generate up to 30 tons per day of materials requiring disposal. Even under this worst-case scenario, the waste generated by the Proposed Project, in combination with the landfill's average acceptance rate of less than 1,000 tons per day, would be well below the daily permitted capacity of 3,500 tons. In addition, the total amount of excess spoils and construction debris generated by the project represents less than 1% of the landfill's remaining capacity.

Impact Conclusion

The Proposed Project's estimated construction-related solid waste disposal would not exceed the current landfill permitted daily solid waste acceptance rate and would contribute only approximately 1% of that daily rate. The total amount of construction-related solid waste disposal would be only 0.06% of the total permitted capacity remaining in the landfill. The impact is less-than-significant and no mitigation is required.

Impact PS-3: Construction Solid Waste Policies and Regulations. Construction of the Proposed Project would potentially conflict with state and local statutes, policies and regulations related to solid waste. (Criterion c) (Less than Significant with Mitigation)

All Project Facilities

Construction waste materials generated by the Proposed Project could make it difficult for the local jurisdictions to achieve solid waste diversion goals and other local regulations. Jurisdictions must comply with state-mandated reductions in solid waste generation under the California Integrated Waste Management Act of 1989, which requires all California cities and counties to implement programs to reduce, recycle, and compost at least 50% of waste. Facilities in violation of these requirements are fined and could lose their permits to operate if the specified reductions are not met. Consistent with the state mandate, Monterey County requires that 50% of inert solids and 100% of non-inert materials be diverted from landfills. As discussed above in **Section 4.16.3**, **Regulatory Framework**, AB 341 directed CalRecycle to adopt a state policy requiring cities and counties to develop strategies for achieving the goal to divert 75% of solid waste from landfills by 2020. However, AB 341 is explicit in that jurisdictions are not legally required to achieve the 75% diversion goal at this time. In addition, CALGreen requires a 50% diversion of construction waste. Currently, local jurisdictions do not consistently enforce these waste diversion requirements upon individual construction projects.

Construction of the Proposed Project would generate approximately 35,000 cubic yards of construction debris (including for the CalAm Distribution System Pipelines) that would be composed primarily of spoils, rock, and other excavated materials. While suitable soil excavated during construction would be used to backfill trenches and restore work areas, if all of these excavated materials were disposed at a landfill, the project would potentially be out of compliance with State and local solid waste programs resulting in a significant impact. Implementation of Mitigation Measure PS-3 (Construction Waste Reduction and Recycling Plan) would reduce the impact to a less-than-significant level. This measure would require the preparation and implementation of a construction waste reduction and recycling plan identifying the types of debris the project would generate and describing the manner in which these waste streams would be handled to comply with state and local solid waste statutes and regulations.

Impact Conclusion

Construction-generated solid waste disposal at a landfill may be out of compliance with State and local waste diversion policies and goals, resulting in a significant impact. Implementation of Mitigation Measure PS-3 would reduce the potentially significant solid waste impact to a less-than-significant level.

Mitigation Measure

Mitigation Measure PS-3: Construction Waste Reduction and Recycling Plan (relevant to all Proposed Project components).

The construction contractor(s) shall prepare and implement a construction waste reduction and recycling plan identifying the types of construction debris the Proposed Project will generate and the manner in which those waste streams will be handled. In accordance with the California Integrated Waste Management Act of 1989, the plan shall emphasize source reduction measures, followed by recycling and composting methods, to ensure that construction and demolition waste generated by the project is managed consistent with applicable statutes and regulations. In accordance with the California Green Building Standards Code and local regulations, the plan shall specify that all trees, stumps, rocks, and associated vegetation and soils, and 50% of all other nonhazardous construction and demolition waste, be diverted from landfill disposal. The plan shall be prepared in coordination with the Monterey Regional Waste Management District and be consistent with Monterey County's Integrated Waste Management Plan. Upon project completion, MRWPCA and CalAm shall collect the receipts from the contractor(s) to document that the waste reduction, recycling, and diversion goals have been met.

4.16.4.4 Operational Impacts and Mitigation Measures

Impact PS-4: Public Services Demand During Operation. Operation of the Proposed Project would not result in public service demands for fire and police protection services, schools, or parks that would result in the need for new or physically altered facilities to maintain service capacity or performance objectives. (Criterion a) (Less-than-Significant)

All Project Facilities

Operation of the project would consist of operations and maintenance activities at the Source Water Diversion and Storage sites, Treatment Facilities at the Regional Treatment Plant, Booster Pump Station, and Injection Well Facilities sites. Periodic maintenance may be required along the Project Water Conveyance Pipeline and/or CalAm Distribution System Pipeline. Maintenance and operation of these infrastructure facilities would not result in demand for school or park facilities, and any demand for fire and/or police protection services would be minor and would not be expected to exceed the capacity of local service providers to a degree that would require new or physically altered public facilities that would result in significant physical environmental impacts.

The Proposed Project would require up to approximately nine new permanent employees. It is expected that the new employees would be local residents, and the project would not result in an increase in population that would generate new public service demands. (See **Section 4.15, Population and Housing**).

Impact Conclusion

Based on the above analysis, construction of the Proposed Project would not result in significant impacts on public services. Any demand for public services would be met through existing service providers without the need for new or physically altered governmental facilities to maintain existing service levels. Therefore, this is a less-than-significant impact, and no mitigation measures would be required.

Impact PS-5: <u>Landfill Capacity for Operations</u>. Operation of the Proposed Project would not result in adverse effects on landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste. (Criterion b) (Less-than-Significant)

Once constructed, the operation of the proposed underground pipelines for source, advanced water treatment product water, and potable distribution system conveyance would not generate solid waste. Operation and maintenance at the Source Water Diversion and Storage sites, Product Water Conveyance Booster Pump Stations, and Injection Well Facilities also would not be expected to result in generation of solid waste due to the nature of the facilities as operating infrastructure facilities, except for occasional minor servicing and/or replacement of equipment parts, trash found, occasional weed removal, and dirt and dust from sweeping electrical buildings. Operation of the Advanced Water Treatment Facility site would result in generation of minor amounts of solid waste as described below.

Treatment Facilities at the Regional Treatment Plant

The proposed new and modified treatment facilities at the Regional Treatment Plant (including the Advanced Water Treatment Facility and SVRP Modifications) would utilize a treatment process that would produce a relatively small amount of new residual solid waste per day from the primary and secondary treatment process. Approximately 550 lbs/day (and possibly up to approximately 800 lbs/day) of additional wet solid waste would be generated and would need to be hauled off-site due to the waste return stream of the AWT Facility.[2] Solids produced during the reverse osmosis treatment process from the AWT Facility would be combined with the existing solids produced at the Regional Treatment Plant and disposed of at the Monterey Peninsula Landfill, which is adjacent to the treatment plant. Although the solids are unlikely to be categorized as hazardous, testing for nonhazardous waste disposal criteria would be performed prior to landfill disposal. Other types of wastes, such as filter cartridges and membranes used in the reverse osmosis process, would also be generated, but the spent

[2] Suspended solids would be removed through the AWT Facility membrane filtration system and the removed solids would be returned to the Regional Treatment Plant headworks. The 550 lbs/day estimate conservatively assumes that all of the returned solids are then removed through the Regional Treatment Plant primary and secondary processes after return of the AWT Facility waste stream. After removal of the solids through primary and secondary treatment, the solids would go through a number of dewatering and drying steps to reach a final solids concentration of 50% (or greater; 50% was assumed for this calculation). The upper-end solids estimate (800 lbs/day) comes from the maximum Regional Treatment Plant secondary effluent (AWTF influent) total suspended solids data from the source water sampling during 2013 and 2014 of 9 mg/L.

reverse osmosis membranes would be returned to the manufacturer for recycling. The additional five new permanent employees at the plant would generate nominal amounts of typical office wastes.

The Monterey Peninsula Landfill is permitted to accept up to 3,500 tons per day but, on average, receives less than 1,000 tons per day (CalRecycle, 2013; Monterey Regional Waste Management District, 2013b); therefore, the landfill has capacity to accept the waste generated by the Advanced Water Treatment Facility (of less than 800 pounds per day or 0.4 tons per day) without exceeding its permitted daily tonnage or depleting substantial long-term capacity. In addition, the Proposed Project would not be out of compliance with federal, state, and local statutes and guidelines related to solid waste because there are no specific regulations related to the type or quantity of solid waste generated by the AWT Facility. As a result, operation of the proposed Advanced Water Treatment Facility would have a less-than-significant impact related to landfill capacity and solid waste disposal.

Impact Conclusion

As detailed above, the Treatment Facilities at the Regional Treatment Plant would generate some additional solid waste that would be routinely disposed at the Monterey Regional Landfill in addition to solids generated from the existing wastewater treatment facilities. The landfill could accept the waste without exceeding its permitted daily tonnage or substantially depleting long-term capacity. All other proposed facilities would have a very limited potential to generate waste during operations or maintenance. Impacts related to solid waste disposal and landfill capacity during operations and maintenance would be less-than-significant, and no mitigation measures are required.

4.16.4.5 Cumulative Impacts and Mitigation Measures

The geographic scope for cumulative impact analysis of public services consists of the service areas of the public service providers evaluated (fire protection, police protection, schools, and parks/recreation). For landfill capacity, the geographic scope includes the service area of the Monterey Regional Waste Management District. For compliance with solid waste statutes and regulations, the geographic scope encompasses Monterey County, including incorporated cities within which the project components are proposed. Based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis** (see **Section 4.1, Introduction**), cumulative projects in the service areas in which the Proposed Project sites are located are summarized below in the discussion of potential cumulative impacts. The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**. Cumulative project locations are shown on **Figure 4.1.1 rev, Cumulative Projects Location Map**.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the Monterey Peninsula Water Supply Project (MPWSP) (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant projects identified on **Table 4.1-2** for the cumulative analysis:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[3] The CalAm Monterey Peninsula Water Supply

[3] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC, 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is

Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines to convey between the well. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.

- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP (with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). Both the Monterey Peninsula Water Supply Project desalination plant and the Proposed Project Treatment Facilities at the Regional Treatment Plant would be located in the unincorporated area of Monterey County within a distance of approximately 0.5 miles. The Transmission Pipeline component of the MPWSP would be in the similar location as a segment of the Proposed Project Product Water Conveyance Coastal Alignment pipeline within the City of Marina. Both the MPWSP and GWR projects include installation of new wells in the city of Seaside.

Construction of the GWR facilities could overlap with construction of the CalAm facilities for approximately 18 months, which may result in limited increases in calls for police or fire protection services typically associated with construction projects, but would not result in substantial calls for services to the extent that construction of additional police or fire facilities would be required. Thus, cumulative impacts during construction resulting from the MPWSP and GWR projects would not be significant.

Both the desalination plant and Proposed Project Treatment Facilities at the Regional Treatment Plant would be located in the unincorporated area of Monterey County that would be served by City of Marina for fire and police protection services, likely on a contract basis. However, the combined operations of the two projects would not result in a significant cumulative impact to these services due to the nature of the facilities as public infrastructure facilities, which would not be expected to have frequent and/or recurring police or fire service calls. The two combined projects would not result in impacts to service levels that would require new or physically altered physical facilities. Neither project would not result in an increased demand for or impacts to schools and parks. Solid waste from the combined operations of the two projects would not result in significant cumulative impacts to landfill capacity. Therefore, there would be no significant cumulative public service impacts resulting from the two projects.

Overall Cumulative Impacts. Cumulative development projects are summarized and potential cumulative impacts are addressed below for public services (police and fire protection services)

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referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

by geographic area. A discussion of cumulative solid waste impacts follows the public services cumulative impact analysis.

Table 4.16-5 above, summarizes project impacts public services, utilities, and recreation. Proposed Project construction impacts on demand for public services and landfill capacity were found to be less than significant. Public services demand during operation was also determined to be less than significant. The Proposed Project would not result in new population growth that would require schools or parks and recreational services. Thus, public service impacts are only related to police and fire protection services.

Public Services (Fire and Police Protection, Schools, Parks) Cumulative Impacts.

- *City of Salinas – Salinas Pump Station Source Water Diversion and Storage site*. The site is located within the City of Salinas. No cumulative projects have been identified within the applicable City of Salinas service areas of the public service providers evaluated (fire protection, police protection, schools, and parks/recreation), except for the City of Salinas Solar Project (#36) that consists of construction of solar panels on approximately 18 acres at the Salinas Pump Station site. The project would be constructed starting in 2015 and ending in 2016, which would not completely coincide with construction at the Salinas Pump Station Diversion site, which is planned to begin in the summer of 2016. Given the nature of the facilities as public infrastructure, neither project would result in measurable increases in police or fire service calls within the City of Salinas and would not result in a significant cumulative impact.
- *Unincorporated Monterey County*. In addition to the MPWSP components discussed above, cumulative projects in the unincorporated Monterey County service areas of the public service providers include:
  - The Salinas Valley Water Project Phase 2 (#2) would be located 1.6 miles from the Proposed Project Product Water Conveyance pipeline; the construction schedule for these proposed facility improvements would not coincide with the Proposed Project. Because the construction schedules do not coincide, no combined construction-related impacts would occur. The Proposed Project Conveyance pipelines would not contribute to new public service demands.
  - East Garrison Specific Plan at the former Fort Ord (#3) is an approved mixed-used development project, consisting of residential, commercial and institutional uses located west of the Salinas Treatment Facilities.
  - Development Projects Along Highway 68 (#6, 7, 8).
  - The proposed Deep Water Desalination project (#4) would be located over six miles north of the AWT sites and would be located within different service areas than the Proposed Project components within the unincorporated County.

  There would be no overlapping construction schedules except for the Proposed Project, the MPWSP, and East Garrison Project. The exact timing of construction is not known for the projects along Highway 68. The East Garrison Specific Plan is planned for construction starting potentially in 2015. Potential calls for fire and police services during construction would expected to be limited and would be spread among several service providers, and would not result in significant cumulative construction-related impacts.

  Development of the East Garrison area would not result in significant impacts on fire and police protection services with required mitigation that includes funding and construction of an onsite fire station and establishment of a Community Service district to fund fire and sheriff department staffing (Monterey County Planning and Building Inspection Department, 2004).

Once constructed, the Proposed Project would not increase police or fire service demands. The Proposed Project's contribution to these calls would not be cumulatively considerable.

- *City of Marina – The Advanced Water Treatment Facility, segments of the Product Water Conveyance Pipeline and Booster Pump Station*. Cumulative projects in the applicable City of Marina service areas of the public service providers evaluated (fire protection, police protection, schools, and parks/recreation) include:
  - Two water projects - The Regional Urban Water Augmentation Desalination (#18) and a Recycle Project (#19), are both proposed by the Marina Coast Water District. Both projects would be located south of the proposed Regional Treatment Plant and north of the City of Marina. The Desalination project would be located on the Armstrong Ranch property. Both of these proposed projects would be located in proximity to the RUWAP Product Water Conveyance alignment.
  - California State University Monterey Bay (CSUMB) Projects – Student housing (#16) and an academic building (#17) are planned at the CSUMB campus in proximity to the proposed RUWAP Booster Pump Station location.
  - Four development projects - The Dunes on Monterey Bay (#10) – a mixed-use residential, hotel, retail and office developments is scheduled for buildout in 2020 and an affordable housing project (#14) is estimated for construction in 2015. Another housing project (#15) and a mixed use project (#12) do not have identified construction schedules.

  The Proposed Project, MPWSP and the Marina Coast Water District projects consist of infrastructure facilities that would not result in increased demand for schools or parks. Similarly, operation of the Product Water Conveyance Pipeline and Booster Pump Station would not result in increased demands for fire and police protection services. Cumulative development projects would result in increased demands for police and fire protection services. The City of Marina provides fire protection services to the Regional Treatment Plant and potentially other public facilities in the unincorporated area of the County. As a public infrastructure facility with security, fire suppression and hazardous materials controls, the improvements at the Regional Treatment Plant as part of the Proposed Project would not result in a considerable increase in calls for public services or result in a considerable contribution to cumulative impacts.

- *City of Seaside – Segments of the Product Water Conveyance Pipeline, Injection Well Facilities site and segments of the CalAm Distribution System Improvements pipelines.* In addition to MPWSP ASR wells and a portion of Distribution Pipeline, located in Seaside, the following cumulative projects would be located in the City of Seaside: the Seaside Groundwater Basin Aquifer Storage and Recovery Project (#28) adjacent to the proposed Injection Well Facilities site, which was completed in 2014; the Fort Ord Dunes State Park Campground Project (#34) that is scheduled for construction in 2015; City of Seaside development projects (#21, 22, 24), storm drainage improvements (#23-26), and dredging Laguna Grande and Roberts Lakes (#29). The Proposed Project facilities in Seaside would consist of underground pipeline segments, booster pump station and injection well facilities. These facilities would have negligible, if any fire and/or police service demand. Thus, the Proposed Project's contribution to cumulative public service impacts created by other permanent development would not be cumulatively considerable.

- *City of Monterey - Lake El Estero Water Source Diversion site and CalAm Distribution Pipeline Improvements.* These two Project sites are located within the City of Monterey. Two cumulative projects (#30, #31) have been identified within the City of Monterey service areas of the public service providers evaluated (fire protection, police protection, schools, and parks/recreation). These facilities would have negligible, if any fire and/or police service demand. Thus, the Proposed Project's contribution to cumulative public service impacts created by other permanent development would not be cumulatively considerable.

Solid Waste Disposal Cumulative Impacts. Cumulative projects would generate solid waste that would be disposed at the Monterey Peninsula Landfill and Recycling Facility. The Proposed Project's contribution would be minor – approximately 550 to 800 pounds per day of wet solids during operations. In comparison, the East Garrison project in Monterey County is estimated to generate an estimated 13 tons per day of solid waste, which was determined to not be cumulatively significant (Monterey County Planning and Building Inspection Department, 2004). Given that the landfill is permitted to receive 3,500 tons of waste per day, and currently receives less than 1,000 tons per day with a remaining capacity until the year 2161, cumulative impacts to landfill capacity would not be significant. In addition the Proposed Project's construction-related contribution to any potential non-compliance with solid waste statutes and regulations would be considered less-than-cumulatively considerable given the small amount of solid waste generation of the project as documented above, and mitigation that would reduce the project's contribution to cumulative solid waste generation inconsistencies with policies such that the contribution would not be considerable.

Cumulative Impact Conclusion

The Proposed Project would not contribute to any cumulative impacts related to schools, parks, and recreational facilities. The Proposed Project's contribution to other public services and utilities (fire and police protection, solid waste) would not be cumulatively considerable.

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4.17 TRAFFIC AND TRANSPORTATION

Sections	Tables	Figures
4.17.1 Introduction 4.17.2 Environmental Setting 4.17.3 Regulatory Framework 4.17.4 Impacts and Mitigation Measures 4.17.5 References	4.17-1 Characteristics of Roadways in the Vicinity of the Proposed Project, By Component 4.17-2 Level of Service (LOS) Definitions 4.17-3 Applicable State, Regional and Local Land Use Plans and Policies Relevant to Traffic and Transportation 4.17-4 Construction Traffic Assumptions for all Proposed Project Components 4.17-5 Summary of Impacts Traffic and Transportation 4.17-6 Estimated Maximum Daily Construction Vehicle Trips 4.17-7 Major Roads Utilized During Construction	4.17-1 Regional Transportation Network 4.17-2 Salinas and Monterey County Transportation Network 4.17-3 Northern Monterey County Transportation Network 4.17-4 Marina Transportation Network 4.17-5 Seaside Transportation Network 4.17-6 Monterey Transportation Network

4.17.1 Introduction

The Traffic and Transportation section identifies existing conditions within the Proposed Project area, including existing roadway networks, traffic conditions, bicycle and pedestrian networks, public transit, and emergency access, as well as an overview of relevant federal, state, and local transportation regulations. The impact section evaluates construction and operational impacts of the Proposed Project and presents mitigation measures as necessary. Cumulative traffic and transportation impacts are also evaluated in this section.

The analysis in this section is based on estimates of: construction workers and vehicle trips associated with construction and operation of the various components of the Proposed Project; California Department of Transportation (Caltrans) data on state highway traffic volumes; Transportation Agency for Monterey County (TAMC) data on local roadway traffic volumes; traffic data available from other jurisdictions; field reconnaissance; and review of available maps of transit routes, bike routes, and recreational paths.

Public and agency comments related to traffic and transportation received during the public scoping period in response to the Notice of Preparation are summarized below.

- Concern about construction equipment on park roads and trails, traffic control needs and impacts to natural resources.
- Describe construction staging areas and temporary construction impacts.
- Provide information regarding traffic control and coordinate construction with the City of Seaside on implementation of the underground pipeline within the City.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report.**

4.17.2 Environmental Setting

The Proposed Project includes facilities in the cities of Salinas, Marina, Seaside, Monterey, and Pacific Grove and in a portion of the unincorporated portion of Monterey County north and east of Marina. Construction workers, construction vehicles and permanent employees and maintenance crews would use regional highways and local roadways to access the Proposed Project sites.

The regional transportation network in **Figure 4.17-1,** shows the major roadways, highways, railroads and airports within the entire Proposed Project area. A more detailed view of the local roadways and transit facilities in the area of each component are shown in **Figures 4.17-2 through 4.17-6**. Further description of regional and local roadways is provided below.

4.17.2.1 Regional and Local Roadways and Traffic Operations

Regional transportation within Monterey County and within the project area is supported by a system of highways, including U.S. Highway 101 (Highway 101) and several state routes (Highways 1, 68, 156, 183, and 218). All highways are all shown on **Figure 4.17-1, Regional Transportation Network**. A brief description is provided below, and the most recent annual Average Daily Traffic volumes published by Caltrans are identified.

Regional Highways

US Highway 101 provides the primary north-south interregional travel route in Monterey County and through the Salinas Valley and consists of two lanes in each direction. The most recent data published by Caltrans indicates the average daily traffic volume on Highway 101 ranges from about 84,000 vehicles north of the Highway 156 interchange; from 59,000 to 74,000 vehicles between Highway 156 and Highway 68; and about 58,000 vehicles south of Highway 68 (California Department of Transportation, 2013).

State Route 1 (Highway 1) is a four-lane divided freeway with ramp interchanges between Marina and the southern limits of the city of Monterey. Traffic on Highway 1 travels through the western portion of the Proposed Project area. Highway 1 provides a majority of the access to the Proposed Project component sites, and connects with regional highways SR 218 in Seaside and SR 68 in Monterey. The most recent data published by Caltrans indicate the average daily traffic volume on Highway 1 ranges from 41,000 to 45,000 vehicles between Highway 156 and Marina and from 54,000 to 82,000 vehicles between Marina and the Monterey southern city limits (California Department of Transportation, 2013).

State Route 68 (Highway 68 or Monterey-Salinas Highway) is a major roadway connector link between Highway 183 and Highway 101 in Salinas and Highway 1 in Monterey. Highway 68 is primarily a two-lane road between Monterey and Reservation Road. Highway 68 is a limited access four-lane freeway between Toro Park and Spreckels Boulevard, which becomes a conventional four-lane highway configuration between Spreckels Road and Blanco Road. The Highway 68/Highway 218 intersection is signalized as are several other intersections between Highway 218 and Monterey. The most recent data published by Caltrans indicate the average daily traffic volume on Highway 68 ranges from 21,800 to 29,000 vehicles between the interchanges with Highway 1 in Monterey and with Reservation Road (California Department of Transportation, 2013).

State Route 156 (Highway 156) is a two-lane highway, serving as an east-west connector from Highway 101 to Highway 1. Highway 156 becomes a four-lane highway for less than 2 miles along the southern edge of Castroville, where it connects to Highway 1. As a connector, it experiences high weekend peak traffic volumes, carrying a significant number of visitors, mostly from the San Francisco Bay Area and Central Valley, to the Monterey Peninsula. The most recent data published by Caltrans indicate the average daily traffic volume on Highway 156 ranges from 28,000 to 31,000 vehicles between Highway 1 and Highway 101 (California Department of Transportation, 2013).

State Route 183 (Highway 183) is routed along West Market Street in the City of Salinas, which is a four-lane facility between Main Street and the Salinas city limits, and a two lane conventional highway between the Salinas city limits and Highway 1 in Castroville. Highway 183 is ten miles in length, beginning at the junction of Highway 101 in Salinas and continuing westerly to the junction of Highway 1 in Castroville. Highway 183, known as Merritt Street through Castroville, serves as the main arterial through the community and also experiences high rates of agricultural truck traffic. The most recent data published by Caltrans indicate the average daily traffic volume on Highway 183 ranges from 12,000 to 38,000 vehicles between Highway 1 and Highway 101 (California Department of Transportation, 2013).

Local Roadways

The project area has a network of roads that serve various purposes. Arterial streets are designed to carry the traffic of local and collector streets to and from freeways and other major streets, generally providing direct access to nonresidential properties. Collector streets are designed to move traffic between arterials to local roadways. Local roads generally provide direct access to residential land uses. The roadways that would be most affected by project construction activities (and, to a lesser extent, project operations) are primarily two-lane roads, although some potentially affected roadways have four travel lanes (two in each direction). Characteristics for the local roadways (e.g., number of travel lanes, bike lanes, parking availability, public transit service, etc.) for the roads in the Proposed Project area are shown in **Table 4.17-1, Characteristics of Roadways in the Vicinity of the Proposed Project, By Component**.

Truck Routes

The State has designated major routes and connecting routes for truck use. The designated routes in Monterey County are shown below (California Department of Transportation, 2014).

- U.S. Highway 101
- State Route 68 (Monterey-Salinas Highway)
- State Route 1
- State Route 156
- State Route 183
- State Route 218 (Canyon Del Rey Road)

Table 4.17-1
Characteristics of Roadways in the Vicinity of the Proposed Project, By Component

Roadway/Segment	Lanes	Traffic Volumes[1]	Bike Lanes	On-Street Parking	Public Transit Lines[2]	Jurisdiction (Figure Reference)
Source Water Diversion and Storage Sites						
Salinas Pump Station and Salinas Industrial Wastewater Treatment Facility and Pipeline						
Hitchcock Road	2	NA	No	No	No	City of Salinas (**Fig. 4.17-2**)
South Davis Road	2	NA	No	No	No	
Davis Road, South of Blanco Road	2	8,053	No	No	No	
Reclamation Ditch Diversion						
Davis Road	2	NA	Yes	No	MST 56	Unincorporated Monterey County and City of Salinas (**Fig. 4.17-3**)
Market Road	4	NA	No	No	MST 28	
Tembladero Slough Diversion						
Highway 1 south of 183; Highway 1 north of 183	2	17,700; 31,000	Yes	No	MST 78	Unincorporated Monterey County (**Fig. 4.17-3**)
Watsonville Road	1	NA	No	No	No	
Blanco Drain Diversion						
Nashua Road, Cooper Road, Blanco Road	2	NA	No	No	No	Unincorporated Monterey County (**Fig. 4.17-3**)
Lake El Estero Diversion						
Del Monte Boulevard: Camino Aguajito to Camino El Estero	4	37,785 to 39,105	No	Yes	MST (multiple routes) MST 19 & 20	City of Monterey (**Fig. 4.17-6**)
Treatment Facilities at the RTP (AWT Facility and SVRP Modifications)						
Charles Benson Road: Del Monte Boulevard to MRWPCA Regional Treatment Plant facility	2	NA	No	No	No	Unincorporated Monterey County (**Fig. 4.17-4**)
Product Water Conveyance System						
RUWAP Alignment: AWT Facility to Booster Pump Station						
Crescent Avenue	2	NA	~~No~~Yes	Yes	MST 27, 71	City of Marina (**Fig. 4.17-4**)
Carmel Avenue	2	NA	No	Yes	MST 27, 71	
Vaughn Avenue	2	NA	No	Yes	No	
Reindollar Road: Del Monte Ave and Sunset Ave	2	7,025	No	Yes	MST 71	

Table 4.17-1
Characteristics of Roadways in the Vicinity of the Proposed Project, By Component

Roadway/Segment	Lanes	Traffic Volumes[1]	Bike Lanes	On-Street Parking	Public Transit Lines[2]	Jurisdiction (Figure Reference)
California Avenue: Imjin Pkwy and Reindollar Rd	2	4,536	Yes	No	No	
5th Avenue	2	NA	No	No	No	
RUWAP Alignment: Booster Pump Station to Injection Well site						
Inter-garrison Road	2	NA	No	No	MST 17, 74	Cities of Marina and Seaside (**See Figure 4.17-5)**
5th Avenue	2	NA	No	No	No	
Engineer Lane	2	NA	No	No	No	
General Jim Moore Boulevard: Lightfighter Drive to Gigling Road	4	8,696	Yes	No	MST 16	
General Jim Moore Boulevard: Gigling Road to Arloncourt Road	4 lanes (median)	NA	Yes	No	MST 12, 75	
General Jim Moore Boulevard: Coe Avenue to McClure Road	4 lanes (median)	6,531	Yes	No	MST 12, 75	
General Jim Moore Boulevard: Coe Avenue to Broadway Avenue	4 lanes (median)	6,587	Yes	No	MST 6,12, 77	
Eucalyptus Road (currently closed)	4	none	Yes	No	No	
Coastal Alignment: Treatment Facilities to Booster Pump Station						
Del Monte Boulevard: Lapis Road to Beach Road	2	2,990 to 3,375	Rec. Trail	Yes	MST 27	Unincorporated Monterey County and City of Marina (**Fig. 4.17-4**)
Del Monte Boulevard: Beach Road to Reservation Road	4 lanes (median)	NA	Rec. Trail	No	MST 27	City of Marina (**Fig. 4.17-4 and 4.17-5**)
Del Monte Boulevard: Reservation Road to Highway 1 interchange	4 lanes (median)	24,850 to 26,700	Rec. Trail	No	MST 17, 19, 20, 78	
Divarty Street: Highway 1 to 2nd Ave	2	NA	No	No	No	City of Seaside (**Fig. 4.17-5**)
Divarty Street: 1st Avenue to 2nd Avenue	2	NA	No	No	No	City of Seaside (**Fig. 4.17-5**)
Coastal Alignment: Booster Pump Station to Injection Well site						
2nd Avenue: Divarty Street to Lightfighter Drive	4 lanes (median)	NA	Class I Bike Trail	No	No	City of Seaside (**Fig 4.17-5**)
Lightfighter Drive: 2nd Avenue to General Jim Moore Boulevard	4 lanes (median)	NA		No	No	
General Jim Moore Boulevard: Lightfighter Drive to Gigling Road	4	8,696		No	MST 16	
General Jim Moore Boulevard: Gigling Road to Arloncourt Road	4 (median	NA	Yes	No	MST 12, 75	
General Jim Moore Boulevard: Coe Avenue to McClure Road	4 lanes (median)	6,531	Yes	No	MST 12, 75	
General Jim Moore Boulevard:	4 lanes	6,587	Yes	No	MST 6,12, 77	

Table 4.17-1
Characteristics of Roadways in the Vicinity of the Proposed Project, By Component

Roadway/Segment	Lanes	Traffic Volumes[1]	Bike Lanes	On-Street Parking	Public Transit Lines[2]	Jurisdiction (Figure Reference)
Coe Avenue to Broadway Avenue	(median)					
Eucalyptus Road (currently closed)	4 lanes	none	Yes	No	No	
Injection Well Facilities						
General Jim Moore Boulevard: McClure Road to Coe Avenue	4 lanes (median)	6,531	Yes	No	MST 12, 75	City of Seaside (**Fig 4.17-5**)
General Jim Moore Boulevard: Coe Avenue to Broadway Avenue	4 lanes (median)	6,587	Yes	No	MST 6,12, 77	
Eucalyptus Road (currently closed)	4 lanes	none	Yes	No	No	
CalAm Distribution System Pipeline						
Transfer Pipeline						
Auto Center Parkway (La Salle Avenue): Del Monte Boulevard to Fremont Boulevard	4 lanes	NA	No	No	MST Jazz A	City of Seaside (**Fig 4.17-5**)
La Salle Avenue: Fremont Boulevard to Flores Avenue Flores Avenue to Yosemite Street	2 lanes	NA	No	Yes	MST Jazz A NA	
Yosemite Street: La Salle Ave to Hilby Avenue	2 lanes	NA	No	Yes	MST 8, 11 Jazz B	
Hilby Avenue: Yosemite Street to Mescal Street	2 lanes	NA	No	Yes	No	
General Jim Moore Boulevard: North and south of Hilby Avenue	4 lanes (median)	5,900 to 6,955	No	Yes	No	
Monterey Pipeline						
Del Monte Avenue: La Salle Avenue to Camino El Estero	4 lanes	37,785 to 39,150	No	No	MST (multiple routes)	Seaside and Monterey (**Fig 4.17-6**)
Camino El Estero to Washington Street	6 lanes	NA	No	No	MST 19, 20	Monterey (**Fig 4.17-6**)
Figueroa Street: Del Monte Avenue to Franklin Street	2 lanes	NA	Yes	Yes	No	
Franklin Street: Figueroa Street to Pacific Street	2 lanes (one-way)	9,880 to 10,850	No	Yes	MST (multiple routes)[3]	
Pacific Street to High Street	2 lanes	8,085 to 8,640	No	Yes	MST (multiple routes)[3]	
High Street: Franklin Street to the Presidio of Monterey	2 lanes	NA	No	Yes	No	

[1]Average daily traffic volumes provided by the Transportation Agency for Monterey County (TAMC, 2012).
[2]Public transit information provided by Monterey-Salinas Transit (MST, 2014).
[3] MST routes along this segment of Franklin Street include Routes 3, 19, 20, 55, 70, 71, 72, 74, 75, 76, and 77.
NA = Not Available

Some jurisdictions within Monterey County have adopted designated truck routes to reduce problems associated with increased congestion during peak hours and to direct trucks away from certain streets that were not designed to accommodate the excess weight. Some types of modern trucks accommodate a larger and heavier cargo load and require special geometric designs for roads. Locally-designated truck routes in the vicinity of Proposed Project components include:

- *City of Monterey* - Aguajito Road (City of Monterey-Fremont Street to Mark Thomas Drive/Highway 1); Del Monte Avenue (City of Monterey – Pacific Street to East City Limit); Figueroa Street (City of Monterey – Franklin Street to Commercial Wharf H)
- *City of Marina* –The City of Marina General Plan prohibits commercial trucks on local residential streets and local residential collectors except for purposes of local deliveries.

Traffic Operating Conditions on Roadways

Traffic conditions are measured by average daily traffic (ADT), peak hour traffic volumes, level of service (LOS), average delay, and volume to capacity (V/C) ratio. Average daily traffic is the total number of cars passing over a segment of the roadway, in both directions, on an average day. Peak hour volumes are the total number of cars passing over a roadway segment during the peak hour in the morning (AM) or afternoon/evening (PM).

Level of Service (LOS) is used to identify the magnitude of traffic congestion and delay at intersections and along highways and roadways in some jurisdictions. The LOS is based on several factors, including traffic volumes, number of lanes, type of intersection control, speed and travel time, traffic interruptions, driving comfort and convenience, and is expressed qualitatively on a six-level range of conditions, represented as LOS A (best) to LOS F (worst). LOS A through D generally represent traffic volumes that are lower than the roadway capacity, while LOS E represents volumes that are at capacity conditions and LOS F represents over capacity or forced flow conditions. See **Table 4.17-2, Level of Service (LOS) Definitions** for LOS definitions.

Table 4.17-2
Level of Service (LOS) Definitions

Level of Service	Description
A	Free-flow with no delays. Users are virtually unaffected by others in the traffic stream.
B	Stable traffic. Traffic flows smoothly with few delays.
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.
D	Approaching unstable flow or operation. Operation of individual users becomes significantly affected by other vehicles. Delays may be longer than one cycle during peak hours. .
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing
Source: Transportation Research Board, Highway Capacity Manual 2010, National Research Council	

The LOS standard of measurement typically is used when evaluating effects of traffic increases on intersection and roadway operations due to new development, but generally does not apply to construction projects which do not result in permanent traffic increases. Other measures of roadway operating conditions and/or performance may include the amount of vehicle delay and vehicle miles traveled, as well as consideration of all transportation modes in addition to automobiles.

Caltrans, which has jurisdiction over state highways, endeavors to maintain a target LOS at the transition between LOS C and D for its facilities, according to the Caltrans *Guide for Preparation of Traffic Impact Studies* (California Department of Transportation, 2002). Additionally, if an existing State highway facility is operating at less than the target LOS, the Caltrans Guide states that the existing LOS should be maintained (California Department of Transportation, 2002).

Most local jurisdictions have developed LOS standards or goals as part of their General Plans. LOS goals and standards for the jurisdictions in which the Proposed Project components are located are summarized below:

Monterey County. Per the County's 2010 General Plan, the acceptable level of service for County roads and intersections is LOS D except in specified situations.

City of Marina. Per the City's General Plan (2006), a peak period LOS D shall be maintained for all highway segments and major roads within the Marina Planning Area, except that where existing roads and highways are operating at a lower LOS standard at the time of plan adoption, the existing LOS will be maintained or improved.

City of Monterey. Per the City's General Plan (2005 as updated through 2013), the Circulation Element replaces traditional auto-oriented LOS standards with multi-modal LOS goals that promote transit, bicycle, and pedestrian-oriented development in areas best served by these alternative modes of transportation. The General Plan seeks to establish multi-modal LOS standards and automobile LOS standard for defined neighborhoods that together measure the effectiveness of the transportation system. The General Plan also establishes LOS D as an acceptable automobile LOS standard for roadway segments that are not within a multi-modal corridor and LOS E and LOS F as an acceptable automobile LOS on roadway segments within a completed multi-modal corridor as defined in the Multi-Modal Mobility Plan (MMMP).

City of Pacific Grove. Per the City's 1994 General Plan, the City strives to maintain a LOS no worse than C during peak periods on arterials and collector streets within the city, and to accept LOS D during weekday peak-periods at intersections that were close to LOS D on arterial routes outside the Downtown area.

City of Salinas. Per the City's 2002 General Plan, the City strives to maintain a LOS D or better for all intersections and roads.

City of Seaside. Per the City's General Plan (2004), Seaside has established LOS C as the level of service standard for signalized and unsignalized intersections.

4.17.2.2 Bicycle and Pedestrian Network

Monterey County has approximately 246 miles of maintained bikeways on state, county and local roads. There are also several designated bikeways throughout the project area that serve as both recreational facilities and alternative transportation routes. "Bikeway" is a general term used to refer to facilities that primarily provide for efficient and safe bicycle travel. Bikeways in the county are classified as Class I, II, and III. These classifications generally follow design standards established by Caltrans:

Class I (bike path) - a completely separate right-of-way designed for the exclusive use of cyclists and pedestrians.

Class II (bike lane) - a lane on a roadway that is separated from motorists by paint striping; designated for the exclusive use or semi-exclusive use of bicycles.

Class III (bike route) - allows for shared use of the roadway with motorists; designated by signs or permanent marking.

The 18-mile-long, Class I, Monterey Peninsula Recreational Trail extends from Lovers Point in Pacific Grove to Del Monte Boulevard, north of Marina. In addition to the Monterey Peninsula Recreational Trail, numerous other designated bike routes occur along roadways within the county, some of which support a designated bike lane. Class I bikeways exist along General Jim Moore Boulevard between Normandy Road and Coe Avenue. A Class II bikeway exists along General Jim Moore Boulevard between Coe Avenue and Canyon del Rey Boulevard. **Figures 4.17-2 through 4.17-6** show Class I bike paths in the vicinity of the Proposed Project component sites.

Table 4.17-1, **Characteristics of Roadways in the Vicinity of the Proposed Project,** identifies bicycle routes located on roadways adjacent to the Proposed Project component sites. The level of pedestrian facilities and pedestrian volumes varies in the Proposed Project area, but the predominant travel mode in the area is by automobile.

4.17.2.3 Public Transit Service

Buses

Public transit services are provided by Monterey-Salinas Transit (MST) and Greyhound Lines. Monterey-Salinas Transit is a public transportation agency that provides bus service to the greater Monterey and Salinas areas, plus routes to Carmel Valley and North County. Greyhound provides intercity passenger service between Monterey Peninsula cities, Salinas, Salinas Valley cities, as well as intra- and inter-state service (Monterey County, 2010).

MST routes that operate in the vicinity of the Proposed Project area include Routes 12, 16, 17, 20, 21, 26, 27, 55, 56, 77, 91, 28, and 38 (Monterey-Salinas Transit, 2013). **Table 4.17-1**, above, indicates the Proposed Project area roadways that are shared with public transit routes.

Railroads

Amtrak provides passenger rail service in Monterey County, with the Coast Starlight (daily departures in each direction between Seattle and Los Angeles) serving Salinas with a daily northbound and southbound train. The Union Pacific Railroad (UPRR) provides freight service in Monterey County.

TAMC owns a 13-mile segment of railroad right-of-way between Castroville (where it connects with the Union Pacific Railroad) and Monterey (where it terminates at Cannery Row). TAMC is considering the option of building a light rail or express bus system along this segment. Known as the Monterey Branch Line, the right-of way passes through the cities of Marina and Seaside, and Fort Ord. Several portions of the right-of-way have been paved over within Seaside and Monterey to accommodate recreational trails.

Airports

The Monterey Regional Airport and Marina Municipal Airport serve the Monterey region. The Monterey Regional Airport comprises an area of 498 acres and has been in service since 1941.

It is classified as a "non-hub" airport that is served by five airlines (Monterey Regional Airport, 2013). The Comprehensive Land Use Plan for Monterey Regional Airport was approved by the Monterey County Airport Land Use Commission in 1987. The plan adopts the land use designations of the general plans of the jurisdictions within the Airport's "Area of Influence," and includes the cities of Monterey, Del Rey Oaks, Seaside, Sand City, Pacific Grove, and portions of the County of Monterey. In addition, the plan shows the specific Approach Protection Zone and a Runway Protection Zone, neither of which is in the Proposed Project area.

The Marina Municipal Airport Comprehensive Land Use Plan was adopted in 1996 and is designed to ensure that surrounding land use development is compatible and does not cause a hazard to aircraft in flight. In addition, the plan includes a map of the Approach and Runway Protection Zones, which aim to restrict development to low density land uses.

See **Section 4.9, Hazards and Hazardous Materials**, for further discussion of airport safety issues.

4.17.3 Regulatory Framework

4.17.3.1 Federal and State

United States Department of Transportation Federal Highway Administration (FHWA) supports state and local governments in the design, construction, and maintenance of the nation's highway system. Federal interstate highway standards are implemented in California by Caltrans.

California Department of Transportation (Caltrans) is responsible for constructing, enhancing, and maintaining the state highway and interstate freeway systems. As a result, any change to the state roadway system requires an encroachment permit from Caltrans. Work that requires movement of oversized or excessive load vehicles on highway facilities requires a transportation permit by Caltrans.

In addition to maintaining highways and general regulations and laws dealing with licensing, traffic signage, and other noncommercial driver requirements, state laws and regulations also govern motor carriers on roadways within the state.

4.17.3.2 Regional and Local

Transportation Agency for Monterey County

The Transportation Agency of Monterey County is an independent association of local officials who oversee planning and funding of regional transportation improvements throughout Monterey County. The agency prepares the Regional Transportation Plan and oversees the implementation of its recommended improvements.

Association of Monterey Bay Area Governments

The Association of Monterey Bay Area Governments (AMBAG) prepares studies, plans, and policy and action recommendations that may be incorporated into regulatory documents. In addition to its transportation planning and study functions and policy recommendations, AMBAG develops and maintains a regional travel demand forecasting model used for the planning of regional transportation facilities and the assessment of development proposals.

Local General Plans

General Plans have been adopted by Monterey County for unincorporated areas and by the incorporated cities of Monterey, Marina, Pacific Grove, Salinas, and Seaside, which each have their own plans, policies and/or capital improvement programs that regulate transportation improvements. The cities and county public works departments administer encroachment permits for work performed within their rights-of-way.

Plans and Policies Consistency Analysis

Table 4.17-3, Applicable State, Regional and Local Land Use Plans and Policies Relevant to Traffic and Transportation describes the state, regional, and local land use plans, policies, and regulations pertaining to traffic and transportation that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.17-3** is an analysis of project consistency with these plans, policies, and regulations. In some cases, policies contain requirements that are included within enforceable regulations of the relevant jurisdiction. Where the analysis concludes the project would not conflict with the applicable plan, policy, or regulations, the finding and rationale are provided. Where the analysis concludes the project may conflict with the applicable plan, policy, or regulation, the reader is referred to **Section 4.17.4, Impacts and Mitigation Measures**, for additional discussion, including the relevant impact determination and mitigation measures.

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Table 4.17-3
Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Traffic and Transportation

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component	Specific, Policy or Program	Project Consistency with Policies and Programs
Monterey County	Monterey County General Plan	Circulation	Salinas Treatment Facility and Pipeline Reclamation Ditch Diversion Tembladero Slough Diversion Blanco Drain Diversion Treatment Facilities at Regional Treatment Plant Product Water Conveyance: RUWAP and Coastal Alignment Options	**Policy C-4.3**: The needs of bicyclists and pedestrians, as well as provisions for utilities and drainage, shall be considered and, where appropriate, provided in all public rights-of-way in a manner that minimizes impacts to adjacent land uses.	**Consistent, with mitigation**: Project construction would temporarily increase traffic safety hazards for bicyclists and pedestrians, and could impede access to and along recreational trails. The Proposed Project would not result in changes to or permanent disruption of public access in public rights-of-way. This policy provides direction when considering right-of-way improvements. These issues are addressed further in Impact TR-2, which identifies a mitigation measure that would minimize or avoid this potential inconsistency.
City of Marina (coastal zone)	City of Marina Local Coastal Program Land Use Plan	Policies	Product Water Conveyance: Coastal Alignment Option	**Policy 1**: To insure access to and along the beach, consistent with the recreational needs and environmental sensitivity of Marina Coastal area.	**Consistent, with mitigation**: Temporary impacts to beach access during construction would be less-than-significant. The Proposed Project would not permanently interfere with public access. Construction of the Coastal alignment of the Product Water Conveyance pipeline may temporarily disrupt transportation access to Fort Ord Dunes State Park. This issue is addressed further in Impact TR-2, which identifies a mitigation measure that would minimize or avoid this potential inconsistency.
City of Seaside (coastal zone)	City of Seaside Local Coastal Program Land Use Plan	Coastal Zone	Product Water Conveyance: Coastal Alignment Option Monterey Pipeline	**Policy PAR-CZ 1.1.B**: Maximize and protect public access including pedestrian and bicycle connectivity and recreational opportunities in the coastal zone consistent with resource conservation principles, public safety, public rights, and the rights of private property owners.	**Consistent:** The Proposed Project would not permanently affect public access or recreational opportunities in the coastal zone.
Seaside	Seaside General Plan	Circulation	Product Water Conveyance: RUWAP and Coastal Pipeline options and Coastal Booster Pump Station Injection Well Facilities Transfer Pipeline Monterey Pipeline	**Policy C-1.7**: Reduce impacts on residential neighborhoods from truck traffic and related noise.	**Consistent, with mitigation**: The Proposed Project is a water infrastructure project and therefore would not have any long term traffic impacts to residential neighborhoods. Short-term construction truck traffic would occur in residential neighborhoods in Seaside (see Table 4.17-1), but with implementation of Mitigation TR-2 would not cause a significant impact.
City of Monterey	Monterey Harbor Land Use Plan	Development	Monterey Pipeline	**Section 30253**: Minimization of adverse impacts. New development shall do all of the following: d. Minimize energy consumption and vehicle miles traveled.	**Consistent:** Proposed Project operations would result in a negligible increase in traffic and vehicle miles traveled.
City of Monterey	Monterey Harbor Land Use Plan	Public Access	Monterey Pipeline	**Section 30210**: Access; recreational opportunities; posting. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.	**Consistent, with mitigation**: Construction of the Monterey Pipeline would temporarily impede access to recreational resources within the coastal zone. This issue is addressed further in Impact TR-2, and Mitigation TR-2 would minimize or avoid temporary disruption to coastal access.
City of Monterey	Monterey Harbor Land Use Plan	Public Access	Monterey Pipeline	**Section 30211**: Development not to interfere with access. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.	**Consistent, with mitigation:** Construction of the Monterey Pipeline may temporarily impede access to shoreline access points within the coastal zone. This issue is addressed further in Impact TR-2, and Mitigation TR-2 would minimize or avoid temporary disruption to coastal access.
City of Monterey	Del Monte Beach Land Use Plan	Public Works	Monterey Pipeline	**Policy 13**: New development shall not preclude or interfere with planned public transportation improvements or facilities, e.g. restored rail service and associated shuttle service.	**Consistent, with mitigation:** Construction of the Monterey Pipeline may temporarily disrupt public transportation service along Del Monte Avenue. This issue is addressed further in Impact TR-2, and Mitigation TR-2 would minimize or avoid temporary disruption to public transportation access.
City of Monterey	Del Monte Beach Land Use Plan	Public Works, Parking, and Circulation	Monterey Pipeline	**Policy 3.K**: New development shall not preclude or interfere with planned public transportation improvements or facilities, e.g. restored rail service and associated shuttle service.	**Consistent, with mitigation:** Construction of the Monterey Pipeline may temporarily disrupt public transportation service along Del Monte Avenue. This issue is addressed further in Impact TR-2, and Mitigation TR-2 would minimize or avoid temporary disruption to public transportation access.

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4.17.4 Impacts and Mitigation Measures

4.17.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, a project would have a significant transportation impact if it would:

a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

b. Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, which results in substantial safety risks.

d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

e. Result in inadequate emergency access.

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

No additional significance criteria are needed to comply with the CEQA-Plus[1] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

4.17.4.2 Impact Analysis Overview

Approach to Impact Analyses

The impact analyses in this section evaluate the potential for short-term construction-related traffic impacts that may result in increased traffic delays or hazards, or that may impede pedestrian, bicycle and transit access, including access to recreational resources. Long-term traffic impacts associated with Proposed Project operations are also addressed.

[1] To comply with applicable federal statutes and authorities, EPA established specific “CEQA-Plus” requirements in the Operating Agreement with SWRCB for administering the State Revolving Fund (SRF) Loan Program.

Construction-related trip and traffic assumptions have been developed for each Proposed Project component, and are summarized on **Table 4.17-4, Construction Traffic Assumptions for all Proposed Project Components**. Final construction scheduling of specific facilities would result in simultaneous (concurrent) construction for more than one Proposed Project component; the analysis of potential impacts assumes that all Proposed Project components would be constructed during an approximately 18-21 month construction period. Following is a summary of assumptions used for the analysis in this section.

Construction Assumptions

Construction Duration and Schedule

- Construction is anticipated to begin in June 2016 and would be substantially completed by December 2017 for a total construction period of 18 months, plus a 3-month testing period. General work hours are assumed to be between 7:00 AM and 8:00 PM, Monday through Saturday. Two work shifts (Shift 1: 7:00 AM-3:00 PM; Shift 2: 12:00 PM-8:00 PM) are planned at the following project sites: Salinas Pump Station Diversion, Salinas Treatment Facility, Lake El Estero Diversion, and the Product Water Pipeline and Booster Station. One work shift ending at 6:00 PM is planned at the Reclamation Ditch, Tembladero Slough and Blanco Drain Diversion sites and at the Salinas Valley Reclamation Plant improvements. Construction at the Regional Treatment Facilities and Injection Well Facilities would occur 24 hours per day and 7 days a week with up to 4 daily work shifts. There is a potential for nighttime construction at the Blanco Drain site.
- Product Water Conveyance Pipeline construction would be performed at an anticipated installation rate of 250 feet per day within roadway rights-of-way and at a rate of up to 400 feet per day in open (undeveloped) areas.
- CalAm Distribution System pipeline construction would be performed at the anticipated installation rate of 150 to 250 feet per day.
- Upon the completion of construction activities, roadways disturbed during pipeline installation would be restored to their preconstruction condition.

Construction Trips Assumptions

- Traffic-generating construction activities for all Proposed Project components is assumed to consist of the daily arrival and departure of construction work crews; trucks hauling equipment and materials to the work sites; hauling of excavated spoils from the site; and importing fill to the site.
- Workers would commute to and from the construction areas earlier or later than project-related construction truck trips.
- All workers are assumed to drive separately in single occupancy vehicles for the purpose of the traffic analysis.
- The average capacity for haul trucks would be 10 cubic yards per truck.
- The truck (haul) trip counts include the number of trucks that would come to the site and leave the site: one incoming trip and one outgoing trip. The worst-case daily assumption would be that all trucks are heavy duty (semi-trucks). The purpose of the trips would be to deliver construction equipment, vehicles, materials, and new treatment plant facilities and to remove construction materials, soils, and waste.

Construction Staging Areas and Construction Techniques

- Staging areas would be set up along the pipeline alignments, and construction equipment and other materials would be located at selected locations to facilitate the movement of materials, equipment, and construction crews. Staging areas would be selected to minimize hauling distances, and would be located within the areas shown in **Chapter 2, Figures 2-18, 2-21** through **2-27, 2-30, 2-31, 2-38,** and **2-39**.
- Construction equipment and materials associated with pipeline installation would be stored along the pipeline easements and at nearby designated staging areas. To the extent feasible, parking for construction and worker vehicles would be accommodated within the construction work areas and on adjacent roadways.
- Construction of non-linear facilities (facilities at the Source Water Diversion and Storage component sites, Treatment Facilities at the Regional Treatment Plant, Booster Pump Station, and Injection Well Facilities) could include site preparation, grading and excavation, equipment and materials deliveries, concrete formwork, building construction (only at the Regional Treatment Plant, Booster Pump Station, and Injection Well Facilities sites) installation of support equipment, installation of security fencing, and revegetation. Earthmoving activities would be performed using heavy construction equipment such as bulldozers, backhoes, cranes, and graders.
- Most linear facilities (conveyance pipelines) would be installed using conventional open-trench construction techniques. However, trenchless technologies such as boring and jacking, microtunneling, or horizontal directional drilling may be used where open-cut trenching is not feasible or desirable (highway crossings, stream and drainage crossings, and areas with high utility congestion). <u>Note: City of Marina Municipal Code Section 12.20.100 does not allow trenchless activities under an encroachment permit.</u>

Construction Traffic and Roadway Controls

- All construction activities within roadways would be restricted to the right-of-way (ROW) approved by the applicable agency for public ROWs and property owner for private roads. All roadways disturbed during pipeline installation would be restored. Generally, trench spoils would be temporarily stockpiled within the construction easement, then backfilled into the trench after pipeline installation.

Operational Assumptions

Permanent Employees and Hours of Operation

- Upon completion of construction, all Proposed Project components would be in operation 24 hours a day with some exceptions. **Table 2-9** in the Project Description section of this EIR provides an overview of project facility operations.
- A total of up to nine new employees would be hired for operation and maintenance of all Proposed Project components. Five new employees are anticipated at the AWT Facility. The other four employees would be spread out among the other Proposed Project facilities.
- A total of eight heavy duty truck trips per weekday (i.e., four trucks) would be needed for the operation of the facilities.

Areas of No Project Impact

Some of the significance criteria outlined above (b, c, d, f) are not applicable to the Proposed Project or the Proposed Project would not result in impacts related to these criteria, as explained below. Impact analyses related to criteria "a" and "e" are addressed below under **Subsections 4.17.4.4** (**Construction Impacts**) and **4.17.4.5** (**Operational Impacts**).

(b) Conflicts with Congestion Management Programs. There are no adopted congestion management plans within any of the cities or unincorporated areas, and none have been adopted by the Monterey Agency for Monterey County. Thus, significance criterion "b" is not applicable.

(c) Air Traffic Patterns. The project would not affect air traffic patterns of the airports (criterion "c") that are located within two miles of the Proposed Project components (Monterey Regional and Marina Municipal Airports). Construction would not occur in proximity to either airport nor would construction equipment exceed height restrictions within these areas. Permanent, above-ground structures that would be constructed at the Regional Treatment Plant would not be within a designated protected area of either airport. Therefore, the Proposed Project would not alter air traffic patterns nor result in substantial safety risks associated with airport operations. The Injection Well Facilities site is located approximately two miles from the Monterey Regional Airport; however, it is not situated within Approach Protection Zone or a Runway Protection Zone and therefore project construction and operations would not interfere with Airport operations, nor is this site subject to any aviation-related development limitations (Monterey Regional Airport Land Use Plan, 1987).

(d) Increased Hazards Due to Design. Significance criterion "d" does not apply to either the Proposed Project's design or temporary construction impacts. The Proposed Project would not include new road designs or alterations of existing features (e.g., road realignment) that could substantially increase hazards. In addition, traffic generated by the Proposed Project would be compatible with the mix of vehicle types (autos and trucks) currently using nearby Proposed Project-area roads. Therefore, the Proposed Project would not result in hazards caused by a design feature or use that is incompatible with roadway designs. Temporary impacts related to roadway safety during project construction are addressed in Impact TR-2 (construction-related traffic delays, safety hazards and access limitations).

(e) Conflict with Adopted Policies Regarding Transit, Bicycle or Pedestrian Facilities. The intent of significance criterion "e" is to account for potential project conflicts with adopted policies, plans, and programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities. The Proposed Project does not include changes in policies or programs that support alternative transportation, and Proposed Project operation would not conflict with adopted policies, plans, or programs supporting alternative transportation. The Proposed Project would not directly or indirectly eliminate, alter or conflict with alternative transportation corridors or facilities (e.g., bike paths, lanes, bus turnouts, etc.). Temporary impacts related to alternative modes of transportation and access during project construction are addressed in Impact TR-2 (construction-related traffic delays, safety hazards and access limitations).

Table 4.17-4
Construction Traffic Assumptions for all Proposed Project Components

Proposed Project Component		Potential Access Routes and Access to Component Site for Construction Vehicles[2]	Length of Construction (months)	Trucks Per Day		Workers Per Day		Worker Shifts (assumes compressed construction schedule for worst case daily trips)
				avg.	worst-case	avg.	worst-case	
Source Water and Storage Diversion Sites	**Salinas Pump Station**	• North SR1 to Imjin Pkwy to Reservation Rd to Blanco Rd to Davis Rd to Hitchcock Rd to Driveway • South SR1 to Merritt St to SR 183 to Davis Rd to Hitchcock Rd to Driveway • North 101 to Abbott St to E Blanco Rd to S Davis Rd to Hitchcock Rd to Driveway • South 101 to Laurel Dr to N. Davis Rd to Hitchcock Rd to Driveway • Highway 68 to Reservation Road to Davis Road to Hitchcock Rd to Driveway	5	3	6	5	15	2 daytime shifts
	Salinas Industrial Wastewater Treatment Facility/Pipeline	• North SR1 to Imjin Pkwy to Reservation Rd to Davis Rd to Driveway • South SR1 to Merritt St to SR 183 to Davis Rd to Driveway • North 101 to Abbott St to E Blanco Rd to S Davis Rd to Driveway • South 101 to Laurel Drive to N. Davis Rd to Driveway • Highways 68 to Reservation Road to Davis Road to Driveway	13	20	35	16	22	2 daytime shifts
	Reclamation Ditch	• North SR1 to Imjin Pkwy to Reservation Rd to Blanco Rd to Davis Rd to site access on Market St through industrial site • South SR1 to SR 183 to site access on Market St through industrial site • Hwy 101 to Laurel St to Davis Rd to site access on Market St through industrial site	5	3	5	6	8	1 daytime shift
	Tembladero Slough	• North or South Hwy 101 to West 183 to North SR1 to Castroville Pump Station driveway • North or South SR1 to Castroville Pump Station driveway	5	3	5	6	8	2 daytime shifts
	Blanco Drain	• North of Salinas River (pump and pipeline): North or South SR1 to Nashua Road to private driveway • North Hwy 101 to Abbott St to E Blanco Rd to Cooper Rd to private driveway • South Hwy 101 to Laurel St to Davis Rd to Blanco Rd to Cooper Rd to private driveway • South of Salinas River (pipeline only): • See Regional Treatment Plant access, below	9	20	28	8	12	2 daytime shifts
	Lake El Estero	• North SR1 to Aguajito Rd to Camino Aguajito to Pearl Street • South SR1 to Camino Aguajito to Pearl Street • North or South 101 to SR 68 to Fremont St to Camino Aguajito to Pearl Street	3	2	5	3	7	2 daytime shifts

[2] Construction vehicle routes and access to the component site are based on the most direct route. Actual route may vary depending on the time of year, concurrent projects, and the contractor's construction management plan.

Table 4.17-4
Construction Traffic Assumptions for all Proposed Project Components

Proposed Project Component		Potential Access Routes and Access to Component Site for Construction Vehicles[2]	Length of Construction (months)	Trucks Per Day		Workers Per Day		Worker Shifts (assumes compressed construction schedule for worst case daily trips)
				avg.	worst-case	avg.	worst-case	
Treatment Facilities at Regional Treatment Plant (Advanced Water Treatment Facility and Salinas Valley Reclamation Plant Modifications)		• North 101 to West 183 to west 156 to South SR1 to Del Monte Blvd to Charles Benson Rd. or • North Hwy 101 to Abbott St to Blanco Rd to Reservation Rd to Del Monte Blvd to Charles Benson Rd • South 101 to SR 156 to SR1 to Del Monte Blvd to East Charles Benson Rd • North or South on SR1 to Del Monte Blvd to Charles Benson Rd	18	5	20	10	30	24 hours/day, 7 days/week (up to four shifts)
Product Water Conveyance Systems	**RUWAP Alignment: Pipeline from AWT Facility to Booster Pump Station to Injection site**	See Table 4.17-1	15	3	5	12	12	2 daytime shifts
	RUWAP Alignment: **Booster Pump Station**	• North or South SR1 to Imjin Pkwy to California Ave/ 5th Ave (closed road) • North or South SR1 to Lightfighter Drive to General Jim Moore Blvd to Inter-Garrison Rd to 5th Ave • South 101 to Market St Exit to SR 183 to Davis Rd to Blanco Rd to Reservation Rd to Imjin Pkwy to 5th Ave • North 101 to Abbott St to E Blanco Rd to Reservation Rd to Imjin Pkwy to 5th Ave	9	3	3	5	16	2 daytime shifts
	Coastal Alignment: Pipeline from AWT Facility to Booster Pump Station to Injection site	See **Table 4.17-1**	15	4	6	12	12	2 daytime shifts
	Coastal Alignment: **Booster Pump Station**	• North or South SR1 to Lightfighter Dr to 2nd Ave • North 101 to Abbott St to E Blanco Rd to Reservation Rd to Imjin Pkwy to 2nd Ave. • South 101 to Laurel Dr to N Davis Rd to W Blanco Rd to Reservation Rd to Imjin Pkwy to 2nd Ave	9	3	7	5	16	2 daytime shifts
Injection Well Facilities	**Injection Wells**	North or South 101 to SR 68 to SR 218 to General Jim Moore Blvd North or South SR1 to Lightfighter Dr to General Jim Moore Blvd	17	8	16	8	24	Southernmost injection well site would be restricted to daytime hours: 7 AM to 6 PM;
	Back-flush Pipes/Basin			1	13	6	10	

Table 4.17-4
Construction Traffic Assumptions for all Proposed Project Components

Proposed Project Component		Potential Access Routes and Access to Component Site for Construction Vehicles[2]	Length of Construction (months)	Trucks Per Day		Workers Per Day		Worker Shifts (assumes compressed construction schedule for worst case daily trips)
				avg.	worst-case	avg.	worst-case	
	Electrical Control			1	10	7	11	24 hours/day, 7 days/week, as feasible (up- to 4 shifts)
	Pipelines			2	5	9	15	
CalAm Distribution Pipelines	**Transfer**	See Table 4.17-1	6	12	12	25	25	2 daytime shifts
CalAm Distribution Pipelines	**Monterey**		12	12	12	25	25	2 daytime shifts

Summary of Impacts

Table 4.17-5, Summary of Impacts Traffic and Transportation provides a summary of potential impacts related to traffic and transportation and significance determinations at each Proposed Project component site.

Table 4.17-5
Summary of Impacts – Traffic and Transportation

Impact Title	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	
TR-1: Construction Traffic	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
TR-2: Construction Traffic Delays, Safety and Access Limitations	LS	LS	LS	LS	LS	NI	LS	LSM	LSM	NI	LSM	LSM	LSM
TR-3: Construction-Related Road Deterioration	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM	LSM
TR-4: Construction Parking Interference	NI	NI	NI	NI	NI	LSM	NI	LSM	LSM	NI	LSM	LSM	LSM
TR-5: Operational Traffic	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
Cumulative Impacts	LS: There would be no significant construction-related cumulative traffic and transportation impacts. The Proposed Project would not make a considerable contribution to significant cumulative traffic and transportation impacts from cumulative development.												

NI – No Impact
LS – Less-than-Significant
LSM – Less-than-Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.17.4.3 Construction Impacts and Mitigation Measures

Impact TR-1: Construction Traffic. Proposed Project construction would result in a temporary increase in traffic volumes on regional and local roadways due to construction-related vehicle trips, which would not result in conflicts with any applicable plan, ordinance, or policy establishing measures of effectiveness for performance of the circulation system. (Criterion a) (Less-than-Significant)

Construction activities would result in a temporary increase in traffic on the regional roadway circulation system during the construction period. Traffic generated during construction activities would include the daily arrival and departure of construction work crews; trucks hauling equipment and materials to the work sites; hauling of excavated debris and spoils from the site; and importing of fill to the construction sites. The number of construction-related trips would vary among the different facilities. Construction of the Proposed Project would take place at the various project component locations in the project area. Multiple project components may be constructed simultaneously, and the construction traffic for some of the components could use the same roads.

Construction workers and construction vehicles would use regional highways and local roadways to access the construction work areas. **Table 4.17-4** identifies likely access routes and estimated construction duration for each Proposed Project component, and also presents the estimated number of daily workers and trucks at each project component construction site. The ultimate construction scheduling of the Proposed Project components would be determined when design plans are finalized; as such, the scheduling could vary from what is presented in **Table 4.17-4**. Likewise, the exact construction characteristics, such as excavation quantities or estimated truck trips, could also vary. However, the construction scenario characteristics summarized on **Table 4.17-4** have been developed to allow a reasonable assessment of the nature and magnitude of potential construction impacts.

Table 4.17-6, estimates the maximum daily construction trips for each Proposed Project component. Construction-related worker trips are expected to occur during the weekday morning peak traffic periods of 7:00 AM to 9:00 AM, but not during the weekday afternoon peak traffic periods given the anticipated work shifts. As indicated above, two work shifts (Shift 1: 7:00 AM-3:00 PM; Shift 2: 12:00 PM-8:00 PM) are planned at the following project sites: Salinas Pump Station Diversion, Salinas Treatment Facility, Lake El Estero Diversion, and the Product Water Pipeline and Booster Station. One work shift ending at 6:00 PM is planned at the Reclamation Ditch, Tembladero Slough and Blanco Drain Diversion sites and at the Salinas Valley Reclamation Plant improvements. For sites with two work shifts and 24-hour construction, the departure of first shift, as well as the arrival and departure of the second shift, would occur outside of the afternoon peak traffic period of generally 4:00 to 6:00 PM. The other sites that end at 6:00 PM also would be at the end of the weekday afternoon peak hour. Project-generated truck trips would be dispersed throughout the day (generally from 9:00 AM to 4:00 PM on weekdays), thus lessening the effect on peak-hour traffic.

Table 4.17-6
Estimated Maximum Daily Construction Vehicle Trips

Proposed Project Component	Number of Truck Trips Per Day		Number of Worker Trips Per Day	
	Round Trips	One-Way Trips [a]	Round Trips[b]	One-Way Trips [a]
Source Water Diversion and Storage Sites				
- Salinas Pump Station	6	12	17	34
- Salinas Treatment Facility and Pipeline	35	70	24	48
- Reclamation Ditch	5	10	9	18
- Tembladero Slough	5	10	9	18
- Blanco Drain Pump Station and Pipeline	28	56	13	26
- Lake El Estero	5	10	8	16
Treatment Facilities at Regional Treatment Plant	20	40	33	66
Product Water Conveyance System				
- RUWAP Alignment: AWT Facility to Booster Pump Station to - Injection site [c]	5	10	13	26
- Booster Pump Station (RUWAP Alignment) [c]	3	6	18	36
- Coastal Alignment, AWT Facility to Booster Pump Station to Injection site [c]	6	12	13	26
- Booster Pump Station (Coastal Alignment) [c]	7	14	11	22
Injection Well Facilities				
- Injection Wells	16	32	26	52
- Back-flush Pipes and Basin	13	26	11	22
- Electrical Control	10	20	12	24
- Product Water Pipelines and Pumps	5	10	17	34
CalAm Distribution System Pipeline				
- Transfer	28	56	28	56
- Monterey	28	56	28	56

NOTES:

[a] Total trips would be dispersed over various roads and road segments and the construction schedules for many components would not overlap. These trip estimates would not represent increases in volumes on any one roadway during the construction period, except on Charlie Benson, which is the only vehicular access to the Regional Treatment Plant.

[b] The maximum number of construction workers coming to each site from Table 4.17-4 was increased by 10% to develop the round-trip estimates in this table. This accounts for miscellaneous midday (or mid-shift) trips by some workers for meals and appointments.

[c] Only one Product Water Conveyance System would be developed, but potential trips for both options are provided.

Only one Product Water Conveyance System would be developed, but potential trips for both options are provided in **Table 4.17-6, Estimated Maximum Daily Construction Vehicle Trips**. The RUWAP Alignment is slightly shorter than the Coastal Alignment; therefore the construction activity would be less. Worker and truck trips generated by concurrent construction activities at all Project sites would be dispersed throughout the day and throughout the regional road network, although construction worker trips are not anticipated in the PM peak hour as described above.

Most traffic analyses (including for analyses on projects for consistency with policies and ordinances) rely on an analysis of changes in an intersection or roadway Level of Service (LOS) standards of local jurisdictions in order to evaluate the long-term effects of projects on the operations of roadways and intersections. However, construction projects that increase traffic only temporarily, or that result in traffic fluctuations, do not have a long-term effect on level of service. In addition, most LOS analyses focus on the peak hours of traffic (typically morning and evening commute times). By contrast, many of the worker trips for the construction period would be outside of these typical peak hours as discussed above. Construction workers also are expected to commute to and from the construction work areas earlier and/or later than project-related construction truck trips, which are expected to be distributed throughout the day at any one work site. Additionally, daily traffic volumes on public roads typically vary from day to day by 5 to 10%, and any temporary increase in traffic due to construction would be within the typical daily fluctuation and would not be perceptible to the average motorist. Construction-related vehicle trips on local, two-lane roadways in the project area would not substantially affect traffic flow if the traffic volumes remained within the carrying capacity of the roads (roughly 10,000 to 15,000 vehicles per day for two-lane roads, depending on design features). For all of the reasons described above, the analysis of the Proposed Project construction traffic impacts focuses on overall roadway capacity and traffic safety, rather than the various cities' or the county's LOS standards.

Some regional routes, such as Highway 1, may be used for access to construction occurring at several sites, which could result in construction-related trips at some locations that are higher than the maximum number of daily vehicle trips associated with a single project component. **Tables 4.17-4** and **4.17-7** summarize major roadways that are expected to be utilized during construction of the Proposed Project, and which roads may be used by the various Proposed Project components. Daily and peak hour trips were estimated for each site based on the number of potential highway routes that could provide access to each Proposed Project site.

The following discussion provides a general description of the anticipated construction activity and resulting impacts for all Proposed Project components by geographic area. See **Table 4.17-4** and **4.17-6** for estimated construction duration and daily worker and truck trips. The following impact analysis is organized by geographic area from north to south.

Table 4.17-7
Major Roads Utilized During Project Construction

Impact Title	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System Pipelines
	Salinas Pump Station Diversion	Salinas Treatment Facility	Reclamation Ditch Diversion	Tembladero Slough Diversion	Blanco Drain Diversion (Pump Station and Pipeline)	Lake El Estero Diversion		RUWAP Alignment Option	Coastal Alignment Option		
Highway 101	✓	✓	✓		✓		✓			✓	
Highway 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Highway 68	✓	✓	✓		✓					✓	
Highway 156	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Highway 218										✓	
Highway 183	✓	✓	✓	✓	✓						
Davis Road	✓	✓	✓		✓						
Del Monte Blvd (Marina)						✓	✓		✓		✓
Reservation Road	✓	✓	✓		✓						
Imjin Road								✓			
Inter-Garrison Road								✓	✓		
Light Fighter Drive										✓	
General Jim Moore Blvd.								✓	✓	✓	
Seaside Streets										✓	✓
Del Monte Blvd (Seaside and Monterey)						✓				✓	✓
Pacific Grove Streets											✓

City of Salinas and Unincorporated North Monterey County

The following sites are located in the areas west and south of the City of Salinas (the Salinas Pump Station Diversion site is surrounded by unincorporated Monterey County areas as an "island" even though it is considered within the City limits):

Salinas Pump Station Diversion site

The Salinas Pump Station Diversion site construction and improvements would occur over a period of five months. **Figure 4.17-2, Salinas and Monterey County Transportation Network** shows the footprint of the component with respect to the roadways in the vicinity. The structure lies at the dead-end of Hitchcock Road, surrounded by agricultural land, one single-family residence, and the City of Salinas Animal Services building.

Construction activities would occur 13 hours a day, six days a week. Construction access would be limited to Hitchcock Road, via one of the routes summarized on **Table 4.17-4**, which include Highways 1, 68, 101, and 183.

As shown on **Table 4.17-6**, construction at this site would be expected to result in up to approximately 34 daily construction worker daily trips that would be distributed throughout the road system. At worst-case, approximately nine daily trips would occur during the weekday morning peak period with the arrival of workers for the first work shift. The peak hour trips likely would be distributed between at least two routes with an estimated worse-case temporary traffic increase of approximately five AM peak hour trips on any one route during construction. Assuming approximately 10% of the total daily truck trips (two) could occur during the morning peak hour and also split among a minimum of two routes, construction traffic could result in seven peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

Salinas Treatment Facility Storage and Recovery site

The Salinas Treatment Facility Storage and Recovery site construction and improvements would occur over a period of seven months (June through December 2016) along the 33-inch industrial wastewater pipeline that would be slip-lined and another six months (April through September 2017) for the modifications to the Salinas Treatment Facility. **Figure 4.17-2** shows the footprint of the component with respect to the roadways in the vicinity. The structure lies just north of the Salinas River just west of the Davis Road Bridge, surrounded by agricultural land to the north and to the south on the other side of the river.

Over the component's construction, it is assumed that construction activities would occur 13 hours a day, six days a week. Construction access would be limited to Davis Road via one of the routes summarized on **Table 4.17-4**, which include Highways 1, 68, 101 and 183.

As shown on **Table 4.17-6**, construction would be expected to result in up to approximately 48 daily construction worker trips that would be distributed throughout the road system. At worst-case, approximately 12 worker trips would occur during the weekday morning peak period with the arrival of workers for the first work shift. The peak hour trips likely would be distributed between at least two routes with an estimated temporary traffic increase of approximately six morning peak hour trips on any one route during construction. Assuming approximately 10% of the total daily truck trips (seven) could occur during the morning peak hour and also split among a minimum of two routes, construction traffic could result in 13 peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

Reclamation Ditch and Tembladero Slough Diversion sites

Construction of the Reclamation Ditch and Tembladero Slough Diversion sites would occur over a period of five months each. **Figure 4.17-2** shows the footprint of the component with respect to the roadways in the vicinity. The structures would be located along the drainage channels within the floodway area and would be accessed via driveways from major streets. Construction access would be via one of the routes summarized on **Table 4.17-4**, which include Highways 1, 183 and 101. For Tembladero Slough, the MRPWCA has an easement on the driveway to their Castroville Pump Station site. For the Reclamation Ditch, access would be provided via one of the following routes:

- Along the railroad easement on the north side of the tracks from the southeast and from Victor Way through a parking lot requiring a permit from Union Pacific Railroad and agreement with a private property owner.
- Along the railroad easement on north side of tracks from Boronda Road northwest of the site requiring a permit from Union Pacific Railroad
- Along dirt farm road on the south side of Reclamation Ditch from Boronda Road requiring easement from property owner or MCWRA.

Over the five months of project construction, it is assumed that construction activities would occur 11 hours a day, six days a week, between May 2017 and September 2017.

As shown on **Table 4.17-6**, construction at this site would be expected to result in up to approximately 18 daily construction worker trips that would be distributed throughout the road system. At worst-case, approximately nine worker trips would occur during the weekday morning peak period with the arrival of workers in the morning. The peak hour trips likely would be distributed between at least two routes with an estimated worse-case temporary traffic increase of approximately five AM peak hour trips on any one route during construction. Assuming approximately 10% of the total daily truck trips (1) could occur during the morning peak hour and also split among a minimum of two routes, construction traffic could result in six peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

Blanco Drain Diversion (Pump Station and Pipeline)

The Blanco Drain Diversion Pump Station and Pipeline construction and improvements would occur over a period of nine months (April through December 2017) including activities on both the north and south side of the Salinas River. **Figure 4.17-2** shows the footprint of the component with respect to the roadways in the vicinity. The structure would lie just north of the Salinas River just west of the Blanco Road Bridge, surrounded by agricultural land to the north and to the south on the other side of the river.

Over the component's construction, it is assumed that construction activities would occur 11 hours a day, six days a week. Construction access would be limited to Davis Road, via one of the routes summarized on **Table 4.17-4**, which include Highways 1, 68, and 101.

As shown on **Table 4.17-6**, construction at this site would be expected to result in up to approximately 26 daily construction worker trips that would be distributed throughout the road system. At worst-case, approximately 13 worker trips would occur during the weekday morning peak period with the arrival of workers. The peak hour trips likely would be distributed between at least two routes with an estimated worse-case temporary traffic increase of approximately seven AM peak hour trips on any one route during construction. Assuming approximately 10% of the total daily truck trips (six) could occur during the morning peak hour and also split among a minimum of two routes, construction traffic could result in 13 peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

County of Monterey, North of Marina

Construction of the Treatment Facilities at the Regional Treatment Plant would occur entirely within the existing Regional Treatment Plant site, which is located within the unincorporated portion of Monterey County north of the City of Marina. Ingress and egress to the site is from a private road off of Charles Benson Road via Del Monte Boulevard; the facility is gated for security (see **Figure 4.17-2**).

This project component would have the longest construction duration of all the project components. Over the estimated 18 month construction period (plus three months of testing and start-up), it is assumed that construction activities would typically occur 13 hours a day, six days a week, although there would be periods of 24-hour per day construction activities. For the 24-hour construction scenario, a third work shift would be added in the evening, but would be outside of either the morning or afternoon/evening peak traffic periods. Construction access likely would be from Highway 1 or along Del Monte Boulevard as summarized on **Table 4.17-4**.

As shown on **Table 4.17-6**, construction at this site would be expected to result in up to approximately 66 daily construction worker trips that would be distributed throughout the road system. At worst-case, approximately 17 worker trips would occur during the weekday morning peak period with the arrival of workers for the first work shift. The peak hour trips likely would be distributed between at least two routes with an estimated worse-case temporary traffic increase of approximately eight AM peak hour trips on any one route during construction. Assuming approximately 10% of the total daily truck trips (four) could occur during the morning peak hour and also split among a minimum of two routes, construction traffic could result in 12 peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

Construction-related trips would also occur in the County area north of Marina as part of the construction of the Product Water Conveyance System. The pipeline would be sited along one of two options (**Figures 4.17-4, Marina Transportation Network and 4.17-5, Seaside Transportation Network**). The pipeline would be located primarily along paved roadway rights-of-way. For either option the northernmost segment would be within the unincorporated Monterey County area between the Regional Treatment Plant and Marina city limits.

During the construction of this segment, the same roadways would be utilized as for the Treatment Plant Facilities construction. As shown on **Table 4.17-6**, construction would be expected to result in up to 26 daily construction worker trips; at worst-case, approximately 13 worker trips would occur during the weekday morning peak period with the arrival of workers for the first work shift. The trips likely would be distributed between at least two routes, and almost all would occur along Highway 1 with an estimated temporary traffic increase of seven peak hour trips from either direction over the construction period. Assuming approximately 10% of the total daily truck trips (one) could occur during the morning peak hour, construction traffic could result in eight peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

City of Marina

The Product Water Conveyance System and Booster Pump Stations would occur at one of two locations, depending on the pipeline alignment selected: RUWAP or Coastal (**Figures 4.17-1 and 4.17-4**).

The pipeline would be located primarily along paved roadway rights-of-way. Construction of the conveyance system would have the same general sequence of construction for either alignment option as follows: stake the alignment; where applicable, saw cut the pavement; string out pipe joints along the alignment as limited by encroachment permit and specifications; begin excavation; haul spoilage; set shoring or shield as necessary; install bedding material; lay pipe, weld joints (if steel or high density polyethylene pipe is selected); backfill and compact trench; place temporary paving. At busy intersections (Highway 1 and Reservation Road) bore and jack or directional drilling would occur.

A portion of the RUWAP pipeline alignment and the proposed RUWAP Booster Pump Station location are located within the City of Marina. The total construction period for this component is approximately 15 months, and it is estimated that construction of the segment within Marina would occur over five to seven months. It is assumed that construction schedule activities would occur 13 hours a day, six days a week. Construction access likely would be from Highway 1 or along Del Monte Boulevard as summarized on **Table 4.17-4**.

As shown on **Table 4.17-6**, construction would be expected to result in up to approximately 62 daily worker trips for construction of the both the pipeline for either alignment option and for the Booster Pump Station. At the worst case, approximately 16 worker trips would occur during the weekday morning peak period based on two work shifts. The peak hour trips likely would be distributed between at least two routes with an estimated temporary traffic increase of eight AM peak hour trips on any one route during construction. Assuming approximately 10% of the total daily truck trips (two) could occur during the morning peak hour, construction traffic could result in 10 peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

City of Seaside

Construction of Proposed Project components within the City of Seaside include: the southern segment of the Product Water Conveyance System, including Coastal Booster Pump Stations, and the Injection Well Facilities. The pipeline would be located primarily along paved roadway rights-of-way. Construction access likely would be from Highway 1 to several local roads as summarized on **Table 4.17-4**.

The Coastal Alignment, the Booster Pump Station would be located at the northwest corner of the intersection of Divarty Street and Second Avenue either on an area that is within the City of Seaside or on CSUMB-owned land. Construction and staging would be maintained off the road and within the footprint of the Booster Pump Station.

Construction access would likely be from Highway 1 to several local roads as summarized on **Table 4.17-4**. The Coastal Alignment Booster Pump Station would be accessed from a driveway off of Divarty Street. Construction, construction traffic, and staging would be maintained entirely on the site and would not impede traffic or pedestrian lanes. As shown on **Table 4.17-5**.

As shown on **Table 4.17-6**, construction would be expected to result in up to approximately 48 daily worker trips for construction of the both the pipeline and for the Coastal Booster Pump Station. At the worst case, approximately 12 worker trips would occur during the weekday morning peak period based on two work shifts. The peak hour trips likely would be distributed between at least two routes with an estimated temporary traffic increase of six AM peak hour trips on any one route during construction. Assuming approximately 10% of the total daily truck trips (three) could occur during the morning peak hour, construction traffic could result in nine peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

The proposed Injection Well Facilities would be located east of General Jim Moore, south of Eucalyptus Road in the City of Seaside, and would include a total of eight wells, monitoring wells, and back-flush facilities (**Figure 4.17-5**). Construction access to the Injection Well Facilities site likely would be from regional highways to General Jim Moore Boulevard as summarized on **Table 4.17-4**. Construction hours at this site are estimated to occur 24 hours/day, seven days/week, as feasible (with up to four work shifts) over an approximately 17-month construction period. The southernmost injection well site would be restricted to daytime hours: 7 AM to 8 PM. Construction access would be limited to General Jim Moore Boulevard and Eucalyptus Avenue.

As shown on **Table 4.17-6**, construction of the injection wells and associated controls would be expected to result in approximately 220 daily trips for construction that would be distributed throughout the road system. At worst-case, approximately 33 worker trips would occur during the weekday morning peak period with the arrival of workers for the first work shift. Construction of this project component would result in the most daily and peak hour trips of any project component. However, it would be expected that the trips would be split between three to four routes (i.e., east on Highway 68 and north or south on Highway 1) during the peak period, with an estimated worse-case temporary traffic increase 22 AM peak hour trips along any one route over the construction period. Assuming approximately 10% of the total daily truck trips (eight) could occur during the morning peak hour and also split among three routes, construction traffic could result in 25 peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

City of Monterey

Lake El Estero Diversion site construction and improvements would occur at the north end of the lake as shown in **Figure 4.17-6, Monterey Transportation Network**. Improvements and construction to the source water system at the lake would be contained within the park and right-of-way adjacent to Del Monte Boulevard and would occur in the paved right-of-way and/or sidewalk, except for improvements at the Figueroa Street box culvert east of the lake.

Over the three months of project construction, it is assumed that construction activities would occur 13 hours a day, six days a week. Construction access likely would be from Highway 1 as summarized on **Table 4.17-4** or along Del Monte Boulevard.

As shown on **Table 4.17-6**, construction would be expected to result in approximately 26 daily trips; at worst-case, approximately eight worker trips would occur during the weekday morning peak period. The peak hour trips likely would be distributed between at least two routes with an estimated temporary traffic increase of approximately four peak hour trips along either route over a three-month construction period. Traffic flows along these routes would not be substantially affected by the short-term, three-month construction activities at Lake El Estero.

Depending on the location of each day's worksite, construction traffic for the Monterey Pipeline would access the pipeline alignment using Highway 1, Del Monte Boulevard, Highway 218, Del Monte Avenue, Figueroa Street, Franklin Street, High Street, Spencer Street, and Eardley Street. As shown on **Table 4.17-6**, construction would result in up to approximately 56 daily construction worker trips that would be distributed throughout the road system. At worst-case, approximately 28 worker trips would occur during the weekday morning peak. The peak hour trips likely would be distributed between at least two routes with an estimated worse-case temporary traffic increase of approximately 14 AM peak hour trips on any one route during construction. Assuming approximately 10% of the total truck trips (three) could occur during the morning peak hour and also split among a minimum of two routes, construction traffic could result in 17 peak hour trips along any one route. This would not be considered a substantial increase in peak hour trips due to the low volumes along these routes and the short duration of the construction period.

Combined Construction-Related Traffic Increases

As shown on **Table 4.17-6**, construction of the Proposed Project would generate traffic on Highway 1, although trips along Highway 1 for the components in Salinas and northern Monterey County area sites likely would only occur on the northern highway segments. It is likely that construction at the Treatment Facilities at the Regional Treatment Plant site, Conveyance Pipeline and Booster Station sites, and Injection Well Facilities site could result in overlapping construction schedules and all of these components could produce construction-related trips along Highway 1, especially the segment north of Monterey and south of the Regional Treatment Plant. Based on the above discussion, it is estimated that approximately 110 construction worker and truck trips would be distributed along Highway 1 during the weekday morning peak period. The most recent Caltrans traffic volume counts identify peak hour volumes of 7,800-8,000 trips at Fort Ord's main entrance, decreasing to 4,500 trips at Reservation Road (California Department of Transportation, 2013). The additional temporary construction trips represent approximately 1 to 2% of the peak hour trips. This would not be considered substantial and would be within the daily fluctuation of traffic volumes expected on the highway. Additionally, with the first work shift projected to start at 7:00 AM, most of the construction worker trips likely would occur outside the peak hour for morning traffic.

Impact Conclusion

Project-related construction activities would result in a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas. The number of onsite workers would vary throughout the construction phases, and truck and equipment-related deliveries would be spread out over the construction work day. Construction of the Product Water Conveyance pipeline would occur over a 4-mile long alignment with a pipeline installation rate of approximately 250 feet per day within roadway rights-of-way and up to at a rate of up to 400 feet per day in open (undeveloped) areas. CalAm Distribution System pipeline construction would be performed at the anticipated installation rate of 150 to 250 feet per day. Given the anticipated split worker shifts, most of the daily traffic would be outside of the peak traffic periods, except for construction worker traffic in the morning.

Some regional routes, such as Highway 1, may be used for construction traffic to access several sites, which could result in increased trips along Highway 1 that are higher than the maximum number of daily vehicle trips associated with a single project component. However, the worst-case increases in traffic resulting from concurrent construction of project components during peak periods of construction would fall within the daily fluctuations of traffic on Highway 1.

Given the above, temporary construction traffic would not cause a substantial increase in traffic relative to existing conditions and roadway capacity, or contribute substantial volumes of traffic during peak hours at all of the Proposed Project sites. Generally, the estimated maximum increase in traffic along regional roadways would remain within the carrying capacities of the regional roadways and would not substantially affect traffic flow, and the impact is less-than-significant. No mitigation measures are required.

Impact TR-2: Construction-Related Traffic Delays, Safety and Access Limitations. Construction activities could result in temporary traffic delays, safety hazards, and/or disruption of access. (Criterion a) (Less-than-Significant with Mitigation)

Construction activities at some sites and along pipeline construction sites could occur within vehicle travel lanes and/or road shoulders, which may require temporary lane closures and/or detours. These lane closures and detours would temporarily reduce roadway performance and result in temporary traffic delays during project construction, potentially affecting motorists, bicyclists, pedestrians, buses and/or emergency vehicles as discussed below. This would include potential disruption of access to residences, businesses, schools and/or recreational facilities. The movement of construction trucks could result in slower travel speeds and potential delays.

City of Salinas, City of Monterey, and Unincorporated area of northern Monterey County

The non-pipeline Proposed Project components would not involve construction within road rights-of-way and would not result in traffic delays or safety concerns due to temporary lane closures or detours. Since construction of the non-pipeline components would not be within roadways, construction at these Project sites would not impede vehicular, bicycle, or pedestrian traffic flow or disrupt public transportation. These components include all Source Water Diversion and Storage sites, except the Reclamation Ditch Diversion site and the slip lining of the 33 inch wastewater pipeline, Treatment Facilities at the Regional Treatment Plant, Booster Pump Station, and Injection Well Facilities. Neither the Salinas Pump Station Source Water Diversion and Storage site nor the Regional Treatment Plant site is located on or near any schools or recreational areas.

The Lake El Estero Diversion site construction also would not be located within the road rights-of-ways. The site is located within Lake El Estero Park; however, the short-term construction at this site would not affect access to the Lake El Estero Park, which is provided in numerous other parts of the park and by crossing Del Monte Boulevard from the ocean-front park.

The CalAm Distribution System improvements include installation of the Transfer and Monterey Pipelines. Pipeline installation would generally be accomplished using conventional open-trench methods, and is expected to proceed at an average pace of installation of approximately 150 to 250 linear feet of pipeline per day. (See discussion below for further information on pipeline installation methods and impacts.)

City of Marina and City of Seaside – Product Water Conveyance System

The Proposed Product Water Conveyance System (RUWAP and Coastal Alignment) would include installation of new pipelines within or adjacent to roads and recreational trails. **Table 4.17-4**, above, presents the roads that could be directly affected by project construction activities.

The RUWAP Alignment of the product water conveyance pipeline generally follows the RUWAP recycled water pipeline route through the City of Marina, CSUMB, and the City of Seaside to the proposed Injection Well Facilities site. The Coastal Alignment is proposed to run adjacent to Locke-Paddon Park, Fort Ord Dunes State Park, and within ½ mile of Vince Dimaggio Park. The southern portion of the Coastal Alignment would also be located in the former Fort Ord within

CSUMB and the City of Seaside. South of Palm Avenue, the pipeline would be approximately 100 feet east of play fields associated with the Marina Del Mar Elementary School and would be approximately 350 feet east of the nearest building associated with this school.

Pipeline installation would generally be accomplished using conventional open-trench methods; however, trenchless technologies such as boring and jacking or horizontal directional drilling would be used in specific areas, including through major intersections. The use of trenchless technologies typically does not reduce the number or available width of travel lanes (pits used for bore-and-jack and directional drilling are assumed to be located out of public roadways for this analysis). For example, jack-and-bore methods would be used to install pipelines beneath all major intersections, thus avoiding traffic flow disruptions and hazardous conditions for pedestrians or bicyclists. These intersections may include the following:

Coastal Pipeline Alignment

- TAMC rail line corridor where it crosses Del Monte Boulevard and Reservation Road,
- 2nd Avenue and Lightfighter Drive, and
- General Jim Moore Boulevard intersections with Normandy Road, Gigling Road, and Eucalyptus Road.

RUWAP Pipeline Alignment

- Crescent Avenue at Reservation Road,
- California Avenue at Imjin Parkway,
- 5th Avenue at Divarty Street, and
- General Jim Moore Boulevard intersections with Lightfighter Drive, Normandy Road, Gigling Road, and Eucalyptus Road.

Each roadway crossing presents unique conditions, and construction methods would vary depending on factors such as the available construction area, possible utility interference, and the contractor’s preferred method of construction.

Pipeline Construction

The average trench width and depth for pipeline installation within roadways would be 6 feet by 8 feet, and the average pace of work would be 250 feet per day (except for the CalAm Distribution Pipelines, which would be 150 to 250 feet per day). The active work area along open trenches would be wider than the trenches themselves to accommodate access by trucks and loaders. Staging areas would be sited at strategic locations along the pipeline alignments, out of the roadway and flow of traffic.

Roadway segments that require construction in vehicle travel lanes or the adjacent road shoulder could experience temporary lane closures and/or detours to accommodate the construction zone. Some roadway segments would have sufficient pavement width outside of the construction zone to accommodate two-way traffic flow, but other roadways would not, and alternate one-way traffic flow would be maintained on pavement as narrow as 10 feet.

Where feasible and appropriate, construction contractors would install pipelines so as to avoid construction within vehicle travel lanes and to minimize impacts on roadway capacity and function. Detailed pipeline alignments and associated construction activities would be developed during project design. This analysis assumes that pipeline installation activities could require construction within or adjacent to vehicle travel lanes and could require temporary lane closures and/or detours.

Temporary Disruption to Transit, Bicycle and Pedestrian Facilities

Project pipeline construction activities and truck trips could result in temporary delays and potential hazards for public buses, bicyclists and pedestrians. The greatest number of daily construction-related truck trips would occur along Highway 1 and Del Monte Boulevard. Since Highway 1 only accommodates motor vehicles, potential disruptions to non-automobile users would mostly occur along local roadways. During project construction, bicyclists and pedestrians could be required to enter the adjacent road shoulder or use other temporary detours to circumvent construction work areas.

Project construction activities could affect safety of bicyclists and pedestrians in the project area due to:

- Conflicts between haul trucks and other large construction vehicles (with slower speeds and wider turning radii than automobiles) and automobiles, bicyclists, and pedestrians using the roadways.
- Conflicts related to the movement of traffic on travel lanes adjacent to construction work areas, particularly at entry and egress points where construction-related vehicles would access public roadways.
- Confusion on the part of bicyclists and pedestrians due to temporary changes in bicycle and pedestrian circulation along the Monterey Peninsula Recreational Trail, designated bicycle routes, bike lanes, and other sidewalks and public pathways.

Product Water Conveyance System (RUWAP and Coastal Alignment) and CalAm Distribution System construction could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails.

Construction activities in vehicle travel lanes could disrupt access to bus stops operated by MST, require that bus stops be temporarily relocated, and/or conflict with bicycle traffic along roads with designated bike lanes. However, the Proposed Project pipeline construction would not prevent use of any roads on which public transit routes operate, and neither would it generate increased construction-related traffic volumes on roads used for public transit routes at a level that would result in lengthy delays for transit riders.

Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would be potentially significant. Installation of the Product Water Conveyance pipeline and CalAm Distribution System pipelines is expected to occur at a rate of approximately 150 to 250 feet per day within roadway rights of way. Thus, any one segment of the roadway and/or recreational trail would be affected for a short duration.

Approximately four miles of the Product Water Conveyance System pipeline would be installed within or adjacent to a segment of the regional recreation trail during ten months of project construction. Pipeline installation activities along the Monterey Peninsula Recreational Trail and TAMC right-of-way could temporarily require detours for bicycle and pedestrian traffic along the trails. However, the multiuse regional recreational trail on the west side of Highway 1 would not be disrupted and would remain open throughout construction, and there are multiple access points to Fort Ord Dunes State Park along that publicly accessible trail. The project may temporarily restrict public bicycle and pedestrian access in the Divarty Street undercrossing of Highway 1 during construction of the Coastal Alignment; however, the State Park maintains the main designated access point to the Fort Ord Dunes State Park at Eighth Street, which would remain open and available to public access at the time of construction of the pipeline.

The Injection Well Facilities site is located within ½ mile of Encanto Park, a Class I bike path (General Jim Moore Boulevard), and a Class III bike route (Hilby Avenue). The construction at this site would be located away from these recreational facilities, and no direct disruption of access to these recreational sites would occur. The Injection Well Facilities are proposed within the City of Seaside on property located immediately adjacent to the boundary with the U.S. Bureau of Land Management open space that has recently been designated as the Fort Ord National Monument. The land is currently owned by the Fort Ord Reuse Authority. The land on both sides of the boundary between the City of Seaside and the Bureau of Land Management land is currently closed to the public due to ongoing military munitions cleanup activities; therefore, construction of the Injection Well Facilities is not anticipated to result in significant impacts on access to adjacent public open space areas. See **4.9 Hazards and Hazardous Materials** for more information on the status of military munitions clean-up activities at the Injection Well Facilities site.

The construction activities associated with all other Proposed Project components could have temporary and intermittent effects on traffic flow and may cause delays for Monterey-Salinas Transit bus service on some segments of roadway. Delays and interruptions would be temporary and would be dependent on the type of roads and area where the segment is being constructed. While buses could be slowed by project construction trucks on nearby roads used as haul routes, a greater potential effect would occur on roads where construction occurs.

Emergency Access Delays

City of Marina and City of Seaside

As discussed above, installation of the Product Water Conveyance System (RUWAP and Coastal Alignment) could require construction within some vehicle travel lanes and road shoulders. Temporary reductions in travel lanes and the roadway capacities to accommodate work areas could result in delays for emergency vehicles. Trenching and paving along roadways during pipeline installation could also disrupt emergency vehicle access to adjacent land uses. This impact is potentially significant.

City of Salinas, Monterey, Unincorporated area of northern Monterey County, City of Marina, City of Seaside

Construction activities and staging areas for non-linear components (Source Water Diversion and Storage sites, Treatment Facilities at the Regional Treatment Plant, Booster Pump Stations) are not expected to require construction in roadways or road shoulders. As such, construction of these facilities would not obstruct access for emergency vehicles in the vicinity of the construction work areas. Therefore, impacts related to disrupted access to adjacent land uses for emergency vehicles would be less-than-significant for these components. As discussed above, installation of the CalAm Distribution System (Monterey and Transfer pipelines) could require construction within some vehicle travel lanes and road shoulders. Temporary reductions in travel lanes and the roadway capacities to accommodate work areas could result in delays for emergency vehicles. Trenching and paving along roadways during pipeline installation could also disrupt emergency vehicle access to adjacent land uses. This impact is potentially significant.

Impact Conclusion

Traffic delays, safety hazards and access limitations resulting from temporary lane closures and detours could result in delays to motorists and would be a potentially significant impact for bicyclists, pedestrians, transit operations, and emergency access during construction of the Product Water Conveyance pipeline and the CalAm Water Distribution System – Transfer Pipeline and Monterey Pipeline, but the effects would be short-term in duration for any one location. As outlined in **Subsection 4.17.4.2**, construction would require issuance of encroachment permits from the cities of Marina, Seaside, Monterey, and Pacific Grove, and the County of Monterey for any construction within public rights-of-ways. However, with implementation of Mitigation Measure TR-2 (Traffic Control and Safety Assurance Plan), which includes measures to minimize the adverse effects of roadway construction and detours, these impacts would be reduced to a less-than-significant level.

Mitigation Measures

Mitigation Measure TR-2: Traffic Control and Safety Assurance Plan. (Applies to Product Water Conveyance: Both Options, and CalAm Distribution System.)

Prior to construction, MRWPCA and/or its contractor shall prepare and implement a traffic control plan or plans for the roadways and intersections affected by MRWPCA construction (Product Water Conveyance Pipeline) and CalAm shall prepare and implement a traffic control plan for the roadways and intersections affected by the CalAm Distribution System Improvements (Transfer and Monterey pipelines). The traffic control plan(s) shall comply with the affected jurisdiction's encroachment permit requirements and shall be based on detailed design plans. For all project construction activities that could affect the public right-of-way (e.g., roadways, sidewalks, and walkways), the plan shall include measures that would provide for continuity of vehicular, pedestrian, and bicyclist access; reduce the potential for traffic accidents; and ensure worker safety in construction zones. Where project construction activities could disrupt mobility and access for bicyclists and pedestrians, the plan shall include measures to ensure safe and convenient access would be maintained.

The traffic control and safety assurance plan shall be developed on the basis of detailed design plans for the approved project. The plan shall include, but not necessarily be limited to, the elements listed below:

General

a. Develop circulation and detour plans to minimize impacts on local streets. As necessary, signage and/or flaggers shall be used to guide vehicles to detour routes and/or through the construction work areas.

b. Implement a public information program to notify motorists, bicyclists, nearby residents, and adjacent businesses of the impending construction activities (e.g., media coverage, email notices, websites, etc.). Notices of the location(s) and timing of lane closures shall be published in local newspapers and on available websites to allow motorists to select alternative routes.

Roadways

c. Haul routes that minimize truck traffic on local roadways and residential streets shall be used to the extent feasible.

d. Schedule truck trips outside of peak morning and evening commute hours to minimize adverse impacts on traffic flow.

e. Limit lane closures during peak hours. Travel lane closures, when necessary, shall be managed such that one travel lane is kept open at all times to allow alternating traffic flow in both directions along affected two-lane roadways; ~~the contractor shall use steel plates or trench backfilling to restore vehicle access at the end of each workday~~. In the City of Marina, one-way traffic shall be limited to a maximum of 5 minutes of traffic delay.

f. Restore roads and streets to normal operation by covering trenches with steel plates outside of normal work hours or when work is not in progress.

g. Comply with roadside safety protocols to reduce the risk of accidents. Provide “Road Work Ahead” warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. Train construction personnel to apply appropriate safety measures as described in the plan.

h. Provide flaggers in school areas at street crossings to manage traffic flow and maintain traffic safety during the school drop-off and pickup hours on days when pipeline installation would occur in designated school zones.

i. Maintain access to private driveways.

j. Coordinate with MST so the transit provider can temporarily relocate bus routes or bus stops in work zones as deemed necessary.

Pedestrian and Bicyclists

k. Perform construction that crosses on-street and off-street bikeways, sidewalks, and other walkways in a manner that allows for safe access for bicyclists and pedestrians. Alternatively, provide safe detours to reroute affected bicycle/pedestrian traffic.

Recreational Trails

l. At least two weeks prior to construction, post signage along all potentially affected recreational trails; Class I, II, and II bicycle routes; and pedestrian pathways, including the Monterey Peninsula Recreational Trail, to warn bicyclists and pedestrians of construction activities. The signs shall include information regarding the nature of construction activities, duration, and detour routes. Signage shall be composed of or encased in weatherproof material and posted in conspicuous locations, including on park message boards, and existing wayfinding signage and kiosks, for the duration of the closure period. At the end of the closure period, CalAm, MRWPCA or either of its contractors shall retrieve all notice materials.

Emergency Access

m. Maintain access for emergency vehicles at all times. Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools.

n. Provide advance notification to local police, fire, and emergency service providers of the timing, location, and duration of construction activities that could affect the movement of emergency vehicles on area roadways.

o. Avoid truck trips through designated school zones during the school drop-off and pickup hours.

Impact TR-3: Construction-Related Roadway Deterioration. Construction truck trips could result in increased wear-and-tear on the designated haul routes, which could result in temporary impacts to performance of the regional circulation system. (Criterion a) (Less-than-Significant with Mitigation)

The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. The degree to which this impact would occur depends on the roadway design (pavement type and thickness) and the existing condition of the road. Freeways and major arterials (Highways 1, 68, 101, 156, 183, and 218) are designed to handle a mix of vehicle types, including heavy trucks; therefore, the significant roadway deterioration impacts of project-related construction traffic is not expected to occur on those roads. However, some of the local roadways may not have been constructed to support use by heavy construction trucks and vehicles, and project-related construction truck trips could cause excessive wear-and-tear on these roadways, which is a potentially significant impact. Implementation of Mitigation Measure TR-3 (Roadway Rehabilitation Program), which requires rehabilitation of any roadways damaged following construction, would reduce this impact to a less-than-significant level.

Impact Conclusion

The use of trucks to transport construction equipment and materials could adversely affect road conditions on local roadways. However, with implementation of Mitigation Measure TR-3 (Roadway Rehabilitation Program), this impact would be reduced to a less-than-significant level.

Mitigation Measure

Mitigation Measure TR-3: Roadway Rehabilitation Program (applies to all Proposed Project components)

Prior to commencing project construction, MRWPCA (for all components other than the CalAm Distribution System Improvements) and CalAm (for CalAm Distribution System Improvements) shall detail the preconstruction condition of all local construction access and haul routes proposed for substantial use by project-related construction vehicles. The construction routes surveyed must be consistent with those identified in the construction traffic control and safety assurance plan developed under Mitigation Measure TR-2. After construction is completed, the same roads shall be surveyed again to determine whether excessive wear and tear or construction damage has occurred. Roads damaged by project-related construction vehicles shall be repaired to a structural condition equal to, or greater than, that which existed prior to construction activities. In the City of Marina, the construction in the city rights-way must comply with the City's design standards, including restoration of the streets from curb to curb, as applicable. In the City of Monterey, asphalt pavement of full travel lanes will be resurfaced without seams along wheel or bike paths.

Impact TR-4: Construction Parking Interference. Construction activities may temporarily affect parking availability. (Criterion a) (Less-than-Significant with Mitigation)

During construction, workers would drive their own vehicles to the component staging area or Proposed Project component construction site, which could result in an increased parking demand at certain locations. Parking demand would vary among the individual project components and would also depend on the construction phase and the nature of construction activities. Depending on the width of the vehicle travel lanes or adjacent road shoulders, construction activities could temporarily displace parking spots and adversely affect parking conditions due to worker parker demands, including parking in the Coastal Zone (i.e. for the Product Water Conveyance Coastal Alignment Option and the Monterey Pipeline) and near parks, such as the Fort Ord Dunes State Park for the Coastal Alignment Option. Roadways and on-street parking that could be directly affected by project construction activities are shown in **Table 4.17-4**.

Pipelines in City of Marina and City of Seaside Streets/Roadways

Installation of the Proposed Product Water Conveyance Pipeline (RUWAP and Coastal Alignment) could temporarily displace on-street parking due to worker parking demand and direct use of spaces for construction (for segments of road where on-street parking is available, see **Figures 4.17-4 and 4.17-5,** and **Table 4-16-4, Applicable State, Regional, and Local Land Use Plans and Policies Relevant to Public Services, Utilities, and Recreation**). Therefore, impacts related to parking interference during pipeline construction within road rights-of-way would be potentially significant.

Facilities off of Roadways in City of Salinas, Unincorporated area of northern Monterey County, City of Marina, and City of Seaside

Construction of all non-linear facilities (Salinas Pump Station Diversion site, Advanced Water Treatment Facilities at the Regional Treatment Plant, Product Water Booster Pump Station, and Injection Well Facilities) would be set back from roadways, bike and pedestrian pathways, and public access to parking; therefore, construction of these components would have no impact on parking. Further, construction worker parking demand for all of the aforementioned non-linear structures would be accommodated within the construction site or nearby streets which can accommodate on-street parking due to lack of existing parking demands in the vicinity of all of these facilities. Thus, no impact would result.

Monterey and Transfer Pipelines in Sand City, Seaside, Monterey and Pacific Grove

Some roadways in the project area for the Monterey and Transfer Pipelines have a lack of demand for the available on street parking spaces, and alternative parking spaces are present nearby the proposed pipeline alignment. Installation of the proposed Transfer Pipeline and Monterey Pipeline (i.e., through commercial areas and residential neighborhoods in the City of Seaside, and commercial and residential areas in Monterey) would displace parking spaces and require use of parking spaces for construction workers along the affected roadways that have on-street parking. Therefore, impacts related to parking interference during pipeline construction within road rights of-way would be potentially significant. Implementation of Mitigation Measure TR-4 (Construction Worker Parking Requirements) would reduce this impact to a less-than-significant level.

Impact Conclusion

Construction of the Source Water Diversion and Storage components, Treatment Facilities at the Regional Treatment Plant, Product Water Booster Pump Station (RUWAP and Coastal Alignment), and Injection Well Facilities would have no impact on parking. However, project construction activities associated with some segments of the RUWAP and Coastal alignments of the Product Water Conveyance Pipeline and the CalAm Distribution System: Monterey and Transfer Pipelines could result in potentially significant parking impacts due to temporary increases in parking demand and the displacement of on-street parking along pipeline alignment corridors. Implementation of

Mitigation Measure TR-4 (Construction Parking Requirements) would reduce this impact to a less-than-significant level.

Mitigation Measure

Mitigation Measure TR-4: Construction Parking Requirements. (Applies to Product Water Conveyance pipelines (RUWAP and Coastal Alignments) in Marina and Seaside, and CalAm Distribution System: Transfer Pipeline and Monterey Pipeline)

Prior to commencing project construction, the construction contractor(s) shall coordinate with the potentially affected jurisdictions to identify designated worker parking areas that would avoid or minimize parking displacement in congested areas of Marina, Seaside, and downtown Monterey. The contractors shall provide transport between the designated parking location and the construction work areas. The construction contractor(s) shall also provide incentives for workers that carpool or take public transportation to the construction work areas. The engineering and construction design plans shall specify that contractors limit time of construction within travel lanes and public parking spaces and provide information to the public about locations of alternative spaces to reduce parking disruptions.

4.17.4.4 Operational Impacts and Mitigation Measures

Impact TR-5: <u>Operational Traffic</u>. Operation and maintenance of the Proposed Project would result in small traffic increases on regional and local roadways, but would not substantially affect the performance of the regional circulation system. (criterion a) (Less-than-Significant)

Daily traffic would be generated by operations and maintenance personnel working at the facilities. Up to a total of nine new employees would be hired for operation and maintenance of all Proposed Project components.

Source Water Diversion and Storage sites

The Reclamation Ditch source water diversion site would require only approximately one new employee visit to the site approximately three times per week to perform routine inspection and maintenance. No new employees would be required at any of the other source water diversion and storage sites, and no ongoing materials delivery or solid waste generation would occur at these sites.

Treatment Facilities at Regional Treatment Plant

Up to five new employees would be needed at the Treatment Facilities at the Regional Treatment Plant site daily to perform routine operational, inspection and maintenance; occasional ongoing materials delivery and solid waste transport (i.e., to the landfill adjacent to the site) would occur, resulting in two additional trucks traveling to and from the site each day.

Product Water Conveyance Facilities

The proposed pump stations could operate continuously for up to 24 hours a day. Although pump stations would typically be operated remotely via a “supervisory control and data acquisition” (SCADA) system, facility operators would conduct routine visits to the pump station sites up to three times daily to monitor operations, conduct general maintenance activities, and service the pumps. General operations and maintenance activities associated with pipelines would include annual inspections of the cathodic protection system and replacement of sacrificial anodes when necessary; testing and servicing of valves; vegetation maintenance along rights-of-way; and repairs of minor leaks in buried pipeline joints or segments. Operation of the proposed pump stations would necessitate up to one new employee, and one truck trip to the site per day.

Injection Well Facilities

Injection wells and associated electrical and mechanical systems could operate 24 hours per day, seven days per week throughout the year, although it is highly unlikely that all eight wells would be actively injecting at the same time for any length of time. Up to two new employees would be needed at the Injection Well Facilities site daily to perform routine operational, inspection and maintenance activities. Operations and maintenance staff would come to the Injection Well Facilities site most likely Monday through Friday nearly every week. In addition to operation and maintenance of the wells, the workers would inspect above-ground valves and appurtenances to assure they are properly functioning. No truck trips to and from the site are anticipated on a regular basis.

CalAm Distribution System

General operations and maintenance activities associated with pipelines would include annual inspections of the cathodic protection system and replacement of sacrificial anodes when necessary; testing and servicing of valves; vegetation maintenance along rights-of-way; and repairs of minor leaks in buried pipeline joints or segments. The vehicle trips generated by these routine and periodic site visits would be similar in number to those required for existing CalAm operations in the Monterey District service area and would not constitute a significant increase in new vehicle trips on area roadways. Overall, any increases in traffic generated by facility operations and maintenance are estimated as four trips and would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, the long-term traffic impact for these facilities would also be less-than-significant.

Impact Conclusion

Operation and maintenance activities would not generate a significant increase in traffic to the existing circulation system, or result in a level of service degradation over the long-term. A total of nine potential new employees would result in an increase of approximately 18 daily trips spread out among the applicable component sites. Approximately half of the trips would be to the Regional Treatment Plant site north of the City of Marina. The number of daily vehicle trips associated with worker commutes, deliveries, and activities associated with the operation and maintenance of all project facilities would be small relative to existing conditions. Approximately four daily trips by existing employees for general maintenance along the CalAm Distribution Pipelines would be spread throughout the road system and would have a noticeable effect on traffic conditions.

Operation and routine maintenance of the Proposed Project would not substantially increase traffic volumes on local or regional roadways; therefore, the impact would be less-than-significant and no mitigation measures are required.

4.17.4.5 Cumulative Impacts

The geographic scope for the analysis of cumulative impacts on transportation and circulation consists of the roadways affected by the Proposed Project and the areas in northern Monterey County that use the same roadways as the Proposed Project. A list of cumulative projects is provided on **Table 4.1-2, Project Considered for Cumulative Analysis**, and the cumulative project locations are shown on **Figure 4.1.1 rev, Cumulative Projects Location Map** (see **Section 4.1, Introduction**). Cumulative projects that would result in permanent traffic increases include development projects primarily within the cities of Marina and Seaside and within areas in the former Fort Ord military base. Relevant projects with potential traffic impacts that could combine with traffic impacts resulting from the Proposed Project are summarized below. The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the MPWSP (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant projects identified on **Table 4.1-2** for the cumulative analysis:

- *Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):*[3] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines to convey between the well. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPWSP that includes a 6.4 mgd desalination plant. Similarly, the MPWSP EIR is evaluating a “Variant” project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPWSP Variant are shown in **Appendix Y**.
- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPWSP (with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPWSP (with 6.4 mgd Desalination Plant). Both the Monterey Peninsula Water Supply Project desalination plant and the Proposed Project Treatment Facilities at the Regional Treatment Plan would be located in the unincorporated area of Monterey County within a distance of approximately 0.5 miles. The Transmission Pipeline component of the MPWSP would be in the similar location as a segment of the Proposed Project Product Water Conveyance Coastal Alignment pipeline along the Transportation Agency’s rail line corridor. Both the MPWSP and GWR projects include installation of new wells in the Seaside area. However, the well locations would be approximately 0.5 miles from each other.

Table 4.17-5 provides a summary of potential impacts related to traffic and transportation and significance determinations at each Proposed Project component site. The MPWSP would have

[3] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC 2012). Based on ongoing coordination with the CPUC’s EIR consultants, this alternative is referenced as the “Variant” and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

a similar effect on local roadways due to construction trips as the Proposed Project. Construction of the GWR facilities would overlap with construction of the CalAm facilities for approximately 18 months. Temporary construction traffic would increase in combination with the construction-related traffic associated with the Cal-Am facilities, but most construction traffic would be distributed along different roadways. Assuming a worse-case scenario of overlapping construction at all GWR and CalAm Facilities along Highway 1 (the major regional roadway), the combined temporary traffic from construction of both CalAm and GWR facilities would result in an increase in average daily trips on the highway of two percent or less. This temporary increase would be within daily traffic fluctuations along the highway and would not cause a substantial increase in traffic relative to existing conditions and roadway capacity, or contribute substantial volumes of traffic during peak hours. Implementation of traffic control plans and other measures by both projects would minimize temporary delays and impacts on roadways and to bicycle, pedestrian, and transit systems. Therefore, no significant cumulative construction-related impacts would result from the two projects.

Once constructed, operations and maintenance associated with each project would result in limited traffic. Both the desalination plant proposed by CalAm and Proposed Project Treatment Facilities at the Regional Treatment Plant would be located in the unincorporated area of Monterey. Long-term operations of the desalination plant would generate approximately 33 round-trips (66 one-way trips) per day (60 commute trips and six for deliveries). The greatest long-term increase in vehicle trips from MPWSP Desalination Plant operations would occur on Charles Benson Road, which is also the local road that would be used for access to the Regional Treatment Plant (the site of new treatment facilities of the Proposed Project). As indicated above the Proposed Project would generate five new employees at this location. Based on existing traffic conditions and the industrial nature of the surrounding land uses on Charles Benson Road, the estimated traffic increase of both projects would be well within the roadway carrying capacity of this two-lane road and would not affect road operations or performance. There would be minimal traffic associated with operation of the other components of either the MPWSP or GWR project. Thus, there would be no significant cumulative traffic impacts resulting from the construction or operation of the two projects.

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1.1 rev.** The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**. None of the identified cumulative projects that are in close proximity to the Proposed Project are known to have overlapping construction schedules that would result in cumulative construction traffic impacts, except for the Monterey Peninsula Water Supply Project (with 6.4mgd desalination plant) (#1); the City of Salinas Solar Project (#34) and projects within the City of Marina. The City of Salinas Solar Project (#34) includes construction of solar panels on approximately 18 acres at the Salinas Treatment Facility Station site. The project would be constructed starting in 2015 and ending in 2016. There may be a brief period of overlap of the construction at the proposed Salinas Pump Station Diversion site, where construction is planned to begin in July of 2016. Construction trips from both projects would be spread out throughout the day and various routes and would not result in a significant temporary cumulative impact related to construction traffic.

Construction of segments of the proposed Product Water Conveyance Pipeline (both alignment options) and the RUWAP booster station within the City of Marina would be in proximity to the planned CSUMB projects (#16, #17) and the Dunes on Monterey Bay Project (#10). According to the currently available information, the timing of construction of the CSUMB housing project would be constructed prior to construction of the Proposed Porject, and the timing of the CSUMB academic building is unknown. There may be brief periods in which construction of the Product Water Conveyance Pipeline may occur in proximity to construction phases of the Dunes project. However, given the limited duration of potential overlap of construction schedules and the distribution of construction traffic among numerous local roadways, there would no significant cumulative construction-related traffic impacts in Marina.

Development projects, primarily in the cities of Marina and Seaside and within areas in the former Fort Ord military base, would result in substantial new residential, commercial, and institutional development, resulting in substantial increases in traffic on Highway 1 and on local streets. Based on the list of cumulative projects provided on **Table 4.1-2** (see **Section 4.1**), cumulative developments that could generate substantial traffic include: East Garrison (#3), the Dunes on Monterey Bay (#10), Monterey Shores Resort (#9), CSUMB projects (#16,17), West Broadway Specific Plan (#21), Seaside Resort and Monterey Downs (#22, 24), and Fort Ord Dunes State Park Campground (#34). Cumulative development could result in nearly 190,000 daily trips with approximately 11,300 trips in the AM peak hour and 18,200 trips in the PM peak hour (EIP Associates, February 2005). Cumulative development would result in significant cumulative traffic impacts at intersections along 2nd Avenue and General Jim Moore Boulevard and along some roadway segments including Highway 1 between Lightfighter Drive and 12th Street. A number of intersection and roadway improvements have been identified for the area, as well as project-specific mitigation measures, that would mitigate cumulative traffic impacts at most but not all intersections (EIP Associates, February 2005). Buildout of the East Garrison project also would result in potentially significant impacts to intersections along Davis Road. Therefore, cumulative development could result in significant cumulative traffic impacts along segments of Highway 1 and on local roads within the cities of Seaside and Marina, and portion of unincorporated Monterey County along Davis Road.

The Proposed Project would only result in nine new permanent employees, most of whom would be employed at the Advanced Water Treatment Facility (five employees), resulting in an estimated five trips in the either AM or PM peak hours. This amount of traffic would be negligible in comparison to the amount of traffic generated by cumulative development and would not result in a noticeable change in traffic operations. Furthermore, some employee shifts may start outside of peak hours. The remaining four new employees would be distributed among three project sites (Reclamation Ditch, Product Water Booster Pump Station, Injection Well Facilities site). The trips associated with these employees would be distributed among different roadways, and would result in minor peak hour trip increase of one to two trips at any location. For these reasons, the Proposed Project's contribution to significant cumulative traffic impacts would not be cumulatively considerable.

Cumulative Impact Conclusion

Construction of the MPWSP Transmission Pipeline and GWR Product Water Conveyance Pipeline Coastal Alignment may have overlapping or close construction schedules, and construction of the MPSWP desalination plant and Proposed Project Treatment Facilities at the Regional Treatment Plant would be located within a distance of 0.5 miles. Construction of both projects would not result in significant cumulative construction or operational traffic impacts. There are no other identified cumulative construction-related traffic impacts to which the Proposed Project would contribute, except potentially at the Salinas Pump Station Diversion site and in the City of Marina, in which there would be less-than-significant cumulative construction traffic impacts. Cumulative development could result in significant cumulative traffic impacts along segments of Highway 1 and on local roads within the cities of Seaside and Marina, and a portion of unincorporated Monterey County, primarily within areas of the former Fort Ord military base and along segments of Highway 1 within Seaside and Marina. However, operation of the Proposed Project would result in minimal new trips that would be split among different work shifts and distributed along different roadways, resulting in minor peak hour trip increase of one to two trips at any location. Therefore, the Proposed Project's contribution to significant cumulative traffic impacts due to cumulative development projects would not be cumulatively considerable.

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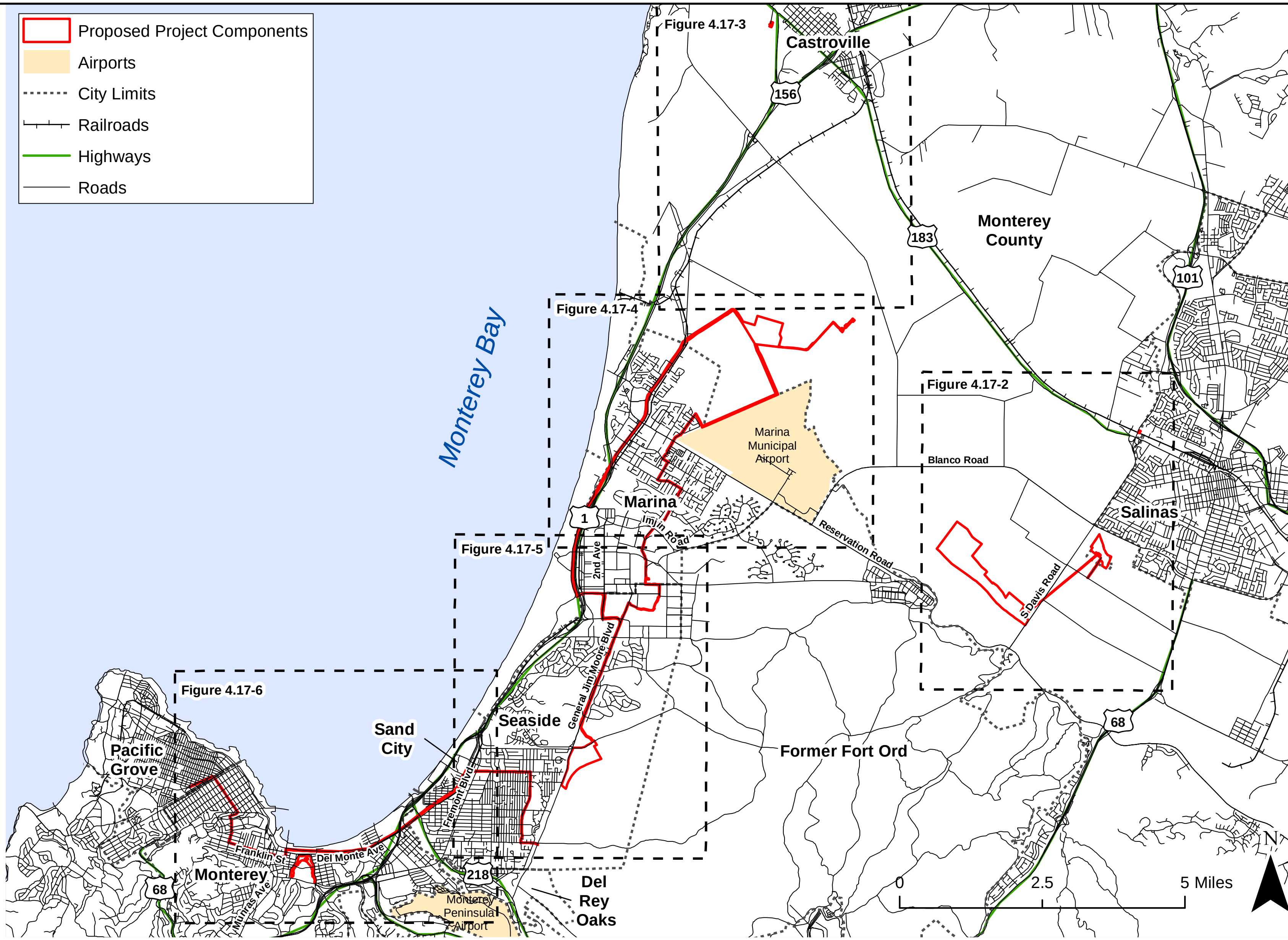


Source: DD&A, 2014

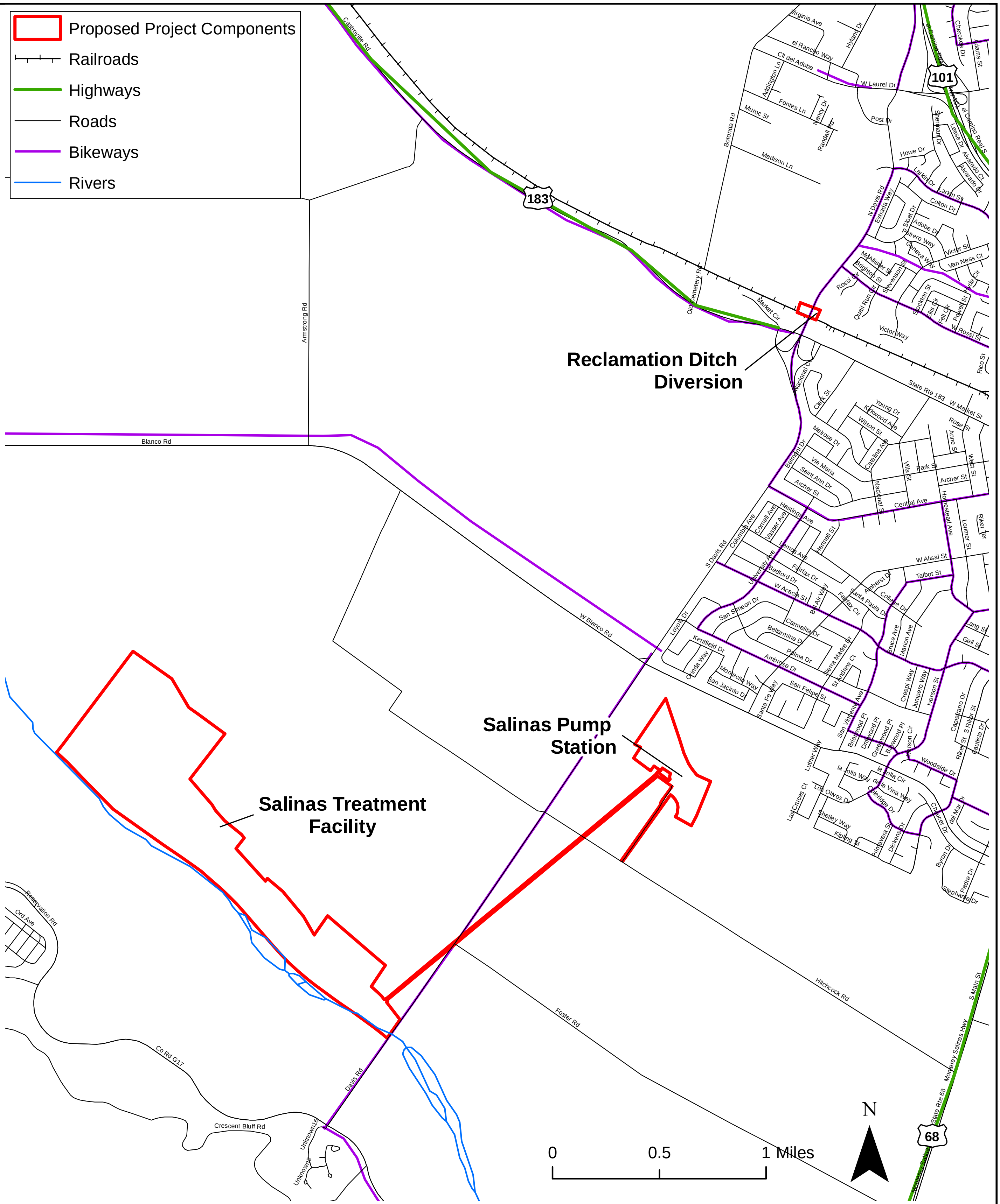
DD&A

Regional Transportation Network

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.17-1



Source: DD&A, 2014

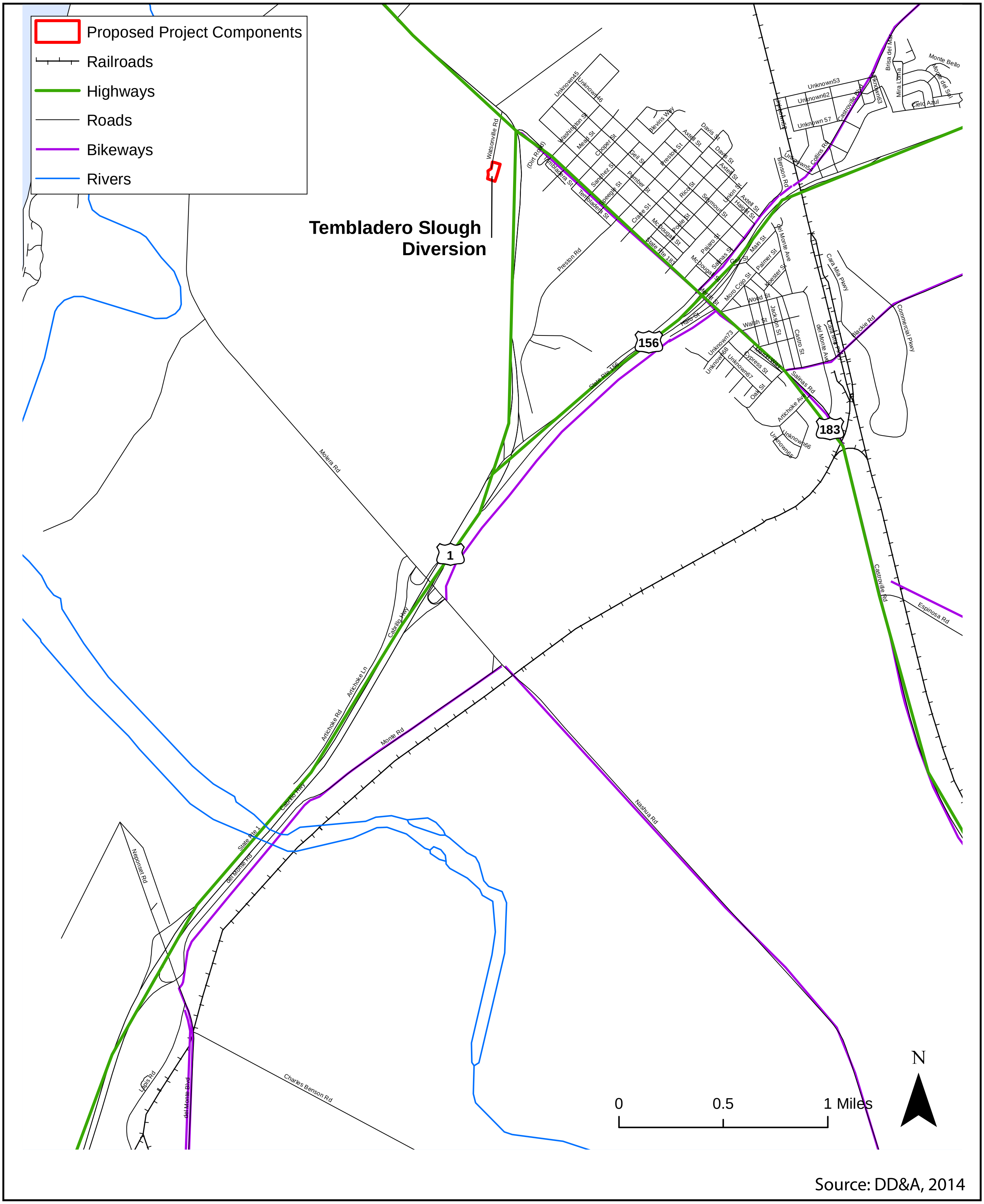
DD&A

Salinas and Monterey County Transportation Network

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.17-2

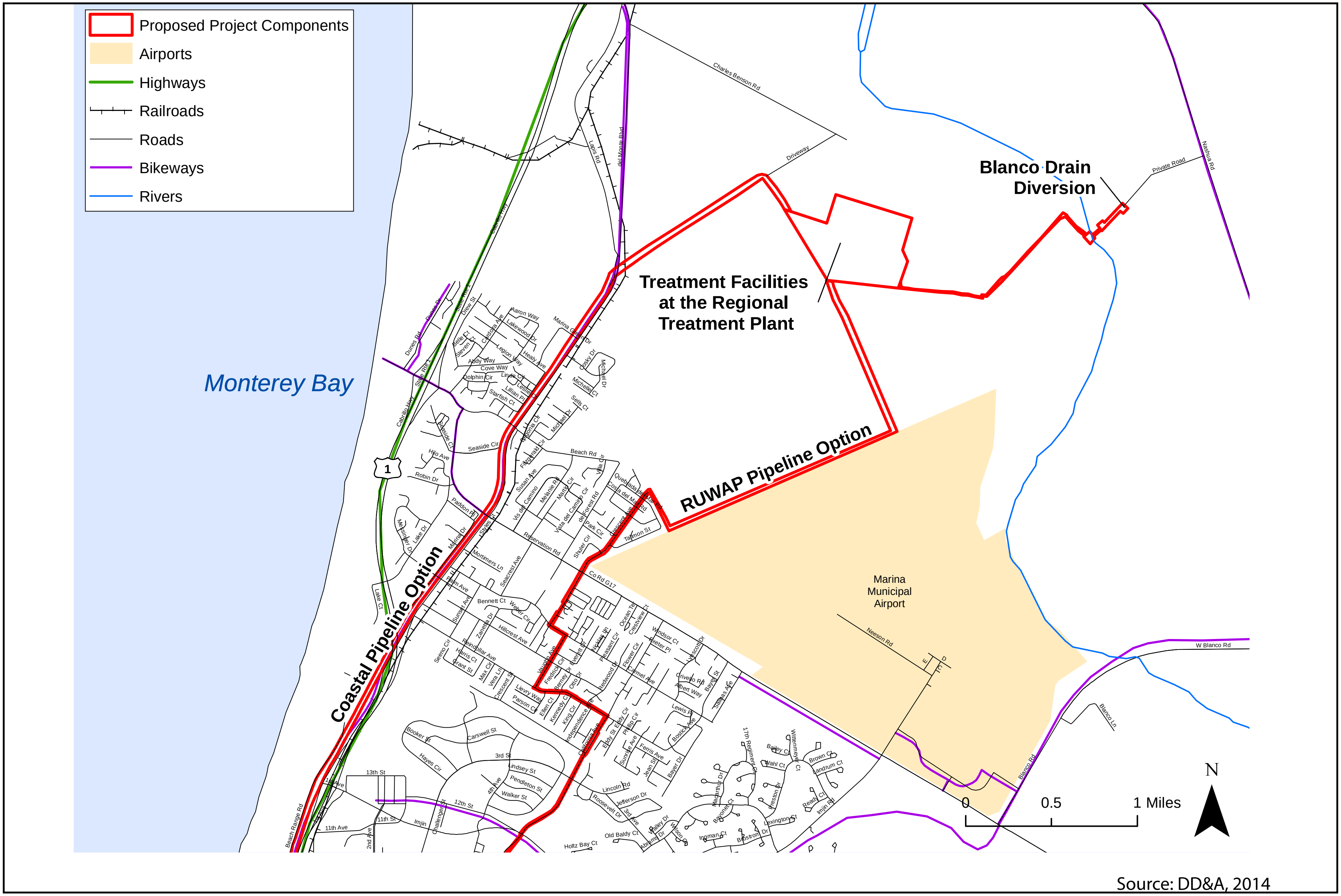


Northern Monterey County Transportation Network

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.17-3

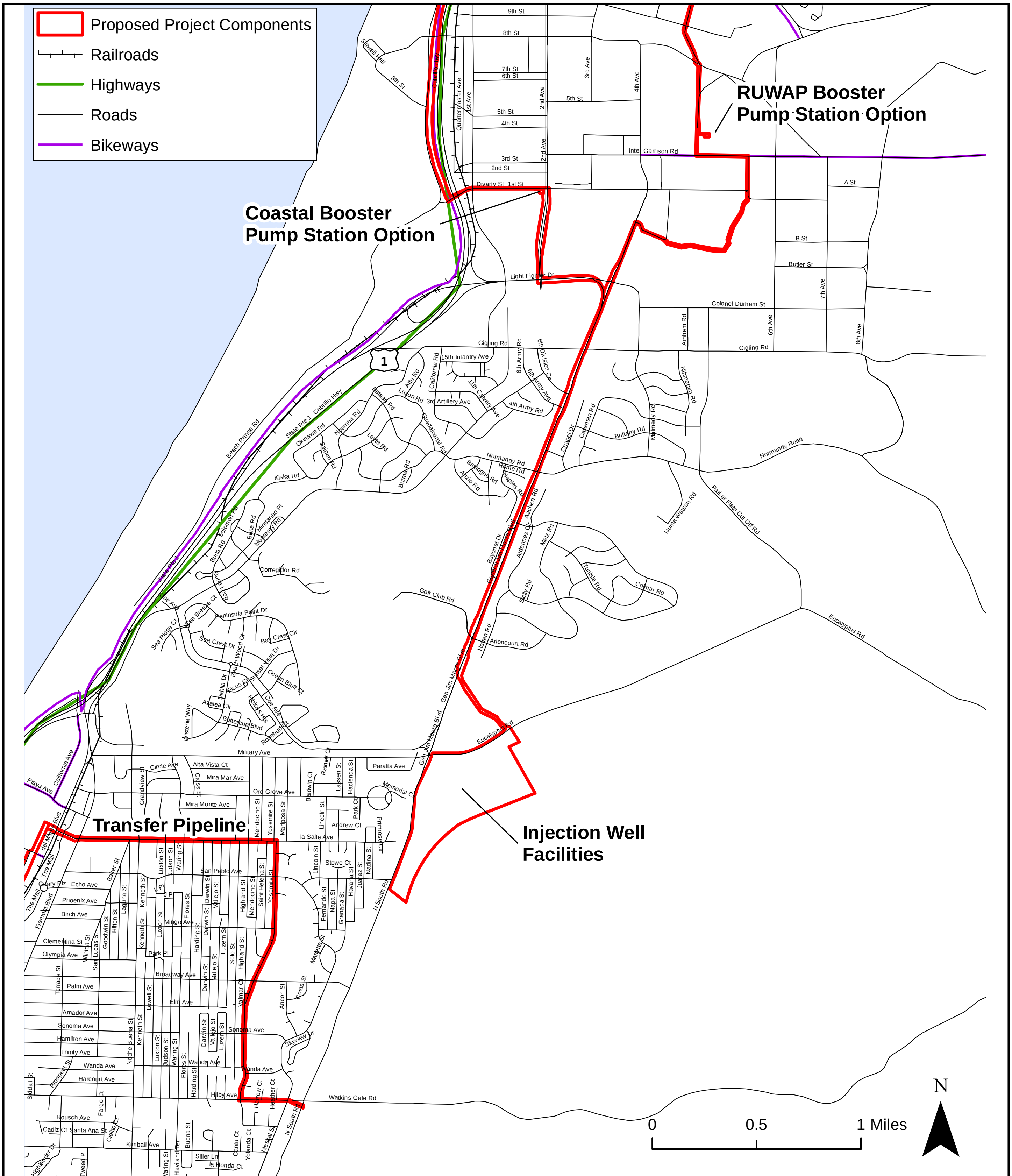


Marina Transportation Network

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.17-4



Source: DD&A, 2014

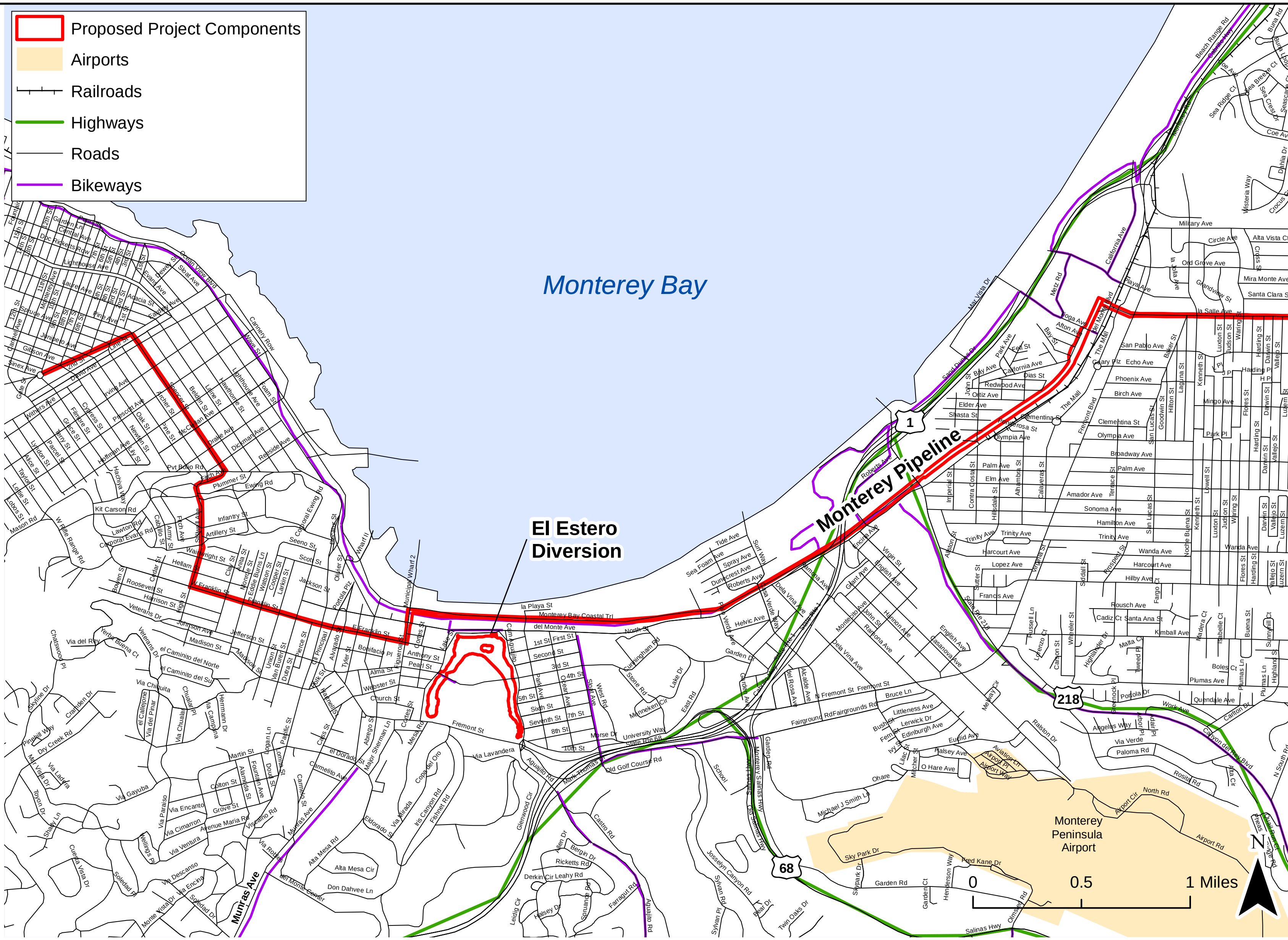
DD&A

Seaside Transportation Network

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.17-5



Source: DD&A, 2014

DD&A

Monterey Transportation Network

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.17-6

4.18 WATER SUPPLY AND WASTEWATER SYSTEMS

Sections	Figures	Tables
4.18.1 Introduction 4.18.2 Environmental Setting 4.18.3 Regulatory Framework 4.18.4 Project Impacts and Mitigation Measures 4.18.5 References	4.18-1 rev Marina Coast Water District Boundaries and Service Areas 4.18-2 Average Annual Wastewater Flow to Regional Treatment Plant 4.18-3 Regional Treatment Plant Wastewater Flow Projections	4.18-1 Water Supply and Wastewater Service Providers and Agencies 4.18-2 CalAm's Adjudicated Allocation of Native Seaside Groundwater Basin: Water Years 2006 – 2026 4.18-3 Water Rights Classifications Legal Classification and Implications of Rights to Surface Water (including Groundwater in a Subterranean Stream) and Percolating Groundwater 4.18-4 Applicable Local Plans and Policies – Water Supply and Wastewater Systems 4.18-5 Summary of Relevant Local Agency Agreements 4.18-6 Summary of Impacts – Water Supply and Wastewater Systems

4.18.1 Introduction

This section provides information on the water supply and wastewater systems in the Proposed Project area and discusses impacts on these systems due to implementation of the Proposed Project. This section provides the setting, regulatory framework, and impacts that would apply to components of the Proposed Project related to water supply/demand and wastewater collection and treatment. This section also provides an overview of water rights and agreements underlying the use of water and wastewater resources proposed for source waters for this project, and also summarizes the technical reports that evaluated the availability of Proposed Project source waters.

Comments received during Scoping. Public and agency comments related to water supply and wastewater that were received during the public scoping period in response to the Notice of Preparation are summarized below:

- Effects of discharges of byproducts from the advanced water treatment facility and secondary wastewater on disposal capacity and permit compliance of the existing outfall, including previous agreements that may commit outfall capacity.
- Availability of, and legal rights to, use of source waters and wastewater, including agreed upon recycled water capacity and rights of the Marina Coast Water District.
- Confirmation that there is sufficient source water and wastewater to meet the agricultural community water needs, required commitments through existing agreements as well as to provide water supplies to CalAm urban customers.
- Consideration of whether conservation measures would reduce the amount of MRWPCA Regional Treatment Plant inflow and assess MRWPCA's ability to produce continued supply of reclaimed wastewater for the project.

- Effect of increased recycling and reduction in agricultural and urban runoff on the supply of source water.
- Consideration of agricultural community's concerns that additional sources of water must be obtained in order to satisfy the desired amount of recycled water.
- Clarify whether source water would be from a single source or a combination of sources and delineate how the determination will be made, and when.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report**.

Other Water-related Issues in this EIR. Many of the issues related to water supply and wastewater service and facilities are addressed in other sections of the EIR. The following other sections provide information and impact analysis of other related topics.

- **Section 3, Water Quality Statutory and Regulatory Compliance Overview**, discusses how the Proposed Project would comply with standards and requirements for the protection of human health and the environment related to groundwater recharge of recycled water, including the quality of treated and recycled water for well injection.
- **Section 4.10, Hydrology and Water Quality: Groundwater** assesses the impacts of the Proposed Project on groundwater, including water levels, storage, and water quality in the aquifers in the project area.
- **Section 4.11, Hydrology and Water Quality: Surface Water**, addresses water quality and hydrology of surface water bodies, including regulatory requirements for dry and wet weather runoff, impacts to storm drain infrastructure and systems, flooding and inundation issues.
- **Section 4.13, Marine Biological Resources** assesses the impacts of discharging wastewater that is reverse osmosis by-product (i.e., concentrate) on marine water quality and biological resources
- **Section 4.15, Population and Housing** and **Section 5, Growth Inducement,** addresses whether the provision of new water supplies may induce population growth or demand for new housing.
- **Section 4.16, Public Services and Utilities**, addresses other public services and utilities, including fire and police protection, and solid waste.

Key Sources of Information. The information and analyses in this section are based on the following key technical analyses and agreements:

- Proposed Pure Water Monterey Groundwater Replenishment Project, Source Water Memorandum (Schaaf & Wheeler, 2015c); and Memorandum of Agreement Regarding Pure Water Monterey Groundwater Replenishment Project Source Waters and Water Recycling (signatories: MRWPCA, Monterey County Water Resources Agency, the City of Salinas, Marina Coast Water District, and Monterey Peninsula Water Management District), October 2014 provided in **Appendix B rev**.
- Monterey Regional Water Pollution Control Agency, 40-Year Wastewater Flow Projections Report 2014 – 2054 (Brezack & Associates, Inc., 2014) provided in **Appendix X**.

- Hydrology and water quality studies regarding source water yields and surface water impacts:
  - "Salinas River Inflow Impacts Report" (Schaaf & Wheeler, 2015a) This includes assessments of Salinas Industrial Wastewater Treatment Facility, southern Salinas urban runoff/stormwater and Blanco Drain Diversion and is provided in **Appendix O rev**.
  - "Reclamation Ditch Yield Study" (Schaaf & Wheeler, 2015b) assesses yield from the Reclamation Ditch system and is provided in **Appendix P**.
  - "Blanco Drain Yield Study" (Schaaf & Wheeler, 2014b) assesses yield from the Blanco Drain and is provided in **Appendix Q rev**.
  - "Groundwater Replenishment Project Urban Runoff Capture at Lake El Estero" (Schaaf & Wheeler, 2014a) assesses yield from Lake El Estero in Monterey, California and is provided in **Appendix R**.

4.18.2 Environmental Setting

This section describes the existing water supply and wastewater service facilities, service providers, applicable regulations, and legal agreements related to use of water resources. The study area for this section includes the project impact area shown in **Figure 2.18, Proposed Project Facilities Overview**, as well as the service areas of the relevant service providers. **Section 2.5**, **Overview of Existing Systems**, describes existing wastewater and water infrastructure systems that are relevant to the Proposed Project. **Section 2.7**, **Source Water**, provides details of the identified supplemental source waters to augment existing secondary-treated wastewater flows, which could be available to the Proposed Project, including urban stormwater and dry-weather runoff, surface water diversions from water bodies receiving agricultural tile drainage and surface runoff, and use of industrial wastewater currently treated by the City of Salinas. The existing conditions in this section are supplemental to the setting information and regulatory background presented in the **Chapter 2**, **Project Description**. **Table 4.18-1** lists water supply and wastewater service providers and management agencies by local jurisdiction.

Table 4.18-1
Water Supply and Wastewater Service Providers and Agencies

Jurisdiction	Monterey Regional Water Pollution Control Agency	Monterey County Water Resources Agency	Monterey Peninsula Water Management District	Monterey Peninsula Regional Water Authority	Seaside County Sanitation District	California American Water Company	California Water Services Company	Marina Coast Water District	City of Seaside Municipal Water System	Sand City Coastal Desalination Plant
Unincorporated Monterey County	✓	✓	✓	(1)		✓	✓	✓		
City of Salinas	✓	✓					✓			
City of Marina	✓	✓						✓		
City of Seaside	✓	✓	✓	✓	✓	✓		✓	✓	
City of Del Rey Oaks	✓	✓	✓	✓	✓	✓		✓		
City of Sand City	✓	(2)	✓	✓	✓	✓				✓
City of Monterey	✓	✓	✓	✓		✓		✓		
City of Pacific Grove	✓	(2)	✓	✓		✓				
Federal Lands	✓	✓	✓	✓	✓	✓		✓		

Notes:
(1) Although this joint powers authority was established to coincide with CalAm's Monterey District, customers within the unincorporated areas of Monterey County do not have representation on the board.
(2) These municipalities are within the Monterey County Water Resources Agency's jurisdiction for flood control; however, not for water supplies management.

4.18.2.1 Potable Water Service

Potable water service to the project area is provided and/or managed by three public agencies, and delivery of water is provided by two public agencies and two private water companies as described below and summarized on **Table 4.18-1, Water Supply and Wastewater Service Providers and Agencies**.

Monterey Peninsula Water Management District

The Monterey Peninsula Water Management District (Water Management District) and MRWPCA are partners in studying the Proposed Project (Proposed Project). As indicated in **Section 2.3.2.1**, the Water Management District is a special district, created by the California Legislature in 1977 and endorsed by a public vote in 1978, for the purposes of "conserving and augmenting the supplies by integrated management of ground and surface water supplies, for control and conservation of storm and wastewater, and for promotion of the reuse and reclamation of water." Approximately 104,000 people live within the jurisdictional boundary of the Water Management District, which includes the Monterey Peninsula and unincorporated communities within Monterey County including Pebble Beach, the Carmel Highlands, a portion of Carmel Valley, and areas adjacent to Highway 68.

The Water Management District is a water resource planning/management entity, and does not provide water service to retail customers. However, as described in Section 2.3.2.1, the Water Management District either owns or is the financing entity for certain water supply facilities operated by CalAm or other agencies. Water Management District is responsible for the integrated management of water resources within the Water Management District's boundaries, while the California American Water Company (CalAm) is responsible for providing water to customers in the Monterey Peninsula area. The Water Management District manages production and use of water from the Carmel River stored in Los Padres Reservoir, water production in the Carmel Valley Alluvial A~~a~~quifer, and groundwater pumped from municipal and private wells in Carmel Valley, the Seaside Groundwater Basin (Seaside Basin), and other areas within the Water Management District boundary. The Water Management District's jurisdictional area includes portions of watersheds and groundwater basins that lie partially outside the Water Management District political boundary.

The Water Management District regulates public fresh water supply systems within its boundaries, including systems owned by CalAm. The Water Management District also monitors the production of water from approximately 1,100 public and private wells, of which approximately 800 are currently active. The Water Management District provides technical support and regulatory oversight to CalAm and other smaller water systems, and has an ongoing program to mitigate the effects of pumping from the Carmel River system and the Seaside Basin.

The Water Management District also provides water conservation services to the Monterey Peninsula communities and Carmel Valley area. The Water Management District adopts and implements water conservation ordinances, determines drought emergencies and can impose rationing programs.

In addition to Water Management District's responsibilities to conserve and augment groundwater and surface water supplies, Water Management District is also responsible for administering water use permits for new and existing residential and non-residential uses. All property owners that seek to modify or add water fixtures within the Water Management District boundaries must obtain written authorization from the Water Management District. Water Management District generally issues permits when there is an available Water Management District water allocation within the particular jurisdiction or existing water credits are available to serve the proposed use. The Water Management District also regulates activities within the streamside corridor of the lower 15.5 miles of the Carmel River.

Monterey Peninsula Regional Water Authority

The Monterey Peninsula Regional Water Authority (MPRWA) is a Joint Powers Authority that consists of six cities, the Cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City and Seaside. The purpose is to study, plan, develop, finance acquire, construct, maintain, repair, manage, operate, control and govern water projects either alone or in cooperation with other public or private non-member entities. The Regional Water Authority adopted a Policy Position Statement on July 11, 2013 that establishes four basic criteria that any water project is expected to satisfy, as well as eight conditions that CalAm would have to meet in order to obtain Regional Water Authority support for a water supply project. The position statement expressed the Authority's support for a "portfolio approach" to water projects, which included the desalination option with groundwater replenishment.

Monterey County Water Resources Agency

The Monterey County Water Resources Agency (Water Resources Agency), formerly the Monterey County Flood Control and Water Conservation District, oversees the development and implementation of water quality, water supply, and flood control projects in Monterey County. Primary responsibilities are management of water supply resources in the Salinas Valley reservoir system, including San Antonio and Nacimiento Reservoirs, and management and permitting of water projects in the Salinas Valley. Water Resources Agency is responsible for the regulation of water from the Salinas Valley Groundwater Basin and also manages release flows from San Antonio and Nacimiento reservoirs to provide groundwater recharge throughout the year.

The Water Resources Agency and its agency partners, including the MRWPCA, have two major capital projects that are managed to provide improvements to groundwater quality and reverse the long-term trend of seawater intrusion and groundwater level declines in the Salinas Valley Groundwater Basin. They include the Castroville Seawater Intrusion Project and the Salinas Valley Water Project. The Salinas Valley Water Project included reoperation of the Nacimiento and San Antonio reservoirs and construction and operation of a new seasonal diversion facility called the Salinas River Diversion Facility (or rubber dam). This facility has been providing river water for irrigation since 2010. The Castroville Seawater Intrusion Project provides treated (recycled) wastewater from the Regional Treatment Plant to agricultural growers in the unincorporated Castroville area of Monterey County.

Monterey County Department of Environmental Health

In addition to the water service providers described below, the Monterey County Department of Environmental Health oversees small public water supply systems. A “public water system” is a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. The County Department of Environmental Health also issues well development and deconstruction permits, including for the Proposed Project injection and monitoring wells.

California American Water Company

As described in **Chapter 2, Project Description**, CalAm supplies water to most of the jurisdictions in the project area; CalAm’s service area is shown on **Figure 2.1** in **Section 2.0**. Cal-Am is an investor-owned utility that owns and operates wells, infrastructure, and water distribution systems that provide municipal water service to customers in the Monterey Peninsula area. Cal-Am operates a network of water facilities, including production wells, dams and associated reservoirs, and other conveyance infrastructure along the Carmel River, as well as an aquifer storage and recovery system in the Seaside groundwater basin. CalAm’s Monterey District includes a "main" system and several satellite systems, and has approximately 38,500 connections. CalAm provides water service to most of the Monterey Peninsula, including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and the unincorporated areas of Carmel Highlands, Carmel Valley, and Pebble Beach via the Monterey District’s water distribution system, known as the Main Monterey System. In addition to the main system, CalAm also operates the following satellite water systems that provide water to customers within Monterey County: Bishop/Pasadera, Ambler, Hidden Hills, Ryan Ranch, Toro, Chualar, and Ralph Lane.

CalAm’s Monterey District service area is supplied by the Carmel River system, groundwater from the coastal subareas of the Seaside Basin, and a small desal plant. The

Bishop/Pasadera, Hidden Hills, and Ryan Ranch systems also rely on groundwater from the Seaside Basin. The remaining systems (Toro, Chualar, and Ralph Lane) do not rely on either the Carmel River or the Seaside Basin, but get their water supply from the Salinas Valley Groundwater Basin. As discussed in **Section 2.3.2.4,** the State Water Resources Control Board issued Order No. WR 95-10 in 1995, which found that CalAm was diverting more water from the Carmel River Basin than it was legally entitled to divert. The State Board ordered CalAm to implement actions to terminate its unlawful diversions from the Carmel River and to maximize use of the Seaside Basin (to the extent feasible) to reduce diversions of Carmel River water. In 2009, the State Board issued a Cease and Desist Order (State Board Order Number WR 2009-0060) that requires CalAm to secure replacement water supplies for its Monterey District service area by January 2017 and reduce its Carmel River diversions to 3,376 AFY no later than December 31, 2016.

In addition, historical and persistent low groundwater elevations in the Seaside Basin caused by pumping have led to concerns that seawater intrusion may threaten the groundwater resources used by CalAm and others for water supply. Specifically, the Seaside Basin has experienced chronic overdraft conditions with declining water levels in both of the Basin's primary aquifers that are used for water supply (the deeper, confined Santa Margarita aquifer and the shallower, unconfined Paso Robles aquifer). In 2006, an adjudication process (CalAm v. City of Seaside et al., Case No. M66343) led to the issuance of a court decision that created the Seaside Groundwater Basin Watermaster (Watermaster). The Watermaster consists of nine representatives: one representative from each of CalAm, City of Seaside, Sand City, City of Monterey, City of Del Rey Oaks, Water Management District and Monterey County Water Resources Agency; and two representatives from landowner groups. The Watermaster has evaluated water levels in the basin and has determined that while seawater intrusion has not been observed, current water levels are lower than those required to protect against seawater intrusion. In 2012, water levels were found to be below sea level in the two primary aquifers within the Seaside Groundwater Basin; therefore, the Watermaster recognized that recharge into both aquifers would be beneficial for protection against seawater intrusion.

The adjudication requires CalAm to decrease its operating yield from the basin by 10% triennially until it reaches its allotted portion of the court-defined "natural safe yield" of 1,494 AFY beginning in 2021, as detailed in **Table 4.18-2, CalAm's Adjudicated Allocation of Native Seaside Ground Water Basin**. This natural safe yield was defined by the adjudication as the quantity of groundwater existing in the Basin that occurs solely as a result of natural replenishment. In addition to these reductions in pumping, CalAm is required to "pay back" historic over-pumping and plans to accomplish this by reducing its pumping from the Seaside Groundwater Basin by an additional 700 AFY for 25 years.

Table 4.18-2
CalAm's Adjudicated Allocation of Native Seaside Groundwater Basin: Water Years 2006 – 2026 (in AFY)

Year	AFY
2006-2008	3,504
2009	3,191
2010-2011	3,087
2012-2014	2,669
2015-2017	2,251
2018-2020	1,820
2021-2023	1,494

2024-2026	1,494

Section 2.5.5 of **Chapter 2, Project Description**, describes CalAm's existing facilities, constraints on supplies, the amounts of water production (by water year), and the most recently data available regarding water demands (by calendar year).

Marina Coast Water District

Established in 1960, the Marina Coast Water District provides water supply and wastewater collection services for residents in the City of Marina and to lands in the former Fort Ord military base. Marina Coast Water District is a County water district formed and authorized by Division 12 of the California Water Code. Marina Coast Water District is located on the coast of Monterey Bay, and occupies an area of about 4.5 square miles. Marina Coast Water District's service area is shown on **Figure 4.18-1 rev, Marina Coast Water District Boundaries and Services Areas.** In 1996, Marina Coast Water District was selected by the Fort Ord Reuse Authority (FORA) to take over conveyance of the water supply and wastewater systems at the former Ford Ord community, consisting of approximately 28,000 acres, including federal and state land, and portions of the cities of Seaside, Monterey, Del Rey Oaks, Marina and portions of unincorporated Monterey County. In November of 2001, water supply and wastewater systems were conveyed through a Public Benefit Conveyance to Marina Coast Water District. Marina Coast Water District is now responsible for providing water supply and wastewater collection service throughout the former Fort Ord military base through a contract.

~~The Marina Coast Water District's water supply comes from groundwater wells located in the 900-foot-deep aquifer of the Salinas Valley Groundwater Basin.~~ Historically, MCWD supplied its Marina service area with water from wells screened in the 180-Foot and 400-Foot aquifers. Between 1960 and 1992, some of those wells indicated varying degrees of seawater intrusion and were replaced, first moving from the 180-Foot aquifer to the 400-Foot aquifer, and later moving to the Deep Aquifer. The District currently operates 4 wells in the Deep Aquifer-- Wells 10, 11, 12 and 34. MCWD also operates 4 wells that draw from the 180-Foot and 400-Foot Aquifers-- Wells 29, 30, 31, and 35. (See attachment Exhibit "E" to Letter H for locations of these wells). The Marina Coast Water District also has a desalination plant with a capacity of 300 acre-feet per year; the plant is capable of providing up to 13 percent of the annual water demand, but has not operated in recent years (Marina Coast Water District, 2013).

Marina Coast Water District has an existing agreement in place with MRWPCA that entitles it to receive tertiary treated recycled water from the Regional Treatment Plant up to the volume of wastewater it conveys to the treatment plant. The Marina Coast Water District has an agreement with the Water Resources Agency that further sets the terms and conditions for purchasing recycled water from the Salinas Valley Reclamation Plant at the Regional Treatment Plant (Marina Coast Water District 1989, and Monterey County Water Resources Agency, et al. 1996). In February 2010, MRWPCA and Marina Coast Water District entered into an Outfall Agreement that defined the terms of use of the outfall by Marina Coast Water District for a planned desalination project. The Outfall Agreement is described below.

As indicated in **Section 2.3.3.3**, water demands on the former Fort Ord are projected to increase with development envisioned in the *Fort Ord Base Reuse Plan* and local plans. To address the need for additional water supply, Marina Coast Water District is developing the Regional Urban Water Augmentation Project (RUWAP) that would provide an additional 2,400 AFY of potable and/or recycled water. The RUWAP recycled water distribution system has been designed and partially constructed, but is not yet in operation. To date, the Marina Coast Water District has not delivered recycled water to its irrigation users from the Regional Treatment Plant through the RUWAP recycled water distribution system. (See **Sections 4.18.2.2** and **4.18.3.4**, below, for further discussion of the Regional Treatment and Reclamation Plants and existing agreements.)

Seaside Municipal Water System

The Seaside Municipal Water System, which is operated and maintained by the City of Seaside, provides water service to a limited number of residents on the east side of the city along the west side of General Jim Moore Boulevard. The system includes one groundwater production well and two 500,000-gallon water tanks (City of Seaside, 2013).

Sand City Coastal Desalination Water System

The Sand City Coastal Desalination Plant, completed in April 2010, is owned by the Sand City and operated by CalAm. The Sand City Coastal Desalination Plant is capable of producing up to 300 acre-feet per year of potable water supplies, of which 94 acre-feet per year is committed to be served to the CalAm Monterey District service area (California American Water Company, 2012). The desalination plant draws brackish water from a perched aquifer portion of the Seaside Basin using subsurface extraction wells. The desalination plant operates brackish water intake wells adjacent to the coast in proximity to a portion of the Seaside Basin in which the Proposed Project would develop new injection well facilities several miles inland.

California Water Services Company

California Water Services Company serves the majority of the City of Salinas and the unincorporated communities of Bolsa Knolls, Las Lomas, Oak Hills, Country Meadows, Salinas Hills, and Buena Vista. All water delivered to the Salinas District customers is from aquifers of the Salinas Valley Groundwater Basin known as the Pressure Area and Eastside Area. Although the Proposed Project would not provide water directly to customers of the California Water Services Company, some component source waters originate in the same geographic location as the service area of this water company and the Proposed Project would provide additional water to the Castroville Seawater Intrusion Project area resulting in a net benefit to other groundwater users in Salinas Valley.

4.18.2.2 Wastewater and Recycled Water Service

The provision of sanitary sewer or wastewater service in the Monterey area is organized at two levels. Local cities and sanitation districts are responsible for maintenance and extension of sewer lines, and the Monterey Regional Water Pollution Control Agency (MRWPCA) is responsible for development and operation of treatment facilities, trunk main pipelines and pump stations. The MRWPCA provides wastewater treatment for municipalities along the Monterey Bay from Pacific Grove north to Moss Landing, and inland to the City of Salinas. MRWPCA owns and operates the Regional Treatment Plant (Regional Treatment Plant), where community wastewater is currently treated for use as recycled water or discharged to the ocean. MRWPCA also owns and operates the ocean outfall. Further description of the MRWPCA service area and facilities is provided below, followed by a discussion of municipal wastewater collection and industrial treatment systems.

Monterey Regional Water Pollution Control Agency (MRWPCA).

The MRWPCA, created in 1972, currently serves a population of approximately 250,000 and operates a regional wastewater system that consists of treatment, disposal and reclamation facilities. The MRWPCA regional wastewater system is shown in **Figure 2-2** in **Chapter 2, Project Description**. The system provides centralized wastewater treatment for cities and communities of northern Monterey County through a network of wastewater pump stations and pressure pipelines that convey wastewater to the Regional Treatment Plant for treatment, disposal and recycling.

MRWPCA provides services to: the cities of Monterey, Pacific Grove, Del Rey Oaks, Sand City, Marina, and Salinas; the Seaside Sanitation District; the Castroville, Moss Landing and Boronda Community Service Districts; and former Fort Ord lands. Residential, commercial, and industrial wastewater is conveyed to the Regional Treatment Plant, which is located north of the City of Marina. The Regional Treatment Plant primarily treats municipal wastewater, but also accepts some dry weather urban runoff and other discrete wastewater flows.

Wastewater at the Regional Treatment Plant is treated to two different standards: 1) primary and secondary treatment in the Regional Treatment Plant for discharge through the MRWPCA ocean outfall or use as influent for the tertiary treatment system; and 2) Title 22 California Code of Regulations standards (tertiary filtration and disinfection) for unrestricted crop irrigation use. Recycled water is produced at the Salinas Valley Reclamation Plant (Salinas Valley Reclamation Plant), located at the Regional Treatment Plant, which produces tertiary-treated water for irrigation of farmland in the northern Salinas Valley as further described below. The Regional Treatment Plant and MRWPCA systems are described in detail in **Section 2.5.1** of **Chapter 2, Project Description**, and are summarized below.

The Regional Treatment Plant has an average dry weather design capacity of 29.6 million gallons per day (mgd) and a peak wet weather design capacity of 75.6 mgd. It currently receives and treats approximately 16 to 17 mgd of wastewater, and therefore, has capacity to treat additional flows. The amount of wastewater that it receives and treats has been decreasing over time as shown in **Figure 4.18-2, Average Annual Wastewater Flow to Regional Treatment Plant.**

The volume of treated wastewater effluent at the Regional Treatment Plant varies throughout the year, with the highest flows occurring during the non-irrigation season (November through March). The lowest flows occur during the irrigation season (April through October) when a large portion of the secondary effluent from the MRWPCA Regional Wastewater Treatment Plant is diverted to the Salinas Valley Reclamation Plant for additional tertiary treatment and subsequent use for crop irrigation within the Castroville Seawater Intrusion Project area. The Castroville Seawater Intrusion Project area is shown in **Figure 4.10-9, Castroville Seawater Intrusion Project Area,** in **Section 4.10, Hydrology and Water Quality: Groundwater.**

In most winter months, secondary treated wastewater from the Regional Treatment Plant is discharged to Monterey Bay through the MRWPCA ocean outfall, which includes a diffuser that extends 11,260 feet offshore at a depth of approximately 100 feet. The diffuser on the ocean outfall is designed to convey wet weather flows of up to 81.2 mgd. However, the current permitted capacity of the outfall of 75.6 mgd is less than its 81.2 mgd capacity. As indicated above, some of the current secondary treated effluent (17-19 mgd) is discharged though the ocean outfall during winter months, while most is diverted to the Salinas Valley Reclamation Plant to produce recycled water for the Castroville Seawater Intrusion Project.

The interceptor pipeline system also has currently unused or excess conveyance capacity. **Figure 2.12** in **Chapter 2, Project Description**, provides an overview graphic of the existing design capacities, average dry weather flows, and peak wet weather flows at each pump station in the MRWPCA wastewater collection system.

A 40-year wastewater flow projection analysis was conducted as part of the planning for the GWR project and wastewater operations. **Figure 4.18-3, Regional Treatment Plant Wastewater Flow Projections** shows the estimated range of future flows that may be anticipated in the future. The projections were based on review of historical population changes and historical wastewater flow data, which were used to calculate average flow generated per person in units of gallons per capita per day (gpcd) for the years 2000 through 2012. Trends in population and gpcd in each community were projected forward to the year 2055, and wastewater flow projections were calculated from these trends. Four “trends” were developed based on the following four population scenarios:

- Trend 1: A linear curve is fitted to data from year 2000 to 2012 with an 8% population increase.
- Trend 2: A linear curve is fitted to data from year 2006 to 2012 with a 30% population increase.
- Trend 3: An exponential curve is fitted to data from year 2000 to 2012 a 10% population increase.
- Trend 4: An exponential curve is fitted to data from year 2006 to 2012 with a 48% population increase.

It is projected that wastewater flows to the Regional Treatment Plant will continue to decrease until approximately the year 2030, when per capita flows are projected to reach a minimum and flows at the Regional Treatment Plant may range between 17.1 and 19.2 mgd. Based on the “high” and “low” projections of population growth and assuming a minimum of 59.0 gallons per capita per day, flows are projected to increase after 2030 and may range between 22.7 and 24.3 mgd by the year 2055, i.e. 77% to 82% of Regional Treatment Plant design capacity (Brezack & Associates, Inc., July 2014). The existing Regional Treatment Plant, therefore, has capacity to treat projected future flows with capacity remaining.

Salinas Valley Reclamation Plant / Castroville Seawater Intrusion Project

Wastewater from the Regional Treatment Plant is recycled at the co-located Salinas Valley Reclamation Plant tertiary treatment plant, which was constructed in 1998. The Salinas Valley Reclamation Plant produces water for irrigation of approximately 12,000 acres of farmland in the northern Salinas Valley via a project known as the Castroville Seawater Intrusion Project. MRWPCA operates the Castroville Seawater Intrusion Project by agreement with the Monterey County Water Resources Agency.

The Salinas Valley Reclamation Plant has a minimum capacity of about 8 mgd, and a maximum capacity of 29.6 mgd. The Salinas Valley Reclamation Plant includes an 80 acre-foot storage pond that holds tertiary-treated and Salinas River water (when available) before it is distributed to farmland via the Castroville Seawater Intrusion Project distribution system. The use of recycled wastewater for irrigation reduces regional dependence on and use of local groundwater, which, in turn reduces groundwater pumping-related seawater intrusion into the Salinas Valley aquifers.

The Castroville Seawater Intrusion Project began delivering water from the Salinas Valley Reclamation Plant (recycled water), as well as from supplemental groundwater wells, in 1998. Actual tertiary water that is delivered via the Castroville Seawater Intrusion Project for crop irrigation has averaged 12,936 AFY (2001 through 2013), but is trending upward. Currently, the agricultural community, Water Resources Agency and the MRWPCA are addressing water needs to supplement supply to the Castroville Seawater Intrusion Project service area, particularly in light of the drought characteristics of water years 2012 to 2015.

Municipal Wastewater Collection Systems

Marina Coast Water District maintains and operates the wastewater collection system in the former Fort Ord community that currently includes urban development in the unincorporated Monterey County and the cities of Marina and Seaside, including some areas under state and federal ownership, such as California State Parks, California State University Monterey Bay, the University of California, and the U.S. Army. MCWD's service territory also includes the City of Marina. MCWD is responsible for maintaining its service area's sewer system, which includes 20 lift stations and 110 miles of pipeline. Through this system, wastewater ~~Wastewater~~ is carried by the Marina Coast Water District sanitary collection system to the MRWPCA pump stations. From local pump stations, the wastewater is transported to the MRWPCA treatment plant north of Marina.

The Seaside County Sanitation District (SCSD) is a special district responsible for the maintenance and operation of the sanitary sewer collection system within portions of the cities of Seaside and Del Rey Oaks. The cities of Pacific Grove, Monterey, Marina and Salinas operate and maintain the sewer systems within their jurisdictions consisting of gravity sewers, pumping stations, and force mains to collect wastewater from residential and industrial customers. The collected residential wastewater is discharged to trunk sewers and interceptors owned and operated by the MRWPCA. The wastewater from these areas is ultimately conveyed to the MRWPCA Regional Treatment Plant for treatment.

Further details of municipal wastewater collection systems is provided in **Section 2.5.2, Municipal Wastewater Collection and Conveyance Systems.**

Salinas Industrial Wastewater Conveyance and Treatment System

The City of Salinas operates an industrial wastewater conveyance and treatment system that serves approximately 25 agricultural processing and related businesses located in the southeast corner of the City. This wastewater collection system is separate from the Salinas municipal sewage collection system and includes 14-inch to 33-inch diameter gravity pipelines that flow to the Salinas Pump Station Diversion site, and then flow into a 42-inch gravity pipeline to the Salinas Industrial Wastewater Treatment Facility (Salinas Treatment Facility), located on the Salinas River. Over 80% of the wastewater flows in this system are from fresh vegetable packing facilities (typically, wash water used on harvested row crops), and the remainder of flows originate from businesses associated with seafood processing, refrigerated warehousing, manufactured ice, preserves (frozen fruits, jams and jellies) and corrugated paper boxes. The Salinas Treatment Facility consists of an influent pump station, an aeration lagoon, percolation ponds, and rapid infiltration beds to treat, percolate and evaporate the industrial wastewater. The system is described in detail in **Section 2.5.3** of **Chapter 2, Project Description**.

The Salinas Treatment Facility is designed and permitted for an average daily flow of 4.0 million gallons per day with a peak flow of 6.8 mgd. The Salinas Treatment Facility operates year-round, with a current peak monthly inflow during summer months of approximately 3.5 to 4.0 mgd. This summer peak corresponds with the peak agricultural harvesting season in the Salinas Valley. In recent years, substantial flows to the Salinas Treatment Facility have continued during the winter months due to the importation of agricultural products from out of state for processing. Currently, treated wastewater from the industrial wastewater treatment plant is not recycled.

4.18.3 Regulatory and Legal Framework

4.18.3.1 Federal

There are no federal laws or regulations related to water supply or wastewater issues addressed in this section. Laws and regulations governing water quality of treated wastewater discharged into the ocean are addressed in **Section 4.14, Marine Resources**. Laws and regulations related to drinking water quality and recharge/injection into groundwater basins with recycled water are described in **Section 3, Water Quality Permitting and Regulatory Overview** and **Section 4.10, Hydrology and Water Quality: Groundwater Resources**.

4.18.3.2 State

Department of Water Resources (DWR)

The California Department of Water Resources (DWR) manages the water resources of California in cooperation with other agencies, to benefit the people of the State, and to protect, restore, and enhance the natural and human environment. DWR conducts programs related to flood safety, water planning, environmental concerns such as climate change, and water supply. DWR coordinates closely with the State Water Resources Control Board. DWR has a role in defining groundwater basins in the State, and oversees the preparation of Groundwater Management Plans. The DWR is also responsible for building, operating, and maintaining the State Water Project, which supplies drinking water and agricultural irrigation water to various parts of the state, but not to Monterey County. Additionally, the DWR manages a number of grant programs, such as Integrated Regional Water Management (Proposition 50) grant programs and Local Groundwater Assistance (Proposition 84) grants.

State Water Resource Control Board

The passage of the Porter-Cologne Water Quality Control Act by the State of California in 1969 established the State Water Resources Control Board (State Board), which was created by merging the State Water Quality Control Board and the State Water Rights Board. The State Board is generally responsible for setting statewide water quality policy and is solely responsible for the allocation or determination of surface water rights, as discussed below. In addition to its statutory responsibilities, the State Board has an independent obligation to consider the effect of projects on public trust resources and to protect those resources where feasible (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419 [189 Cal.Rptr. 346]).

Removal of water from a surface water body for delivery to non-adjacent parcels constitutes appropriative use, which requires a permit from the State Board Division of Water Rights that establishes an appropriative right. An appropriative right may be established to use water for any reasonable, beneficial purpose on any land no matter where located, and to store water from one season for use in a later season, or from one year for use in subsequent years.

The State Board administers the state's statutory water right permit and license system, which applies to appropriations of water from surface streams and subterranean streams flowing through known and definite channels (Water Code, §1200). California has developed a dual system of water rights: appropriative and riparian rights as summarized on **Table 4.18-3, Water Rights Classifications Legal Classification and Implications of Rights to Surface Water (including Groundwater in a Subterranean Stream) and Percolating Groundwater**. An appropriative water right authorizes the diversion of a specified quantity of water at specific points of diversion, for a reasonable, beneficial use at specific places of use for specific purposes of use. To obtain a new appropriative water right, the appropriator must: (a) file a water right application with the State Board that details the proposed place of diversion and the intended use (Water Code, §1260), (b) obtain a permit pursuant to the application (which typically requires CEQA compliance before issuance); and (c) divert and beneficially use water pursuant to the permit. After all of these steps occur, the State Board may issue a water-right license, which then supersedes the permit and confirms the appropriative right (Water Code, §1610). In considering an application to appropriate water, the State Board considers a number of factors. Specifically, the State Board considers "the relative benefit to be derived from (1) all beneficial uses of the water concerned including, but not limited to, use for domestic, irrigation, municipal, industrial, preservation and enhancement of fish and wildlife, recreational, mining and power purposes, and any uses specified to be protected in any relevant water quality control plan, and (2) the reuse or reclamation of the water sought to be appropriated, as proposed by the applicant. The board may subject such appropriations to such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest, the water sought to be appropriated." The State Board is guided by the policy that domestic use is the highest use and irrigation is the next highest use of water. When the State Board decides whether or not to issue a water-right permit or approve a change petition, the State Board may include terms and conditions to protect existing water rights, the public interest, and the public trust, and to ensure that water is put to reasonable and beneficial use.

If a holder of an existing water-right permit or license wants to change the authorized points of diversion, or purpose of use, the holder must file a change petition with the State Board. The petition must describe the proposed new points of diversion, purpose of use, and purposes of use (Water Code, §1701.2.). If the State Board concludes that the requested changes will not initiate a new right or injure any other legal user of the water involved, then the State Board may approve the petition (Water Code, §§ 1702, 1704; Cal. Code Regs., tit. 23, §791(a)).

Table 4.18-3
Water Rights Classifications: Legal Classification and Implications of Rights to Surface Water (including Groundwater in a Subterranean Stream) and Percolating Groundwater

Type of Right	Surface Water Source (includes groundwater flowing in a known and defined channel [i.e., subterranean stream])	Percolating Groundwater Source
Riparian or Overlying	*Riparian Right to Divert Surface Water* • Correlative with other riparian rights. • Senior to appropriative rights. • Not subject to State Board permitting jurisdiction	*Overlying Right to Extract Percolating Groundwater* • Correlative with other overlying right. • Senior to appropriative rights. • Not subject to State Board permitting jurisdiction.
Appropriative	*Appropriative Right to Divert Surface Water Junior to riparian rights.* • Priority as to other appropriative rights based on first-in-time, first-in-right. • Subject to State Board permitting jurisdiction if use was initiated after 1914.	*Appropriative Right to Extract Percolating Groundwater* • Junior to overlying rights. • Priority as to other appropriative rights based on first-in-time, first-in-right. • Not subject to State Board Permitting jurisdiction.

Source: Table 6-1 of California Groundwater Management (Bachman and others, 2005)

Groundwater Rights

In California, groundwater rights law is currently based upon a series of court decisions. There are three legally recognized classifications of groundwater in California: subterranean streams, underflow of surface waters, and percolating groundwater. Subterranean streams and underflow of surface waters are subject to the laws of surface waters and are regulated by the State Board through the permitting process described above. As indicated above, the State Board administers the state's statutory water right permit and license system, which applies to appropriations of water from surface streams and subterranean streams of groundwater flowing through known and definite channels.

Percolating groundwater, on the other hand, has few regulation requirements. In most areas of California, overlying land owners may extract percolating groundwater and put it to beneficial use without approval from the State Board or a court. California does not have a permit process for regulation of groundwater use. In some groundwater basins, however, groundwater use is subject to regulation in accordance with court decisions adjudicating the groundwater rights within the basins. The Seaside Basin is one of the adjudicated groundwater basins in the State. The Proposed Project would inject high quality recycled water into the Seaside Basin for later extraction by CalAm using their existing production wells for delivery to its customers

The California Supreme Court decided in the 1903 case *Katz v. Walkinshaw* that the "reasonable use" provision that governs other types of water rights also applies to groundwater. The Supreme Court case established the concept of overlying rights, in which the rights of others with land overlying the aquifer must be taken into account. Later court decisions established that surplus groundwater may be appropriated for use outside the basin, although appropriator's rights are subordinate to those with overlying rights.

On September 16, 2014, Governor Edmund G. Brown Jr. signed three bills -- AB 1739 by Assembly member Roger Dickinson and SB 1168 and SB 1319 by Senator Fran Pavley -- which create a framework for sustainable, local groundwater management for the first time in California history. The legislation allows local agencies to tailor groundwater sustainability plans to their regional economic and environmental needs. The legislation has the following two principles: (1) Groundwater is best managed at the local or regional level, and local agencies should have the tools they need to sustainably manage their resources, including the necessary authority, better technical information and financial resources; and (2) The state may intervene temporarily when local or regional agencies cannot or will not manage their groundwater sustainably to ensure the protection of the groundwater basin and its users from overdraft, subsidence, and other problem. (Groundwater Legislation Implementation Fact Sheet, accessed January 2015 at grac.org/documents/2014/Groundwater-Fact-Sheet.pdf).

State Regulations Related to Rights to Wastewater

According to the California Water Code §§1210 through 1212, the owner of a wastewater treatment plant, such as MRWPCA, has the exclusive right to the treated wastewater it produces over anyone who has supplied the water discharged into the wastewater collection and treatment system, including a person using water under a water service contract. This rule can be varied by contractual arrangement. The relevant local agencies including MRWPCA have entered into agreements that constitute contractual agreements related to wastewater and these are described in **Section 4.18.3.4 Legal Agreements**". The water code (section 1211) requires that prior to making any change in the point of discharge, place of use, or purpose of treated wastewater, approval must be obtained from the State Board. New State Board guidance has clarified that a wastewater petition for change only needs to be filed with the State Board Division of Water Rights if the owner of the wastewater treatment plant decreases the amount of water in a stream or other waterway. ~~The Proposed Project changes to the Regional Treatment Plant that would result in reduce disposal of secondary effluent to the outfall would not change the amount of water in a stream or other waterway.~~ The diversion of agricultural wash water, an industrial wastewater, to the Regional Treatment Plant using the Salinas Pump Station Diversion and the Salinas Treatment Facility Storage and Recovery components of the project and its effects on water levels or flows in the Salinas River are addressed in **Section 4.11, Hydrology and Water Quality: Surface Waters**. <u>The diversion of agricultural wastewater would reduce groundwater flow to the Salinas River by reducing the amount of water percolating from the Salinas Treatment Facility to groundwater. This flow reduction is relatively small and would not adversely affect beneficial uses or water quality in the Salinas River. Accordingly, it is reasonable to conclude that the State Board Division of Water Rights would approve the wastewater petition for change</u>.

4.18.3.3 Local Policies and Regulations

In addition to the general requirements of CEQA and California laws and regulations described above, adequate provision of water supply and wastewater systems are addressed in General Plans and municipal codes of local jurisdictions within the Proposed Project area. **Table 4.18-4, Applicable Local Plans and Policies – Water Supply and Wastewater Systems** summarizes state, regional, and/or local policies and regulations pertaining to water supply and wastewater systems that are relevant to the Proposed Project and that were adopted for the purpose of avoiding or mitigating an environmental effect. **Table 4.18-4** provides a review project consistency and/or conflicts with such plans, policies, and regulations. As shown in the table, the Proposed Project would not conflict with any plans, policies, and regulations related to water supply and wastewater systems. The Proposed Project would improve the ability of the local agencies to comply with the relevant policies.

Table 4.18-4
Applicable Local Plans and Policies – Water Supply and Wastewater

Project Planning Region	Applicable Plan	Resource Topic	Project Component(s)	Specific Policy, or Program	Project Consistency with Policies, and Programs
City of Marina	City of Marina General Plan	Community Infrastructure	RUWAP Alignment Option Coastal Alignment Option RUWAP Booster Pump Station Option	***Policy 3.3:*** The intent of the General Plan Transportation and Infrastructure Element is to ensure that the requirements for transportation, water supply, wastewater collection and treatment, storm water drainage, and solid-waste disposal generated by existing and future development are adequately provided for. It is also the intent of this section to ensure, to the maximum extent possible, that the provision of such services does not have a deleterious effect on either natural resources or the quality of life of residents of Marina or other potentially affected areas. The major concerns of this section are outlined below: 11. Minimize the consumption of water for urban purposes and make maximum possible use of recycled water. 14. Support water resource programs, including desalinization and reclamation efforts, to provide an adequate water supply to accommodate General Plan permitted growth.	**<u>Consistent</u>**: The purpose of the Proposed Project is to provide a replacement water supply source for existing water sources along the Carmel River and the Salinas Valley Groundwater Basin and is consistent with city's support of water resource programs, including reclamation efforts.
City of Seaside	City of Seaside General Plan	Land Use	RUWAP Alignment Option Coastal Alignment Option Coastal Booster Pump Station Option Injection Well Facilities Transfer Pipeline Monterey Pipeline	**Goal LU-5**: Collaborate with local and regional water suppliers to continue to provide quality water supply and treatment capacity to meet community needs.	**<u>Consistent</u>**: The Proposed Project will provide additional alternative water supply through advanced treatment of recycled water and groundwater injection, and provision of additional recycled water for irrigation.
County of Monterey	Monterey County General Plan	Public Services	Salinas Treatment Facility Storage and Recovery Reclamation Ditch, Tembladero Slough, and Blanco Drain Diversions Treatment Facilities at Regional Treatment Plant RUWAP Alignment Option Coastal Alignment Option	**PS-3.12** The County shall maximize the use of recycled water as a potable water offset to manage water demands and meet regulatory requirements for wastewater discharge, by employing strategies including, but not limited to, the following: a. Increase the use of treated water where the quality of recycled water is maintained, meets all applicable regulatory standards, is appropriate for the intended use, and re-use will not significantly impact beneficial uses of other water resources. b. Work with the agricultural community to develop new uses for tertiary recycled water and increase the use of tertiary recycled water for irrigation of lands currently being irrigated by groundwater pumping. c. Work with urban water providers to emphasize use of tertiary recycled water for irrigation of parks, playfields, schools, golf courses, and other landscape areas to reduce potable water demand.	**<u>Consistent</u>**: The Proposed Project will provide additional alternative water supply through advanced treatment of recycled water and groundwater injection, and provision of additional recycled water for irrigation.

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4.18.3.4 Memorandum of Understanding and Legal Agreements

The following addresses the source water agreements and existing legal agreements for source water, surface water, and wastewater/recycled water between the various agencies. The various agreements are summarized in **Table 4.18-5**.

Table 4.18-5
Summary of Relevant Local Agency Agreements

Name	Agencies	Date
Memorandum of Understanding Regarding Source Waters and Water Recycling	Monterey Peninsula Water Management District, Marina Coast Water District, Monterey County Water Resources Agency, Monterey Regional Water Pollution Control Agency, City of Salinas	October 2014 (Amended April 2015 to provide time extension past March 31, 2015)
Annexation Agreement for MCWD into MRWPCA	MCWD	April 1989
Annexation Agreement for MCWD into MCWRA Zones 2 and 2A	Monterey County Water Resources Agency, et al.,	March 1996
Agreement between Monterey County Water Resources Agency and Monterey Regional Water Pollution Control Agency for the Construction and Operation of a Tertiary Treatment System and Amendments	Monterey County Water Resources Agency and Monterey Regional Water Pollution Control Agency	June 1992 May 1995 (1st) Feb 1998 (2nd) May 2002 (3rd)
Memorandum of Understanding - Regional Urban Water Augmentation Project	MCWD and MRWPCA	June 2009

Memorandum of Understanding Regarding Source Waters and Water Recycling

Previous interagency agreements have established entitlements to recycled water produced from the existing municipal wastewater flows to the Regional Treatment Plant. As source flows for the Proposed Project were studied and the seasonal variability of each was understood, the stakeholder agencies entered into a *Memorandum of Understanding Regarding Source Waters and Water Recycling* (Source Waters MOU) (October 2014). The parties to the Source Waters MOU are the Monterey Regional Water Pollution Control Agency, the Monterey County Water Resources Agency, the City of Salinas, the Marina Coast Water District, and the Monterey Peninsula Water Management District (the "Parties"). The Source Waters MOU is an agreement to "negotiate a Definitive Agreement to establish contractual rights and obligations of all Parties," that would include (1) protection of Marina Coast Water District's recycled water right entitlement under the April 25, 1989 Annexation Agreement, (2) provision of up to 5,292 AFY of additional recycled water to Monterey County Water Resources Agency for the Castroville Seawater Intrusion Project, and (3) provision of 3,500 AFY of purified recycled water for injection into the Seaside Basin and extraction by CalAm. The Source Waters MOU also includes provisions for creation of a drought reserve by allowing the GWR Features[1] to produce,

[1] Proposed Project improvements and operations that will develop high quality replacement water for existing urban supplies in the CalAm Monterey District are referred to as the GWR Features. The provision of up to 5,292 AFY of additional recycled water for irrigation of farmland within the Castroville Seawater Intrusion Project areas are referred to as the Crop Irrigation component.

convey and inject up to 200 AFY of additional purified recycled water during wet and normal years. The Source Waters MOU reflects the stakeholder agencies' positions regarding the combined benefits and conditions that would be required to secure the necessary rights and agreements to use the source waters needed for the Proposed Project.

The MOU establishes the proposed source water amounts as:

(1) 4,320 acre-feet for GWR Features that provide for treatment and injection of Proposed Project product water into the Seaside Basin,
(2) 5,292 acre-feet for additional crop irrigation water for the Castroville Seawater Intrusion Project, and
(3) an additional 248 acre-feet for GWR Features to produce additional product water for injection in most years to be held in drought reserve.

These are approximate amounts based on average year conditions, but actual amounts may vary based on climate, demands for recycled water, and actual operational considerations. The MOU reflects the parties' intention that, under a Definitive Agreement, the MRWPCA would have rights to the first 4,320 acre-feet annually of the new "incremental" source waters, plus amounts in the six winter months to produce 200 acre-feet to be placed in drought reserve. The MOU also indicates that Salinas agricultural wash water may be utilized by MRWPCA for the time period necessary for an average annual amount of 4,320 acre-feet for the Proposed Project to be achieved, but that the MRWPCA would endeavor to develop the additional supplies and transition a portion of the agricultural wash water for the benefit of Water Resources Agency and to meet the CSIP area irrigation demands.

In April 2014, the Water Resources Agency filed an application with the State Board for water rights to appropriate waters of the Blanco Drain, the Reclamation Ditch and Tembladero Slough for the purpose of providing additional waters for Castroville Seawater Intrusion Project and for domestic supplies within the Salinas Valley, Zone 2C (Water Right Application 32263). The MOU indicates that such water rights would be retained exclusively by the Water Resources Agency, but that all Parties would work jointly on obtaining the water rights needed for the Proposed Project through amendments to the permit application. The Agreement also addresses a possible future development of source waters by 2022 for the benefit of Salinas Valley Zone 2C, which is not part of the Proposed Project and, if pursued, would be addressed in a future environmental document. The additional source waters are not needed for the Proposed Project.

On November 10, 2014, the State Water Resources Control Board sent a letter stating that the Division staff found that the water rights application was incomplete for several reasons, including the following: "the nature and amount of the proposed use is not clearly stated," "no information is provided regarding the potential effect of the project on fish and wildlife or measures proposed to be taken for the protection of fish and wildlife," "no information is provided to demonstrate a reasonable likelihood that unappropriated water is available for appropriation," and "proper maps were not included." The Monterey County Water Resources Agency submitted a response to the application deficiencies that are needed to perfect the application (April 2015). This Draft EIR provides information regarding fish and wildlife associated with a portion of the proposed diversions in Application 32263 within **Sections 4.4, Biological Resources: Fisheries,** and **4.5 Biological Resources: Terrestrial**.

Previous Agreements to Recycle/Use Municipal Wastewater Flows

The MRWPCA has entered into a number of contracts related to its exclusive rights to use wastewater discharged to its system for treatment described above under (State Regulations related to Rights to Wastewater). The Proposed Project intends to utilize excess wastewater not used by the farmers within the Castroville Seawater Intrusion Project area of the Salinas Valley for crop irrigation.

Marina Coast Water District possesses legal rights to use wastewater treated by the Salinas Valley Reclamation Plant at the Regional Treatment for urban irrigation within areas that they serve. In 1989, when Marina Coast Water District was annexed into the MRWCPA, they acquired contractual rights to wastewater they would discharge to the system which are described below. In 1996, when Marina Coast Water District was annexed into MCWRA's Zones 2 and 2A, their rights were clarified. The agreements that established these rights are described in detail below. In 2009, Marina Coast Water District and MRWPCA entered into a MOU concerning recycled water that would be allocated to Marina Coast Water District's RUWAP Recycled Water Project (RUWAP MOU). In the RUWAP MOU, the MRWPCA assigned a portion of its allotment from the Third Amendment of the 1992 Agreement between MRWPCA and Monterey Count Water Resources Agency, as discussed below. Certain parties have disputed the validity of the Third Amendment. If the Third Amendment is considered invalid, the RUWAP MOU may also be invalid. For purposes of this EIR, however, MRWPCA assumes the Third Amendment is valid and enforceable and that Marina Coast has an existing right to 650 AFY of recycled water during the summer months.[2] Currently, Marina Coast Water District does not have approved funding, water purchase/user agreements, or adequate physical distribution facilities to use the recycled water; thus Marina Coast Water District's water right to recycled water from the RUWAP MOU have not been triggered. Marina Coast Water District's proposed use of recycled water (as part of their approved Regional Urban Water Augmentation Program, or RUWAP Recycled Water Project) is considered a cumulative project in this EIR. This EIR evaluates the Proposed Project's contribution to the environmental impacts due to implementation of all other past, present, and reasonably foreseeable future projects, including the RUWAP Recycled Water Project in **Section 4.18.4.5, Cumulative Impacts and Mitigation Measures**.

This section also summarizes the existing legal agreements regarding the use of wastewater flows for recycling and use for crop irrigation in the Castroville Seawater Intrusion Project area. In 1992, the MRWPCA and the MCRWA formed a partnership to build the two Monterey County Reclamation Projects: the Salinas Valley Reclamation Plant recycled water plant and the Castroville Seawater Intrusion Project distribution system. As long-time project partners, MRWPCA is contracted with the Monterey County Water Resources Agency (Water Resources Agency) to operate and maintain the Castroville Seawater Intrusion Project. The MRWPCA entered into an agreement with the Water Resources Agency in 1992 for construction and operation of a tertiary treatment system (the "1992 Agreement") with subsequent amendments which granted contractual rights to both the Water Resources Agency and MRWPCA. The Castroville Seawater Intrusion Project began delivering water from supplemental groundwater wells, in 1997 and from the Salinas Valley Reclamation Plant (recycled water) in 1998. The delivered water serves agricultural growers in the Castroville area.

The primary rights of the entities with contractual rights to treated wastewater produced by MRWPCA are described below.

Marina Coast Water District's Legal Agreements

In 1989, Marina Coast Water District (Marina Coast) was annexed into the MRWPCA. That annexation agreement provides Marina Coast with the right to:

[2] The Source Waters MOU, to which both MCWD and MRWPCA are parties, provides that the Definitive Agreement may result in an Amendment to the 1992 Agreement and the amendments thereto and that any remaining applicable terms of the Third Amendment would be restated in the Definitive Agreement.

> " … obtain from the MRWPCA, at the regional treatment plant, treated wastewater for reuse by the Marina Coast in quantities equal to the volume of Marina Coast wastewater treated by MRWPCA and such additional quantities as from time to time are not committed to any other users for beneficial use. Marina Coast's cost for such treated wastewater will be the MRWPCA's incremental cost over secondary treatment, to meet applicable local, state and federal requirements for water reuse, not to exceed the lowest amount charged to any other user by the MRWPCA for treated water. Water reclaimed by the Marina Coast will not be used in violation of any condition placed on the MRWPCA in connection with its Use Permit No. 3188, dated August 12, 1987, issued by the County of Monterey for the Regional Treatment Plant." (Marina Coast 1989 Annexation Agreement, page 5)

In 1996, Marina Coast was annexed into the MCWRA's Zones 2 and 2A pursuant to the 1996 Annexation Agreement (Monterey County Water Resources Agency, et al., March 1996). In that agreement, Marina Coast received the right to receive tertiary-treated water from the Salinas Valley Reclamation Plant, in satisfaction of Marina Coast's 1989 Annexation Agreement rights.

> "In satisfaction of paragraph 12 of the MRWPCA Annexation Agreement, Marina Coast will pay to MCWRA the incremental cost over secondary treatment to receive tertiary treated water from MRWPCA's planned tertiary treatment facilities at its regional treatment plant. . . ." (Section 5.6)

Section 5.7 of the 1996 Agreement also establishes a 300 AFY cap for Marina Coast from April through September, allowing amounts deferred to be taken during the winter months of October through March:

> ". . . during the months of April through September, Marina Coast agrees to defer taking any water over 300 AFY it is entitled to take from the tertiary treatment plant under the MRWPCA Annexation Agreement. . . ." (Section 5.7.2)

At the time of both of the 1989 and 1996 Annexation Agreements, Marina Coast's legal service area and boundaries were the same as they are today (see **Figure 4.18-1 <u>rev</u>**).

Marina Coast Water District's Regional Urban Water Augmentation Project is intended to provide recycled and desalinated water service to areas on the former Fort Ord, and an additional 300 AFY of desalinated water to Marina Coast's other service areas. It also anticipates the possibility of MRWPCA separately providing 300 AFY of water to the Monterey Peninsula for urban irrigation. In June 2009, MRWPCA and Marina Coast entered into a Memorandum of Understanding (MOU) with respect to the RUWAP. Section 1.2 of the RUWAP MOU states the following:

> "Under the selected Hybrid Water Alternative, MCWD would provide 2,400 AFY for redevelopment of the former Fort Ord, 300 AFY of recycled water could be provided for the Monterey Peninsula, and an additional 300 AFY of desalinated water could be provided to supply MCWD's other service areas. As a result of Addendum 2 to the RUWAP EIR, up to 1,727 AFY of recycled water would be used for the project. The RUWAP EIR, in Section 3.2, anticipates that subsequent project-level environmental review will be necessary prior to implementing the component to provide 300 AFY to the Monterey Peninsula."

MRWPCA has previously committed 650 AFY of its summer water to the RUWAP during May through August; MCWD committed its 300 AFY of summer water during April through

September.[3] Both parties committed additional quantities as needed during the months of September through April from MRWPCA, and October through March from MCWD allocations.

MCWD has not yet proceeded to construct and operate the RUWAP Recycled Water Project, except for several disconnected segments of distribution system pipeline that would not by themselves be able to provide recycled water to users (Brian True, personal communication, August 2014). The MCWD has not committed funding nor received financing toward construction of the facilities needed to deliver recycled water to irrigation demands. No signed user agreements have been entered. If MCWD is able to obtain financing, complete construction, and enter into user agreements, then MCWD would have a right to 650 AFY of recycled water during the summer months under the RUWAP MOU, unless the RUWAP MOU is rendered invalid or is amended by the parties.

Monterey County Water Resources Agency's Rights

In June 1992, Monterey County Water Resources Agency and Monterey Regional Water Pollution Control Agency signed an agreement called the "Agreement between Monterey County Water Resources Agency and Monterey Regional Water Pollution Control Agency for the Construction and Operation of a Tertiary Treatment System" (1992 Agreement). The Agreement provided for the construction and operation of the Salinas Valley Reclamation Plant by the MRWPCA to provide water treated to a level adequate for agricultural irrigation, for use by the CSIP. Financing for the Salinas Valley Reclamation Plant was obtained using resources of both the MCWRA and the MRWPCA.

MRWPCA provides the wastewater influent that is treated at the Salinas Valley Reclamation Plant, and then delivered to the CSIP. The CSIP is a distribution system providing water for agricultural irrigation. The 1992 Agreement has been amended three times. The amendment that generated the MRWPCA rights to water is Amendment No. 3, also known as the Third Amendment.

Section 3.03 of the 1992 Agreement, as amended pursuant to Amendment No. 3, provides that MRWPCA commits all of its incoming wastewater flows to the project from sources within the 2001 MRWPCA service area to the CSIP, up to 29.6 million gallons per day (mgd), except for:

(a) flows taken by Marina Coast per the Annexation Agreements;

(b) losses;

(c) flows not needed to meet MCWRA's authorized demand; and

(d) flows to which MRWPCA is entitled per Articles IV and XVII of Amendment No. 3.

There have not been any MRWPCA service area expansions beyond the 2001 boundaries. MCWRA's basic demand in the "Initial Term" of the 1992 Agreement, as amended, is capped at 19,500 acre feet (AF). (Article IV, Section 4.02, Amendment No. 3.) Also in the Initial Term, MCWRA's supplemental demand applies to excess water, which supplemental demand is subject to Marina Coast and MRWPCA rights and to allocations made to other future intertie projects by MRWPCA or others pursuant to Section 1.05. (Sections 4.07 and 4.08, Amendment No. 3.) MCWRA's demand in any "Extended Term" is capped at the amounts of water delivered

[3] These "summer" seasons for Marina Coast and for MRWPCA, when the amounts of water available to those agencies is capped, differ in accordance with provisions of the 1996 Agreement and the Third Amendment to the 1992 Agreement for MRWPCA. The "shoulder" months are April and September, when MCWD is subject to a summer cap and MRWPCA is not.

to MRWPCA that originated in the Salinas Valley (Section 4.03, Amendment No. 3)[4], and the right to use unused water on an "as available" basis (Section 17.04, Amendment No. 3.) The Initial Term commenced on the effective date of the agreement in 1992. MRWPCA's rights were established pursuant to the Third Amendment to that agreement, in 2002. The Extended Term starts the later of 2035 or the year following both United States Bureau of Reclamation loans being paid off (Section 11.02, Amendment No. 2), which is scheduled to occur by the end of 2037. Hence, the relevant starting date of the Extended Term should be January 1, 2038.

Unless otherwise provided by agreement, the owner of a wastewater treatment plant has the exclusive right to the treated wastewater it produces as against anyone who has supplied the water discharged into the wastewater collection and treatment system, including a person using water under a service contract.[5] MRWPCA therefore has the exclusive right to use municipal wastewater that is discharged into its collection system, except as that right has been varied by contractual arrangements.

Here, MRWPCA has entered into the following contracts, including contracts that assigned rights to Marina Coast Water District and Monterey County Water Resources Agency (Water Resources Agency):

- The 1989 Annexation Agreement between MRWPCA and the Marina Coast Water District provides the Marina Coast Water District with the right to obtain treated wastewater from MRWPCA. The Marina Coast Water District has not exercised its recycled water rights, but may do so in the future.
- The 1992 agreement between MRWPCA and Water Resources Agency (including amendments) provides for the construction and operation of the Salinas Valley Reclamation Plant by MRWPCA to provide water treated to a level adequate for agricultural irrigation for use by the Castroville Seawater Intrusion Project. In particular, Section 3.03 of the 1992 Agreement (Amendment 3) provides that MRWPCA commits all of its incoming wastewater flows to the treatment plant from sources within the 2001 MRWPCA service area, up to 29.6 million gallons per day, except for flows taken by the Marina Coast Water District under the Annexation Agreements, losses, flows not needed to meet the Water Resource Agency's authorized demand, and flows to which MRWPCA is otherwise entitled under the agreement.
- In 1996, pursuant to another Annexation Agreement, the Marina Coast Water District received the right to tertiary-treated water from the Salinas Valley Reclamation Plant, in satisfaction of the 1989 agreement rights.

[4] Marina Coast provides water to its existing service area with water originating in the Salinas Valley. Marina Coast uses the same water source for its contractual service area of the former Fort Ord. During the Extended Term, the amount of water Marina Coast takes will not affect the water available to MRWPCA.

[5] Cal. Water Code § 1210.

In 2009, the Marina Coast Water District and MRWPCA entered into an MOU relating to Marina Coast Water District's RUWAP Recycled Water Project, which provided that MRWPCA would provide recycled water from MRWPCA's Regional Water Treatment Plant.To address~~ these and other~~certain water rights, the stakeholder agencies entered into a Memorandum of Understanding (Source Waters MOU). The Source Waters MOU reaffirmed the Marina Coast Water District's recycled water right entitlement from the 1989 Annexation Agreement between MRWPCA and Marina Coast Water District and the Water Resources Agency's recycled water entitlements, and presented a proposal for collection of additional source waters to meet the Proposed Project objectives.

Importantly, the Source Waters MOU is intended to provide a framework for negotiation of a Definitive Agreement and does not create a binding contractual obligation. The Definitive Agreement would establish the contractual rights and obligations of the parties. To date, the Definitive Agreement has not yet been completed. If a Definitive Agreement is reached, it ~~would be~~is expected to be approved after the EIR is certified (Perkins Coie, 2015). If a Definitive Agreement is not reached by all parties, MRWPCA and the Water Management District will work to reach separate agreements with affected stakeholder agencies as needed for the Proposed Project.

Legal Agreements/Permits for Diversions from Salinas and Monterey Stormwater Collection Systems to MRWPCA Collection and Treatment Systems

To divert stormwater and dry weather flow from urban areas, agreements are needed between MRWPCA and the local agencies that currently collect and convey the flows in man-made facilities for discharge to surface waters, including~~. These local agencies include~~ the City of Salinas for urban runoff/stormwater source water from the Salinas River ~~and the City of Monterey for the Lake El Estero source water that otherwise would be discharged into the Monterey Bay~~. Stormwater runoff from urban areas through storm drain infrastructure (i.e., in the City of Salinas~~ or Monterey~~) does not become water of the state until it is discharged into a river or channel. (Perkins Coie, 2015)

4.18.4 Impacts and Mitigation Measures

4.18.4.1 Significance Criteria

Based on Appendix G of the CEQA Guidelines, the project would result in significant impacts related to water supply and wastewater services and facilities if it would:

a. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

b. Have insufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements; or

c. Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

No additional significance criteria are needed to comply with the CEQA-Plus[6] considerations required by the State Revolving Fund Loan Program administered by the State Water Resources Control Board.

Based on Appendix G of the CEQA Guidelines, the project also would result in a significant impact if it were to exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. The only Proposed Project component that would result in treatment of wastewater would be the new the Treatment Facilities at the Regional Treatment Plant, including the new Advanced Water Treatment Facility, and Salinas Valley Reclamation Plant Modifications. The Product Water produced at the Regional Treatment Plant will be subject to treatment standards established by state regulations; described in detail in **Section 3**, Water Quality Regulatory and Permitting Compliance.

The Regional Treatment Plant's secondary effluent would continue to be subject to NPDES permit requirements which will be amended to allow this project to be operated as proposed. As discussed in **Section 2.8.3, Operations and Maintenance**, in **Chapter 2, Project Description** reverse osmosis by-product wastewater (RO concentrate) from the Advanced Water Treatment Facility would be discharged through the MRWPCA's existing ocean outfall and diffuser. The RO concentrate stream could be blended with treated wastewater effluent from the Regional Treatment Plant when available prior to discharge. The Proposed Project operations on wastewater discharges via the existing ocean outfall due to discharge of the reverse osmosis concentrate are addressed in **Section 4.13, Marine Resources**.

4.18.4.2 Impact Analysis Overview

Approach to Analysis

Construction

The approach to evaluation of construction-related activities on water supply and wastewater facilities is to review whether or not temporary water demand and/or wastewater generation associated with construction activities would result in the need for new or expanded water or wastewater treatment facilities, and, thus, result in potentially significant impacts. The maximum number of construction workers would range between seven and 30 at any one construction site, with the maximum of 30 workers at the Regional Treatment Plant. The average number of daily workers is three to 25 at the other construction sites, with 25 workers on average per day estimated for construction of the CalAm Distribution Pipelines. **Table 4.18-5, Summary of Relevant Local Agency Agreements**, Construction Traffic Assumptions for all Proposed Project Components in **Section 4.18**, provides the estimate of average and maximum daily construction workers at each site. Typical water use and wastewater generation for workers at construction sites is low <1 gallon per worker per day for a total of up to 55 gallons per day.

Operation

Long-term impacts on water supply and wastewater facilities may occur as a result of water demand and/or wastewater generation associated with periodic facility operations and maintenance activities and new employees. This section also evaluates whether identified source water supplies and wastewater treatment capacity are sufficient to accommodate the Proposed Project operations or whether new or expanded water supply sources or entitlements

[6] To comply with applicable federal statutes and authorities, EPA established specific "CEQA-Plus" requirements in the Operating Agreement with State Board for administering the State Revolving Fund (SRF) Loan Program.

are required to serve the project and whether adequate wastewater treatment capacity exists. The Proposed Project operations will result in nine new permanent employees as summarized on **Table 2-9** in **Section 2.0**.

The primary project components addressed in this section are the incremental source water diversions to be supplied to the Regional Treatment Plant. The Proposed Project would divert a number of new incremental source waters to existing municipal wastewater collection and treatment facilities to increase availability of (or augment) secondary-treated wastewater for recycling and reuse. Therefore, the approach focuses on the criteria related to whether there is sufficient water supply (i.e., in this case, flowrates, annual yields, and infrastructure capacities for diverting incremental source waters for treatment and recycling to meet project objectives) from existing entitlements and resources, or if the Proposed Project would require new or expanded water supply resources or entitlements.

This section relies on technical investigations conducted during the preliminary design stage to estimate source water availability, infrastructure capacity, and the long-term ability for the project to utilize incremental source waters to augment existing secondary-treated wastewater flows available to the Proposed Project. Operational impacts are analyzed based on the results of these technical reports, which are summarized in **Section 4.18.1, Introduction**. In addition, **Section 2.7** provides details of the volume of source waters available and proposed for use.

Areas of No Impact

Some of the significance criteria listed above are not applicable to the Proposed Project or the Proposed Project would not result in impacts related to the criteria as discussed below.

- *(a) Require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities.* As described in **Section 2.4, Project Objectives**, the purpose of GWR is to replenish the Seaside Basin to produce 3,500 acre-feet per year (AFY) of high quality water that would replace a portion of CalAm's water supply as required by state orders. The Proposed Project includes increased use of existing wastewater treatment facilities that currently operates at about 40% less than its design capacity (approximately 17 to 18 mgd in recent years compared to the design capacity of 29.6 mgd). The Proposed Project also includes construction of new water facilities, which is the subject of analyses in this EIR. The EIR analysis addresses impacts of construction and operation of the Proposed Project in each topical section in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, and discusses the potential impacts and identified mitigation measures associated with the proposed construction/expansion of these facilities. The Proposed Project would not result in any other impacts that are not addressed within this section elsewhere because all required construction of new, and expansion of existing, water supply or wastewater treatment facilities, are described and analyzed in this EIR.

Summary of Impacts

Table 4.18-6 provides a summary of potential impacts related to water supply and wastewater systems and significance determinations at each Proposed Project component site.

Table 4.18-6
Summary of Impacts – Water Supply and Wastewater Systems

Impact Title	Source Water Diversion and Storage Sites						Treatment Facilities at Regional Treatment Plant	Product Water Conveyance		Injection Well Facilities	CalAm Distribution System		Project Overall
	Salinas Pump Station	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch	Tembladero Slough	Blanco Drain (Pump Station and Pipeline)	Lake El Estero		RUWAP Alignment Option	Coastal Alignment Option		Transfer Pipeline	Monterey Pipeline	
WW-1: Impact of Construction on Water Supplies or Entitlements	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
WW-2: Impact of Construction on Wastewater Treatment Capacity	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
WW -3: Impact of Operations on Water Supplies or Entitlements	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS
WW -4 Impact of Operations on Wastewater Treatment Capacity	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI	NI	LS
Cumulative Impacts	LS: The Proposed Project would not make a considerable contribution to significant cumulative impacts to water supply. There would be no significant construction or operational cumulative impacts to wastewater treatment capacity or ocean outfall capacity.												

NI – No Impact
LS – Less than Significant
LSM – Less than Significant with Mitigation
SU – Significant Unavoidable
BI – Beneficial Impact

4.18.4.3 Construction Impacts and Mitigation Measures

Impact WW-1: <u>Construction-Related Water Demand.</u> The Proposed Project would result in a temporary increase in water use due to construction-related demands, but existing water supplies would be sufficient to serve construction-related demands and construction activities would not require new or expanded water supply resources or entitlements. (Criterion b) (Less than Significant)

Construction at all Proposed Project sites would result in a limited, temporary demand for water for construction-related purposes, typically associated with watering surfaces for compaction and dust control. Construction water is typically acquired by the construction contractor. Contractors prefer local sources of water to fill their water trucks; therefore, the Proposed Project is expected to use water from one of three sources for dust control (as required in Mitigation Measure AQ-1):

- Salinas Valley Reclamation Plant when it is in excess of the amount of water needed to irrigate cropland in the Castroville Seawater Intrusion Project area,
- Groundwater from the A-aquifer beneath the Regional Treatment Plant site that is also currently used for dust control at the adjacent landfill, and

For the Injection Well Facilities construction, Seaside Basin water from nearby existing water supply wells may be used, but that water would be allowed to percolate back to the same aquifer system. Portable toilets would be installed at construction sites for construction workers, which would not require water from potable supplies.

The amount of construction water used at any individual construction site would be negligible (estimated to be a onetime use of approximately 70 acre-feet total, or about 1.1 acre-foot per acre of ground disturbance) in comparison to total water demands within the Proposed Project area of tens of thousands of acre-feet every year, and no new or expanded water supplies, entitlements or facilities would be needed to meet construction-related water demands. Thus, the impact of temporary construction-related water demand on local water supplies would be less than significant, and no mitigation measures are required.

Impact WW-2: Construction-Related Wastewater Generation. The Proposed Project would result in a temporary increase in wastewater generation due to demand from construction workers, but existing wastewater treatment facilities have sufficient capacity to serve construction-related demands. (Criterion c) (Less than significant)

Construction at all Proposed Project sites would result in minimal wastewater generation from construction workers. Portable toilets would be provided at each site for construction workers, and the wastewater would be disposed at the Regional Treatment Plant, which serves all of the areas in which the Proposed Project components are located. Up to a maximum of approximately 250 daily construction workers could be employed at all construction sites. Assuming a conservative wastewater generation rate of 1 gallon per day per worker, a maximum of 250 gallons per day in wastewater may be generated during construction. The Regional Treatment Plant has an excess average dry weather treatment capacity of 12 to 13 mgd. Thus, the existing Regional Treatment Plant has more than sufficient capacity to serve temporary construction-related increases in wastewater requiring treatment. No new or expanded water facilities would be needed to meet construction-related wastewater generation, and temporary construction-related impacts of wastewater generation water would be less than significant. No mitigation measures are required.

4.18.4.4 Operational Impacts and Mitigation Measures

Impact WW-3: Operational Water Supply and Entitlements. Sufficient water supplies are available for operation of the Proposed Project; prior to construction of each source water diversion component and prior to diversion of secondary treated effluent, the project proponent would obtain applicable water rights, permits, or agreements. (Criterion b) (Less than Significant)

Potable Water to Serve Project Facilities and Employees

Project implementation would generate nine new permanent jobs within the region, some within CalAm's Monterey District water service area. The Proposed Project would not construct new housing nor would it substantially increase the number of permanent workers in the area. No substantial changes in water demand or water distribution would result from the addition of the nine new permanent employees during operation of the project, nor from initial irrigation demand of drought-tolerant landscaping proposed for screening at some component sites. Existing water supplies would be sufficient to serve operational demands, and thus the impact related to new potable water demand from Proposed Project operations is considered less than significant.

Source Water to Serve Project Operations/Objectives

The preliminary determination of feasibility of the Proposed Project required technical investigations to estimate the availability of source waters to be treated at the Regional Treatment Plant and to assess the ability of the Proposed Project to obtain supplemental source waters to augment existing secondary-treated wastewater flows available to the Project. Source water supplies, including wastewater availability, and the need to secure rights and agreements for proposed new source waters to accomplish the Proposed Project objectives are addressed in this section. Necessary infrastructure improvements to existing water conveyance and wastewater systems are included in the description of the Proposed Project (see **Section 2**). Impacts of these water supply and wastewater facilities improvements are evaluated in **sections 4.2** through **4.18** of the EIR. The following summarizes the analysis and information related to the quantities of source waters potentially available to be recycled by the Proposed Project, and the water rights and agreements proposed to be acquired by the project partners in order to implement the Proposed Project.

Availability and Use of Source Water

Implementation of the Proposed Project would require several source waters that, together, would provide a portfolio that could provide the following amounts of water for recycling and reuse: 4,320 acre-feet per year (AFY) of source water to produce 3,500 AFY of finished product water to inject into the Seaside Basin (the GWR Features); approximately 4,500 to 4,750 AFY[7] of source water for recycling and use on the Castroville Seawater Intrusion Project area (the Crop Irrigation Features); and an additional 248 AFY of source water in wet or normal years to produce 200 AFY more advanced treated recycled water for injection into the Seaside Groundwater Basin to build a "drought reserve."[8] Taken together, the Proposed Project would recycle and reuse up to a total of 9,858 AFY of source waters to provide the proposed amounts of finished water. New source waters would supplement the existing incoming wastewater flows, and would include the following: 1) water from the City of Salinas agricultural wash water system, 2) stormwater flows from the southern part of Salinas and the Lake El Estero facility in Monterey, and 3) surface water and agricultural tile drain water that flows in the Reclamation Ditch, Tembladero Slough, and Blanco Drain.

As discussed in **Section 2.7**, the proposed portfolio of source waters would provide adequate source water quantities to accomplish the project objectives. **Table 2-11** in **Section 2.0** summarizes the results of the Water Management District and MRWPCA's analysis of the data and assumptions used to estimate source water availability and use. As shown on **Table 2-11**, the proposed source waters could provide between 10,478 and over 20,000 AFY, which exceeds the Proposed Project demand requirement of 9,858 AFY. **Appendix B** includes the assumptions regarding source water availability by month to develop the range of potential flows

[7] In a drought year, the Proposed Project would potentially deliver up to 5,900 AFY.

[8] The drought reserve would be accomplished by seasonally treating additional source water (when available) during the months of October through March to build up to a total stored surplus of 1,000 acre-feet in the Seaside Groundwater Basin. During dry years, MRWPCA would reduce the amount of treated water that it injects into the Seaside Groundwater Basin during the peak irrigation demand months (April through September), making more of its source water available to recycle and distribute to meet agricultural irrigation demands in the Castroville Seawater Intrusion Project area. CalAm extractions of GWR-injected water quantities of 3,500 AFY would continue in those years by drawing upon the previously "banked" groundwater up to the amount of drought-reserve water previously injected.

for use in designing Proposed Project facilities. **Appendices O** **rev** through **R** listed in **Section 4.18.1** provide the details on how those quantities of water were calculated.

Detailed use scenarios are provided in **Appendix B** **rev** to demonstrate some potential operational scenarios that may be used in various water year types to optimize the operations of the Proposed Project. Example future scenarios of water use by the Proposed Project are summarized in **Table 2-12** in **Section 2.0**. As can be seen, the full potential yield of each supply source may not be used in a given year due to the seasonality and annual variability of supplies and demands. Source water usage would decrease in years when the drought reserve is full, and would vary by water year type. The agricultural wash water and the south Salinas stormwater would be stored in the Salinas Treatment Facility ponds seasonally to maximize water inflows to the Regional Treatment Plant during drier times of the year when irrigation demands peak. With the exception of the Blanco Drain Diversion that would require a new pipeline to the Regional Treatment Plant, the existing sanitary sewer collection system would be used to convey the new supplies to the Regional Treatment Plant. The diversion and conveyance infrastructure is discussed in **Section 2.7.2**.

The Proposed Project would prioritize use of unused, excess treated municipal wastewater that would otherwise be discharged through the ocean outfall. This prioritization would minimize the amount of flow discharged to the ocean and the energy use by the Proposed Project for source water diversion, conveyance, and treatment. It is possible that if demand for Castroville Seawater Intrusion Project irrigation water remains constant or drops due to rain events, there could be periods when some of the proposed new source waters would not be diverted to the Regional Treatment Plant for recycling. The prioritization of other source waters would depend primarily on the conditions and contents of the water rights permits and other source water agreements. Along with compliance with conditions and contents of permits and agreements, considerations for choosing which source water(s) to divert to the Regional Treatment Plant would include the following (not in any particular order):

- cost effectiveness and energy efficiency/conservation; and
- treatment process efficiency and water quality optimization, such as salinity for crop irrigation.

Based on these assumptions, less water may be diverted and treated than is expected in the worst-case impacts analysis for the surface water bodies and aquatic habitat impacts in **Section 4.11, Hydrology and Water Quality: Surface Water**, and **4.4, Biological Resources, Terrestrial**, respectively.

Water Rights

Rights to Excess Municipal Wastewater

The owner of a wastewater treatment plant, such as the MRWPCA for the Regional Treatment Plant, has the exclusive right to the treated wastewater it produces as against anyone who has supplied the water discharged into the wastewater collection and treatment system, including a person using water under a service contract (Water Code section 1210). MRWPCA therefore, has the exclusive right to use municipal wastewater that is discharged into the MRWPCA collection system, except (1) as that right has been varied by contractual arrangements or (2) if a change of the point of discharge, place of use, or purpose of use will result in a decrease in flow in any portion of a watercourse (Cal. Water Code § 1211 et seq.). MRWPCA has entered into a number of ~~such~~ contracts as described in **Section 4.18.3.3**, including contracts that assigned rights to Marina Coast Water District and Monterey County Water Resources Agency (Water Resources Agency). Any necessary wastewater change petitions will be submitted to the State Board.

To substantiate the adequacy of MRWPCA's legally-entitled wastewater rights for the Proposed Project when taking into account and respecting the amounts to which Marina Coast Water District and Water Resources Agency are entitled to use, the MRWPCA and MPWMD pursued a MOU Regarding Source Waters and Water Recycling. As discussed above, the Source Waters MOU reaffirmed Marina Coast Water District and Water Resources Agency's recycled water entitlements <u>under the 1989 Annexation Agreement and the 1992 Agreement and its subsequent amendments, respectively</u>, and presented the proposal for collection of additional source waters to recycle and use to meet the two Proposed Project objectives. The <u>Source Waters</u> MOU is intended to provide a framework for negotiation of a Definitive Agreement and does not create a binding contractual obligation. <u>The 2014 Source Waters MOU affirms that Marina Coast Water District's recycled water right entitlement under the 1989 Annexation Agreement between MRWPCA and Marina Coast Water District may be made contractually available by Marina Coast Water District to another party and may be made available to MCWRA for CSIP if not utilized by Marina Coast Water District, or its assignee, in any given year.</u>

The Marina Coast Water District has not exercised its <u>RUWAP</u> recycled water rights, but could in the future, if water use agreements are obtained from urban irrigators and funding is made available for the construction of the <u>RUWAP</u> recycled water distribution system. The 2010 Urban Water Management Plan estimates that Marina Coast could use a total of 1,935 AFY for existing irrigation demands. The provision of recycled water for future demands would be dependent upon the amount of wastewater that Marina Coast sends to the Regional Treatment Plant and potentially the availability of seasonal storage. The approved Regional Urban Water Augmentation Program – Recycled Water Project would be expected to provide up to 1,727 AFY (including 300 AFY for uses outside the former Fort Ord). (Marina Coast, 2011, see Table 4.7)

The source water availability analyses performed during project development demonstrated excess municipal wastewater is available every year. During much of a typical year, there is no excess municipal wastewater available because all secondary treated wastewater flows are used by MCWRA in accordance with the MCWRA legal right in the 1992 Agreement, including amendments, to irrigate farmland. This source water type is not available for use by the Proposed Project during peak irrigation seasons and may not be available in some years throughout the spring, summer, and fall. During those periods, supplemental flows are required to ensure adequate secondary-treated effluent flows are available to be treated by the AWT Facility so that it would operate year round and meet the Proposed Project objectives.

Because the <u>Source Waters</u> MOU is not binding, the parties to the <u>Source Waters</u> MOU intend to address rights to use wastewater in the forthcoming Definitive Agreement. Although the Definitive Agreement is needed to secure these water rights, the <u>Source Waters</u> MOU demonstrates a reasonable likelihood that this source of water can be obtained.

Rights to Agricultural Wash Water

As described above, the City of Salinas has the exclusive right to the treated wastewater it collects in its system and treats at the Salinas Treatment Facility, unless modified in a contractual agreement (Water Code section 1210). The City of Salinas has an exclusive right to the agricultural wash water discharged to its system, except as it has been varied by contractual arrangements. No legal agreements for use of agricultural wash water are in effect; although the MRWPCA agreed to temporarily treat the agricultural wash water during 2013 and 2014 over several periods including for an extended period between March 1, 2014 and October 31, 2014. These diversions were approved for the GWR pilot plant, because the city was planning for (and constructing) system improvements, and because the Castroville Seawater Intrusion Project farmers were facing severe reductions in irrigation water availability due to the drought. MRWPCA or its partner agency must enter into a contractual arrangement with the City of Salinas for this source water to be diverted to the Regional Treatment Plant and used to meet the Proposed Project objectives. If a contractual arrangement for diversion and use of the agricultural wash water is not in effect, the Proposed Project may not be able to meet its objectives in certain dry years. Although no agreement for the use of agricultural wash water is yet in effect, the City of Salinas has been working cooperatively with MRWPCA, demonstrating a reasonable likelihood that this source of water can be obtained.

Rights to Surface Waters (Reclamation Ditch, Tembladero Slough, ~~and~~ Blanco Drain, and Lake El Estero Diversions)

The Monterey County Water Resources Agency is seeking appropriative water rights permits from the State Board to divert and use of several of the source waters. Water that enters surface streams and rivers is considered water of the state. A water rights permit is required to impound or divert waters of the state, except for certain riparian uses. Stormwater runoff from urban areas through storm drain infrastructure (i.e., in the City of Salinas or Monterey) does not become water of the state until it is discharged into a river or channel and rights to use that water are discussed separately below. Transfer of surface water flows out of known and defined channels for recycling would be a consumptive use that may come under the jurisdiction and regulation of the State Board. ~~Three~~ Four of the proposed source waters – the Lake El Estero, Blanco Drain, Reclamation Ditch, and Tembladero Slough diversion sites – would require appropriation of surface water under State Board jurisdiction. These source waters include agricultural return flow (overland flow and tile drainage), stormwater flow, and urban runoff.

The Monterey County Water Resources Agency submitted an application in April 2014 to the State Board to divert surface flow in the Blanco Drain and the Reclamation Ditch watershed. Specifically, the Water Resources Agency applied to divert up to 25,000 acre-feet per year from each of the two water bodies at a combined rate of diversion of up to 100 cfs. The following is the project description for the diversion from their Application to Appropriate Water (Downey Brand Attorneys, April 9, 2014):

> *"MCRWA proposes to divert water from the Blanco Drain and Reclamation Ditch, which carry agricultural return flows and/or municipal runoff to the Salinas River and Tembladero Slough, respectively, for treatment and application to beneficial uses within the Salinas Valley. MCWRA has not yet defined a final project proposal, but expects that the ultimate project will involve construction of a water treatment plant and conveyance facilities leading from the points of diversion to the treatment plant, and from the treatment plant either directly to places of use, or to existing conveyance facilities, which will then carry the water to the places of use. The project will provide a local environmental benefit by reducing the amount of agricultural return flows and/or municipal runoff that reaches local waterways. It will also improve regional water use efficiency and will help reduce pumping by water users from the Salinas Valley Groundwater Basin, which in turn will help prevent and potentially reduce seawater intrusion into the Basin. Approval of the right will not commit MCWRA to any definite course of action. MCWRA will conduct a feasibility study for the project, the results of which will inform MCWRA's decision of whether to pursue the project, and the formulation of a final project proposal. If MCWRA decides to pursue the project, it will prepare an environmental impact report pursuant to the California Environmental Quality Act before making any final decision to approve the project. The EIR will evaluate all aspects of the project, including the effects of the diversion and use of water in accordance with the applied-for water right and any related construction activities. No*

diversions will occur before MCWRA has complied with CEQA and obtained any necessary permits or approvals from local, state, and federal agencies."

On November 10, 2014, the State Water Resources Control Board sent a letter stating that staff had found the application was incomplete for several reasons. The parties are currently working together to provide responses to the application deficiencies that are needed to perfect the application.

The MRWPCA and the Water Management District intend to work with MCWRA to replace this application with two or more separate applications addressing each of the proposed source water surface water diversions. The Water Resources Agency would be the permit holder for all water rights granted by the State Board. The new applications would include: applications for 6 cfs each in the Blanco Drain and Reclamation Ditch with higher annual storage limits; and an application for 3 cfs from the Tembladero Slough Diversion site. The 6 cfs quantity was determined to be the peak water flows that could be diverted from the Reclamation Ditch at Davis Road (Schaaf & Wheeler, 2015b) and the peak amount of flow available in the Blanco Drain for diversion in new infrastructure (Schaaf & Wheeler, 2014b). The wastewater collection and conveyance infrastructure between Castroville and the Regional Treatment Plan can only feasibly accommodate flows of up to 3 cfs. Therefore, proposed diversions of 3 cfs from the Tembladero Slough Diversion site would be limited to this amount. Any other application for diversions above these amounts would be the responsibility of Water Resources Agency to take forward as a separate project and is not part of the Proposed Project.

Therefore, several steps still need to be taken to secure the water rights for surface waters from Reclamation Ditch, Tembladero Slough, and Blanco Drain diversions. First, the identified deficiencies in the Water Resources Agency's application need to be corrected, so that the necessary permits can be obtained from the State Board. Second, as noted above, the MOU indicates that the Water Resources Agency would hold all of the permit rights to these waters. A separate agreement would therefore be necessary between the Water Resources Agency and MRWPCA to ensure that the Proposed Project has sufficient water rights to this source. Therefore, these water rights are not secured yet. However, because the Water Resources Agency has submitted an application for water rights, and given the terms of the MOU, there is a reasonable likelihood that this source of water can be obtained.

Rights to Urban Runoff Captured in Municipal Stormwater Infrastructure

As noted above, stormwater runoff from urban areas through storm drain infrastructure (i.e., in the City of Salinas ~~or the City of Monterey~~) does not become water of the state until it is discharged into a river or channel. The proposed new stormwater runoff diversion at the Salinas Pump Station Diversion site (i.e., at the City of Salinas' "TP1" site) is upstream of any river or open channel in the City of Salinas' storm drainage system and therefore, the diversion of the Salinas stormwater would not occur where it would be considered water of the state. ~~In addition, the diversion of Lake El Estero water by diverting it to the MRWPCA wastewater collection system rather than to the beach in Monterey would not be considered water of the state because those same waters are being pump or are flowing from the lake to the beach in city storm drainage system pipes.~~ To divert stormwater and dry weather flow from urban areas, agreements are required between MRWPCA and the local agencies that currently collect and convey the flows in man-made facilities for discharge to surface waters, such as Salinas River for the City of Salinas urban runoff/stormwater source water ~~and Monterey Bay for the City of Monterey (for the Lake El Estero source water)~~. MRWPCA is developing an interruptible rate model and criteria which is anticipated to be approved in 2015. The new rate will address capacity and user fees for the various source water within the Proposed Project (Bob Holden, personal communication, January 2015).

Therefore, MRWPCA will need to obtain contractual water rights from the applicable local agencies, including the City of Salinas~~ and the City of Monterey~~. There are currently no contractual arrangements or permits for the diversion of stormwater. However, the City of Salinas~~ and the City of Monterey~~ has~~ve~~ been working cooperatively with MRWPCA, demonstrating a reasonable likelihood that this source of water can be obtained.

Impact Conclusion

The Proposed Project would result in minimal increased water demand due to employment of nine new permanent workers, which could be served by existing water suppliers. The Proposed Project operations would require substantial new source water supplies to meet its project objectives of recycling wastewater for beneficial use as described in **Chapter 2, Project Description**. Technical reports supporting the Proposed Project description and impacts analysis (i.e., those listed in **Section 4.18.1**) and other facts in the record demonstrate that it is reasonably likely that approximately 16,000 to 17,000 AFY of surplus waters can be feasibly be made available to meet Proposed Project demands of approximately 9,860 AFY. For each of the proposed source waters, entitlements or agreements would be needed. The proposed diversions from Lake El Estero, Reclamation Ditch, Tembladero Slough, and Blanco Drain would require new water rights entitlements from the State Board and contractual arrangements/agreement(s) with Monterey County Water Resources Agency.

The Water Resources Agency has filed an application with the State Water Resources Control Board for diversions from the Reclamation Ditch, Tembladero Slough, and Blanco Drain, and it is reasonably likely that rights to these sources of water will be obtained. In considering an application to appropriate water, the State Board considers a number of factors. (Cal. Water Code § 1250, et seq.) The State Board considers "the relative benefit to be derived from (1) all beneficial uses of the water concerned including, but not limited to, use for domestic, irrigation, municipal, industrial, preservation and enhancement of fish and wildlife, recreational, mining and power purposes, and any uses specified to be protected in any relevant water quality control plan, and (2) the reuse or reclamation of the water sought to be appropriated, as proposed by the applicant. The board may subject such appropriations to such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest, the water sought to be appropriated." (Cal. Water Code § 1257). The State Board is guided by the policy that domestic use is the highest use and irrigation is the next highest use of water. The Proposed Project is consistent with these factors and it does not appear that any of the factors considered would reduce the likelihood of obtaining the necessary permits.

Similarly, proposed diversions of storm water and diversions of agricultural wash water would require agreements with the City of Salinas~~ and the City of Monterey~~. The proposed diversion from Lake El Estero may require an agreement from the City of Monterey for use of its facilities. Those cities are cooperating with the project partners in designing and evaluating the project components. In addition, the project partners intend to enter into a binding agreement to replace the MOU addressing use of wastewater, facilities at the Regional Treatment Plant, and provision of water supplies to the CSIP.

This EIR addresses the physical environmental effects that would occur due to the diversion and use of the anticipated source waters in the relevant topical sections of this EIR, including, but not limited to, the following sections:

- **Section 4.4, Biological Resources: Fisheries**, addresses impacts on fishery resources in the water bodies potentially affected by the diversions;
- **Section 4.5, Biological Resources: Terrestrial**, addresses impacts to habitat, terrestrial and aquatic (non-fish) species;

- **Section 4.10, Hydrology/Water Quality: Groundwater**, addresses impacts on groundwater; and
- **Section 4.11, Hydrology/Water Quality: Surface Water**, addresses impacts on surface water body flows and levels, flooding, and erosion; and
- **Section 4.12, Land Use, Agricultural and Forest Resources,** impacts to agricultural uses.

This EIR also addresses the environmental consequences of a reduced project alternative in the event that one or more of the sources of water cannot be obtained. No other replacement sources are likely to be feasible within the time period needed to accomplish the project objectives. See **Chapter 6, Alternatives to the Proposed Project**.

The impacts analysis in this section and the remainder of this EIR addresses potential physical environmental effects of diversion and use of all source waters proposed to be diverted for the Proposed Project.

Prior to construction of each source water diversion component and prior to diversion of secondary-treated wastewater effluent to the Advanced Water Treatment Facility, the Proposed Project proponent(s) would obtain approval of each applicable water rights permit or agreement with the relevant entities with ownership or jurisdiction over that source water. Therefore, the Proposed Project would result in a less-than-significant impact related to the need to obtain new or expanded entitlements to divert source waters for recycling and reuse. The indirect impacts of entering into agreements and receiving water rights to divert the proposed source waters are provided in **Sections 4.2** through **4.17** of this EIR.

Impact WW-4: <u>Operational Wastewater Treatment Capacity</u>. Operation of the Proposed Project would not result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (Criterion c) (Less than Significant)

Wastewater Generated By Project Employees

Project implementation would generate nine new permanent jobs within the service area of the MRWPCA. The proposed project would not construct new housing, nor would it substantially increase the number of permanent workers in the area. No substantial changes in wastewater treatment would result from the addition of the nine new permanent jobs during operation of the project. The Regional Treatment Plant has an average dry weather design capacity of 29.6 mgd and a peak wet weather design capacity of 75.6 mgd. It currently receives and treats approximately 16 to 17 mgd of wastewater and therefore has capacity to treat additional flows. Therefore, existing wastewater capacity would be sufficient to serve operational demands, and thus the impact is considered less than significant.

Wastewater Treatment and Outfall Disposal Capacity for Project Operations

Treated municipal wastewater is currently used to produce recycled water at the Salinas Valley Reclamation Plant. Approximately 8,225 AFY[9] of secondary effluent is currently discharged to the Monterey Bay through the Regional Treatment Plant outfall that is not treated at the tertiary

[9] Based on the five year average of measure flows from 2009 through 2013.

level at the Salinas Valley Reclamation Plant for Castroville Seawater Intrusion Project irrigation water supplies. Under the Proposed Project, less secondary effluent would be discharged through the Regional Treatment Plant outfall because most of the secondary effluent would be treated at the Advanced Water Treatment Plant for recharge into the Seaside Basin. As indicated above in **Section 4.18.2.2**, a 40-year wastewater flow projection analysis concluded that the existing Regional Treatment Plant has capacity to treat additional wastewater flows in the future. In addition, the existing outfall has capacity (i.e., between 11 mgd and 29.6 mgd remaining capacity) to accommodate disposal of by-product wastewater from the Proposed Project Advanced Water Treatment Facility (i.e., reverse osmosis concentrate). The amount of wastewater to be disposed from the Advanced Wastewater Treatment Facility would be less than 1 mgd. Therefore, the existing Regional Treatment Plant and ocean outfall, both have capacity to treat additional flows of over 10 mgd compared to existing flows.

Figure 2.12, in **Chapter 2, Project Description**, provides an overview graphic of the existing design capacities, average dry weather flows, and peak wet weather flows at each pump station in the MRWPCA wastewater collection system. The existing wastewater interceptor pipeline system has currently unused or excess conveyance capacity to accommodate increased flows under the Proposed Project. Impacts of construction and operation of additional improvements have been identified in appropriate impact sections of this EIR.

Impact Conclusion

The Proposed Project would result in a minimal increased wastewater treatment demand due to employment of nine new permanent workers and the Proposed Project would increase wastewater flows to the Regional Treatment Plant and use of treated wastewaters. Proposed Project operations could be served by the existing capacity at the Regional Treatment Plant, taking into account MRWPCA's service commitments, resulting in a less-than-significant impact on wastewater treatment services. No mitigation measures are required.

4.18.4.5 Cumulative Impacts and Mitigation Measures

The geographic scope for cumulative impact analysis of water supply and wastewater systems consists of the service areas for area water suppliers and MRWPCA for wastewater treatment. Cumulative projects are provided on **Table 4.1-2** (see **Section 4.1**). No construction–related significant water supply or wastewater cumulative impacts have been identified for the cumulative projects.

The discussion of cumulative impacts is organized to address the combined impacts of the Proposed Project plus the Monterey Peninsula Water Supply Project (MPWSP) (with the 6.4 mgd desalination plant) and then to address the overall combined impacts of the Proposed Project and all relevant projects and/or regional growth projections:

- *Combined Impacts of Proposed Project Plus MPWSP* (with 6.4 mgd Desalination Plant) (referred to as the MPWSP Variant):[10] The CalAm Monterey Peninsula Water Supply Project includes: a seawater intake system; a source water pipeline; a desalination plant and appurtenant facilities; desalinated water conveyance facilities, including pipelines, pump stations, a terminal reservoir; and an expanded ASR system, including two

[10] The October 2012 Notice of Preparation of an EIR for the MPWSP describes an alternative to the MPWSP that would include a smaller desalination plant combined with the Proposed GWR Project (CPUC 2012). Based on ongoing coordination with the CPUC's EIR consultants, this alternative is referenced as the "Variant" and includes a 6.4 mgd desalination plant that was proposed by CalAm in amended application materials, submitted in 2013 to the CPUC (CPUC, 2013).

additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, and conveyance pipelines between the wells. The CalAm Distribution Pipelines (Transfer and Monterey) would be constructed for either the MPWSP or GWR project. The overall estimated construction schedule would be from June 2016 through March 2019 for the combined projects, during which time the construction schedules could overlap for approximately 18 months (mid-summer 2016 through December 2017). The cumulative impact analysis in this EIR anticipates that the Proposed Project could be combined with a version of the MPSWP that includes a 6.4 mgd desalination plant. Similarly, the MPSWP EIR is evaluating a "Variant" project that includes the proposed CalAm Facilities (with the 6.4 mgd desalination plant) and the Proposed Project. The impacts of the Variant are considered to be cumulative impacts in this EIR. The CalAm and GWR Facilities that comprise the MPSWP Variant are shown in **Appendix Y**.

- *Overall Cumulative Projects*: This impact analysis is based on the list of cumulative projects provided on **Table 4.1-2, Project Considered for Cumulative Analysis** (see **Section 4.1**). The overall cumulative impacts analysis considers the degree to which all relevant past, present and probable future projects (including the MPSWP with the 6.4 mgd desalination plant) could result in impacts that combine with the impacts of the Proposed Project.

Combined Impacts of Proposed Project Plus MPSWP (with 6.4 mgd Desalination Plant). Both the Monterey Peninsula Water Supply Project with 6.4 mgd Desalination Plant and the Proposed Project would result in construction of new water supply infrastructure facilities. Regarding operational cumulative impacts, both projects would provide replacement potable water for a portion of CalAm's withdrawals from the Carmel River system as explained in **Chapter 2**. As such, project operations would not result in potable water demand, except for daily employee water use consumed by 34 to 39 new employees (nine to operate and maintain the GWR Proposed Project and 25 to 30 to operate and maintain the desalination project, which would be negligible given the amount of water used in the region). Both projects would result in a minimal increased wastewater treatment demand due to employment of new permanent workers, operations could be served by the existing capacity at the Regional Treatment Plant, taking into account MRWPCA's service commitments. As discussed in this section, the Proposed Project would increase wastewater flows to the Regional Treatment Plant and expand use of recycled wastewater. Adequate capacity exists in the Regional Treatment Plant for treatment of wastewater from the new combined number of employees, in addition to the existing municipal wastewater flows and new source water inflows proposed to be diverted into the Regional Treatment Plant (see **Appendix B <u>rev</u>** and **Appendix X**). Therefore, the combined projects would not result in significant cumulative water supply demand and wastewater generation.

Overall Cumulative Impacts. Cumulative projects are shown on **Table 4.1-2** (see **Section 4.1**), and cumulative project locations are shown on **Figure 4.1.1 <u>rev</u>, Cumulative Projects Location Map.** The cumulative projects are cross-referenced (in parentheses) to the project number on **Table 4.1-2**. Many of the cumulative projects are public infrastructure (#1, 2, 4, 5, 11, 18-20, 23, 25-29, 32, 33, 35), institutional (#16, 17) or public recreation (#34) projects. Most of the other cumulative projects identified on **Table 4.1-2** are residential, commercial, institutional and/or mixed-use development project that would result in increased demands on potable water supplies within the service areas of the Marina Coast Water District, CalAm, and/or the Sand City desalination plant.

The Proposed Project is an infrastructure project to provide replacement potable water for a portion of CalAm's withdrawals from the Carmel River system as explained in **Chapter 2**, and as such, project operations would not result in potable water demand, except for daily employee water use consumed by nine new employees. The new employees would be distributed throughout the Proposed Project sites as shown on **Table 2-9**. Over half of the new Proposed Project employees (up to six) would be at sites that are not served by CalAm or Marina Coast Water District, and thus, would not contribute to cumulative water demands within these service areas. It appears that the remaining three new employees would be at Proposed Project sites that are within the CalAm service area. Cumulative development within the CalAm service area consists of development projects within the cities of Seaside and Monterey. In the absence of project-level water demand estimates for all cumulative development projects, it is assumed that cumulative water demand would be a potentially significant cumulative impact given the current limitations within the CalAm service area. The amount of daily water demand generated by new Project employees within the CalAm service area would be a negligible amount in comparison to cumulative demands, and the Proposed Project's incremental contribution to cumulative water demand would not be cumulatively considerable.

As discussed in **Section 4.18.2.2**, a 40-year wastewater flow projection analysis was conducted as part of the planning for the Proposed Project (see **Appendix X**). That report found that wastewater flows to the Regional Treatment Plant will continue to decrease until approximately the year 2030. After 2030, based on the "high" and "low" projections of regional population growth and assuming a minimum of 59.0 gallons per capita per day, flows are projected to increase and may range between 22.7 and 24.3 mgd by the year 2055, i.e. 77% to 82% of Regional Treatment Plant design capacity (Brezack & Associates, Inc., 2014). These projected increases in wastewater flows to the Regional Treatment Plant are dependent upon implementation of regional growth plans reflected in city and county General Plans. Such growth is uncertain, and therefore increased wastewater flows conservatively have not been assumed for purposes of defining the quantities of source water needed for the Proposed Project. If, however wastewater flows do increase in the future, the diversions of one or more of the proposed new source waters would be reduced and/or curtailed due to the ability to use excess flows at the Regional Treatment Plant in lieu of diverting the new source waters. Therefore, even if future increases in municipal wastewater flows occur, the Regional Treatment Plant capacity would not require expansion due to the Proposed Project. It is possible that in the future, additional demands for recycled water would trigger new and expanded recycling facilities (and potentially expanded primary and secondary treatment capacity) at the Regional Treatment Plant to enhance the water supply portfolios of regional water purveyors. These potential future expansions of the Regional Treatment Plant primary and secondary treatment processes would have similar impacts as the proposed Treatment Facilities at the Regional Treatment Plant; however, they are not part of the Proposed Project evaluated in this EIR. If expansion of the Regional Treatment Plant capacity is required in the future, any needed CEQA compliance would be performed at that time.

The existing Regional Treatment Plant has capacity to treat additional projected future flows, and no significant cumulative impacts related to wastewater treatment plant capacity have been identified.

In addition, the flows of wastewater for discharge to the ocean outfall would continue to decrease due to increased use of wastewater effluent for recycling by the existing Castroville Seawater Intrusion Project. Therefore, additional outfall capacity is assumed to be available in the future with and without implementation of the Proposed Project. Cumulative projects that propose to discharge desalination brine include the Monterey Peninsula Water Supply Project (#1) and the Marina Coast Water District desalination project (referred to as the Regional Urban Water Augmentation Project, Desalination component - #18). These projects propose to discharge up to 9 mgd and approximately 3 mgd of brine, respectively, and the Proposed Project would discharge up to 0.94 mgd of reverse osmosis concentrate for a total of approximately 13 mgd on average. These quantities would not exceed the outfall's capacity given that during wet weather events, the outfall can dispose up to 75.6 mgd, and continued reductions in municipal wastewater ocean discharges are anticipated due to increased recycling by Salinas Valley Reclamation Plant for the benefit of the Castroville Seawater Intrusion.

Thus, there would be no significant cumulative impacts on wastewater treatment capacity or ocean outfall disposal capacity.

Impact of the Proposed Project on MCWD Rights to Recycled Water. The RUWAP Recycled Water Project is a cumulative project because although portions have been constructed, it is not yet operating because it lacks funding for critical transmission infrastructure and user agreements. Because the Proposed Project would rely upon new source waters during the irrigation months of April through September to meet its needs (see **Appendix B rev**), it would not have an adverse impact on the ability of Marina Coast Water District to use its share of recycled water from the existing municipal wastewater flows as described in the 1989, and 1996 Agreements that are described above in **Section 4.18.3.4**. The ~~MOU indicates that the~~ Proposed Project would not use these secondary effluent flows that represent the amount of wastewater committed to, and used ~~use~~ by Marina Coast Water District, under the 1992 and 1996 Agreement described above. In the future, when Marina Coast completes construction ~~of its recycled water system~~ the RUWAP Recycled Water Project and enters into user agreements with urban irrigators, ~~the wastewater flows committed to those demands~~ the recycled water granted to Marina Coast under the 2009 RUWAP MOU would be provided, unless the 2009 RUWAP MOU allocations are amended or rendered invalid.

Cumulative Impact Conclusion

The combined MPWSP and GWR projects would result in minor demand for water and wastewater service due to new employees, which would not be cumulatively considerable due to the lack of substantial numbers of new employees. While overall cumulative development within the CalAm service area could result in a potentially significant cumulative impact given the current limitations within the CalAm service area, the amount of daily water demand generated by new Project employees within the CalAm service area would not be cumulatively considerable. The existing Regional Treatment Plant has capacity to treat additional projected future flows, and no significant cumulative impacts related to wastewater treatment plant capacity have been identified. There would be no significant cumulative impacts on wastewater treatment capacity or ocean outfall disposal capacity.

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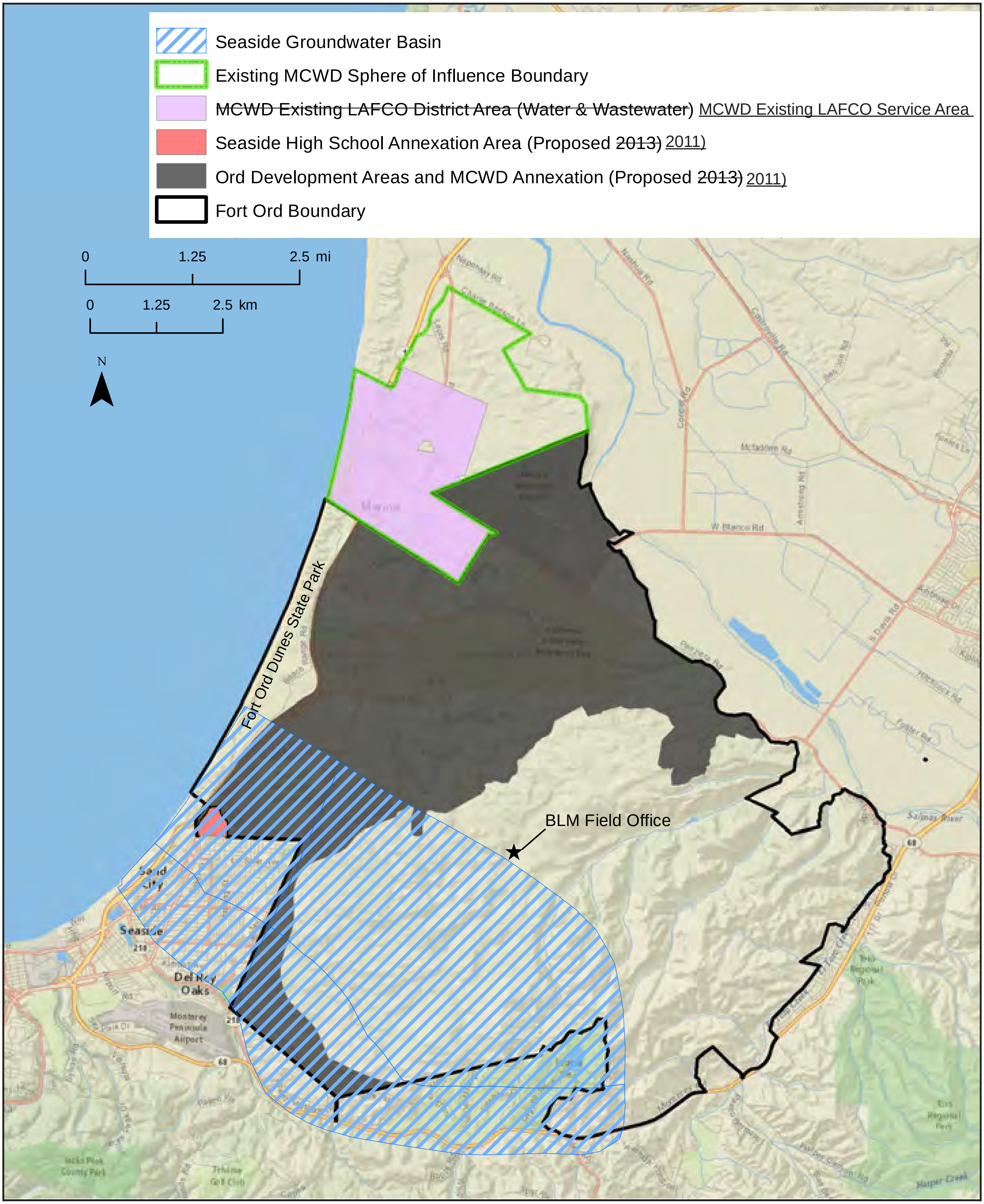


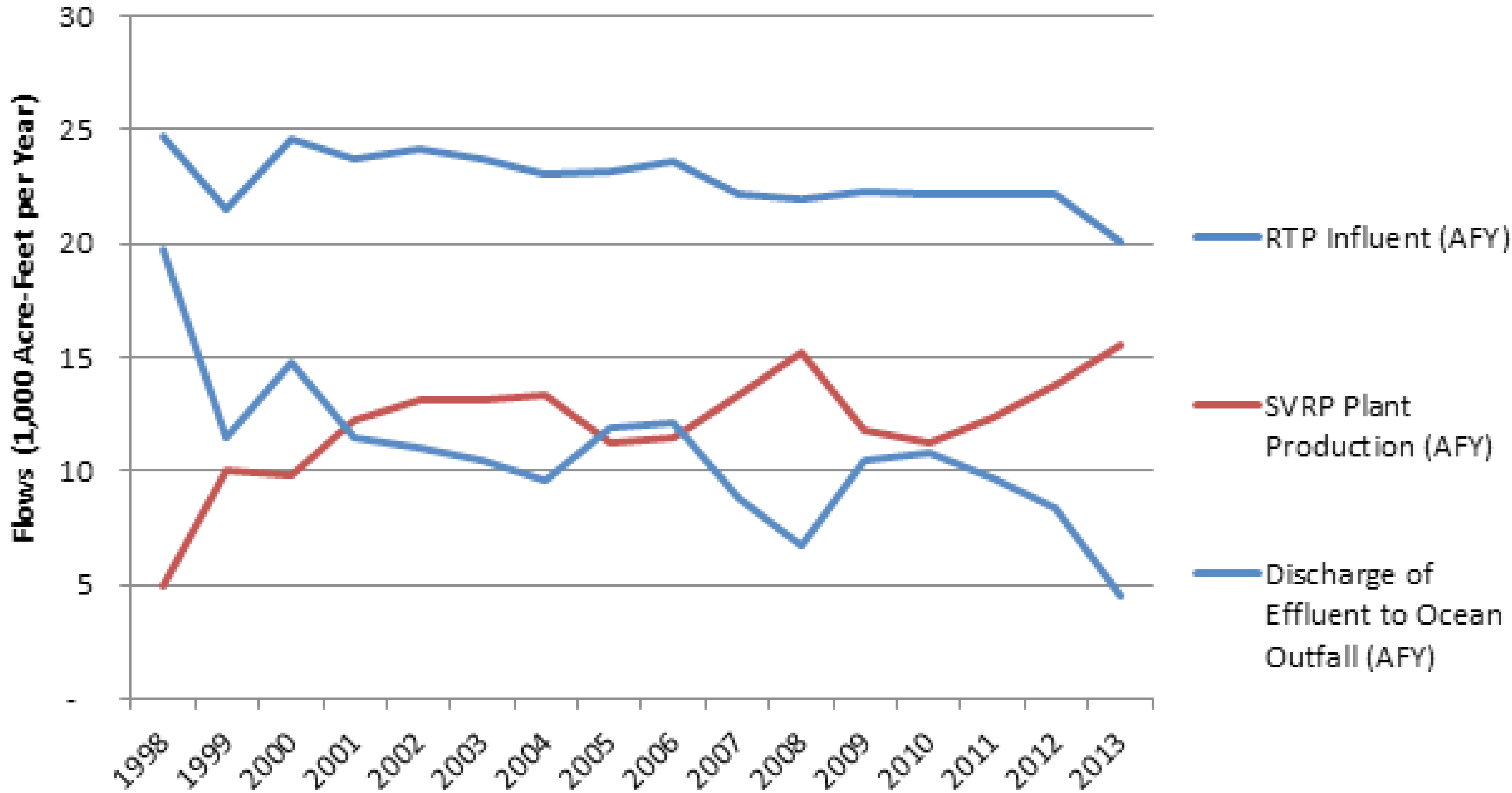
Marina Coast Water District Boundaries and Service Areas

The legend of this figure has been revised due to receipt of new information.

September 2015

Pure Water Monterey GWR Project
Final EIR

Figure
4.18-1
rev



Source: Brezack & Associates, 2014

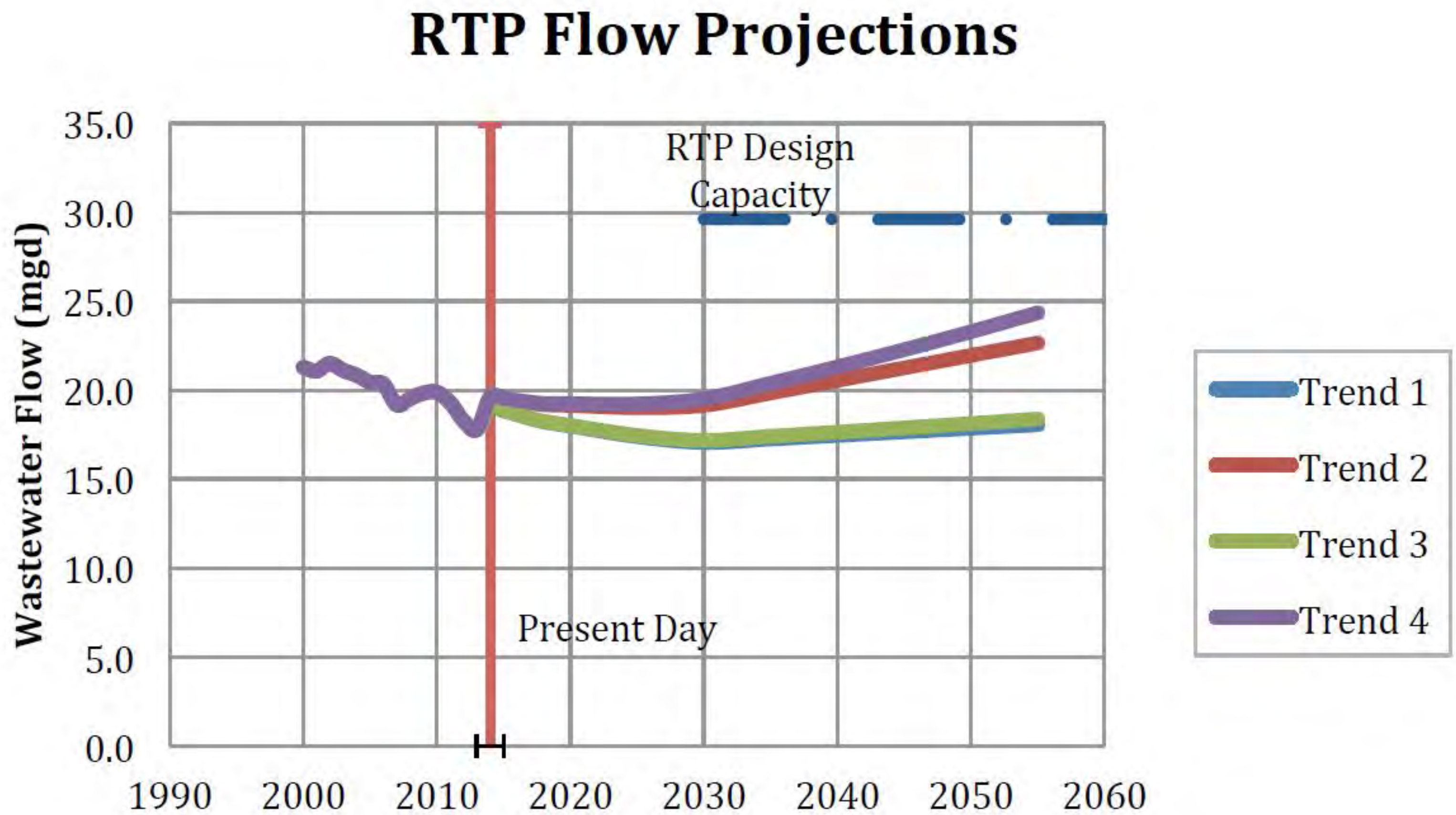
DD&A

Average Annual Wastewater Flow to Regional Treatment Plant

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.18-2



Legend Entry	Description
Trend 1	A linear curve is fitted to data from year 2000 to 2012
Trend 2	A linear curve is fitted to data from year 2006 to 2012
Trend 3	An exponential curve is fitted to data from year 2000 to 2012
Trend 4	An exponential curve is fitted to data from year 2006 to 2012

Source: Brezack & Associates, 2014

DD&A

Regional Treatment Plant Wastewater Flow Projections

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
4.18-3

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CHAPTER 5 GROWTH INDUCEMENT AND IRREVERSIBLE COMMITMENT OF RESOURCES

Sections
5.1 Growth Inducement 5.2 Significant Irreversible Impacts 5.3 References

5.1 GROWTH INDUCEMENT

CEQA requires that an EIR discuss the ways in which a proposed project could foster economic or population growth. Pursuant to the State CEQA Guidelines Section 15126.2(d), this discussion should include ways in which the project could directly or indirectly foster economic or population growth or construction of new housing in the surrounding area. The discussion should include projects which could remove obstacles to population growth such as major public service expansion that allow for more construction in applicable service areas and characteristics of projects that that may encourage and facilitate other activities that could result in significant impacts. According to the CEQA Guidelines, it must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment.

As discussed in **Section 4.14, Population and Housing**, the Proposed Project consists of two components: the Pure Water Monterey Groundwater Replenishment improvements and operations (GWR Features) that will develop high quality replacement water for existing urban supplies; and an enhanced agricultural irrigation (Crop Irrigation) component that will increase the amount of recycled water available to the existing Castroville Seawater Intrusion Project (CSIP) in northern Monterey County, which will help reduce groundwater pumping in that area. The Proposed Project does not include the construction of new homes or businesses in the area. Thus, the Proposed Project would not directly induce population or economic growth.

Once construction is completed, the Proposed Project could employ up to nine additional employees at all facilities, including up to five additional employees at the MRWPCA Regional Treatment Plant, which is not a significant increase in jobs in the area. The new jobs are likely to be operations and maintenance, and given the nature of these jobs, it is expected that new employees would be drawn from the local area and would not require recruitment of workers from out of the area. Thus, the Proposed Project would not indirectly foster population growth as a result of creation of new jobs.

Because the GWR Facilities would replace existing municipal water supplies, the GWR Facilities would not directly foster economic growth, although construction would result in additional construction-related jobs during the construction period. The Crop Irrigation component would replace use of existing groundwater supplies; however, this component also could increase water available to local growers, especially during drought conditions. In this manner, the Crop Irrigation component could foster economic growth by enhancing crop productivity in an existing agricultural area, but that economic growth is not expected to facilitate other activities that would have significant environmental effects.

As discussed in **Section 4.14, Population and Housing**, the Proposed Project is an infrastructure project to provide replacement potable water for a portion of CalAm's withdrawals from the Carmel River system, as explained in **Chapter 2, Section 2.3.6** and to provide recycled water for agricultural irrigation in northern Monterey County as explained in **Chapter 2**. The Proposed Project would not extend roads or public services into an unserved area. As explained in **Chapter 2, Section 2.3.4**, CalAm is under State Orders issued in 1995 and 2009 by the State Water Resources Control Board to secure replacement water supplies for its Monterey District service area by January 2017 and reduce its Carmel River diversions to 3,376 AFY by 2016-2017. As described in Section 2.3.2.3, an adjudication process in 2006 (CalAm v. City of Seaside et al., Case No. M66343) led to the issuance of a court decision that created the Seaside Groundwater Basin Watermaster and that requires all basin pumpers, except overlying users to decrease their operating yield from the Basin triennially until each reaches its allotted portion of the court-defined "natural safe yield" of 3,000 AFY. ~~A 2012 adjudication of the Seaside Groundwater Basin also requires CalAm to decrease its operating yield from the Basin by 10% triennially until it reaches its allotted portion of the court-defined "natural safe yield" of 1,494 AFY beginning in 2012.~~ In its recent submittals to the California Public Utilities Commission, CalAm estimates that it needs 9,752 acre feet per year (AFY) of additional water supplies for its Monterey District service area to reduce its Carmel River diversions to the degree required by the State Water Resources Control Board, and to reduce its pumping in the Seaside Groundwater Basin in accordance with the adjudication pumping mandates.

As explained in **Chapter 2**, the Proposed Project does not propose to produce all of the replacement water that CalAm would need to comply with the State Water Board's order and the Seaside Basin adjudication. The primary objective of the Proposed Project is to replenish the Seaside Groundwater Basin to produce 3,500 AFY of high quality water that would replace a portion of CalAm's water supply as required by the state orders. CalAm can then extract the same amount and also reduce its Carmel River system diversions by that same amount. As a result, the Proposed Project represents a portion of the replacement water needed for existing demand and would not result in creation of an excess supply that could indirectly foster or induce new development or growth.

CalAm's forecasted total customer demand in its Monterey District is 15,296 acre-feet per year, as described by the California Public Utilities Commission in the Plant Size and Operation Agreement for CalAm's Monterey Peninsula Water Supply Project (California Public Utilities Commission, July 31, 2013). A portion of CalAm's forecasted total customer demand (approximately 2,000 AFY) is identified for Pebble Beach buildout, tourism bounceback, and development of legal lots of record (see **Chapter 2, Section 2.5.6**). The California Public Utilities Commission may decide to approve construction of a desalination plant that could accommodate CalAm's forecasted total customer demand in its Monterey District; therefore the CalAm Water Supply Project may accommodate the growth included in that forecast. The Proposed Project, by contrast, is not designed or intended to accommodate this growth. Further, the Proposed Project is not additive to the CalAm Water Supply Project. If the Proposed Project is timely approved and implemented, CalAm's proposed desalination plant would be reduced in size from a 9.6 mgd plant to a 6.4 mgd plant.

The Crop Irrigation component of the Proposed Project would increase the amount of recycled water available to the existing Castroville Seawater Intrusion Project in northern Monterey County, which would help reduce groundwater pumping in that area. The existing Salinas Valley Reclamation Project tertiary treatment plant located at the Regional Treatment Plant was constructed in 1998 for the purpose of producing agricultural irrigation water for approximately 12,000 acres of farmland in the northern Salinas Valley via the Castroville Seawater Intrusion Project. The Proposed Project would provide approximately 4,500 to 4,750 AFY in source water on average to the Salinas Valley Reclamation Plant to produce additional recycled water for Castroville Seawater Intrusion Project and up to 5,900 AFY in drought years. Since the SVWP came on-line in 2010, CSIP groundwater use has ranged from 2,700 to 6,500 AFY (averaging 3,870 AFY). The Proposed Project would be able to decrease CSIP pumping to zero in most years and to a small fraction of existing pumping in the remaining years. The use of recycled water for irrigation would reduce regional dependence on and use of local groundwater, which, in turn would reduce groundwater pumping-related seawater intrusion into the Salinas Valley aquifers. In addition to reducing groundwater pumping, the Crop Irrigation component could produce additional recycled water to growers beyond the amount that presently pumped from groundwater. This additional amount could enable higher productivity of existing farmland by supporting a wider variety of crop types, and by providing sufficient supplies during drought conditions. Because distribution of additional recycled water for crop irrigation would be through the existing Castroville Seawater Intrusion Project distribution system, the irrigation water would be used on existing lands in agricultural production. Therefore, this component of the Proposed Project would not induce the type of economic growth that would facilitate other activities that would have significant environmental effects.

In conclusion, the Proposed Project would not directly result in population or economic growth through development of new residential or commercial uses, and would not induce substantial population growth due to new permanent employees or extension of roads or public services to unserved locations. Although the Proposed Project would provide a new source of drinking water, the water provided by the Proposed Project would replace other existing sources of municipal water supplies that must be curtailed. Implementation of the Proposed Project would provide replacement water for CalAm's withdrawals from the Carmel River system, but would not provide new water to serve growth. The provision of additional recycled water for crop irrigation to existing lands in agricultural production would not increase population nor cause economic growth that would facilitate other activities that would have significant environmental effects. Therefore, the project would not directly or indirectly result in growth inducing impacts.

5.2 SIGNIFICANT IRREVERSIBLE IMPACTS

Section 21100(b)(2)(B) of CEQA (Public Resources Code) and Section 15126(c) of the State CEQA Guidelines require an EIR to identify any significant effect on the environment that would be irreversible if the project is implemented. The State CEQA Guidelines (Section 15126.2(c)) indicate that use of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Irreversible damage can also result from environmental accidents associated with a project. Section 15227 of the State CEQA Guidelines states that the information required by Guidelines section 15126.6(c) concerning irreversible changes need be included only in EIRs prepared in connection with adoption of a plan, policy or ordinance by a public agency; the adoption by a Local Agency Formation Commission (LAFCO) of a resolution making determinations; and projects which require preparation of an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA). The Proposed Project is not adoption of a plan, policy or ordinance, it does not require a LAFCO resolution, and is not considered to require an EIS under NEPA.

The Proposed Project will not extend roads or public services into an unserved area. Project construction and operation would result in the permanent and continued consumption of electricity, natural gas and fossil fuels. As discussed in **Section 4.7, Energy and Mineral**

Resources, although energy consumed during the construction period would be a one-time use, it would represent irreversible consumption of finite natural energy resources. Energy consumption during construction is assessed in **Section 4.7**, and the project is not anticipated to use energy unnecessarily, wastefully, nor inefficiently. Construction-related fuel consumption would be temporary, would cease at the end of the construction, would not result in long-term depletion of non-renewable energy resources, and would not permanently increase reliance on energy resources that are not renewable.

The operation and maintenance of the Proposed Project would necessitate the on-going consumption of electricity, some of which would be produced from non-renewable resources. The total new electricity demand for Proposed Project operations would be approximately 10,900 megawatt hours per year as discussed in **Section 2.8.1** in **Chapter 2, Project Description**. Although, Project operations would commit future generations to energy use for Project operations, the Project is designed to be energy efficient, and as a whole would not involve a large commitment of nonrenewable resources during initial and continued phases of the project or result in wasteful use of energy.

Irreversible changes to the physical environment could occur from accidental release of hazardous materials associated with construction activities. However, environmental accidents would be minimized through adherence to federal, state and local regulations as discussed in **Section 4.9, Hazards and Hazardous Materials**. Operations that involve use of chemical and hazardous materials would be required to comply with all applicable federal, state and local laws regarding, transportation, storage, use and disposal of hazardous materials, which would reduce the likelihood and severity of accidents that could result in irreversible environmental damage. Compliance with state and federal hazardous materials regulations would reduce the potential for accidental release of hazardous materials to a less-than-significant level.

No other significant irreversible changes are expected to result from the construction and operation of the Proposed Project.

5.3 REFERENCES

California Public Utilities Commission, 2013. *Testimony by Rich Svindland regarding Monterey Peninsula Water Supply Project Desalination Plant Sizing*, July 31, 2013.

CHAPTER 6 ALTERNATIVES TO THE PROPOSED PROJECT

Section	Tables	Figures
6.1 Introduction and Approach 6.2 Alternatives Considered but Eliminated 6.3 Alternatives Analysis 6.4 Environmentally Superior Alternative	6-1 Significant Impacts by Component Site 6-2 Alternative Source Waters Flows: Maximum Use 6-3 Reduced Source Water Alternatives and Resulting Impacts Eliminated 6-4 Impact Summary for Product Water Conveyance Pipeline Alignment Options: RUWAP and Coastal 6-5 CalAm Distribution Pipeline Alignment Alternatives Overview 6-6 Impact Summary for Project and Project Alternatives	6-1 Alternative Injection Well Facilities Sites 6-2 Alternatives to CalAm Distribution System Pipelines: Monterey and Transfer

6.1 INTRODUCTION AND APPROACH

This chapter presents the alternatives analysis for the Proposed Pure Water Monterey Groundwater Replenishment Project. This section sets forth the objectives of the Proposed Project, summarizes its significant impacts, discusses the alternatives considered but eliminated from further analysis, describes the range of alternatives considered, and compares the impacts of the alternatives evaluated to the impacts of the Proposed Project.

The State CEQA Guidelines, Section 15126.6(a), state that an EIR must describe and evaluate a reasonable range of alternatives to the Proposed Project, or to the location of the project, that would feasibly attain most of the project's basic objectives, but that would avoid or substantially lessen any significant adverse effects of the project. An EIR is not required to consider every conceivable alternative to a Proposed Project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The CEQA Guidelines further state that the specific alternative of "no project" shall also be evaluated. The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the impacts of the Proposed Project.

6.1.1 Organization of this Chapter

This chapter is organized into the following sections:

Section 6.1, Introduction and Approach, provides an overview of CEQA requirements pertaining to the identification and analysis of alternatives, and the Chapter organization. This section also includes the objectives of the Proposed Project and a summary of significant impacts of the Proposed Project by topical area (**Table 6-1**). The section concludes with the identification of CEQA alternatives evaluated in this Chapter.

Section 6.2, Alternatives Considered but Eliminated*,* discusses the alternatives that were considered, but eliminated from further analysis in this EIR. This section is organized into two parts.

6.2.1 Alternative Water Supplies Considered but Eliminated

6.2.2 Alternative Components of the Proposed Project Considered but Eliminated

Section 6.3, Alternatives Analysis*,* describes the alternatives to the Proposed Project, compares the impacts of the alternatives to the impacts of the Proposed Project, and also evaluates the alternatives' ability to accomplish the project objectives. This section is organized into three parts:

6.3.1 No Project

6.3.2 Alternatives to Proposed Project

6.3.1.1 Reduced Seaside Basin Replenishment Alternative

6.3.1.2 Alternatives to Source Water Diversion and Use

6.3.1.3 Alternatives for Product Water Conveyance

6.3.1.4 Alternatives to CalAm Distribution System Pipelines

6.3.3 Conclusion of Alternatives Analysis

Section 6.4, Environmentally Superior Alternative*,* identifies an environmentally superior alternative, as required by CEQA.

6.1.2 Project Objectives

As described in **Section 2.4, Project Objectives**, the primary objective of the Proposed Project is to replenish the Seaside Groundwater Basin with 3,500 acre feet per year (AFY) of purified recycled water to replace a portion of CalAm's water supply as required by state orders. To accomplish this primary objective, the Proposed Project would need to meet the following objectives:

- Be capable of commencing operation, or of being substantially complete, by the end of 2016 or, if after 2016, no later than necessary to meet CalAm's replacement water needs;[1]
- Be cost-effective such that the project would be capable of supplying reasonably-priced water; and
- Be capable of complying with applicable water quality regulations intended to protect public health.

Secondary objectives of the Proposed Project include the following:

- Provide additional water to the Regional Treatment Plant that could be used for crop irrigation through the Salinas Valley Reclamation Plant and CSIP system;
- Develop a drought reserve to allow the increased use of Proposed Project source waters as crop irrigation within the area served by the CSIP during dry years;
- Assist in preventing seawater intrusion in the Seaside Groundwater Basin;

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[1] The Monterey Peninsula Water Supply Project has been delayed to the point where it is not possible for CalAm to meet the State Water Resources Control Board Cease and Desist Order 2009-60 deadline of December 31, 2016. Accordingly, representatives of the local agencies are proposing a CDO extension that would be acceptable to the public and that would have the potential to obtain State Board approval.

- Assist in diversifying Monterey County's water supply portfolio.

6.1.3 Significant Impacts of the Proposed Project

In **Chapter 4**, this EIR found that the Proposed Project would result in the significant impacts identified in **Table 6-1**, below, all of which would be reduced to a less-than-significant level with implementation of mitigation measures, with the exception of construction noise impacts at two component sites. The EIR found that construction noise at the Tembladero Slough Diversion site could exceed Monterey County noise ordinance standards, which would be a significant and unavoidable impact. Construction of the proposed CalAm Distribution System: Monterey Pipeline would also have a significant unavoidable impact associated with temporary increases in nighttime ambient noise levels during construction. Operation of the project would not result in any significant unavoidable impacts. In some cases, the operation of the Proposed Project would result in beneficial impacts on an environmental resource. See **Table S-1** for the Proposed Project's less-than-significant and beneficial impacts.

Table 6-1 summarizes the significant adverse construction and operational impacts identified in this EIR by the applicable component sites.

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Table 6-1
Significant Impacts of Proposed Project by Component Site

Significant Impacts That Can Be Reduced To Less Than Significant With Mitigation	Applicable Component(s)
AE-2: Construction Impacts due to Temporary Light and Glare	Injection Well Facilities
AE-4: Operation Impacts due to Permanent Light and Glare	Product Water Conveyance: Booster Pump Stations (RUWAP and Coastal Options) Injection Well Facilities
AQ-1: Construction Criteria Pollutant Emissions (PM_{10})	Proposed Project Overall (no individual sites would exceed the PM_{10} threshold)
BF-1: Habitat Modification Due to Construction of Diversion Facilities	Reclamation Ditch and Tembladero Slough
BF-2: Interference with Fish Migration Due to Project Operations	Reclamation Ditch
BT-1: Construction Impacts to Special-Status Species and Habitat	Salinas Pump Station, Salinas Treatment Facility Storage and Recovery, Blanco Drain, Product Water Conveyance (RUWAP and Coastal Options), Injection Well Facilities, CalAm Distribution System (Monterey Pipeline), plus indirect effects of implementation of Alternate Fisheries Mitigation Measure BF-2b
BT-2: Construction Impacts to Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community	Reclamation Ditch, Tembladero Slough, Blanco Drain, Product Water Conveyance (RUWAP and Coastal Options), CalAm Distribution System (Monterey Pipeline), plus indirect effects of implementation of Alternate Mitigation Measure BF-2b for Fisheries
BT-4: Construction Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan	Product Water Conveyance (RUWAP and Coastal Options)
BT-6: Operational Impacts to Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community	Reclamation Ditch, Tembladero Slough, Blanco Drain, Lake El Estero, Product Water Conveyance (Coastal Option), CalAm Distribution System: Monterey Pipeline
CR-1: Construction Impacts on Historical Resources	CalAm Distribution System: Monterey Pipeline
CR-2: Construction Impacts on Archaeological Resources or Unknown Human Remains	All Components

Table 6-1
Significant Impacts of Proposed Project by Component Site

Significant Impacts That Can Be Reduced To Less Than Significant With Mitigation	Applicable Component(s)
EN-1: Construction Impacts due to Temporary Energy Use	All Components
GS-5: Operation - Exposure to Coastal Erosion and Sea Level Rise	CalAm Distribution System: Monterey Pipeline
HH-2: Accidental Release of Hazardous Materials During Construction	Lake El Estero, Product Water Conveyance (RUWAP and Coastal Options), Injection Well Facilities, CalAm Distribution: Monterey and Transfer Pipelines
HS-4: Operational Surface Water Quality Impacts due to Source Water Diversions	Reclamation Ditch
LU-1: Construction Temporary Farmland Conversion	Salinas Treatment Facility Storage and Recovery, Blanco Drain
LU-2: Operational Consistency with Plans, Policies, Regulations	All Components
NV-1: Construction Noise	Injection Well Facilities
NV-2: Construction Noise Exceeds Local Standards	Reclamation Ditch, Blanco Drain, Product Water Conveyance (RUWAP and Coastal options), Injection Well Facilities, CalAm Distribution System: Monterey and Transfer Pipelines
PS-3: Construction Solid Waste Policies and Regulations	All Components
TR-2: Construction Traffic Delays, Safety and Access Limitations	Product Water Conveyance (RUWAP and Coastal Options), CalAm Distribution System: Monterey and Transfer Pipelines
TR-3: Construction-Related Road Deterioration	All Components
TR-4: Construction Parking Interference	Lake El Estero, Product Water Conveyance (RUWAP and Coastal Options), CalAm Distribution System: Monterey and Transfer Pipelines
Significant and Unavoidable Impacts	**Applicable Component(s)**
NV-1: Construction Noise	CalAm Distribution System: Monterey Pipeline
NV-2: Construction Noise Exceeds Local Standards	Tembladero Slough

6.2 ALTERNATIVES CONSIDERED BUT ELIMINATED

In accordance with the State CEQA Guidelines, the lead agency is responsible for selecting a range of potentially feasible project alternatives for examination, and must briefly discuss the alternatives it eliminated from detailed consideration. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

- Failure to meet most of the basic project objectives,
- Infeasibility, or
- Inability to avoid significant environmental impacts.

The following section discusses those alternatives that were considered but eliminated during the course of this CEQA evaluation. The CEQA alternatives that were considered but eliminated from more detailed evaluation are presented using the following framework:

6.2.1 Alternative Water Supplies Considered but Eliminated.

6.2.2 Alternative Components of the Proposed Project Considered but Eliminated

6.2.1 Alternative Water Supplies Considered but Eliminated

Other potential projects previously designed to solve the existing regional water supply problems and needs were considered for evaluation as alternatives to the Proposed Project. The other potential water supply projects would serve water supply needs of the following three geographic areas:

- the Monterey Peninsula area,
- the Marina Coast Water District service area (former Fort Ord), and
- the Salinas Valley Groundwater Basin

The rationale for reviewing previous water supply projects in the Monterey Peninsula, the former Fort Ord, and Salinas Valley areas is to document past efforts at developing water supplies that were intended to achieve similar objectives of the Proposed Project, as well as to address specific comments raised in response to the Notice of Preparation for this EIR.

This section also describes the previous groundwater replenishment project considered in past environmental documents as part of prior regional water planning efforts.

6.2.1.1 *Alternative Water Supplies for CalAm Monterey District Service Area*

As described in **Section 2.3.4**, CalAm is under orders to meet the restrictions of the SWRCB Order 95-10 and the subsequent Cease and Desist Order (SWRCB Order Number WR 2009-0060) issued in 2009. These orders require CalAm to secure replacement water supplies for its Monterey District service area by December 2016 and reduce its Carmel River diversions to 3,376 AFY by the 2016 to 2017 timeframe. In addition to the Pure Water Monterey Groundwater Replenishment Project analyzed in this EIR, the following proposals and projects intended to augment CalAm water supplies for the Monterey District service area have been analyzed in previous environmental documents, or currently are being analyzed in other environmental documents, and have been eliminated from further consideration as alternatives to the Proposed Project for the reasons indicated.

New Los Padres Dam and Reservoir Project

Proposed by the Monterey Peninsula Water Management District (Water Management District) in 1989, this dam and reservoir project was intended to supply 21,000 AFY of water. The project was the subject of an EIR in 1994 to 1995, and it received a Clean Water Act Section 404 permit and a water right permit from the State Water Resources Control Board (SWRCB) in 1995. That year, voters within the Water Management District did not approve a measure that would have provided funding for the project, and it is not considered to be potentially feasible because the voters have rejected it.

Carmel River Dam and Reservoir Project

In 1996, CalAm proposed a “no growth” version of the previous New Los Padres Dam and Reservoir Project, called the Carmel River Dam and Reservoir Project. This project was intended to provide water supply of only 17,641 AFY to comply with SWRCB Order 95-10. In 1997, CalAm applied for a Certificate of Public Convenience and Necessity from the CPUC to construct and operate the project. The Water Management District, as the CEQA lead agency for the project, prepared a Draft Supplemental EIR in 1998. In 1998, the State legislature passed Assembly Bill (AB) 1182 mandating the CPUC to identify an alternative or alternatives to the dam so a Final EIR was never completed or certified. As discussed below, the studies mandated by the State legislature found the Carmel River Dam and Reservoir Project to be infeasible.

CPUC Water Supply Contingency Plan Evaluation

In 1999, the CPUC began evaluating alternatives to the Carmel River Dam and Reservoir Project as mandated by AB 1182. In 2002, the CPUC, working with CalAm and others, completed a water supply contingency plan, known as “Plan B.” Plan B concluded that a combination of desalination and aquifer storage and recovery could produce up to 10,730 AFY of new water supply. The desalination component of the project was recommended to be located adjacent to the Moss Landing Power Plant and produce 9,430 AFY of water. Treated water was proposed to be transported to the CalAm service area through a new pipeline. The ASR element was proposed to provide 1,300 AFY of water by diverting surplus water from the Carmel River and storing this water in the Seaside Groundwater Basin for later use. The Plan B evaluation also considered the feasibility of constructing and operating a large scale desalination plant at Sand City. The Plan B studies also concluded that for various reasons the Carmel River Dam and Reservoir Project was not feasible.

Plan B provided an engineering and environmental analysis of the following water supply options to meet the requirements of SWRCB Order 95-10:

- Groundwater Development: Carmel Valley deep fractured bedrock; Seaside Basin aquifer storage and recovery; and Tularcitos Creek Basin aquifer storage and recovery.
- Desalination: Three different desalination plant locations – Marina; Moss Landing; and Sand City.
- Importation: Water purchase from Central Valley Project; water purchase from Humboldt Bay; and water purchase from Salinas Valley.
- Reclamation: Carmel Area Wastewater District/ Pebble Beach Community Services District reclamation project expansion; Salinas Valley Reclamation Project expansion; and local storm water reclamation projects.

- Legal Strategies: Pueblo Water Rights (Carmel River); Pueblo Water Rights (Salinas River); and Table 13 Rights (Carmel River).[2]

Of the fifteen water supply options, three were excluded because of fatal flaws (water purchase from Salinas Valley, Pueblo Water Rights for Carmel River, and Pueblo Water Rights for the Salinas River) and ten were withheld from further consideration. Two were carried forward: (1) Seaside basin aquifer storage and recovery that has been successfully implemented by the Water Management District in cooperation with CalAm (see **Section 2.5.5.2** of the Project Description) and (2) seawater desalination at Moss Landing. Projects pursuing desalination at Moss Landing are described in the following sections.

Coastal Water Project and Alternatives

After the completion of the Plan B evaluation, significant additional engineering design and environmental analysis was conducted. In 2003, CalAm requested the CPUC to allow it to amend its application for a Certificate of Public Convenience and Necessity (CPCN) to substitute a new water supply project called the Coastal Water Project. In September 2003, the CPUC determined that it should be the Lead Agency for an EIR for CalAm's project to construct and operate a desalination plant at Moss Landing and an aquifer storage and recovery system using the Seaside Basin. CalAm's proposal for the Coastal Water Project was evaluated in CalAm's 2005 submittal of the Proponent's Environmental Assessment (PEA), and further evaluated by the CPUC in the Coastal Water Project EIR (CPUC, 2009).

The Coastal Water Project EIR analyzed three desalination alternatives at a project level of detail: the Moss Landing Project, the North Marina Project, and the Regional Project. The alternatives analysis in the Coastal Water Project EIR considered these alternatives as well as alternative options for the seawater intake system (including open-water intakes, subsurface slant wells, vertical wells, brackish vertical wells, once-through cooling at Moss Landing Power Plant, and horizontal wells); alternative desalination plant sites (including two sites in Moss Landing), and different outfall options. The Regional Project alternative was approved by the CPUC but ultimately abandoned by CalAm. Many of the features of the Monterey Peninsula Water Supply Project discussed elsewhere in this EIR and below, and other water supply project proposals being pursued, share common features with the Coastal Water Project and its alternatives. None of the Coastal Water Project desalination plant sites are the same as the proposed Monterey Peninsula Water Supply Project (described in the following section). Several of the sites analyzed in the Coastal Water Project are being considered as proposed or alternative sites for desalination plants by other entities, including the Monterey Bay Regional Water Project, proposed by DeepWater Desal, LLC, and the Peoples' Moss Landing Water Desalination Project (described below).

Monterey Peninsula Water Supply Project

CalAm, working with local agencies, has proposed construction and operation of a CalAm-owned and operated desalination project (known as the Monterey Peninsula Water Supply Project or MPWSP). **Section 2.3.2.5** and **Section 4.1.3.2** describe the MPWSP, including its relationship to the Proposed Project and this EIR, and its status. The MPWSP requires approval by the CPUC to implement and therefore, the CPUC is the CEQA lead agency for that project. The Monterey Peninsula Water Supply Project is not an alternative to the Proposed Project. Rather, the Proposed Project, if implemented, would reduce the size of the desalination plant

[2] In 2013, the SWRCB granted CalAm additional Carmel River water rights (up to 1,488 AFY) for use during the rainy season.

proposed as part of the MPSWP. The MPSWP would not achieve the Proposed Project objectives of provision of additional recycled water that could be used for crop irrigation through the Salinas Valley Reclamation Plant and CSIP system, and the development of a drought reserve to allow the increased use of Proposed Project source waters for crop irrigation during dry years. Operation of the MPSWP could result in more severe adverse environmental impacts compared to operation of the GWR Project in the areas of marine water quality and marine biological resources, in particular because brine disposal from the desalination plant would adversely affect ocean resources absent mitigation.

Other Desalination Projects

There are other seawater desalination projects that are in various stages of development, and one or more of these projects may provide an opportunity for using desalinated water and delivering this water to Monterey Peninsula. These desalination projects include the following:[3]

- The Monterey Bay Regional Water Project, proposed by DeepWater Desal, LLC, would provide up to 25,000 AFY of potable water supply to serve participating communities in the Monterey Bay region, potentially including the Monterey Peninsula, Castroville, Salinas, and parts of Santa Cruz County. The project would withdraw up to 48.7 mgd of seawater and produce up to 22.3 mgd of potable supply. Core facilities consisting of a reverse osmosis desalination plant, open water intake, and brine discharge pipeline would be located in Moss Landing and Monterey Bay offshore from Moss Landing. Product water pipelines extending to areas that would be served are not part of the project currently proposed and would be evaluated as separate projects. As currently described, the Monterey Bay Regional Water Project would ultimately be owned by a joint powers authority consisting of the communities and water districts served by it.
- The Peoples' Moss Landing Water Desalination Project (Peoples' Moss Landing Project), proposed by Moss Landing Commercial Business Park, LLC, would provide 13,404 AFY (11.97 mgd) of potable water supply to serve North Monterey County and the Monterey Peninsula. The Peoples' Moss Landing Project would deliver 3,652 AFY to customers in the North Monterey County area and 9,752 AFY to the Monterey Peninsula. Core facilities consisting of a reverse osmosis desalination plant, open water intake, and brine discharge pipeline would be located in Moss Landing and Monterey Bay offshore from Moss Landing. Product water would be conveyed to the Monterey Peninsula via a 17.5-mile, 24-inch water main and 10 million gallon terminal storage tank. Product water would be conveyed to North County areas via 30 miles of water main pipeline ranging in size from 8 to 12 inches and three terminal water tanks

Rationale for elimination from more detailed evaluation in this EIR: These projects are not considered to be alternatives to the Proposed Project. They would not achieve the objective of providing replacement water for the Monterey District service area customers by the timeframe specified in the Proposed Project objectives, because they could not be developed in time to meet the timeframe objectives. In addition, the desalination projects would be expected to result in greater <u>or more severe </u>environmental impacts than would occur under the Proposed Project. <u>Greater and more severe environmental impacts in most topical areas would occur due to the length of new pipeline needed to be built to deliver the desalinated water as replacement water</u>

[3] The Deep Water Desalination Project is conceptually described at: www.deepwaterdesal.com and the Peoples Project information is found at www.thepeopleswater.com.

to CalAm. Seawater desalination projects also require substantially more electricity per unit of water produced and therefore, the resultant greenhouse gas emissions would be higher than under the Proposed Project.

6.2.1.2 *Alternative Water Supplies for the Former Fort Ord*

Although the Proposed Project does not include any water supply objectives that include provision of new water supplies to the Marina Coast Water District service area, the Marina Coast Water District relies on wells that extract water from the Salinas Valley Groundwater Basin that would benefit from the Proposed Project. The Salinas Valley Groundwater Basin is Marina Coast Water District's only water supply source. In accordance with a 1993 annexation agreement with the Monterey County Water Resources Agency, up to 6,600 AFY of Salinas Valley groundwater is available to Marina Coast Water District for its service area at the former Fort Ord.

In 2002, in cooperation with the Fort Ord Reuse Authority (Reuse Authority), Marina Coast Water District initiated the Regional Urban Water Augmentation Project (RUWAP), a programmatic evaluation of water supply alternatives in order to identify feasible water augmentation supplies capable of meeting the water demands for redevelopment of the former Fort Ord as anticipated by the Fort Ord Reuse Plan. The Reuse Plan anticipates that a total of 9,000 AFY of water would be needed for redevelopment of the former Fort Ord; therefore, RUWAP's key objective was to produce 2,400 AFY of new water supplies to augment groundwater. A multi-tiered alternatives analysis was conducted as described in the RUWAP Alternatives Analysis (Marina Coast Water District/DD&A/RBF Consulting, March 2003). The analysis found that the two most viable alternatives that could be implemented by the Marina Coast Water District were seawater desalination and recycled water. Consequently, an EIR was prepared by Marina Coast Water District for the primary alternatives: a 3,000 AFY Recycled Water Alternative and a 3,000 AFY Seawater Desalination Alternative. In addition, a Hybrid Alternative (a combination of recycled water and seawater desalination) was evaluated. The Draft Environmental Impact Report for the Regional Urban Water Augmentation Project, State Clearinghouse Number #2003081142 (Marina Coast Water District 2004a) was released in June 2004. A Final EIR was certified in October 2004 (hereafter referred to as the "RUWAP EIR") (Marina Coast Water District Resolution 2004-56), and the RUWAP Plan was approved by Marina Coast Water District and by the Reuse Authority. As part of the RUWAP approval, Marina Coast Water District and the Reuse Authority identified the Hybrid Alternative as the recommended alternative to satisfy the RUWAP objectives.

Following the CEQA approval process, Marina Coast Water District, in cooperation with the MRWPCA, continued detailed engineering and proposed the Regional Urban Recycled Water Project to the U.S. Bureau of Reclamation as required by the federal loan for the Salinas Valley Reclamation Plant. The Recycled Water Project (a component of the Hybrid Alternative of the RUWAP) would include construction of a distribution system to provide up to 1,727 AFY of recycled water from the existing Salinas Valley Reclamation Plant to urban users. Of the total 1,727 AFY, 300 AFY of recycled water would be provided to the Monterey Peninsula (outside of the former Fort Ord) once that portion of the distribution system is operational. The Marina Coast Water District Board has adopted two addenda to the RUWAP EIR and has received federal approval in the form of a signed Finding of No Significant Impact from the U.S. Bureau of Reclamation for the Recycled Water Project but to date, only portions of the distribution system have been constructed and no recycled water deliveries have occurred.

While pursuing the Recycled Water Project, Marina Coast Water District separately pursued a local desalination plant consistent with the Hybrid Project of the RUWAP; however, in approximately 2008, Marina Coast Water District began planning for a regional desalination project (called the Monterey Bay Regional Desalination Project) in partnership with the Monterey County Water Resources Agency and CalAm. The regional desalination project is no longer being pursued. More recently, Marina Coast Water District has been considering a local desalination project again to serve the former Fort Ord (Marina Coast Water District, 2015).

Rationale for elimination from more detailed evaluation in this EIR: The RUWAP Recycled Water Project and Marina Coast Water District's local desalination project would not accomplish the objectives of the Proposed Project. These projects are intended to provide water supplies for the City of Marina and the former Fort Ord. They would not provide replacement water to enable CalAm to comply with state orders,[4] nor would they augment water supplies for the growers in the CSIP service area.

6.2.1.3 *Alternative Water Supplies for Salinas Valley*

The Proposed Project includes secondary objectives to provide additional recycled water for crop irrigation in the Salinas Valley and to create a drought reserve system to support crop irrigation during dry years. Comments on the Notice of Preparation for this EIR requested consideration of an expanded GWR Project to consider additional irrigation water for the Salinas Valley. The following discussion provides background on water planning projects in the Salinas Valley that are under consideration. The Salinas Valley projects are primarily proposed or under the authority of the Monterey County Water Resources Agency (MCWRA). Water projects proposed since the MCWRA was established by the State in 1947 have been developed to address the seawater intrusion issue in the Salinas Valley. Beginning with construction of the Nacimiento and San Antonio reservoirs in 1957 and 1967, respectively, these projects have generally focused on capturing surface water and utilizing that water more effectively. Besides several surface water diversion rights throughout the watershed and the Salinas Valley Reclamation Plant and CSIP, the primary source of supply in the Monterey County portion of the Salinas Valley is groundwater.

Currently several projects are in various stages of planning and design to address water supply and seawater intrusion issues in the Salinas Valley. These projects include the Interlake Tunnel Project and the Salinas Valley Water Project Phase II, both of which are described below and identified under **Section 4.1.3, Cumulative Impacts Overview**.

- **Salinas Valley Water Project Phase II.** This project would allow MCWRA to facilitate offsets of groundwater pumping by delivering additional surface water to the Pressure and East Side subareas of the Salinas Valley Groundwater Basin. The project would divert up to 135,000 acre-feet per year of water from the Salinas River for municipal, industrial, and/or agricultural uses in the Pressure and East Side subareas. Continued reductions in groundwater pumping through use of the diverted surface water would help combat seawater intrusion in northern Monterey County. The Phase II project proposes two new surface water diversion points and appurtenant facilities for capture, conveyance, and delivery of the water. The capture and diversion facilities would consist of either a surface water diversion facility, similar to the Salinas River Diversion Facility (SRDF), or subsurface collectors, such as radial arm wells. The conveyance facilities would be composed of pipelines and

[4] While the primary objectives of the RUWAP Recycled Water Project was to provide recycled water for urban irrigation within the former Fort Ord, the project also proposed to provide 300 AFY recycled water to the Monterey Peninsula. No known urban irrigation demands in the CalAm Monterey District service area have been identified for use of the 300 AFY that could be provided by the RUWAP.

pump stations for which location and designs have not yet been determined. The delivery facilities may consist of injection wells for aquifer storage and recovery (ASR), percolation ponds, turnouts for direct use of the water, or other options. The construction design and physical location of the delivery facilities would be influenced by the type of facility, the end-users' intended application of the water (agricultural versus urban), and need for water treatment (MCWRA, 2014b). The Project is not an alternative to the Proposed Project, but rather would provide additional benefits beyond those that would be provided by the Proposed Project. The Proposed Project could not produce all of the water needed to prevent seawater intrusion in the Salinas Valley Groundwater Basin.

- **Interlake Tunnel.** The Interlake Tunnel Project would construct an 11,000-foot-long tunnel to divert approximately 50,000 AFY of water from Nacimiento Reservoir to San Antonio Reservoir that would have otherwise been spilled at Nacimiento Dam. The Nacimiento River basin produces nearly three times the average annual flow of the San Antonio River basin. During the winter season, the Interlake Tunnel would be used to transfer excess Nacimiento River flows to San Antonio Reservoir, thereby increasing the overall storage capacity of the system (MCWRA, 2014a). The water stored in San Antonio Reservoir would then be used for downstream groundwater recharge and abatement of seawater intrusion in the Salinas Valley Groundwater Basin (Monterey County Regional Water Management Group, 2014). Like the Phase II project described above, the Interlake Tunnel is not an alternative to the Proposed Project, but rather would provide additional benefits beyond those that would be provided by the Proposed Project.
- **Salinas River Stream Maintenance Project.** MCWRA proposes to coordinate voluntary stream maintenance activities with individual property owners, growers, and municipalities (participants) and appropriate federal, state, and local agencies. The Salinas River Stream Maintenance Project provides guidance and outlines maintenance procedures that will be used by the participants along the Salinas River mainstem and portions of San Lorenzo Creek, Bryant Canyon Channel, and Gonzales Slough to effectively implement routine stream maintenance activities in a timely, cost-effective and environmentally-sensitive manner. The proposed SMP provides process, policy, and field procedures to allow the participants to conduct stream maintenance activities (i.e., non-native and native vegetation treatment, sediment management, and other activities) on a voluntary basis to increase flood flow capacity and minimize bank erosion, helping to protect against flooding during and after major storm events. This flood control project has the potential to improve percolation and increase storage in the Salinas Valley Groundwater Basin; however, those benefits and supplies have not been quantified. This project is not an alternative to the Proposed Project because it would not meet the project objectives, but rather would provide additional benefits beyond those that would be provided by the Proposed Project (MCWRA, 2014).

Rationale for elimination from more detailed evaluation in this EIR: These projects are not considered as alternatives for the Proposed Project as none of the projects above would be capable of being accomplished within the timeframe stated in the Project Objectives, as presented in **Section 6.2.1** above. In addition, these projects are not alternatives to the Proposed Project; rather multiple projects are needed to remedy seawater intrusion conditions in the Salinas Valley Groundwater Basin, and these projects would provide additional benefits beyond those provided by the Proposed Project.

6.2.1.4 *Previous Groundwater Replenishment Project*

A previous groundwater replenishment project was considered in 2009 as part of CalAm's Coastal Water Project. The project was called the Seaside Groundwater Replenishment Project (2009 GWR), and was also proposed by MRWPCA. The 2009 GWR project was identified as a Phase 2 component of the Regional Project (Coastal Water Project Final EIR, 2009) and was evaluated at a programmatic level in the EIR. The project objectives of the 2009 GWR Project were to provide a year-round water supply source for the Seaside Groundwater Basin in support of the Seaside Basin Watermaster and to allow the Basin to meet peak demands. The 2009 GWR project components included replenishment of the Seaside Groundwater Basin with purified recycled water, which would later be extracted for potable use, conveyance via the RUWAP pipeline, injection and extraction facilities, and an advanced water treatment plant. The 2009 GWR project proposed to deliver 2,700 AFY of water to the Seaside Basin for subsurface application.

Rationale for elimination from more detailed evaluation in this EIR: This project is not considered as an alternative for further evaluation in this EIR as the project was an earlier version of the GWR Project, and would not meet the basic objectives of supplying 3,500 AFY to the Seaside Basin and also providing additional irrigation to the Salinas Valley CSIP. Specific components of the 2009 GWR project are included in the currently Proposed Project.

6.2.2 Alternative Components of the Proposed Project Considered but Eliminated

During preliminary design and project development, and as an initial phase of the EIR process, several feasibility-level and technical analyses were conducted to support development of the Proposed Project and provide an initial screening for environmental issues. The technical reports provided an initial screening process to address key feasibility issues including source water availability and alternatives, engineering feasibility, environmental considerations and timing. This section describes the technical analysis and documentation used to select the location, technologies and preliminary designs for the major components of the Proposed Project and why other alternative components were eliminated from more detailed evaluation in this EIR.

6.2.2.1 *Alternative Source Waters*

The following reports and technical analyses provided early recommendations for determinations on the optimal sources of water, timing and methods of diversion, and conveyance of those waters to the Regional Treatment Plant for recycling to meet the Proposed Project objectives:

- *Source Water Alternatives Report for the Monterey Peninsula Groundwater Replenishment Project* (Kimley-Horn and Associates, Inc., 2013). This report developed and studied several alternatives for conveying source water of various origins within the City of Salinas area to the Regional Treatment Plant for the Proposed Project. At that time, the Crop Irrigation component was not a part of the Proposed Project. The report outlined the source water options, conveyance methods, and estimated costs for the physical facilities.
- *Monterey Regional Water Pollution Control Agency Groundwater Replenishment Project Source Water Alternatives Analysis Report* (Brezack & Associates, 2014). This report provided a description of the range of alternative solutions for Proposed

Project source water conveyance components as well as a recommendation of preferred alternatives based upon a specified screening analysis.

- *Source Water Technical Analysis prepared by MRWPCA and MPWMD staff, with assistance by Schaaf & Wheeler and DD&A* (Various dates, 2014-2014)*.* Spreadsheet analyses and evaluations of various source water alternatives including possible combinations were prepared to determine the timing and quantities of source waters that could be utilized for the Proposed Project. Screening criteria included meeting the demands for the GWR Features (i.e., conveyance and injection of purified recycled water to the Seaside Groundwater Basin for later extraction by CalAm for their customers) and the Crop Irrigation Features to augment supplies of tertiary-treated recycled water to the CSIP area (See **Appendices B rev, O rev, P, Q rev, and R**).[5]

The above analysis led to the development of the Proposed Project source waters as evaluated in this EIR. The following describes alternative source waters considered during the project development process that were eliminated for further consideration in this EIR.

Dry and Wet Weather Urban Runoff Capture and Reuse Alternatives

Early in the project alternatives screening process, additional alternative source water diversions and locations were considered and screened for suitability for consideration in the GWR Project EIR. In July 2013, a meeting was held which solicited information from MRWPCA member agencies to determine if a project component related to stormwater and/or dry weather urban runoff from member cities would be included in the Proposed Project description. MRWPCA requested that the agencies describe the potential for the discharge of both dry and wet weather flows in their storm water systems to the MRWPCA system for the benefit of the Proposed Project. During the 2013 screening analysis, it was determined that collection and conveyance of all urban runoff to the MRWPCA sewer conveyance and treatment system for the benefit of the GWR project would not be technically feasible, and even collecting a majority of it would be cost prohibitive (MRWPCA, 2013). The potential diversions that are not included in the Proposed Project include the following Monterey Peninsula area urban runoff projects: Laguna Grande Lake, Roberts Lake, Navy/Del Monte Lake, the Bay Avenue Outfall, Del Monte Dry Weather Diversion, and Areas of Special Biological Significance (ASBS) Compliance Wet Weather Diversion. The rationale for why these alternative source waters were not included in the Proposed Project and are not evaluated in more detail in this section is provided following the alternative source water descriptions.

[5] Technical analyses in Appendices G-1, H rev, O rev, P, and Q rev include two source water scenarios, called Phase A and B. Phase A assumes smaller diversions from the Reclamation Ditch and the Blanco Drain (diverting only up to 3 cfs rather than 6 cfs from these two diversion points). Appendix G-1 presents fisheries impacts under both scenarios. The Proposed Project described in Chapter 2, Project Description and the analyses in Chapter 4, assume that the maximum diversion in Phase B scenarios would occur (i.e., up to 6 cfs from each, the Reclamation Ditch and the Blanco Drain Diversions). The complete technical analyses presented in Appendices G-1, H rev, O rev, P, and Q rev and the impact conclusions in this EIR (Biological Resources: Terrestrial, Biological Resources: Fisheries, and Hydrology and Water Quality: Surface Water sections), support conclusions that level of impacts would not differ with implementation of the Phase A maximum diversions of 3 cfs from these water bodies when compared to the Phase B diversions of 6 cfs. In addition, the Phase A maximum diversion quantities would not meet the project objectives as fully as Phase B would and would not improve the ability of the Proposed Project to meet its timeframe objectives as was originally assumed.

Cities of Pacific Grove and Monterey ASBS Stormwater Management Project

The Cities of Pacific Grove and Monterey proposed the ASBS Stormwater Management Project, which includes enhancing the Pacific Grove existing dry weather urban runoff diversion system that connects Pacific Grove's storm drain system to the MRWPCA system, to be able to divert some wet weather flows. The City of Pacific Grove has an existing dry weather diversion system that diverts urban runoff from Pacific Grove's storm drain system into the MRWPCA regional collection system. The primary goal of the Pacific Grove ASBS stormwater management project is to improve stormwater quality discharged into the ASBS located along the Pacific Grove coastline. Providing an additional source of water supply is a secondary goal of the project. Conceptual engineering for this project is complete and a Final EIR was certified in 2014. However, final design of the ASBS Stormwater Management Project is pending the findings of the Central Coast ASBS Regional Monitoring Program, which will establish the ASBS water quality parameters and determine treatment requirements, and is not anticipated to occur until late 2015.

Proposed components of the stormwater conveyance to the MRWPCA include upsizing pump stations at Eardley, Berwick, Greenwood Park, and miscellaneous pipeline and valves to regulate flows. A Point Pinos Stormwater Treatment Plant project component could potentially add to the total amount of urban runoff available as a source of supply to the proposed GWR Project. Approximately 417 to 434 AFY of additional wet weather flows could be routed to this treatment plant, which could then potentially be diverted to MRWPCA at the Coral Street pump station if capacity is available in the MRWPCA system to accept the flow rates from the treatment plant.

City of Monterey New Monterey Urban Diversion Concept

The City of Monterey identified a potential future urban runoff diversion project to cover the watershed area and coastline to the west of Monterey Harbor (New Monterey). This potential multi-benefit project would reduce runoff to the Monterey Bay and improve water quality. Although a complete water balance analysis was not conducted by the City (i.e. calculating infiltration and evapotranspiration losses), a preliminary calculation of total yearly runoff of the 85^{th} percentile storm event in a low water year was estimated to yield 150 AFY.

Currently, runoff is discharged through eight outfalls along this stretch of the coast. To divert the City's storm drains prior to the outfalls would require similar facilities to Pacific Grove's urban diversion systems, with pipelines to collect the runoff and pumps to move the water to the point of diversion. In this area, the MRWPCA Reeside pump station would be the point of connection to divert to the MRWPCA Regional Treatment Plant.

City of Monterey/U.S. Navy – Del Monte/Navy Lake Storage Management Concept

Del Monte Lake is used by the U.S. Navy for irrigation at the Naval Postgraduate School and Monterey Pines Golf Course. Similar to Lake El Estero, wet weather flows to Del Monte Lake could be a source water alternative with pre- and post- storm "lake lowering" projects. Prior to large storm events, the City of Monterey currently lowers Del Monte Lake several feet for flood control and stormwater management purposes by pumping water from the lake to the storm drain outfall that flows to the Bay.

Flow could be diverted from the 48-inch storm drains in Del Monte Lake to the collector and or on-site tanks prior to discharging from the twin 48-inch outfalls from Del Monte Lake and putting them in the collector force main. Using the lake as storage for an extended time frame to feed stormwater runoff into the force main is the most advantageous for maximizing total flows to the Regional Treatment Plant and maximizing the use of the existing force main.

The local agencies would need to partner with the U.S. Navy to pursue ways to further utilize and reclaim the local run-off collected in Del Monte Lake. Environmental impacts, such as impacts to habitat and species that depend on the lake, would be key considerations for this alternative. This project would require, at a minimum: (1) National Environmental Policy Act compliance and other federal land entitlements/right of way coordination; (2) Coastal development permit for any land within the Coastal Zone, and (3) potentially U.S. Fish and Wildlife consultation and permits.

City of Seaside Urban Runoff Sources

The City of Seaside owns and maintains the storm drain system within the City limits and the 90-inch diameter Bay Avenue ocean outfall which is located in Sand City. Collected stormwater in the City of Seaside is either percolated into ponds or subsurface galleries, or flows out to the ocean by means of a 90-inch ocean outfall near Bay Avenue and through Roberts Lake.

Minimal surface water flows from the City of Seaside urban areas to the ocean, primarily due to sandy soils and the presence of lakes. These lakes (also called ponds) collect stormwater from: the Seaside Highlands development, Monterey Peninsula Regional Park (Frog Pond Wetland Preserve), and a watershed surrounding two lakes on the western boundary of the City (Laguna Grande and Roberts Lakes). Within the City of Seaside, there are two percolation systems beneath parking lots: one at Edgewater shopping center (Costco) and the other at Seaside Auto Center along Del Monte Boulevard. Although the total precipitation in the Seaside Groundwater Basin is approximately 2,250 AFY, the majority infiltrates into the groundwater. Only approximately 105 AFY of stormwater is estimated to runoff within the basin. Although there are several stormwater percolation locations, there are no water quality data available for them.

The following City of Seaside's proposed improvements to the storm drainage system were evaluated during preliminary screening as potential source water alternatives.

Laguna Grande/Roberts Lake Storage Management Concept

The Canyon del Rey catchment that drains into Laguna Grande and Roberts Lake, and ultimately the Monterey Bay, only generates runoff from larger, less frequent storms. This is because the watershed during those storms is considered saturated which causes a larger percentage of runoff to occur as streamflow (Monterey County Flood Control and Water Conservation District, 1977). Rainfall and stormwater generated in smaller more frequent storms mostly percolates directly into the basin.

Laguna Grande and Roberts Lakes, located at the terminus of the watershed, continue to experience sedimentation and have a reduced flood control capacity. High flows during the extremely wet years of 1995 and 1998 exposed several drainage problems and confirmed some of the predictions made in the 1977 study, especially concerning head-cutting in Canyon Del Rey Creek and culvert sedimentation of road drainage facilities.

Roberts Lake outfalls through four parallel 6-foot by 6-foot box culverts that transverse beneath State Highway 1. The outfall was constructed prior to 1971. The City has been investigating if there are any structural solutions that will resolve outfall maintenance issues and reduce the amount of time spent by maintenance staff.

The City of Seaside has preliminarily evaluated a dredging project that would potentially capture more runoff from that drainage. The Proposed Project is to create additional storage capacity, visitor serving amenities, and habitat enhancements. The additional storage capacity could act as a reservoir for diversion of stormwater to the MRWPCA wastewater collection system for conveyance to the Regional Treatment Plant. It is unknown whether or how these lakes might be able to feed into MRWPCA's Peninsula Interceptors. If storm flows could be diverted from Laguna Grande to Roberts Lake to MRWPCA, it would alleviate the culvert maintenance issues for the City. Facilities and improvements required to create a point of diversion to MRWPCA were assumed to include a new wet well, pump station, and short pipeline to connect to the existing wastewater system near the intersection of Canyon Del Rey Boulevard (Highway 218) and Del Monte Boulevard.

Del Monte Boulevard and/or Bay Avenue Outfall Diversion

The Bay Avenue outfall includes a 90-inch diameter pipeline extending out towards the ocean for a distance of 124 feet. The outfall was constructed in 1966 and has undergone several modifications. The Bay Avenue outfall is the end point of an existing 90-inch diameter storm drain pipe that conveys water from approximately 2,000 acres within the City of Seaside to the Monterey Bay. The existing outfall is frequently blocked by sand. In 2005, an improvement project included the installation of a Tideflex check valve at the outfall discharge to prevent migration of sand into the outfall culvert.

This project would divert dry weather and, potentially, first flush storm flows, to the Seaside Pump Station adjacent to the outfall. This project was conceptually designed; however, the City has not actively pursued it due to difficulties in finding suitable sites for the facilities required. The yield from this is likely lower than the others due to lack of storage. In addition, the potential effect of ocean storm surge (and ultimately sea level rise) into the outfall during diversion periods may need to be evaluated. (Rick Riedl, City of Seaside, personal communication, September 9, 2013 and April 1, 2014)

Rationale for elimination from more detailed evaluation in this EIR. The dry and wet weather urban runoff capture alternatives were not carried forward as part of the Proposed Project source waters because they would not reduce the environmental impacts of the Proposed Project and they are not capable of meeting the Proposed Project objectives related to meeting the timeframe requirements of CalAm's water supply replacement needs. The following describes the rationale for this determination:

- The amount of source water that could be collected from these diversion projects is limited by the capacity of the MRWPCA collection system to accept additional flows during a peak or larger storm event, as well as by the few available storage facilities to detain peak storm flows that could be later diverted into the MRWPCA system when greater capacity is available.
- Infrastructure for collection and discharge of urban runoff in the cities does not connect to the wastewater collection system, except in the City of Pacific Grove where they have implemented three phases of a dry weather Urban Runoff Diversion Project to comply with the requirements of the Areas of Special Biological Significance program (described above).
- Surface storage for detaining stormwater for use by the Proposed Project is limited or non-existent within the Pacific Grove and western portions (called New) Monterey area watersheds. In addition, much of the soils underlying Pacific Grove and Monterey are granitic, and these soils have a very low ability to infiltrate and slow runoff. Large flows of stormwater runoff become available within a very short time after initiation of a storm event. Diversion of stormwater flows to the MRWPCA interceptor at reduced flowrate over a longer period of time would be the only flows that would provide measurable yields for the Proposed Project. This type of diversion requires more storage than is currently available and there are no known sites available for the storage needed.

- There is no current system or method in place to allocate capacity within MRWPCA sewer force mains, pump stations, and treatment plant by jurisdiction or watershed to enable collection of stormwater flows.

6.2.2.2 *Alternative Treatment Facilities at the Regional Treatment Plant*

Water treatment for the Proposed Project would be provided by the Regional Treatment Plant's existing primary and secondary treatment processes: the new Advanced Water Treatment Facility (AWT Facility), and the existing Salinas Valley Reclamation Plant which would be modified by the Proposed Project. The Regional Treatment Plant effluent not further treated to tertiary levels and used for agricultural irrigation for the CSIP irrigation system would be conveyed to the new AWT Facility to produce purified recycled water. A description and analysis of the existing Regional Treatment Plant and proposed AWT Facility treatment is provided in **Chapter 2, Project Description** (see **Sections 2.5.1 and 2.8**). This section describes alternative treatment technologies and facility locations that were considered by MRWPCA as the Proposed Project was being developed.

Alternative Treatment Technologies

The AWT Facility would include: pre-treatment (using ozone, and potentially biologically activated filtration); membrane filtration (MF); reverse osmosis (RO); advanced oxidation (AOP) using ultraviolet light (UV) and hydrogen peroxide; and water stabilization using calcium and alkalinity addition. No other treatment alternatives are considered, other than the potential to add the biologically activated filtration (BAF) process following the ozone treatment process (Pure Water Monterey Groundwater Replenishment Project, Water Quality Statutory and Regulatory Compliance Technical Report, February 2015, **Appendix D**). The AWT Facility would provide full advanced treatment as required in the State's Groundwater Replenishment Regulations for subsurface application projects (June 2014 Groundwater Replenishment Regulations).

Consideration was given to removing nitrogen as part of the Regional Treatment Plant's secondary treatment process as a means to lower ammonia concentrations in the AWT Facility reverse osmosis concentrate. This alternative was not pursued based on impacts on the volume of recycled water that would be available for reuse and solids disposal. In addition, the use of Biologically Active Filtration was considered and was included in this EIR as an optional treatment process and the impacts were evaluated. Studies were conducted to assess the performance of the proposed ozone, MF, and RO treatment technologies, to collect information for the design of the new AWT Facility, and to assess the quality of the purified recycled water produced using secondary effluent from the Regional Treatment Plant and some of the source waters to be utilized for the Proposed Project. Two variations of the MF process were considered. No differences in environmental impacts would occur with selection of either of these process variations.

Treatment Plant Location Alternatives

The site selected for the proposed AWT Facility is owned by the MRWPCA, is located in close proximity to the existing facilities at the Regional Treatment Plant to which the Proposed Project must connect, provides adequate space for the proposed treatment process, and does not have environmental and engineering constraints. An alternative site for the AWT Facility within the Regional Treatment Plant (immediately south of the administrative offices and west of the Salinas Valley Reclamation Plant) was identified for the 2009 GWR Project discussed previously. The current location was found to better meet project objectives due to its location in closer proximity to key Regional Treatment Plant facilities, such as the secondary effluent and outfall pipelines. In addition, the Proposed Project site for the AWT Facility does not have significant elevation changes, which results in less grading and reduced impacts relative to soils, runoff, and dust control.

***Rationale for elimination from more detailed evaluation in this EIR*:** Alternatives to the proposed AWT Facility processes and the AWT Facility location would not reduce the significant effects of the Proposed Project, and would not better accomplish the project objectives.

6.2.2.3 *Alternative Product Water Conveyance System Options*

The Proposed Project includes two options for product water conveyance, the RUWAP and the Coastal Alignment Options (including pipelines and booster pump stations). These options are described in detail in **Chapter 2, Project Description**, within **Section 2.9, Product Water Conveyance**. Both of these alternatives were considered at a project level within Chapter 4 of this EIR and **Section 6.3.2.3** evaluates the two options in comparison to each other.

In addition to the two options analyzed in this EIR, a preliminary design alignment was presented in the Notice of Preparation for the Proposed Project (May 2013, **Appendix A**). This preliminary alignment followed a portion of the potable product water conveyance pipeline alignment of CalAm's proposed desalination project at that time (California Public Utilities Commission application A.12-04-019). This pipeline alignment would start at the northern boundary of the Regional Treatment Plant access road, and then follow Charlie Benson Road to the west to Del Monte Boulevard. Alternatively, the pipeline to Del Monte Boulevard could follow the existing MRWPCA outfall pipeline alignment from the western boundary of the Regional Treatment Plant. This pipeline alignment would turn south on Del Monte Boulevard and be located either within the roadway or within land owned by the Transportation Agency for Monterey County adjacent to the roadway. After Del Monte Boulevard crosses under Highway 1, this pipeline alternative was proposed to be within or parallel to the Transportation Agency of Monterey County's land that follows the former rail line in that location. The pipeline alignment continued south past Fort Ord Dunes State Park and into the City of Seaside turning east at Auto Center Parkway and Del Monte Boulevard. At this point, the pipeline would turn east following Auto Center Parkway/La Salle Avenue until either Lincoln or Havanna Streets to connect the pipeline to San Pablo Avenue then to General Jim Moore Boulevard.

Rationale for elimination from more detailed evaluation in this EIR: Early evaluation of this alignment revealed that it would have more severe environmental impacts, including impacts to biological resources, increased construction impacts in terms of traffic and transportation, air pollutant emissions, and noise compared to the Product Water Conveyance Alignments that were carried forward in this EIR. Due to the sensitive resource concerns and engineering design considerations, this preliminary pipeline alignment was revised to the options currently being considered for the Proposed Project (see **Figure 2-18**, in **Chapter 2, Project Description**).

6.2.2.4 *Alternative Injection Well Facilities*

The Proposed Project Injection Well Facilities include new deep and vadose zone wells to inject Proposed Project purified recycled water into the Seaside Groundwater Basin. The injection wells are proposed in four clusters of two wells and each cluster includes a deep injection well, a vadose zone well, and associated monitoring equipment and monitoring wells. Two potential locations for the injection wells, referred to in the 2013 Notice of Preparation as the Coastal location and the Inland location, initially were considered favorable and were evaluated in prior studies. The Coastal location was eliminated as noted below due to unfavorable hydrogeologic conditions, engineering requirements, and higher costs. A discussion of the selection of the current injection site as the preferred location is presented below and also provided in the supporting technical memorandum provided as **Appendix L**.[6]

In early 2013, the formerly proposed Inland location was relocated to an adjacent parcel approximately 2,000 feet southwest based on hydrogeologic and engineering criteria including the following:

- To ensure that recharged water remains within the Seaside Basin,
- To locate recharge immediately upgradient of pumping depressions to mitigate declining water levels, and
- To decrease conveyance and pumping costs by placing them in areas of lower ground surface elevations.

The proposed Injection Well Facilities site, labeled as the "Proposed Recharge Location" on **Figure 6-1,** was selected for evaluation as a Proposed Project component in this EIR.

The former Coastal location was eliminated from further consideration based on an evaluation by HydroMetrics WRI for the Seaside Basin Watermaster of recharge at various inland and coastal locations—including the Coastal location and a site near the proposed Injection Well Facilities (HydroMetrics WRI, 2013). In the 2013 evaluation, HydroMetrics WRI applied a basin-wide groundwater flow model to simulate changes in water levels resulting from recharge of various amounts and at various locations within the basin. That analysis provided technical information that allowed selection of the proposed location (i.e., the Inland location). The results of the Watermaster modeling and the rationale for selection of the proposed location and elimination for the former locations are described in the Todd Groundwater memorandum titled "Selection of Recharge Location for GWR Project" dated May 29, 2014 provided within **Appendix L** (see Appendix A of the Recharge Impacts Assessment Report in **Appendix L** of this EIR).

Rationale for elimination from more detailed evaluation in this EIR: In the May 2014 memorandum, Todd Groundwater documented the following conclusions that support the selection of the proposed Injection Well Facilities site (as shown in **Figure 6-1** and described in detail in Chapter 2, Project Description) and the elimination of the former Coastal and Inland locations as alternative site locations for this component:

- The proposed Injection Well Facilities location provides more hydrogeologic certainty than the former Coastal Location for project development because the Santa Margarita Aquifer may be thin or absent at the former Coastal location, and a deep aquifer testing program to reduce this uncertainty would adversely impact the project's schedule such that the operational objectives of the Proposed Project would not be met.
- More injection wells would be required at the former Coastal location for the same amount of recharge at an Inland location, increasing the environmental impacts of the Proposed Project due to construction and operation, and increasing overall project costs.
- The proposed Injection Well Facilities location is in close proximity to the existing ASR wells in the Santa Margarita Aquifer that have been operated effectively with favorable

[6] Todd Groundwater prepared two technical reports that addressed injection wells and related Seaside Basin recharge impacts and field investigations. The Recharge Impacts Assessment Report analyzed the recharge components of the project, including recharge wells, operational facilities, and transport of the purified water in the groundwater basin (Todd Groundwater, 2015a). The Field Investigation Report included geochemical modeling and compatibility with ambient groundwater (Todd Groundwater, 2015b).

injection rates since 2007-2008, which demonstrates the effectiveness of the site for injection/recharge and extraction of groundwater.

- The proposed Injection Well Facilities would be upgradient of water supply wells that would extract the Proposed Project's injected water.
- The proposed location provides sufficient basin storage to accommodate all of the injected GWR purified recycled water. Both locations are not needed. Storage capability at the former Coastal Location is less certain.
- Injection at the former Coastal location would increase loss of GWR water to ocean outflow, potentially reducing the amount of GWR water that could be recovered.

6.3 ALTERNATIVES ANALYSIS

This section describes the alternatives to the Proposed Project that were selected and evaluated in additional detail. The following information is provided for each alternative: (1) a description of the alternative, (2) analysis of the alternative's ability to reduce the impacts of the Proposed Project or result in any additional environmental impacts, and (3) assessment of the alternative's ability to meet the project objectives. A summary comparison of the alternatives is provided at the end of the section. This section is organized into three parts:

6.3.1 No Project

6.3.2 Alternatives to Proposed Project

6.3.1.1 Reduced Seaside Basin Replenishment Alternative

6.3.1.2 Alternatives to Source Water Diversions and Use

6.3.1.3 Alternatives for Product Water Conveyance

6.3.1.4 Alternatives to CalAm Distribution System Pipelines

6.3.3 Conclusion of Alternatives Analysis

6.3.1 No Project Alternative

CEQA Guidelines Section 15126.6I requires that an EIR include an evaluation of the No Project Alternative to provide decision- makers the information necessary to compare the relative impacts of approving a project to not approving a project. The No Project Alternative is defined as a continuation of existing conditions, as well as conditions that are reasonably expected to occur in the event that a Proposed Project is not implemented. Under the No Project Alternative for the Proposed Project, the Proposed Project would not be built and no project objectives would be achieved. It is reasonably likely that, pursuant to the orders requiring CalAm to curtail its diversion and use of Carmel River water and to reduce pumping from the Seaside Basin, mandatory water conservation and water rationing would be required. It also is possible that other projects would be constructed to provide replacement water to CalAm and/or to increase supplies for growers in the CSIP service area, but such projects would be required to undergo their own environmental review and discretionary approvals and are not appropriately included in the No Project Alternative.

6.3.1.1 *Description of the Alternative*

This alternative is considered because it is required by CEQA (i.e., continuation of existing conditions). In the event that the MRWPCA and its partner agencies do not implement the Proposed Project, the "no project" analysis assumes a "no build" scenario where none of the Proposed Project components would be constructed or operated. As described in **Chapter 2**, the Proposed Project would produce 3,500 AFY of high quality replacement water to CalAm for delivery to its customers in the Monterey District Service area, thereby enabling Cal Am to reduce its diversions from the Carmel River system by the same amount. CalAm is to reduce its diversions by the State Board's Cease and Desist Order (SWRCB Order WR 2009-0060) that is scheduled to take effect in January 2017. The No Project Alternative is defined as continuation of existing conditions at various Project Component sites, but also likely would trigger water management actions, including mandatory conservation and water rationing, in the CalAm service area due to SWRCB Order 95-10, the Seaside Basin Adjudication, and the Cease and Desist Order. Water rationing and water shortages would likely have potentially significant effects on the local economies within the area, including a possible moratorium on construction and development.

It is also possible that the time periods for compliance with SWRCB Order 95-10, the Seaside Basin Adjudication and/or the Cease and Desist Order would be extended. In that case, the beneficial impacts of the project with respect to the restoration of flows in the Carmel River would potentially be delayed or would not occur.

6.3.1.2 *Environmental Impacts of the Alternative Compared to those of the Proposed Project*

The No Project Alternative would eliminate all construction and operational impacts at all of the Proposed Project component sites, avoiding all significant impacts identified for the Proposed Project. The beneficial impacts of the project with respect to the restoration of flows in the Carmel River would potentially be delayed or would not occur if the No Project Alternative was implemented. Benefits of the Proposed Project related to additional irrigation water for CSIP (and related to offset of groundwater pumping by delivering additional recycled water for crop irrigation) and potential improvements in seawater intrusion conditions would also not occur. Refer to **Table 6-6** for a comparison of impacts of the No Project Alternative to the impacts of the Proposed Project.

6.3.1.3 *Ability of the Alternative to Meet the Project Objectives*

Under the No Project Alternative, none of the objectives of the Proposed Project would be met, and the benefits of the Proposed Project would not occur. The No Project Alternative would not enable CalAm to reduce its diversions from the Carmel River system by up to 3,500 AFY by injecting the same amount of purified recycled water into the Seaside Basin. CalAm is under a State order to secure replacement water supplies and cease over-pumping of the Carmel River by January 2017, and the No Project Alternative may impact the ability of CalAm to secure replacement supplies and cease pumping beyond the approved limits. If no other projects are built to address the Cease and Desist Order within the time requirements, the State Board may enforce the Cease and Desist Order and institute severe water use cutbacks, with potential impacts on local economies. Alternatively, the timeframe for compliance with the Cease and Desist Order and/or for reducing Seaside Basin pumping could be extended, which would delay or eliminate the associated Project benefits.

This alternative also would not meet the project objective of providing additional water to the Regional Treatment Plant to be used for crop irrigation through the Salinas Valley Reclamation Plant and CSIP system, and there would be no drought reserve for crop irrigation within the CSIP area during dry years. Proposed Project benefits associated with preventing seawater intrusion in the Seaside Groundwater Basin and assisting in diversifying Monterey County's water supply portfolio would not be realized.

6.3.2 Alternatives to the Proposed Project

6.3.2.1 *Reduced Seaside Basin Replenishment Alternative*

Description of Alternative

The Reduced Seaside Basin Replenishment Project Alternative would constitute a 3,000 AFY capacity project for water deliveries for the Proposed Project to the Seaside Basin. This alternative is considered in this EIR to provide an evaluation of a project that is consistent with the smaller scale GWR Project that was presented in the Settling Parties' Motion to Approve Settlement Agreement on Plant Size and Operation (MPWSP Desalination sizing agreement) (CPUC, 2013). This alternative assumes all facility components would be constructed related to pipeline conveyances, treatment and injection facilities and diversion facilities, but the new source water diversions would be used to a lesser extent. Under this alternative, 3,000 AFY of advanced treated water would be produced for replenishment of the Seaside Basin instead of 3,500 AFY. All of the Proposed Project facilities would be constructed, and the proposed additional recycled water for crop irrigation in the CSIP area (4,500 to 4,750 AFY) would be included. Under this alternative, the required diversions of source water would be reduced. To produce 3,000 AFY of water, approximately 3,703 AFY of new source waters would be required to be diverted to the AWT Facility. This compares to the 4,320 AFY needed to produce 3,500 AFY under the Proposed Project. Under this alternative, the total new source waters required would be 8,200 to 8,500 AFY (approximately 600 AFY less than the Proposed Project). This alternative would involve the same component facilities as the Proposed Project and this alternative would still achieve most of the project yield, as discussed above and in **Section 6.4**.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

This alternative would result in nearly the same environmental impacts as the Proposed Project, since all facilities are assumed to be constructed under this alternative, even though there would be a reduction of water provided to the Seaside Groundwater Basin. There would be a reduction of purified water injected into the Seaside Groundwater Basin (i.e., 3,000 AFY compared to 3,500 AFY); while the alternative would still enable CalAm to reduce its diversions from the Carmel River system, it would only replace up to 3,000 AFY. **Table 6-6** compares the impacts of this alternative to the Proposed Project.

Ability of Alternative to Meet Project Objectives

This alternative would partially meet the project objectives during normal and dry years, in that a reduced water supply would be produced and available to CalAm – 3,000 AFY instead of the proposed 3,500 AFY to replenish the Seaside Groundwater Basin. This alternative would fully meet the Crop Irrigation water supply project objectives.

6.3.2.2 *Alternatives to Source Water Diversions and Use*

This section describes and evaluates alternatives in which one or more source water components are eliminated. Many of these alternatives have been considered during preliminary engineering and project development. Several of the new source waters would require agreements with other agencies, and others would require appropriative permits from the SWRCB. **Section 4.18, Water Supply and Wastewater Systems,** and **Appendix C rev** contain a description of those water rights and agreement requirements of the Proposed Project. In the event that one or more of the source water agreements is not signed or the appropriative permit is not issued (for the surface water bodies), then the Proposed Project may be implemented without the benefit of the particular source water(s) type and the physical diversion facility needed to use that source water would not be built.

The following Reduced Source Water Alternatives are considered in this section:

- No Lake El Estero (#1)
- No Tembladero Slough (#2)
- No Lake El Estero and No Tembladero Slough (#3)
- No Blanco Drain (#4)
- No Reclamation Ditch/Tembladero Slough (#5)
- No Surface Water Diversions from Reclamation Ditch, Tembladero Slough, and Blanco Drain (#6)
- Salinas Agricultural Wash Water and South Salinas Storm Water Only (#7)
- No City of Salinas Waters (#8)

A summary of the estimated changes to the maximum annual uses of each source water type is provided in **Table 6-2**. A summary of the impacts and mitigation measures that would be eliminated under each reduced source water diversion and use alternative is provided in **Table 6-3**.

Reduced Source Water Alternative #1 (No Lake El Estero)

Description of Reduced Source Water Alternative #1

In this Reduced Source Water Alternative, the Lake El Estero source water diversion facilities would not be implemented. The construction of the new physical facilities described in Section 2.7.2.8 at the Lake El Estero site would not occur and no operational diversions of water from this water body to the wastewater collection system would occur.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

Significant impacts related to biological resources (wetlands), construction and land use policy consistency would be eliminated at the Lake El Estero site as summarized in **Table 6-3**.

Ability of Alternative to Meet Project Objectives

Based on the yield study (**Appendix R**) and source water analysis and assumptions in **Appendix B rev**, the alternative would not meet the project objectives as fully as the Proposed Project, including water demands for CalAm Monterey District of 3,500 AFY and for Crop Irrigation in the CSIP area of 4,500 – 4,750 AFY and up to 5,900 AFY in drought years. While the necessary amount of yield could be provided by the other proposed source waters without the Lake El Estero diversion, this component provides source water in certain drought years to more easily meet the project objectives and to provide more certainty that those objectives would be consistently achieved.

Reduced Source Water Alternative #2 (No Tembladero Slough)

Description of Reduced Source Water Alternative #2

This alternative consists of a reduced source water diversion through elimination of the proposed diversion facilities at the Tembladero Slough Diversion site. Under this alternative, the construction of the new physical facilities described in Section 2.7.2.6 at the Tembladero Slough Diversion site would not occur and no operational diversions of water from this water body to the wastewater collection system would occur. A variation of this alternative (the alternative source waters described above combined with the Alternative Monterey Pipeline Alignment) is also presented in **Section 6.3.3** and **Table 6.6**.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

In comparison to the Proposed Project, elimination of this component would eliminate all of the significant impacts at the Tembladero Slough diversion as summarized in **Table 6-3**. The significant and unavoidable noise impact during construction would be eliminated (exceedance of the limits in County of Monterey's noise ordinance). Significant impacts related to biological resources (fisheries and wetlands) and construction would be eliminated at the Tembladero Slough site. Impacts to fisheries resources would be avoided under this alternative; specifically there would be no impact to fish habitat due to construction of diversion facilities at Tembladero Slough. This alternative would also avoid any impacts from interference with fish migration due to project operations (although the impact was found to be less than significant). Cumulative operational marine water quality impacts would be reduced as some constituents that are within the Tembladero Slough waters are ones that may result in Ocean Plan exceedances at the edge of the zone of initial dilution of the MRWPCA outfall if the MPWSP with 6.4 mgd desalination plant is implemented. Nevertheless, the project would still have a considerable contribution to cumulative impacts and thus mitigation measures would be required to reduce this cumulative impact to a less-than-significant level.

Ability of Alternative to Meet Project Objectives

Based on the Reclamation Ditch Yield Study (**Appendix P**) and source water analysis and assumptions in **Appendix B**, the alternative would meet the primary project objective of replenishment of the Seaside Basin but would not fully accomplish the project objectives for CSIP irrigation in some drought years in comparison to the Proposed Project. This alternative would provide Crop Irrigation water in the CSIP area in certain drought years of up to 5,200 AFY, as compared to up to 5,900 AFY under the Proposed Project.

Reduced Source Water Alternative #3 (No Tembladero Slough and No Lake El Estero)

Description of Reduced Source Water Alternative #3

In this Reduced Source Water Alternative, there would be no source water diversion facilities constructed or operated at Tembladero Slough or at Lake El Estero. Under this alternative, the construction of the new physical facilities described in **Sections 2.7.2.6** (at Tembladero Slough Diversion site) and **2.7.2.8** (at Lake El Estero) would not occur and no operational diversions of water from these water bodies to the wastewater collection system would occur.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

Significant impacts related to noise, biological resources, cultural resources and land use policy consistency at the Lake El Estero and Tembladero sites would be eliminated as summarized in **Table 6-3**. Additionally, impacts of public services, traffic, hazards and hazardous materials and energy would also be avoided at the Tembladero Slough and Lake El Estero sites due to the elimination of these diversion facilities. This Reduced Source Water Alternative #3 would eliminate the significant and unavoidable noise impact from construction of the Tembladero Slough diversion (i.e., exceedance of the limits in County of Monterey's noise ordinance during construction). Cumulative operational marine water quality impacts would be reduced as some constituents that are within the Tembladero Slough waters are ones that may result in Ocean Plan exceedances at the edge of the zone of initial dilution of the MRWPCA outfall if the MPWSP with 6.4 mgd desalination plant is implemented. Nevertheless, the project would still have a considerable contribution to cumulative impacts and thus mitigation measures would be required to reduce this cumulative impact to a less-than-significant level.

Ability of Alternative to Meet Project Objectives

This alternative would meet the primary project objective of replenishment of the Seaside Basin. However, based on the yield study (**Appendix P**) and source water analysis and assumptions in **Appendix B <u>rev</u>**, the alternative would not fully accomplish the project objectives for CSIP irrigation; in some drought years the yield from this alternative would be up to 5,200 AFY for the proposed Crop Irrigation component, as compared to up to 5,900 AFY under the Proposed Project. Elimination of the Tembladero Slough and Lake El Estero Diversion would not fully accomplish the Proposed Project objectives because they provide additional source water supplies to meet certain dry/drought year conditions.

Reduced Source Alternatives #4 (No Blanco Drain Diversions)

Description of Reduced Source Alternative #4

Under this alternative, there would be no diversion of surface waters from the Blanco Drain and the construction of the new Blanco Drain pump station and pipeline (including the trenchless construction or directionally drilling activities to install the pipeline under the Salinas River) would not occur. This alternative may occur if the State Water Resources Control Board does not issue an appropriative permit to divert surface waters from the Blanco Drain. No operational diversions of Blanco Drain water would occur and the flows from this agricultural drainage channel (listed as an impaired water body for numerous pollutants by the State Water Resources Control Board) would continue to flow into the Salinas River upstream of the Salinas River diversion structure.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

The impacts of eliminating the Blanco Drain Diversion component would reduce the physical changes to this site because no construction would occur to install the facilities needed to divert the surface water. In addition, the less-than-significant operational changes to flow and water levels and associated habitat and special status species impacts in the downstream reaches of the watershed (a short segment of the Blanco Drain, Salinas River and lagoon) would not occur. Biological, cultural, traffic, energy, land use, public services and noise impacts would also be reduced at the Blanco Drain site due to the elimination of these facilities. Cumulative operational marine water quality impacts would be reduced as some constituents that are within the Blanco Drain waters are ones that may result in Ocean Plan exceedances if the MPWSP with 6.4 mgd desalination plant is implemented. Nevertheless, the project would still have a considerable contribution to cumulative impacts and thus mitigation measures would be required to reduce this cumulative impact to a less-than-significant level. Significant impacts that would be avoided or eliminated by elimination of the Blanco Drain diversion component are summarized in **Table 6-3**.

Ability of Alternative to Meet Project Objectives

Based on the yield studies (**Appendices O rev, P, Q rev, and R**) and source water analysis and assumptions in **Appendix B rev**, the alternative would not fully accomplish the project objectives; in some drought years, the yield of the alternative would only provide from 2,800 to 4,300 AFY for the proposed Crop Irrigation component, as compared to up to 5,900 AFY under the Proposed Project.

Reduced Source Alternatives #5 (No Reclamation Ditch and Tembladero Slough Diversions)

Description of Reduced Source Alternative #5

This alternative assumes no diversion from the source waters of the Reclamation Ditch or Tembladero Slough. This alternative may occur if the State Water Resources Control Board does not issue an appropriative permit to divert surface waters from these points of diversion. No construction of physical facilities would be built at the Reclamation Ditch or Tembladero Slough Diversion sites (as described in **Section 2.7.2.6**) and no operational diversion of water and the resulting flow and water level changes to the existing surface water hydrology and habitat in the affected reaches (below the diversion points) would occur.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

The impacts of eliminating these components would reduce the physical changes to these sites because no construction would occur to install the facilities needed to divert the surface water. In addition, the operational changes to flow and water levels in the downstream reaches of the watershed would not occur. If the Reclamation Ditch diversion is eliminated, the significant impacts related to fish bypass flows and water quality (water level fluctuations) would be eliminated. Impacts related to biological (terrestrial and fisheries) resources, cultural resources, land use, noise, energy and traffic impacts would be reduced under this alternative at the Reclamation Ditch Diversion site due to the elimination of construction and operation of these facilities. Biological, cultural, traffic, energy, land use, public services and noise would also be reduced at the Tembladero Slough sites due to the elimination of these facilities. If the Tembladero Slough Diversion is eliminated, the significant and unavoidable noise impact during construction would be eliminated (i.e., exceedance of the limits in County of Monterey's noise ordinance at the Tembladero Slough Diversion site). Impacts to fisheries resources due to the Tembladero Slough diversion would be avoided under this alternative, specifically there would be no impact to fish habitat due to construction of diversion facilities, and this alternative would avoid any impacts from interference with fish migration due to project operations. Significant impacts that would be avoided or eliminated at each of these sites are summarized in **Table 6-3**.

Ability of Alternative to Meet Project Objectives

Based on the yield studies (**Appendices O rev, P, Q rev, and R**) and source water analysis and assumptions in **Appendix B rev**, this alternative would not fully accomplish the project objectives; in some drought years, the yield of this alternative would be from 2,800 to 4,300 AFY for the proposed Crop Irrigation component, as compared to up to 5,900 AFY under the Proposed Project.

Reduced Source Alternative #6 (No Surface Water Appropriative Permits)

Description of Reduced Source Alternative #6

This alternative assumes that no source waters under the permit authority of the State Water Resources Control Board would be utilized and that the State would not issue any appropriative permits to divert surface waters from any of the proposed points of diversion. In this alternative, the following diversions would be eliminated from the Proposed Project: Reclamation Ditch, Tembladero Slough, and Blanco Drain. This alternative includes the Lake El Estero source water diversion facility as use of existing stormwater diversions from this site does not appear to require an appropriative permit.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

The impacts of eliminating these components would reduce the physical changes to these sites because no construction would occur to install the facilities needed to divert the surface water. In addition, the operational changes to flow and water levels in the downstream reaches of the watershed would not occur. If the Reclamation Ditch diversion is eliminated, the significant impacts related to fish bypass flows and water quality (water level fluctuations) would be eliminated. Impacts related to biological (terrestrial and fisheries) resources, cultural resources, land use, noise, energy and traffic impacts would be reduced under this alternative at the Reclamation Ditch Diversion site due to the elimination of construction and operation of these facilities. Biological, cultural, traffic, energy, land use, public services and noise would also be reduced at the Tembladero Slough and Blanco Drain sites due to the elimination of these facilities. If the Tembladero Slough Diversion is eliminated, the significant and unavoidable noise impact during construction of that component would be eliminated (i.e., exceedance of the limits in County of Monterey's noise ordinance at the Tembladero Slough Diversion site). Impacts to fisheries resources would be avoided under this alternative; specifically there would be no impact to fish habitat due to construction of diversion facilities, and this alternative would avoid any impacts from interference with fish migration due to project operations. Significant impacts that would be avoided or eliminated at each of these sites are summarized in **Table 6-3**.

Ability of Alternative to Meet Project Objectives

Based on the yield studies (**Appendices O rev, P, Q rev, and R**) and source water analysis and assumptions in **Appendix B rev**, the alternative would not fully accomplish the project objectives; in some drought years, the yield of the alternative would only provide from 2,800 to 4,300 AFY for the proposed Crop Irrigation component, as compared to up to 5,900 AFY under the Proposed Project.

Reduced Source Water Alternative #7 (City of Salinas Sources On–y - No Source Water Diversions to Augment CSIP Deliveries)

Description of Reduced Source Water Alternative #7

This alternative assumes new source waters would be conveyed to the Regional Treatment Plant for project use from the City of Salinas sources only, and this alternative eliminates all diversions from surface waters including the Reclamation Ditch, Tembladero Slough, and Blanco Drain, and the diversion facility at Lake El Estero. This alternative assumes that no additional waters would be diverted to provide augmentation of recycled water for CSIP area crop irrigation as proposed under the Project.

This alternative assumes that the new sources would be limited to the City of Salinas sources that include agricultural wash water and Salinas stormwater, in addition to excess secondary effluent. The same treatment components as would be constructed under the Proposed Project would be built. The Product Water Conveyance facilities would be the same under this alternative as under the Proposed Project. No new facilities would be built at the source water diversion sites that are not required for this alternative.

A variation of this alternative (the alternative source waters described above combined with the Alternative Monterey Pipeline Alignment) is also presented in **Section 6.3.3** and **Table 6-6**.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

Elimination of all of the surface water diversion components would reduce the physical changes to those sites because no construction would occur to install the facilities need to divert the surface water. In addition, the operational changes to flow and water levels in the downstream reaches of the Reclamation Ditch watershed would not occur. Significant impacts that would be eliminated at each of these sites are summarized in **Table 6-3** (and in combination with the Alternative Monterey Pipeline in **Table 6-6**). Reduced construction and operational impacts would occur due to the elimination of the diversion sites at Blanco Drain, Reclamation Ditch, Tembladero Slough and Lake El Estero. Impacts related to biological resources, cultural resources, land use, noise, energy and traffic would be reduced under this alternative at four diversion sites due to the elimination of construction and operation of these facilities. Biological, cultural, traffic, energy, land use, public services and noise impacts would be avoided at the Tembladero Slough, Reclamation Ditch, Blanco Drain and Lake El Estero sites due to the elimination of these facilities. Impacts to fisheries resources would be avoided under this alternative, specifically there would be no impact to fish habitat due to construction of diversion facilities at the Reclamation Ditch and Tembladero Slough. This alternative would also avoid any impacts from interference with fish migration due to project operations. The significant unavoidable impact of noise from construction of the Tembladero Slough diversion would be eliminated under this alternative. This alternative is also presented together with the Alternative Monterey Pipeline in **Section 6.3.3**.

As discussed above in **Section 6.4**, the impacts of eliminating all of these source water components would result in elimination of the applicable significant impacts listed in **Table 6-3**. Refer to **Table 6-6** for a comparison of this alternative combined with the Alternative Monterey Pipeline to the Proposed Project.

Ability of Alternative to Meet Project Objectives

This alternative would produce 3,500 AFY of purified recycled water to replace a portion of CalAm's water supply to meet project objectives to replenish the Seaside Basin. However, irrigation waters for CSIP would not be augmented in comparison to the Proposed Project. Based on the yield studies (**Appendix O rev**) and source water analysis and assumptions in **Appendix B rev**, this alternative would not fully meet the Crop Irrigation objectives. In this alternative, excess source waters delivered to the Regional Treatment Plant as municipal wastewater flows from existing MRWPCA customers would still be available for use in the CSIP irrigation area. However, new source waters diverted to the system would only be sufficient to meet the Seaside Basin replenishment and CalAm water supply needs objectives.

Reduced Source Water Alternative #8 (No Agricultural Wash Water or South Salinas Stormwater)

Description of Reduced Source Water Alternative #8

In the event that the City of Salinas does not enter into an agreement with MRWPCA to provide the agricultural wash water or south Salinas stormwater for the benefit of the Proposed Project, the other proposed new source waters may be the only waters available for the Proposed Project and less yield would be possible, in particular, during the late summer and fall when minimal surface water flows would be available to divert. Under this alternative, no physical changes would be made to the Salinas Pump Station source water diversion site, the Salinas Treatment Facility or the 33-inch wastewater pipeline to enable agricultural wash water and south Salinas stormwater to be stored and recovered for recycling and reuse.

Environmental Impacts of Alternative Compared to Those of the Proposed Project

Significant impacts that would be eliminated at each of the sites associated with this alternative are summarized in **Table 6-3**. Construction and operational impacts related to biological (terrestrial and fisheries) resources, cultural resources, noise, energy, public services (waste disposal), and traffic impacts would be reduced under this alternative at the City of Salinas facilities due to the elimination of construction and operation of these facilities, including the temporary agricultural construction impacts due to slip-lining the 33-inch pipeline between the Salinas Pump Station and the Salinas Treatment Facility sites. Significant operational land use impacts related to compliance with plans and policies for the Salinas Treatment Facilities Storage and Recovery component would be eliminated.

Ability of Alternative to Meet Project Objectives

Based on the yield studies (**Appendix O <u>rev</u>**) and source water analysis and assumptions in **Appendix B <u>rev</u>**, the alternative would not fully meet the project objective to provide additional agricultural irrigation water as the yield of the alternative would not provide the total Crop Irrigation amount proposed, and in drought years would require the use of CSIP wells in the peak irrigation demand months.

Table 6-2
Reduced Source Water Alternatives: Source Waters Flows/Maximum Use (and range) (in AFY)

Type of Source Water:	Proposed Project (from Table 2-12)	Alternative 1: No Lake El Estero	Alternative 2: No Tembladero Slough	Alternative 3: No Lake El Estero; No Tembladero Slough	Alternative 4: No Blanco Drain	Alternative 5: No Reclamation Ditch; No Tembladero Slough	Alternative 6: No Surface Water Diversions	Alternative 7: City of Salinas Waters Only	Alternative 8: No City of Salinas Waters
Excess/Unused Regional Treatment Plant Municipal Effluent (MRWPCA, Regional Treatment Plant flow monitoring data, January 2014)	3,000 to more than 5,000								
Agricultural Wash Water Flows (Source: City of Salinas and MRWPCA, 2014) **City of Salinas Urban Runoff to Salinas River** (Source: Schaaf & Wheeler, 2015a)	2,579	2,579	2,579	2,579	2,579	2,579	2,579	2,579	0
Reclamation Ditch at Davis Road (Source: Schaaf & Wheeler, 2015b)	1,522	1,522	1,522	1,522	1,522	0	0	0	1,522
Tembladero Slough at Castroville (Source: Schaaf & Wheeler, 2015b)	1,135	1,135	0	0	1,135	0	0	0	1,135
Blanco Drain Diversions (Source: Schaaf & Wheeler, 2014b)	2,620	2,620	2,620	2,620	0	2,620	0	0	2,620
Lake El Estero Storage Management Water (Source: Schaaf & Wheeler, 2014a)	87	0	87	0	87	87	87	0	87
TOTALS (Note 2)	**9,309**	**9,302**	**8,852**	**8,851**	**8,231**	**8,499**	**7,329**	**7,322**	**7,264**

1. Source: Schaaf & Wheeler/Monterey Peninsula Water Management District, 2015 (see **Appendix B rev**).
2. The total use of source water would be less than the sum of all source waters due to seasonal nature of the demands and losses due to Salinas Treatment Facility Storage and Recovery. The amount of secondary-treated Excess Regional Treatment Plant Municipal Effluent used in each scenario is the lesser of the monthly volume available or the average monthly CSIP well usage. The analysis assumes that new source water that exceeds the amount used by the Proposed Project for recycling would not be diverted, or if diverted and unneeded, be disposed via the MRWPCA existing ocean outfall. The amount of secondary-treated municipal effluent to be disposed to the MRWPCA ocean outfall would be less with Proposed Project than current conditions as shown in Appendix Br rev.

Table 6-3
Reduced Source Water Alternatives and Resulting Impacts Eliminated

#	Source Water Type/Site Included / Alternative Description	Salinas Agricultural Wash Water	Salinas Stormwater from Salinas River Watershed	Salinas Treatment Facility Storage and Recovery	Reclamation Ditch Diversion	Blanco Drain Diversion	Tembladero Slough Diversion	Lake El Estero Diversion	**Impacts/Mitigation Measures Eliminated by the Alternative (Applicable Site)** The listed alternative eliminates the following significant impacts – all of which can be reduced to less than significant with the mitigation measures, except **NV-2** that would be significant and unavoidable for Tembladero Slough (numbers correlate to both the impacts and the mitigation measures)
	Proposed Project (all source waters)	X	X	X	X	X	X	X	None
1	No Lake El Estero	X	X	X	X	X	X		BT-6, CR-2, EN-1, HH-2, LU-2, PS-3, TR-3, TR-4 (only at the Lake El Estero site)
2	No Tembladero Slough	X	X	X	X	X		X	BF-1, BT-2, BT-6, CR-2, EN-1, LU-2, **NV-2**, PS-3, TR-3 (only at Tembladero Slough site)
3	No Lake El Estero and No Tembladero Slough	X	X	X	X	X			BT-6, CR-2, EN-1, HH-2, LU-2, PS-3, TR-3, TR-4 (at the Lake El Estero) BF-1, BT-2, BT-6, CR-2, EN-1, LU-2, **NV-2**, PS-3, TR-3 (at Tembladero Slough site)
4	No Blanco Drain	X	X	X	X		X	X	BT-1, BT-2, BT-6, CR-2, EN-1, LU-1, LU-2, NV-2, PS-3, TR-3 (only at the Blanco Drain Diversion site)
5	No Reclamation Ditch/Tembladero Slough	X	X	X		X		X	BF-1, BF-2, BT-2, BT-6, CR-2, EN-1, HS-4, LU-2, NV-2, PS-3, TR-3 (at Reclamation Ditch site) BF-1, BT-2, BT-6, CR-2, EN-1, LU-2, **NV-2**, PS-3, TR-3 (at Tembladero Slough)
6	No Surface Water Diversions (Reclamation Ditch, Tembladero Slough, and Blanco Drain Eliminated)	X	X	X				X	BF-1, BF-2, BT-2, BT-6, CR-2, EN-1, HS-4, LU-2, NV-2, PS-3, TR-3 (at Reclamation Ditch site) BF-1, BT-2, BT-6, CR-2, EN-1, LU-2, **NV-2**, PS-3, TR-3 (at Tembladero Slough) BT-1, BT-2, BT-6, CR-2, EN-1, LU-1, LU-2, NV-2, PS-3, TR-3 (at the Blanco Drain Diversion site)
7	Salinas Waters Only	X	X	X					BF-1, BF-2, BT-2, BT-6, CR-2, EN-1, HS-4, LU-2, NV-2, PS-3, TR-3 (at Reclamation Ditch site) BF-1, BT-2, BT-6, CR-2, EN-1, LU-2, **NV-2**, PS-3, TR-3 (at Tembladero Slough) BT-1, BT-2, BT-6, CR-2, EN-1, LU-1, LU-2, NV-2, PS-3, TR-3 (at the Blanco Drain Diversion site) BT-6, CR-2, EN-1, HH-2, LU-2, PS-3, TR-3, TR-4 (at the Lake El Estero site)
8	No City of Salinas Waters				X	X	X	X	BT-1, CR-2, EN-1, LU-2, PS-3, TR-3 (Salinas Pump Station Diversion) BT-1, CR-2, EN-1, LU-1, LU-2 PS-3, TR-3 (Salinas Treatment Facility Storage and Recovery)

6.3.2.3 *Alternatives for Product Water Conveyance*

Description of the Alternative

Section 2.9 in **Chapter 2, Project Description**, describes two options for the Product Water Conveyance system, including two pipeline alignments and two associated locations for a booster pump station, called the RUWAP and Coastal Alignment Options. Only one of the two Product Water Conveyance pipeline alignments and booster pump stations would be constructed as part of the Proposed Project.

Environmental Impacts of the Alternative – Comparison of the Two Options for Product Water Conveyance

Table 6-4 below summarizes and compares the impacts of construction and operation of the two options for the Product Water Conveyance System for the Proposed Project.

A comparison of the severity of impacts between the two alternative Product Water Conveyance Systems shows that they are very similar. The primary difference in impacts is in construction and operational impacts to riparian habitat and federally protected wetlands as defined by Section 404 of the Clean Water Act; specifically, the impacts of the RUWAP alignment option would be less than significant while the Coastal alignment option would be significant, but reduced to less than significant with mitigation in this EIR (specifically, Mitigation Measures BT-2, and BT-6). The Coastal alignment option of the Product Water Conveyance pipeline could impact Locke Paddon Lake that contains wetlands and riparian habitat in the City of Marina, and the RUWAP alignment would not affect those habitats.

All other impacts of the two pipeline alignment options would be the same or similar. The RUWAP booster pump station site is located in proximity to the CSUMB classrooms and ¼ mile east of some student housing; however, the site is located in a depression and is immediately adjacent to the City of Marina Corporation Yard. The Coastal booster pump station site is located along and visible from 2nd Avenue within an area that contains trees and is adjacent to dilapidated former Army barracks buildings. It is also near CSUMB recreational facilities; however the immediate vicinity is primarily paved parking lots areas. Both booster pump station sites would result in similar or the same environmental impacts.

Table 6-4
Summary of Significant Impacts of Product Water Conveyance Options: RUWAP and Coastal (including Pipelines and Booster Pump Stations)

Impact Title	Coastal Alignment Option	RUWAP Alignment Option
AE-4: Operation Impacts due to Permanent Light and Glare *Note: this impact is specific to the Booster Pump Station components of the Product Water Conveyance system. The pipelines would not result in any new sources of light and glare.*	LSM	LSM
BT-1: Construction Impacts to Special-Status Species and Habitat	LSM	LSM
BT-2: Construction Impacts to Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community	~~LS~~LSM	LS~~LSM~~
BT-4: Construction Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan	LSM	LSM
CR-2: Construction Impacts on Archaeological Resources or Unknown Human Remains	LSM	LSM
EN-1: Construction Impacts due to Temporary Energy Use	LSM	LSM
HH-2: Construction Accidental Release of Hazardous Materials	LSM	LSM
LU-2: Operational Consistency with Plans, Policies, Regulations	LSM	LSM
NV-1: Construction Noise	LS	LS
NV-2: Construction Noise Exceeds Local Standards	LSM	LSM
PS-3: Construction Solid Waste Policies and Regulations	LSM	LSM
TR-2: Construction Traffic Delays, Safety and Access Limitations	LSM	LSM
TR-3: Construction-Related Road Deterioration	LSM	LSM
TR-4: Construction Parking Interference	LSM	LSM

Ability of Alternatives to Meet Project Objectives

Either of the Product Water Conveyance options evaluated in the EIR would fully achieve the project objectives. The two alignments would differ in relationship to the requirements to obtain necessary easements and rights of way, and project costs. The Coastal alignment would utilize a large portion of the Transportation Agency for Monterey County right of way, pass through State Parks land near the Divarty Street undercrossing of Highway 1, and also would be located in the Coastal Zone, including areas within the City of Marina Local Coastal Program and Coastal Commission jurisdiction. These issues may be constraints to timely project implementation. The RUWAP alignment is proposed within City of Marina public roadway rights of way, requiring rights of way and easements from that jurisdiction, in addition to horizontal directional drilling (trenchless technology) through major intersections. The RUWAP alignment would also require agreements with the Marina Coast Water District for placing the pipelines within areas that contain Marina Coast Water District water supply and wastewater infrastructure.[7]

6.3.2.4 *Alternatives to CalAm Distribution System Pipelines*

The CalAm Distribution System Transfer and Monterey Pipelines are proposed to be built by CalAm. These pipelines are also a part of the MPWSP[8] and will be evaluated in the EIR for that project. Alternative alignments for the proposed Transfer and Monterey Pipelines alignments are considered in this section (called the Alternative Transfer Pipeline and Alternative Monterey Pipeline).

Description of the Alternative CalAm Distribution System Pipelines

The alternative CalAm Distribution System Pipelines are described below and shown in **Figure 6-2** (together with the proposed pipelines) and **Appendix Z** in detail. **Figures 2-18, 2-38, and 2-39** illustrate the Proposed Project pipeline alignments in detail. **Table 6-5** compares the impacts of the Proposed CalAm Distribution Monterey and Transfer Pipelines to the impacts of the Proposed Project's alignments for the Monterey and Transfer Pipelines. It is important to note that if the Alternative Monterey Pipeline were constructed instead of the Proposed Project's alignment for the Monterey Pipeline, then the Transfer Pipeline would no longer be needed and the impacts associated with construction of the Transfer Pipeline would be eliminated. As shown on **Figure 6-2**, the Alternative Monterey Pipeline would convey water from an existing pipeline at the intersection of Yosemite Street and Hilby Avenue (its eastern terminus) through Seaside and Monterey to the Eardley pump station within the City of Pacific Grove (the western terminus). Therefore, with this alignment, the Transfer Pipeline would not be needed for delivering water supplies from the Seaside Groundwater Basin to the CalAm customers. If the Proposed Project alignment for the Monterey Pipeline were constructed, then either the Proposed Project alignment for the Transfer Pipeline could be constructed and operated, or the alternative alignment for the Transfer Pipeline could be constructed and operated.

Description of Alternative Transfer Pipeline

An alternative to the Proposed Transfer Pipeline alignment has been designed by CalAm's consultants (see **Figure 6-2** and **Appendix Z**). As shown in **Figures 2-18** and **2-38**, the

[7] The RUWAP alignment option (and to a lesser extent the Coastal alignment) would also provide for a future opportunity for shared use of the GWR Product Water Conveyance Alignment (or the trench) to convey water supplies for the Marina Coast Water District customers. This future opportunity is not addressed in this EIR due to lack of information about the shared use scenario—no potential water users have been identified and no agreements for sharing the proposed GWR Product Water Conveyance System are in progress.

[8] A short segment of the pipeline (approximately 1,800 linear feet located west of General Jim Moore) is not needed for the GWR Project and would not be built by CalAm unless the MPWSP or an alternative to the MPWSP without the GWR Project, is implemented. That pipeline would be needed to connect to a storage tank called the Terminal Reservoir that is a component of the MPWSP, but is also not part of the Proposed GWR Project.

Proposed Transfer Pipeline would be 2.4 miles long. From the intersection of Del Monte Boulevard/La Salle Avenue, the Proposed Transfer Pipeline would be routed east along La Salle Avenue for approximately 0.9 mile to Yosemite Street, then south to the ASR Pump Station near the intersection of Hilby Avenue and Yosemite Street.[9]

Similar to the Proposed Project's alignment, the Alternative Transfer Pipeline would be 2.4 miles long. From the intersection of Del Monte Boulevard/La Salle Avenue, the Alternative Transfer Pipeline would be routed east along La Salle Avenue for approximately 0.3 mile to Noche Buena Street (this first segment is the same as Proposed Project alignment) where it would then proceed to Hilby Avenue, then proceed approximately 1,800 feet along Hilby Avenue to its intersection with Yosemite Street where it would connect to an existing potable water supply pipeline.

Description of Alternative Monterey Pipeline

An alternative to the proposed Monterey Pipeline has been designed by CalAm's consultants (see **Figure 6-2** and **Appendix Z**). The following describes the proposed pipeline and the alternative pipeline and compares the differences in alignments.

Proposed Monterey Pipeline. The Proposed Project's alignment for the Monterey Pipeline would be 5.4 miles long. **Figures 2-38** and **2-39** in **Chapter 2**, **Project Description**, shows the proposed Monterey Pipeline alignment. From the intersection of Del Monte Boulevard/La Salle Avenue, the proposed Monterey Pipeline would be routed southwest on the west side of Del Monte Boulevard, generally following the Monterey Peninsula Recreational Trail and Transportation Agency for Monterey County right-of-way. The alignment would run south on Figueroa Street and west along Franklin Street. At High Street, the alignment would bear north and traverse the Presidio of Monterey in existing roadway. At the western boundary of the Presidio of Monterey, the alignment would continue on to Spencer Street southwest on Eardley Street and terminate near the existing Eardley Pump Station.

Alternative Monterey Pipeline. The alternative pipeline, called the "Alternative Monterey Pipeline," would be 6.5 miles long (and, if selected, there would be no need to construct the Transfer Pipeline). **Figure 6-2** and detailed figures in **Appendix Z** illustrate the Alternative Monterey Pipeline alignment. From the intersection of Yosemite Avenue and Hilby Avenue, the pipeline would continue west along Hilby Avenue to Fremont Street, then head generally southwest along Fremont Avenue and Mark Thomas Drive to Aquajito Road. At the Fairgrounds Road/Mark Thomas Drive Bridge over Highway 68, the pipeline would be supported on an approximately 400-foot-long truss pipe bridge alongside the existing road bridge. From the intersection of Mark Thomas Drive/Aquajito Road, the alternative alignment would head northwest along Aquajito Road to Fremont Street and continue west along Fremont Street, Munras Street, and Webster Street. At the intersection of Webster Street/Hartnell Street, the alternative alignment would turn northwest onto Hartnell Street. The pipeline would cross over Hartnell Gulch within the existing roadway. From the intersection of Hartnell Street/Madison Street, the alternative alignment would continue northwest along Madison Street to Monroe Street. The pipeline would turn north onto Monroe Street, west onto Jefferson Street, and north onto High Street. The 0.8-mile segment between the intersection of High Street/Franklin Street and the intersection of Spencer Street/Hoffman Avenue would be the same as the Proposed

[9] Under the MPWSP, the Proposed Transfer Pipeline would also be built east of General Jim Moore to connect existing pipelines in that roadway to the Terminal Reservoir storage tanks proposed as part of the MPWSP. For the GWR Proposed Project, the Proposed Transfer Pipeline would end at Yosemite Avenue where it would connect to an existing potable water supply pipeline.

Project alignment. At Spencer Street/Hoffman Avenue, the alternative alignment would head southwest along Hoffman Avenue, northwest along Lily Street, west along Withers Avenue, and northwest along Filmore Street and Sinex Avenue, terminating at a new connection with the CalAm distribution system near the Eardley Pump Station (URS, 2014b). With the exception of the 400-foot-long segment that would be suspended in a pipe bridge alongside the Fairgrounds Road/Mark Thomas Drive Bridge over Highway 68, the rest of the alternative alignment would be located entirely within existing paved road rights-of-way.

Monterey Pipeline Comparison Overview. The entire Alternative Monterey Pipeline would be located outside of the Coastal Zone. **Figure 6-2** shows the proposed and alternative alignments. If the Alternative Monterey Pipeline is selected for construction, neither the proposed Transfer Pipeline nor the Alternative Transfer Pipeline would be built to deliver the required water quantities to meet CalAm customers' demands.

Environmental Impacts of the Alternative Compared to those of the Proposed Project

CalAm Distribution System: Transfer Pipeline

Table 6-5 compares the impacts of the Proposed Project Transfer Pipeline and the Alternative Transfer Pipeline. The level of significance and the severity of the impacts would be the same or similar for all impact topics if the Alternative Transfer Pipeline were constructed instead of the Proposed Transfer Pipeline, because both would be 2.4 miles long and both would be entirely within existing, paved, public roadways. As discussed previously, if the Alternative Monterey Pipeline is built all impacts of the Transfer Pipeline would be eliminated.

CalAm Distribution System: Monterey Pipeline

Table 6-5 compares the impacts of the Proposed Project Monterey Pipeline and the Alternative Monterey Pipeline. If the Alternative Monterey Pipeline is selected rather than the Proposed Monterey Pipeline, neither the Proposed Project Transfer Pipeline nor that the Alternative Transfer Pipeline would be constructed, and all of the impacts of constructing the Transfer Pipeline would be avoided. The Alternative Monterey Pipeline also would avoid the impact related to coastal erosion and bluff retreat due to sea level rise because the alternative alignment is located outside of the 2030 to 2050 coastal erosion hazard zone.

The Alternative Monterey Pipeline would not avoid other identified significant impacts of the Proposed Monterey Pipeline nor would the Alternative reduce significant impacts to a less-than-significant level. Mitigation measures would be required as with the Proposed Project. The Alternative would not avoid the significant and unavoidable impact of the Proposed Monterey Pipeline related to nighttime construction noise. In the case of impacts to special status species and sensitive habitat, impacts would continue to be significant with the Alternative Monterey Pipeline, although different species and habitats would be affected with the Alternative. The Alternative Monterey Pipeline would reduce impacts related to biological resources; specifically, the Alternative would not be located within coastal dune habitat or monarch butterfly habitat. The Alternative Monterey Pipeline would also result in significant impacts, which would be potentially greater than the Proposed Project's significant impacts related to historic and prehistoric archaeological resource impacts during construction due to its location in the vicinity of known archaeological resources. Potential hazards along the Monterey Peninsula Recreational Trail during construction would decrease compared to the Proposed Project. **Table 6-5** provides more detailed analysis of these impacts and the relative severity of the Proposed Project's Pipeline Alignments compared to the alternatives.

Ability of Alternatives to Meet Project Objectives

The Proposed Project CalAm Distribution System, the Alternative Transfer Pipeline, and the Alternative Monterey Pipeline would achieve the project objectives. Due to being located outside of the Coastal Zone and the elimination of the need for the Transfer Pipeline, the Alternative Monterey Pipeline would have the potential to be implemented more expeditiously and thus may better meet the objective of being implemented in a timely manner.

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Table 6-5
CalAm Distribution Pipeline Alignment Alternatives Overview

KEY TO ACRONYMS: **SU** = Significant Unavoidable Impact even with Mitigation; **LSM** = Significant Without Mitigation / Less-than-Significant with Mitigation; **LS =** Less-than-Significant Impact

Comparison of impacts before mitigation: **"+"** Greater = Impact is greater compared to project impact **"—"**. Reduced = Impact is reduced compared to project impact. If neither **"—"** nor **"+"** is shown, the impact is the same or similar compared to the project impact

Impact Title (NOTE: Where the Proposed CalAm Distribution System would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the CalAm Distribution System: Monterey and Transfer Pipeline Alternatives.)	**PROPOSED CalAm Distribution System**			**ALTERNATIVES CalAm Distribution System: Transfer and Monterey Pipelines** Note: If Alternative Monterey Pipeline is implemented, neither the Proposed nor the Alternative Transfer Pipeline would be built and those impacts would be eliminated.			
	Transfer (GWR) Pipeline	**Monterey Pipeline**	**Mitigation Measures**	**Alternative Transfer Pipeline**	**Change to impact significance and mitigation measures applicable**	**Alternative Monterey Pipeline**	**Change to impact significance and mitigation measures applicable**
AE-2: Construction Impacts due to Temporary Light and Glare	NI	**LSM**	**AE-2:** Minimize Construction Nighttime Lighting. (Applies to the Monterey Pipeline)	NI	Same / No mitigation required	**LSM**	The Alternative Monterey Pipeline would not avoid or reduce the impact to a less-than-significant level compared to the Proposed Project because nighttime lighting would still be potentially used during construction of for the Alternative Monterey Pipeline. Mitigation would be required for the Proposed Project and Alternative Monterey Pipeline. **Mitigation Measure AE-2** would be required for the Proposed Project and Alternative.
BT-1: Construction Impacts to Special-Status Species and Habitat	NI	**LSM**	**BT-1a, BT-1b, BT-1c, BT-1d, BT-1e, BT-1g, BT-1h, BT-1k, BT-1l, BT-1m, BT-1n, and BT-1o.** See complete text in Table S-1. (Applies to Monterey Pipeline, only)	NI	Same / No mitigation required	LSM —	The Alternative Monterey Pipeline would reduce the project impact to special status during construction to a less-than-significant level because the pipeline would be entirely with roadway rights of way. however, due to the potential for special status species to be located in proximity to the project construction site, the impact would be potentially significant. Mitigation would be required for the Proposed Project and the Alternative Monterey Pipeline. **Mitigation Measures:** ~~None Required~~ BT-1a, BT-1k, and BT-1m would be required to reduce the impact to a less-than-significant level for the Alternative Monterey Pipeline.
BT-2: Construction Impacts to Sensitive Habitats, including Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	NI	**LSM**	**BT-2a:** Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. ~~Implement Construction Best Management Practices.~~ (Applies to both) **BT-2b:** Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to Monterey Pipeline, only)	NI		~~**LSM**~~ **LS-**	The Alternative Monterey Pipeline would reduce the project impact to sensitive habitats during construction to a less-than-significant level because the pipeline would be entirely with roadway rights of way. **Mitigation Measures:** None Required ~~The Alternative Monterey Pipeline would not avoid or reduce the impact to a less-than-significant level. Although the Alternative Monterey Pipeline would traverse different areas and different types of habitats than the Proposed Transfer and Monterey Pipeline, the construction-related impacts would be similar to those of the Proposed Transfer and Monterey Pipelines would have the same level of impact significance as the Proposed Project alignment; however, where different resources would be adversely affected, different mitigation measures would apply.~~ ~~**Mitigation Measure BT-2a and BT-2b** would be required for the Proposed and Alternative Monterey Pipeline, although a different Mitigation BT-2b would be required.~~[10]
BT-6: Operational Impacts to Sensitive Habitats, including Riparian, federally protected wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural	NI	LSM	**BT-6:** Implementation of Mitigation Measure BT-1a for Avoidance and Minimization of Operational Impacts to Sensitive Habitat (Applies to Monterey Pipeline, only)	NI	Same / No mitigation required	NI—	The Alternative Monterey Pipeline would avoid the significant impact on sensitive habitats (Coastal Dune Scrub and Monarch Butterflies). **Mitigation Measures:** None Required

[10] For the Alternative Monterey Pipeline, Mitigation Measures BT-2a and BT-2b are not applicable. See Denise Duffy & Associates, Inc. memorandum dated November 24, 2014 (DD&A, 2014).

Table 6-5
CalAm Distribution Pipeline Alignment Alternatives Overview

Impact Title (NOTE: Where the Proposed CalAm Distribution System would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the CalAm Distribution System: Monterey and Transfer Pipeline Alternatives.)	**PROPOSED CalAm Distribution System**			**ALTERNATIVES CalAm Distribution System: Transfer and Monterey Pipelines** Note: If Alternative Monterey Pipeline is implemented, neither the Proposed nor the Alternative Transfer Pipeline would be built and those impacts would be eliminated.			
	Transfer (GWR) Pipeline	**Monterey Pipeline**	**Mitigation Measures**	**Alternative Transfer Pipeline**	**Change to impact significance and mitigation measures applicable**	**Alternative Monterey Pipeline**	**Change to impact significance and mitigation measures applicable**
Community.							
CR-1: Construction Impacts on Historical Resources	NI	**LSM**	**CR-1:** Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, and Downtown Monterey. (Applies to Monterey Pipeline, only)	NI	Same / No mitigation required	**LSM+**	Project impacts to historical resources would be similar with the Alternative Monterey Pipeline as with the Proposed Transfer and Monterey Pipeline. Construction of the Alternative Monterey Pipeline could impact the entrance monument at the Presidio of Monterey, a significant impact that would be reduced to less than significant with Mitigation Measure CR-1. The Alternative Monterey Pipeline would pass adjacent to the Spanish Royal Presidio and through the Monterey Old Town National Historic Landmark District, adjacent to the Stokes Adobe, the Gabriel de la Torre Adobe, the Fremont Adobe, Colton Hall, and Friendly Plaza. Although those potentially impacted resources would be different historical resources than the Proposed Monterey Pipeline would potentially impact, the severity of impacts on any one would be similar with implementation of the Proposed or Alternative Monterey Pipeline. The Alternative Monterey Pipeline would also extend through the Presidio of Monterey Historic District along Stillwell Avenue. Potential direct and indirect impacts on these historical resources would be significant, but reduced to less than significant with the mitigation measure listed below. **Mitigation Measure CR-1** would be required for the Proposed Project and a revised version would be required for the Alternative Monterey Pipeline.
CR-2: Construction Impacts on Archaeological Resources or Unknown Human Remains	**LSM**	**LSM**	**CR-2a**: Archaeological Monitoring Plan. (Applies to Monterey Pipeline) **CR-2b**: Discovery of Archaeological Resources or Human Remains. (Applies to both) **CR-2c**: Native American Notification. (Applies to both)	**LSM**	Project impact would not be eliminated or reduced in significance with the Alternative Transfer Pipeline as construction would have the same potential to uncover unknown archaeological resources during construction. **Mitigation Measure CR-2b and 2c** required for the Proposed Project and Alternative.	**LSM+**	Project impact would not be avoided with Alternative Monterey Pipeline as its construction would result in the potential to uncover unknown archaeological resources during construction. The Alternative would be located adjacent to recorded prehistoric archaeological resources, which could increase the possibility for discovery during construction and result in a greater significant impact than with the Proposed Transfer and Monterey Pipelines. The potential inadvertent discovery of archaeological resources and human remains during construction of the Proposed Project Monterey Pipeline are considered significant impacts, but reduced to less than significant with mitigation measure listed below. **Mitigation Measure CR-2a, 2b and 2c** would be required for the Proposed Project and a revised version would be required for the Alternative Monterey Pipeline.
EN-1: Construction Impacts due to Temporary Energy Use	**LSM**	**LSM**	**EN-1**: Construction Equipment Efficiency Plan. (Applies to both)	**LSM**	Project impact would not be eliminated or reduced in significance with Alternative as construction of either the Proposed or Alternative Transfer Pipeline because they both would result in similar levels of energy consumption during construction. **Mitigation Measure EN-1** required for the Proposed Project and Alternative.	**LSM—**	Project impact would be reduced in significance with Alternative Monterey Pipeline as its construction would result in less energy consumption during construction. **Mitigation Measure EN-1** would be required for the Proposed Project and Alternative.

Table 6-5
CalAm Distribution Pipeline Alignment Alternatives Overview

Impact Title (NOTE: Where the Proposed CalAm Distribution System would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the CalAm Distribution System: Monterey and Transfer Pipeline Alternatives.)	**PROPOSED CalAm Distribution System**			**ALTERNATIVES CalAm Distribution System: Transfer and Monterey Pipelines** Note: If Alternative Monterey Pipeline is implemented, neither the Proposed nor the Alternative Transfer Pipeline would be built and those impacts would be eliminated.			
	Transfer (GWR) Pipeline	**Monterey Pipeline**	**Mitigation Measures**	**Alternative Transfer Pipeline**	**Change to impact significance and mitigation measures applicable**	**Alternative Monterey Pipeline**	**Change to impact significance and mitigation measures applicable**
GS-1: Construction-Related Erosion or Loss of Topsoil	LS	**LS**	None required.	LS	Similar-Same / No mitigation required	LS—	Construction-related soil erosion would be reduced compared to that of the Proposed Monterey Pipeline because the Alternative Monterey Pipeline would be shorter than the combined Proposed (or Alternative) Transfer and Proposed Monterey Pipelines. The associated ground disturbance area would also be reduced. Like the Proposed Monterey Pipeline, the impact associated with increased soil erosion would be less than significant because construction activities would be conducted in accordance with requirements of the NPDES Construction General Permit and local grading and erosion control ordinances. **Mitigation Measures:** None Required.
GS-5: Operation - Exposure to Coastal Erosion and Sea Level Rise	NI	**LSM**	**GS-5:** Monterey Pipeline Deepening. (Applies to Monterey Pipeline only).	NI	Same / No mitigation required	NI	The Alternative Monterey Pipeline would avoid the impact related to coastal erosion and bluff retreat due to sea level rise because the alternative alignment is located outside of the 2030 to 2050 coastal erosion hazard zone. Therefore, no impact related to coastal erosion and bluff retreat would occur with the Alternative Monterey Pipeline. **Mitigation Measure GS-5** would be required for Proposed Project, but not required for the Alternative Monterey Pipeline.
HH-2: Accidental Release of Hazardous Materials During Construction	**LSM**	**LSM**	**HH-2a:** Environmental Site Assessment. (Applies to both) **HH-2b:** Health and Safety Plan. (Applies to both) **HH-2c:** Materials and Dewatering Disposal Plan. (Applies to both)	**LSM**	Project impact would not be eliminated or reduced in significance with this Alternative as construction of either the Proposed or Alternative Transfer Pipeline would result in similar impact related to potential release of hazardous materials during construction. **Mitigation Measure HH-2a, 2b and 2c** would be required for the Proposed Project and Alternative.	**LSM**	Project impact would not be avoided or reduced in significance with Alternative Monterey Pipeline as construction of either the Proposed or Alternative Transfer and Proposed Monterey pipelines would result in similar impact related to potential release of hazardous materials during construction. **Mitigation Measure HH-2a, 2b and 2c** would be required for the Proposed Project and Alternative Monterey Pipeline.
LU-2: Operational Consistency with Plans, Policies, Regulations	**LSM**	**LSM**	Mitigation Measures in Table 4.12-4.	LSM	Project impact would not be eliminated or reduced in significance with this Alternative as construction of either the Proposed or Alternative Transfer Pipeline would result in similar impacts related to consistency with plans, policies and regulations. **Mitigation Measures in Table 4.12-4**	**LSM**	Project impact would not be avoided or reduced in significance with Alternative Monterey Pipeline as construction of either the Proposed Project or Alternative would result in similar impact related to potential policy inconsistencies. **Mitigation Measures** would be required for the Proposed Monterey Pipeline and Alternative Monterey Pipeline.
NV-1: Construction Noise	LS	**SU**	**NV-1b:** Monterey Pipeline Noise Control Plan for Nighttime Pipeline Construction. (Applies to Monterey Pipeline) **NV-1c:** Neighborhood Notice. (Applies to Monterey Pipeline)	LS	Similar-Same / No mitigation required	**SU**	The Alternative Monterey Pipeline would not avoid or reduce the impact related to nighttime construction noise to a less-than-significant level because the Alternative would traverse residential neighborhoods similar to the Proposed Project alignment and may require nighttime construction. **Mitigation Measure NV-1b and NV-1c** would be required for the Proposed Project and Alternative, but would

Table 6-5
CalAm Distribution Pipeline Alignment Alternatives Overview

Impact Title (NOTE: Where the Proposed CalAm Distribution System would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the CalAm Distribution System: Monterey and Transfer Pipeline Alternatives.)	PROPOSED CalAm Distribution System			ALTERNATIVES CalAm Distribution System: Transfer and Monterey Pipelines. Note: If Alternative Monterey Pipeline is implemented, neither the Proposed nor the Alternative Transfer Pipeline would be built and those impacts would be eliminated.			
	Transfer (GWR) Pipeline	Monterey Pipeline	Mitigation Measures	Alternative Transfer Pipeline	Change to impact significance and mitigation measures applicable	Alternative Monterey Pipeline	Change to impact significance and mitigation measures applicable
							not reduce the impact to a less-than-significant level.
PS-3: Construction Solid Waste Policies and Regulations	LSM	LSM	**PS-3**: Construction Waste Reduction and Recycling Plan (Applies to both)	LSM	Project impact would not be avoided or reduced in significance with Alternative as construction of either the Proposed Project or Alternative would result in similar impact during construction. **Mitigation Measure PS-3** would be required for the Proposed Project and Alternative.	LSM	Project impact would not be avoided or reduced in significance with Alternative as construction of either the Proposed Project or Alternative would result in similar impact during construction. **Mitigation Measure PS-3** would be required for the Proposed Project and Alternative.
TR-2: Construction Traffic Delays, Safety and Access Limitations	LSM	LSM	**TR-2:** Traffic Control and Safety Assurance Plan (Applies to both)	LSM	Project impact would not be avoided or reduced in significance with Alternative as construction of either the Proposed Project or Alternative would result in similar traffic impact during construction. **Mitigation Measure TR-2** would be required for the Proposed Project and Alternative.	LSM	Project impact would not be avoided or reduced in significance with Alternative, and would be approximately the same with the Alternative due to the same total length of pipeline, but potential hazards along the Monterey Peninsula Recreational Trail during construction would decrease compared to the Proposed Project. **Mitigation Measure TR-2** would be required for the Proposed Project and Alternative.
TR-3: Construction-Related Road Deterioration	LSM	LSM	**TR-3**: Roadway Rehabilitation Program (Applies to both)	LSM	Project impact would not be avoided or reduced in significance with Alternative as construction of either the Proposed Project or Alternative would result in similar traffic impact during construction. **Mitigation Measure TR-3** would be required for the Proposed Project and Alternative.	LSM	Project impact would not be avoided or reduced in significance with Alternative, and would be approximately the same with the Alternative due to the same total length of pipeline. **Mitigation Measure TR-3** would be required for the Proposed Project and Alternative.
TR-4: Construction Parking Interference	LSM	LSM	**TR-4**: Construction Parking Requirements (Applies to both)	LSM	Project impact would not be avoided or reduced in significance with Alternative, and the Alternative's impact on parking during construction would be similar to the Proposed Project. **Mitigation Measure TR-4** would be required for the Proposed Project and Alternative.	LSM	Project impact would not be avoided or reduced in significance with Alternative, and the Alternative's impact on parking during construction would be similar to the Proposed Project. **Mitigation Measure TR-4** would be required for the Proposed Project and Alternative.

KEY TO ACRONYMS: SU = Significant Unavoidable Impact even with Mitigation LSM = Significant Without Mitigation / Less-than-Significant with Mitigation LS = Less-than-Significant Impact

Comparison of impacts before mitigation "+" Greater = Impact is greater compared to project impact "—". Reduced = Impact is reduced compared to project impact. If neither "—" nor "+" is shown, the impact is the same or similar compared to the project impact

AE- Aesthetics, AQ- Air Quality/Greenhouse Gas, BF-Biological/Fisheries, BT- Biological/Terrestrial, CR- Cultural, EN-Energy Mineral Resources, GS-Geology/Soils, HH Hazards/ Hazardous Materials, GW-Hydrology/Water Quality: Groundwater, HS-Hydrology/Water Quality: Surface Water, LU-Land Use/Agriculture, MR-Marine Biological, NV-Noise/Vibration, PH-Population/Housing, PS-Public Services/Recreation/Utilities, TR-Traffic/Transportation, WW-Water Supply/Wastewater

6.3.3 Conclusion of Alternatives Analysis

This section summarizes the comparative environmental analysis of the No Project Alternative to the Proposed Project and also discusses several combinations of alternatives discussed above that were found to reduce environmental impacts while still meeting most of the project objectives. These are called Alternative A, Alternative B, and Alternative C in **Table 6-6** for brevity purposes.

Alternative A: Reduced Seaside Basin Replenishment and Alternative Monterey Pipeline

The Reduced Seaside Basin Replenishment Alternative would reduce the amount of water for Seaside Basin replenishment by 500 AFY compared to the Proposed Project (i.e., 3,000 AFY rather than 3,500 AFY of purified recycled water would be produced, conveyed to, and injected into the Seaside Basin, for later extraction by CalAm). The need to divert source waters would be reduced by approximately 600 AFY which could be achieved by eliminating one or more source water diversion sites, or by constructing and operating all of the source water diversions, but operating them with a lower total diversion amount.

If the Reduced Seaside Basin Replenishment Alternative were combined with the Alternative Monterey Pipeline (i.e., rather than the Proposed Transfer and Monterey Pipelines), numerous other significant construction impacts would be reduced due to reduced construction areas and activities, and the Proposed Project may be implemented more quickly, better meeting the project timeframe objective. **Table 6-6** provides an overview of environmental impacts of this combined alternative (called Alternative A) compared to the Proposed Project.

Alternative B: Reduced Source Water Alternative # 2 (No Tembladero Slough) and Alternative Monterey Pipeline

Reduced Source Water Alternative # 2 was found to avoid the significant and unavoidable noise impact at the Tembladero Slough diversion due to exceedances of the County's noise level ordinance; however, the alternative would not meet the project objectives as fully as the Proposed Project. Specifically, the Reduced Source Water Alternative #2 would only provide up to 5,200 AFY for the proposed Crop Irrigation component in some drought years (compared to up to 5,900 AFY under the Proposed Project).

If the Reduced Source Water Alternative #2 was combined with the Alternative Monterey Pipeline (i.e., rather than the Proposed Transfer and Monterey Pipeline), numerous other significant construction impacts would be reduced due to reduced construction areas and activities. Because the Alternative Monterey Pipeline avoids the Coastal Zone, it may be implemented more quickly than the Proposed Monterey Pipeline, better meeting the project timeframe objective. **Table 6-6** provides an overview of environmental impacts of this combined alternative (called Alternative B) compared to the Proposed Project.

Alternative C: Reduced Source Water Alternative # 7 (Salinas Source Waters Only) and Alternative Monterey Pipeline

Reduced Source Water Alternative #7 (Salinas Source Waters Only) was found to avoid the significant and unavoidable noise impact at the Tembladero Slough Diversion, in addition to reducing environmental impacts related to source water diversions from surface waters, such as changes in flow, induced water level changes, and direct and indirect impacts on biological resources (albeit the latter would be less-than-significant under the Proposed Project). The Reduced Source Water Alternative #7 would not meet the Crop Irrigation objective to the extent that the Proposed Project would; in fact it would provide very little or no augmentation of the existing supplies to the CSIP area.

If the Reduced Source Water Alternative #7 was combined with the Alternative Monterey Pipeline (i.e., rather than both the Proposed Transfer and Monterey Pipelines), numerous other significant construction impacts would be reduced due to reduced construction areas and activities. Because the Monterey Pipeline avoids the Coastal Zone, it may be implemented more quickly than the Proposed Project, better meeting the project timeframe objective. **Table 6-6** provides an overview of environmental impacts of this combined alternative (called Alternative C) compared to the Proposed Project.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA Guidelines (Section 15126.6(e)(2)) require that an environmentally superior alternative be identified among the alternatives considered. According to CEQA Guidelines section 15126.6(e), if the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The environmentally superior alternative is generally defined as the alternative that would result in the fewest adverse environmental impacts on the project site and surrounding area.

Table 6-3 presents a comparison of impacts from eliminating each of the proposed new source waters. **Table 6-4** presents a comparison of impacts of the Product Water Conveyance Options. **Table 6-5** presents a comparison of impacts of the Proposed CalAm Distribution System: Transfer and Monterey Pipelines to the Alternative Transfer and Monterey Pipelines. **Table 6-6** presents a comparison of impacts between the Proposed Project, the No Project Alternative, the Reduced Seaside Basin Replenishment Alternative, Reduced Source Water Alternative #2 (No Tembladero Slough) plus the Alternative Monterey Pipeline, and the Reduced Source Water Alternative #7 (No Surface Water Diversions) plus the Alternative Monterey Pipeline.

Of the alternatives considered, the No Project Alternative would eliminate all the identified significant impacts, but would not attain any of the project objectives. All of the impacts of the Proposed Project can be reduced to less-than-significant levels with mitigation except for significant and unavoidable noise impacts associated with construction of the Tembladero Slough Diversion and nighttime construction of the CalAm Distribution System: Monterey Pipeline. The Reduced Source Water #2 (No Tembladero Slough) would eliminate the significant and unavoidable noise impact associated with construction at that site. The Alternative Monterey Pipeline would not necessarily eliminate the significant and unavoidable noise impact from nighttime construction of the Monterey Pipeline; however, that alternative would eliminate the need for the Transfer Pipeline, which would eliminate all impacts associated with construction of the Transfer Pipeline. Accordingly, other than the No Project Alternative, the Environmentally Superior Alternative would be the Reduced Source Water (No Tembladero Slough) Alternative combined with the Alternative Monterey Pipeline.

Table 6-6
Impact Summary for Proposed Project and Alternatives to the Proposed Project

Impact Title *NOTE: Where the Proposed Project would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the Alternatives A, B, or C.)*	**Project Overall**	**Alternatives to the Proposed Project** **No Project Alternative** (No New Facilities or Modifications to Existing Facilities)	**Reduced Seaside Basin Replenishment Alternative (3,000 AFY) with Monterey Alternative Pipeline** (Alternative A)	**Reduced Source Water Alternative #2 (No Tembladero Slough) with Alternative Monterey Pipeline** (Alternative B)	**Reduced Source Water Alternative #7 (Salinas Source Waters Only) with Alternative Monterey Pipeline** (Alternative C)	**Mitigation Measures and Impact Comparison of Alternative to Proposed Project**
KEY TO ACRONYMS: BI- Beneficial Impact; NI – No Impact; LS – Less than Significant; S / LS – Before Mitigation: Significant / After Mitigation: Less than Significant; SU = Significant **"+"** = Impact is **greater** than Proposed Project impact ; **"—"** = Impact is **less** than Proposed Project impact; If neither **"—"** nor **"+"** is shown, the impact is the same as or similar to the Proposed Project impact						
AE-2: Construction Impacts due to Temporary Light and Glare	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with the No Project Alternative, but would not be eliminated or reduced in significance with any other alternative as none of the alternatives result in changes at the Injection Well Facilities site where the significant project impact would occur and the Alternative Monterey Pipeline would still potentially involve nighttime lighting that is assumed to be a similar level of impact. Mitigation would be required for the Project and with Alternatives A, B, C. **Mitigation Measure AE-2**: Minimize Construction Nighttime Lighting. (*Applies to the Injection Well Facilities Site*)
AE-4: Operation Impacts due to Permanent Light and Glare	**S / LS**	No Impact	S / LS	S / LS	S / LS	Project impact would be eliminated with the No Project Alternative, but would not be eliminated or reduced in level of significance with any other alternative as none of the alternatives result in changes at the Product Water Booster Pump Station and Injection Well facilities sites, where the impact would occur. Mitigation would be required for the Project and with Alternatives A, B, C. **Mitigation Measure AE-4**: Exterior Lighting Minimization (*Applies to Product Water Conveyance Booster Pump Station - (both Options) and Injection Well Facilities)*
AQ-1: Construction Criteria Pollutant Emissions	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S—* / LS**	Project impact would be eliminated with the No Project Alternative. Impact would not be reduced with Alternative A as construction would occur at all Project sites as with the Proposed Project. The impact would be reduced, but not to a less-than-significant level, with Alternatives B and C as some Project construction sites would be eliminated, thus reducing emissions, but construction-related emissions would continue to result at multiple Project construction sites. Mitigation would be required for the Project and with Alternatives A, B, and C. * It is noted that Alternative C has the potential to reduce this impact to LS without mitigation; however, assuming all components of Alternative C are constructed with overlapping schedules, the impact would still be significant without mitigation. **Mitigation Measure AQ-1:** Construction Fugitive Dust Control Plan (*Applies to all Project Component Sites where ground disturbance would occur.)*
AQ-4: Construction Greenhouse Gas Emissions and AQ-9: Operational Greenhouse Gas Emissions (Cumulative Impacts)	LS	No Impact	LS—	LS—	LS—	Project impact would be reduced in significance and continue to be LS (i.e., no alternatives would result in a considerable contribution to significant cumulative GHG or climate change impacts). Impact would be eliminated with the No Project Alternative. **Mitigation Measure:** None required.
BF-1: Fish Habitat Modification Due to Construction of Diversion Facilities	**S / LS**	No Impact	**S / LS**	**S— / LS**	NI	Project impact would be eliminated with No Project Alternative. Project impact would not be eliminated or reduced in significance with Alternative A as construction would occur at all Project sites same as with the Proposed Project. Impact would be reduced, but not to a less-than-significant level, with Alternative B as mitigation still would be required at the Reclamation Ditch Diversion site. Mitigation would be required for the Proposed Project and Alternatives A and B. Project impact would be eliminated with Alternative C as both the Reclamation Ditch and Tembladero Slough Diversion sites would be eliminated. **Mitigation Measure BF-1a**: Construction during Low Flow Season (*Applies to Reclamation Ditch and Tembladero Slough Diversions)* **Mitigation Measure BF-1b:** Relocation of Aquatic Species during Construction (*Applies to Reclamation Ditch and Tembladero Slough Diversions*)

Table 6-6
Impact Summary for Proposed Project and Alternatives to the Proposed Project

Impact Title *NOTE: Where the Proposed Project would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the Alternatives A, B, or C.)*	**Project Overall**	**Alternatives to the Proposed Project** **No Project Alternative** (No New Facilities or Modifications to Existing Facilities)	**Reduced Seaside Basin Replenishment Alternative (3,000 AFY) with Monterey Alternative Pipeline** (Alternative A)	**Reduced Source Water Alternative #2 (No Tembladero Slough) with Alternative Monterey Pipeline** (Alternative B)	**Reduced Source Water Alternative #7 (Salinas Source Waters Only) with Alternative Monterey Pipeline** (Alternative C)	**Mitigation Measures and Impact Comparison of Alternative to Proposed Project**
BF-2: Interference with Fish Migration Due to Project Operations	**S / LS**	No Impact	**S / LS**	**S / LS**	NI	Project impact would be eliminated with No Project Alternative. Project impact would not be eliminated or reduced in significance with Alternative A as all facilities would be built and source water diversions would be operated similarly to the Proposed Project (while there may be less diversions from the Reclamation Ditch, the proposed and mitigated timing (seasonality) and quantity of diversion would still apply to this alternative). Impact would not be eliminated or reduced in significance with Alternative B (No Tembladero Diversion) as the Reclamation Ditch Diversion would be built and operated under this alternative. Mitigation would be required for the Proposed Project and Alternatives A and B. Project impact would be eliminated with Alternative C as there would be no surface water diversions from Tembladero Slough or Reclamation Ditch and all diversion sites would be eliminated. **Mitigation Measure BF-2a:** Maintain Migration Flows (*Applies to the Reclamation Ditch Diversion)*
BF-3: Reduction in Fish Habitat or Fish Populations Due to Project Operations	LS	No Impact	LS	LS —	NI	Project impact would be eliminated with No Project Alternative. Proposed Project impacts for Reduction in Fish Habitat or Fish Populations Due to Project Operations are LS. Reductions in level of impact are discussed due to the sensitive resource. LS impact would be reduced under Alternatives B due to elimination of one diversion site (Tembladero Slough). Under Alternative C, both Tembladero Slough and Reclamation Ditch Diversion sites would be eliminated and fisheries impacts due to project operations of these facilities are avoided. **Mitigation Measure:** None required.
BT-1: Construction Impacts to Special-Status Species and Habitat	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with the No Project Alternative. Impact would not be eliminated or reduced with Alternative A as construction would occur at all Project sites same as with the Proposed Project. The impact would be reduced with elimination of some Project Diversion sites, but not to a less-than-significant level, with Alternatives B and C as some impacts would continue to occur at other Project sites. Mitigation would be required for the Project and with Alternatives A, B, and C. **Mitigation Measure BT-1**: See complete text following Table S-1 or in Section 4.5 Biological Resources: Terrestrial.
BT-2: Construction Impacts to Riparian, Federally Protected Wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative. Project impact would not be eliminated or reduced in significance with Alternative A as construction would occur at all Project sites the same as with the Proposed Project. Impact would be reduced in significance, but not to a less-than-significant level, under Alternative B due to elimination of Tembladero Slough Diversions Site. Alternative C would eliminate construction within Tembladero Slough, the Reclamation Ditch, and Blanco Drain; therefore, the significant project impacts at those sites would be eliminated. Mitigation would be required for the Project and for Alternatives A, B, and C. With the Proposed Project all of Mitigation Measure BT-2 (including BT-1a) would be required. With Alternative A and B, only BT-1A, BT-2a, and BT-2c would be required (i.e., BT-2b does not apply because it only applies to the Proposed Monterey Pipeline, not the Alternative Monterey Pipeline included in Alternatives A and B). With Alternative C, only BT-1a and BT-2a would be required for the Product Water Conveyance: Coastal Alignment. **Mitigation Measure BT-1a**: See complete text following Table S-1 or in Section 4.5 Biological Resources: Terrestrial. **Mitigation Measure BT-2a:** Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats. (Applies to Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.) **Mitigation Measure BT-2b:** Avoidance and Minimization of Impacts to Central Dune Scrub Habitat. (Applies to Monterey Pipeline) **Mitigation Measure BT-2c:** Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River (Applies to Blanco Drain Diversion)
BT-4: Construction Conflicts with Local Policies, Ordinances, or approved Habitat Conservation Plan.	**S / LS**	No Impact	**S / LS**	**S / LS**	**S / LS**	Project impact would be eliminated with the No Project Alternative, but would not be eliminated or reduced in significance with any other alternative. Mitigation would be required for the Project and with Alternatives A, B and C. **Mitigation Measure BT-4a**. HMP Plant Species Salvage (*Applies to Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities site within the former Fort Ord only)*

Table 6-6
Impact Summary for Proposed Project and Alternatives to the Proposed Project

Impact Title *NOTE: Where the Proposed Project would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the Alternatives A, B, or C.)*	Project Overall	Alternatives to the Proposed Project: No Project Alternative (No New Facilities or Modifications to Existing Facilities)	Alternatives to the Proposed Project: Reduced Seaside Basin Replenishment Alternative (3,000 AFY) with Monterey Alternative Pipeline (Alternative A)	Alternatives to the Proposed Project: Reduced Source Water Alternative #2 (No Tembladero Slough) with Alternative Monterey Pipeline (Alternative B)	Alternatives to the Proposed Project: Reduced Source Water Alternative #7 (Salinas Source Waters Only) with Alternative Monterey Pipeline (Alternative C)	Mitigation Measures and Impact Comparison of Alternative to Proposed Project
BT-5: Operational Impacts to Special-Status Species and Habitat.	LS	No Impact	LS	LS—	LS—	Project impact would be eliminated with No Project Alternative. All impacts for Operational Impacts to Special-Status Species and Habitat are LS but reductions in level of impact are discussed due to the sensitivity of the resource. Less-than-significant impact would be reduced under Alternative B with one less site (elimination of the Tembladero Slough site) for diversion, but not eliminated. Alternative C would reduce diversions further and also reduce impact to special status species and habitat due to elimination of Reclamation Ditch, Tembladero Slough, and Blanco Drain diversions. The impact under the No Project and Alternatives A, B, and C would be LS. **Mitigation Measure:** None required.
BT-6: Operational Impacts to Riparian, federally protected wetlands as defined by Section 404 of the Clean Water Act, or Other Sensitive Natural Community.	**S / LS**	No Impact	**S— / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative. The impact would not be eliminated or reduced in significance or with Alternative A as construction would occur at all Project sites same as with the Proposed Project. Impact would be reduced in significance, but not to a less-than-significant level, under Alternatives B and C due to elimination of some diversion sites and continued impacts at other sites. Mitigation would be required for the Project and with Alternatives A, B and C. **Mitigation Measure BT-6a.** Implementation of Mitigation Measures BT-1a for Avoidance and Minimization of Operational Impacts to Sensitive Habitat (*Applies to CalAm Distribution System: Monterey Pipeline)*
CR-1: Construction Impacts on Historical Resources	**S / LS**	No Impact	**S / LS**	**S / LS**	**S / LS**	Project impact would be eliminated with the No Project Alternative, but would not be eliminated or reduced in significance with Alternatives A, B or C. Mitigation would be required for the Project and with Alternatives A, B and C. See discussion of Monterey alignment alternatives regarding changes to the significance determinations; this analysis assumes the historical resources impacts of construction of the Alternative Monterey Pipeline would be the same as those for the Proposed Monterey Pipeline described in Chapter 2, Project Description. **Mitigation Measure CR-1:** Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, and Downtown Monterey (*Applies to portion of the CalAm Distribution Pipeline-Monterey Pipeline)*
CR-2: Construction Impacts on Archaeological Resources or Unknown Human Remains	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative. Impact would not be eliminated or reduced in significance with Alternative A as construction would occur at all Project sites same as the Proposed Project. The impact would be reduced in significance, but not to a less-than-significant level, with Alternatives B, and C as construction would continue to occur at some Project sites and elimination of construction of under Alternative B and C does not impact this resource category. Mitigation would be required for the Project and Alternatives A, B and C. **Mitigation Measure CR-2a:** Archaeological Monitoring Plan (*Applies to the segment of the CalAm Distribution Pipeline through the Presidio and along W. Franklin Street and to the Lake El Estero Diversion Site)* **Mitigation Measure CR-2b:** Discovery of Archaeological Resources or Human Remains (Applies to all Proposed Project components) **Mitigation Measure CR-2c:** Native American Notification (*Applies to all Proposed Project components)*
EN-1: Construction Impacts due to Temporary Energy Use	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative. Impact would not be eliminated or reduced in significance with Alternative A as construction would occur at all Project sites same as the Proposed Project. Impact would be reduced in significance, but not to a less-than-significant level, with Alternatives B, and C as construction would continue to occur at some Project sites. Mitigation would be required for the Project and Alternatives A, B and C. **Mitigation Measure EN-1:** Construction Equipment Efficiency Plan (*Applies to all Proposed Project components)*

Table 6-6
Impact Summary for Proposed Project and Alternatives to the Proposed Project

Impact Title *NOTE: Where the Proposed Project would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the Alternatives A, B, or C.)*	**Project Overall**	**Alternatives to the Proposed Project**				**Mitigation Measures and Impact Comparison of Alternative to Proposed Project**
		No Project Alternative (No New Facilities or Modifications to Existing Facilities)	**Reduced Seaside Basin Replenishment Alternative (3,000 AFY) with Monterey Alternative Pipeline** (Alternative A)	**Reduced Source Water Alternative #2 (No Tembladero Slough) with Alternative Monterey Pipeline** (Alternative B)	**Reduced Source Water Alternative #7 (Salinas Source Waters Only) with Alternative Monterey Pipeline** (Alternative C)	
EN-2: Operational Impacts due to Energy Use	LS	No Impact	LS—	LS—	LS—	Project impact would be reduced in significance and continue to be less than significant (i.e., no alternatives would result in a consumption of energy such that existing supplies would be substantially constrained nor would the Project result in the unnecessary, wasteful, or inefficient use of energy resources). Impact would be eliminated with the No Project Alternative. **Mitigation Measure:** None required.
GS-5: Operation - Exposure to Coastal Erosion and Sea Level Rise	**S / LS**	No Impact	NI	NI	NI	Project impact would be eliminated with all alternatives because the Alternative Monterey Pipeline would not be within the zone where coastal erosion and sea level rise would effect it as the case with the Proposed Monterey Pipeline as described in Chapter 2, Project Description. **Mitigation Measure:** None Required
HH-2: Accidental Release of Hazardous Materials During Construction	**S / LS**	No Impact	**S— / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative. Project impact would be reduced in significance with Alternatives A, B or C because there would be less overall construction due to constructing only the Alternative Monterey Pipeline instead of both the Proposed CalAm Distribution System: Monterey and Transfer Pipelines. Impact would be reduced further with Alternative C, but not to a less-than significant level, due to elimination of additional conveyance and construction sites. Mitigation would be would be required for the Project and with Alternatives A, B and C **Mitigation Measures HH-2a:** Environmental Site Assessment, **HH-2b:** Health and Safety Plan, and **HH-2c:** Materials and Dewatering Disposal Plan. (A*pplies to the Lake El Estero Diversion, Product Water Conveyance System Options, Injection Well Facilities, and the CalAm Distribution System)*
GW-3: Operational Groundwater Depletion and Levels: Salinas Valley Groundwater Basin	**Beneficial Impact**	No Beneficial Impact	**Beneficial Impact**	**Beneficial Impact (less)**	**Beneficial Impact (less)**	Beneficial impact would be eliminated with No Project Alternative. Beneficial impact would be reduced under Alternative B due to elimination of Tembladero Diversion yield. Beneficial impact would be further reduced (and potentially eliminate) under Alternative C. Alternative C (Reduced Source Water Alternative #7) would provide little augmentation of the existing supplies to the CSIP area. **Mitigation Measure:** None required.
GW-5: Operational Groundwater Quality: Salinas Valley Groundwater Basin	**Beneficial Impact**	No Beneficial Impact	**Beneficial Impact**	**Beneficial Impact (less)**	**Beneficial Impact (less)**	Beneficial impact would be eliminated with No Project Alternative. Beneficial impact would be somewhat reduced under Alternatives B and C. Beneficial impact could be eliminated with Alternatives C. Alternative C (Reduced Source Water Alternative #7) would provide little augmentation of the existing supplies to the CSIP area. **Mitigation Measure:** None required.
GW-6: Operational Groundwater Quality: Seaside Basin	**Beneficial Impact/LS**[11]	No Beneficial Impact	**Beneficial Impact/LS**[10] **(less)**	**Beneficial Impact/LS**[10]	**Beneficial Impact/LS**[10]	Beneficial and LS impacts would be eliminated with No Project Alternative, and the beneficial impact would be reduced with Alternative A. **Mitigation Measure:** None required.
HS-4: Operational Surface Water Quality Impacts due to Source Water Diversions	**S / LS**	No Impact	**S / LS**	**S / LS**	No Impact	Project impact would be eliminated with No Project Alternative and with Alternative C. Impact would not be eliminated or reduced in significance with Alternatives A and B. Mitigation would be required for the Project and Alternatives A and B. **Mitigation Measure HS-4:** Management of Surface Water Diversion Operations (*Applies to Reclamation Ditch Diversion, only*)

[11] The project impact of groundwater quality in the Seaside Groundwater Basin would be less than significant for most constituents and beneficial related to salinity.

Table 6-6
Impact Summary for Proposed Project and Alternatives to the Proposed Project

Impact Title *NOTE: Where the Proposed Project would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the Alternatives A, B, or C.)*	Project Overall	Alternatives to the Proposed Project				Mitigation Measures and Impact Comparison of Alternative to Proposed Project
		No Project Alternative (No New Facilities or Modifications to Existing Facilities)	**Reduced Seaside Basin Replenishment Alternative (3,000 AFY) with Monterey Alternative Pipeline** (Alternative A)	**Reduced Source Water Alternative #2 (No Tembladero Slough) with Alternative Monterey Pipeline** (Alternative B)	**Reduced Source Water Alternative #7 (Salinas Source Waters Only) with Alternative Monterey Pipeline** (Alternative C)	
HS-7: Operational Carmel River Flows	**Beneficial Impact**	No Impact	**Beneficial Impact (less)**	**Beneficial Impact**	**Beneficial Impact (less)**	Beneficial impact would be eliminated with No Project Alternative, and the beneficial impact would be reduced with Alternative A. **Mitigation Measure:** None required.
LU-1: Construction Temporary Farmland Conversion	**S / LS**	No Impact	**S / LS**	**S / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative. Impact would not be eliminated or reduced in significance with Alternatives A or B. Impact would be reduced, but not to a less-than-significant level with Alternative C. Mitigation would be required for the Project and Alternatives A, B and C. **Mitigation Measure LU-1:** Minimize Disturbance to Farmland *(Applies to the Salinas Treatment Facility and a portion of the Blanco Drain Diversion)*
LU-2: Operational Consistency with Plans, Policies, Regulations	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative, but would not be eliminated or reduced in significance with Alternative A. Impact would be reduced, but not to a less-than-significant level, with Alternatives B and C. Mitigation would continue to be required as specified to insure consistency with plans, policies and regulations. **Mitigation Measures (all)**
NV-1: Construction Noise	**SU**	No Impact	**SU —**	**SU—**	**SU—**	Project impacts would be eliminated with No Project Alternative. Nighttime noise SU Impact during construction of the CalAm Monterey Distribution: Monterey Pipeline would be reduced in significance, but not be eliminated, under Alternatives A, B, and C. Mitigation would be required. **Mitigation Measure NV-1a**: Drilling Contractor Noise Measures *(Applies to Injection Well Facilities)* **Mitigation Measure NV-1b:** Monterey Pipeline Noise Control Plan for Nighttime Pipeline Construction *(Applies to CalAm Distribution System: Monterey Pipeline)* **Mitigation Measure NV-1c:** Neighborhood Notice *(Applies to Injection Well Facilities and CalAm Distribution System: Monterey Pipeline)*
NV-2: Construction Noise Exceeds Local Standards	**SU**[12]	No Impact	**SU**	**S / LS**	**S / LS**	Project impact would be eliminated with No Project Alternative. SU impact would still apply to Alternative A, but would no longer apply to Alternatives B and C due to elimination of the Tembladero Slough Diversion site (the only site for which mitigation would not reduce impact to LS). Impact would remain significant but reduced to a less-than-significant level for Alternatives B and C. Mitigation would be required for the Proposed Project and Alternatives A, B and C. **Mitigation Measure NV-2a:** Construction Equipment *(Applies to Source Water Diversion and Storage Sites – Reclamation Ditch, Tembladero Slough and Blanco Drain, Product Water Conveyance Pipeline segments within the City of Marina and RUWAP Booster Station)* **Mitigation Measure NV-2b:** Construction Hours (*Applies to Product Water Conveyance Pipelines and Booster Pump Station in the City of Marina)*
PS-3: Construction Solid Waste Policies and Regulations	**S / LS**	No Impact	**S— / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative. Impact would be reduced, but not to a less-than-significant level, with Alternatives A, B and C. Mitigation would be required for the Project and Alternatives A, B and C. **Mitigation Measure PS-3:** Construction Waste Reduction and Recycling Plan *(Applies to all Proposed Project components)*
TR-2: Construction Traffic Delays, Safety and Access Limitations	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative, but would not be eliminated or reduced in significance for Alternative A. Impact would be reduced, but not to a less-than-significant level with Alternatives B and C. Mitigation would be required for the Project and Alternatives A, B, and C. **Mitigation Measure TR-2:** Traffic Control and Safety Assurance Plan *(Applies to Product Water Conveyance RUWAP and Coastal Alignments, and CalAm Distribution System: Transfer and Monterey Pipelines)*

[12] Significant and unavoidable impact applies only to the Tembladero Slough diversion.

Table 6-6
Impact Summary for Proposed Project and Alternatives to the Proposed Project

Impact Title *NOTE: Where the Proposed Project would result in no impacts or less than significant impacts, such impacts have not been included in this table if they would be the same for the Alternatives A, B, or C.)*	**Project Overall**	**Alternatives to the Proposed Project** **No Project Alternative** (No New Facilities or Modifications to Existing Facilities)	**Reduced Seaside Basin Replenishment Alternative (3,000 AFY) with Monterey Alternative Pipeline** (Alternative A)	**Reduced Source Water Alternative #2 (No Tembladero Slough) with Alternative Monterey Pipeline** (Alternative B)	**Reduced Source Water Alternative #7 (Salinas Source Waters Only) with Alternative Monterey Pipeline** (Alternative C)	**Mitigation Measures and Impact Comparison of Alternative to Proposed Project**
TR-3: Construction-Related Road Deterioration	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative, but would not be eliminated or reduced in significance for Alternative A. Impact would be reduced, but not to a less-than-significant level with Alternatives B and C. Mitigation would be required for the Project and Alternatives A, B, and C. **Mitigation Measure TR-3**: Roadway Rehabilitation Program *(applies to all Proposed Project facilities and associated construction activities)*
TR-4: Construction Parking Interference	**S / LS**	No Impact	**S / LS**	**S— / LS**	**S— / LS**	Project impact would be eliminated with No Project Alternative, but would not be eliminated or reduced in significance for Alternative A. Impact would be reduced, but not to a less-than-significant level with Alternatives B and C. Mitigation would be required for the Project and Alternatives A, B, and C. **Mitigation Measure TR-4:** Construction Parking Requirements (*Applies to construction activities associated with the Product Water Conveyance Pipelines in Marina and Seaside, Transfer Pipeline, and Monterey Pipeline)*

KEY TO ACRONYMS:

- BI- Beneficial Impact
- NI – No Impact
- LS – Less than Significant
- S / LS – Before Mitigation: Significant / After Mitigation: Less than Significant
- SU - Significant
- "+" = Impact is greater than Proposed Project impact
- "—" = Impact is less than Proposed Project impact
- If neither "—" nor "+" is shown, the impact is the same as or similar to the Proposed Project impact

- AE - Aesthetics
- AQ - Air Quality and Greenhouse Gas
- BF - Biological Resources: Fisheries
- BT- Biological Resources: Terrestrial
- CR - Cultural and Paleontological Resources
- EN - Energy and Mineral Resources
- GS – Geology, Soils, and Seismicity
- HH – Hazards and Hazardous Materials
- GW – Hydrology and Water Quality: Groundwater

- HS – Hydrology and Water Quality: Surface Water
- LU - Land Use and Agriculture
- MR - Marine Biological Resources
- NV - Noise and Vibration
- PH – Population and Housing
- PS - Public Services, Recreation, and Utilities
- TR – Traffic and Transportation
- WW - Water Supply and Wastewater Systems

6.5 REFERENCES

CPUC, 2009. *Final Environmental Impact Report for the Coastal Water Project*. October 2009

CPUC, 2012. *Notice of Preparation of an Environmental Impact Report for the CalAm Monterey Peninsula Water Supply Project*. October 2012.

CPUC, 2013. *Settling Parties' Motion to Approve Settlement Agreement on Plant Size and Operation*. July 2013.

City of Pacific Grove, 2014. *Monterey-Pacific Grove ASBS Stormwater Management Project, Final Environmental Impact Report,* prepared by Rincon Consultants, Inc., April 2014

City of Pacific Grove, 2014. *40% Design Engineering Report, Stormwater Management Project, Pacific Grove Area of Special Biological Significanc*e, prepared by Fall Creek Engineering, May 2014

Marina Coast Water District, 2015. *Board Meeting Packet for March 2, 2015. Agenda Item #9B available* at: http://www.mcwd.org/docs/agenda_minutes/2015-03-02_board/2015-03-02.pdf.

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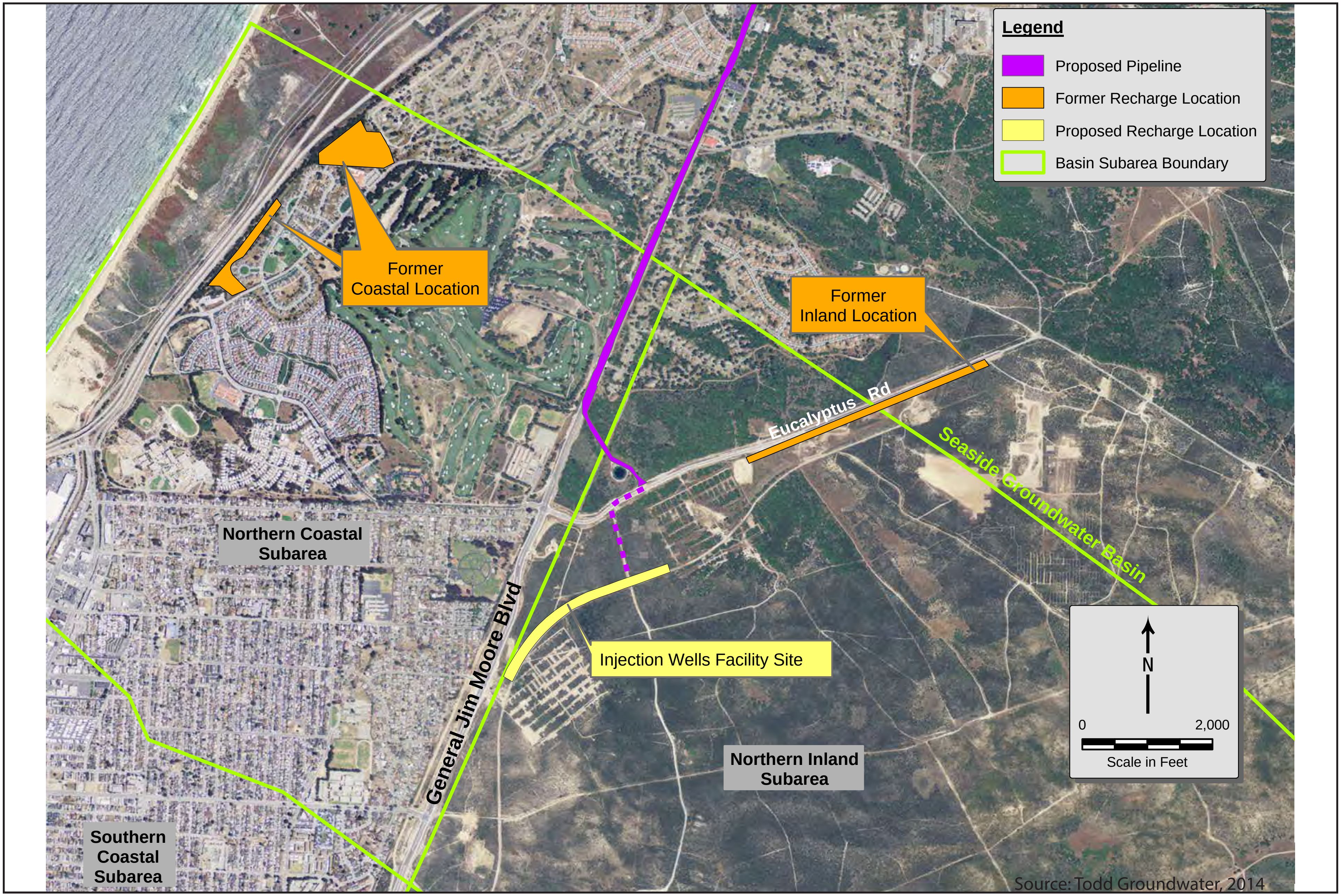
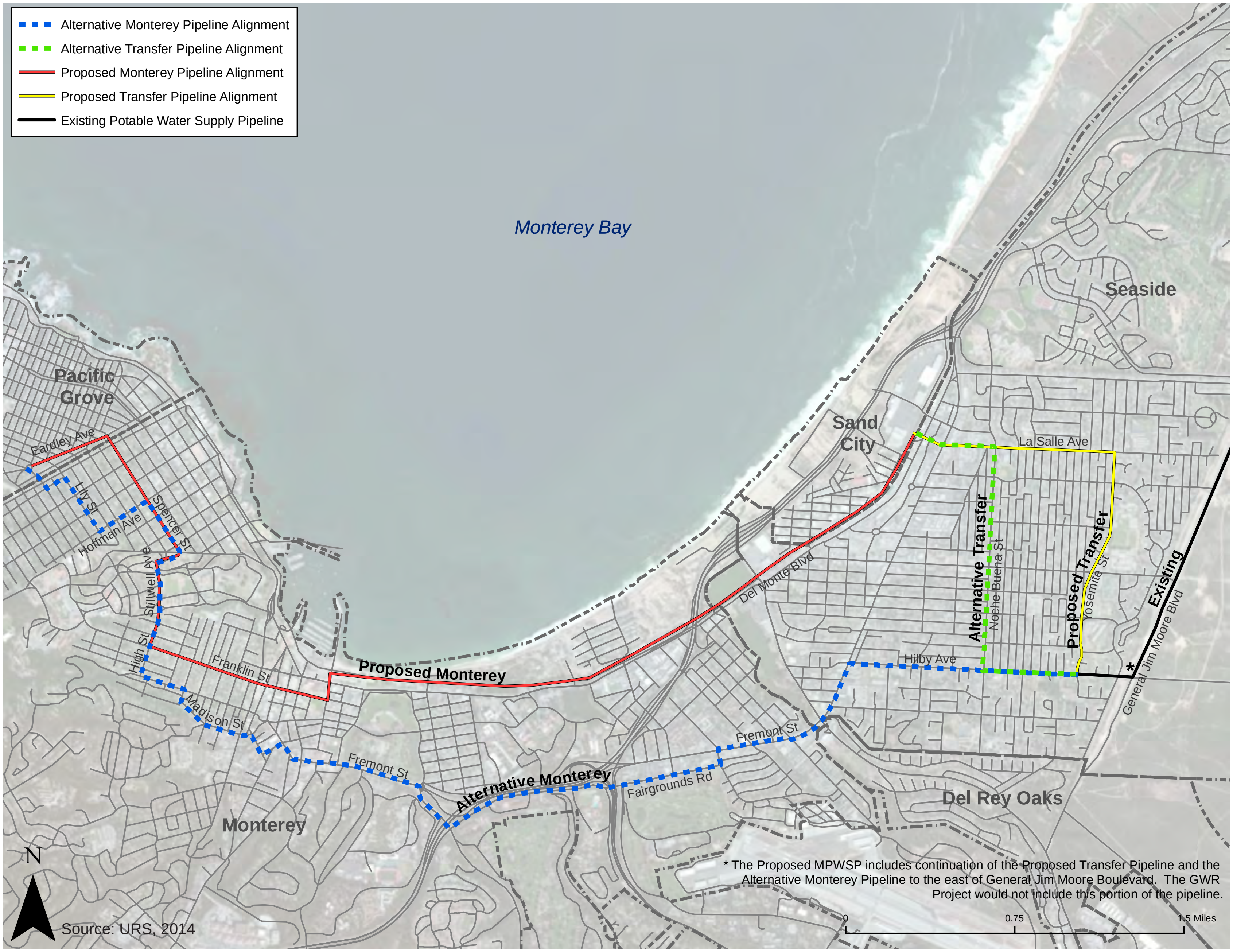


Alternative Injection Well Facilities Sites

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
6-1



DD&A

Proposed and Alternative CalAm Distribution System Pipelines: Transfer and Monterey

April 2015

Pure Water Monterey GWR Project
Draft EIR

Figure
6-2

CHAPTER 7 LIST OF PREPARERS AND PERSONS CONSULTED

Sections
7.1 Lead Agency 7.2 Partner Agency 7.3 EIR Consultants 7.4 Lead and Partner Agency Consultant Team

7.1 LEAD AGENCY

Monterey Regional Water Pollution Control Agency

- Keith Israel, General Manager
- Paul Sciuto, Deputy General Manager
- Robert Holden, P.E., Principal Engineer/Project Manager
- Mike McCullough, Recycled Water Program Assistant
- Garrett Haertel, P.E., Compliance Engineer
- James Dix, Wastewater Treatment Plant Operations Manager
- Jennifer Gonzalez, P.E., Engineering Supervisor

7.2 PARTNER AGENCY

Monterey Peninsula Water Management District

- David Stoldt, General Manager
- Larry Hampson, District Engineer
- Joe Oliver, Water Resources Division Manager
- Jonathan Lear, Senior Hydrologist

7.3 EIR CONSULTANTS

Prime Consultant: Denise Duffy and Associates, Inc.

- Denise Duffy, Principal
- Alison Imamura, AICP, Senior Project Manager
- Diana Buhler, Deputy Project Manager
- Erin Harwayne, Senior Planner/Scientist
- Josh Harwayne, Senior Scientist
- Matt Johnson, Associate Scientist
- Jami Davis, Associate Scientist
- Julia Simmons, Associate Planner
- Matt Kawashima, Assistant Planner

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- Mary Echevarria, Contracts and Operations Manager
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Hagar Environmental Science

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HDR, Inc.

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- Adrian Pitts, Fisheries and Aquatics Sciences Section Manager

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Ninyo and Moore

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- Derek Magnuson, P.E., G.E., Senior Staff Geologist

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- Stephanie Strelow, Consulting Environmental Planner

7.4 Lead and Partner Agency Consultant Team

(* =These consultants worked under contract for MRWPCA and DD&A)

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- Jerry Cole, P.E., BCEE, Pipeline Design Engineer
- James Crook, Ph.D., P.E., Independent Consultant

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Hazen and Sawyer

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- William Motzer, Ph.D., PG, CH, Senior Geochemist
- Edwin Lin, P.G., C.H.G., Senior Hydrogeologist

*Schaaf and Wheeler Consulting Civil Engineers**

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- Josh Tabije, Assistant Engineer
- Andrew Racz, Junior Engineer
- ~~Separation Processes, Inc.~~

Seperation Processes, Inc.

- Alex Wesner, P.E., Project Manager
- Brad Reisinger, Project Engineer (since publication of the Draft EIR, Mr. Reisinger has now moved to Hazen Sawyer)

Trussell Technologies

- Gordon Williams, Ph.D., P.E., Principal Engineer
- John Kenny, P.E., Engineer

- Brie Webber, Associate Engineer

7.5 Persons Consulted

In addition to all of the above individuals, the following additional persons were consulted in the preparation of this EIR:

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- Stewart, Susan, Environmental Scientist, *Division of Financial Assistance, State Water Resources Control Board*
- True, Brian, Capital Improvement Projects Engineer, *Marina Coast Water District*
- Watson, Fred, Associate Professor, Division of Science and Environmental Policy *California State University Monterey Bay*
- White, Kelly, and Zigas, Eric, Project Managers for the MPWSP Draft EIR, *Environmental Science Associates, Inc.*