

Appendix D

Biological Resources Assessment - Revised



Central Coast Blue Project

Biological Resources Assessment

prepared for

City of Pismo Beach

Planning Division

760 Mattie Road

Pismo Beach, California 93449

Contact: Matthew Downing, AICP, Planning Manager

prepared by

Rincon Consultants, Inc.

1530 Monterey Street, Suite 300

San Luis Obispo, California 93401

January 2021 ~~July 2020~~



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Environmental Scientists | Planners | Engineers

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Executive Summary

Rincon Consultants, Inc. has prepared this Biological Resources Assessment to document existing conditions and provide a basis for evaluation of potential impacts to special status biological resources during development and implementation of a regional advanced purified water project located in Oceano (a census-designated place in unincorporated San Luis Obispo County) and the city of Grover Beach, California. Central Coast Blue (herein referred to as the “proposed project” or “project”) is proposed by the City of Pismo Beach and South San Luis Obispo County Sanitation District and is intended to enhance water supply reliability by reducing the Santa Maria Groundwater Basin’s vulnerability to drought and seawater intrusion.

The proposed project consists of an advanced treatment facility complex (including an advanced purified water storage tank, an equalization tank, and a pump station), water distribution pipelines, agricultural irrigation pipelines, injection wells, monitoring wells, and one new production well. The project would specifically involve injection of advanced purified water into the Santa Maria Groundwater Basin via a series of injection wells, installed at various locations in the Santa Maria Groundwater Basin. At this time, only the locations of the injection and monitoring wells, water distribution pipelines, ATF complex, and the existing ocean outfall pipeline are known; therefore, this assessment focuses on the impacts to biological resources from these components. The locations of the new production well and the agricultural irrigations pipelines are not known, and supplemental analysis may be required at the time that these locations are identified.

The Study Area analyzed herein is comprised of the footprints of project components as well as a 100-foot buffer around those features in order to capture potential direct and indirect impacts. Seven terrestrial vegetation and land cover types were observed within the Study Area during the biological field survey: developed/landscaped, eucalyptus stand, arroyo willow riparian, blackberry bramble, non-native grassland, iceplant mat, and ruderal. A roadway drainage was observed within the Study Area that is ephemeral in nature. The arroyo willow riparian habitats associated with Meadow Creek and Arroyo Grande Creek are classified under the California Coastal Act as wetlands, and the City of Grover Beach and the County of San Luis Obispo each have an adopted Local Coastal Program that identifies these riparian areas as Environmentally Sensitive Habitat Areas. California overwintering population of monarch butterfly habitat is also identified in the Local Coastal Program as Environmentally Sensitive Habitat Areas. This project is anticipated to require permits from the California Department of Fish and Wildlife and the Regional Water Quality Control Board if riparian habitat cannot be avoided and Coastal Development Permits from the City of Grover Beach and County of San Luis Obispo through their Local Coastal Programs.

Based on the habitats found on site, a number of special status species have the potential to be encountered during construction of the proposed injection wells. The federally threatened California red-legged frog (*Rana draytonii*) has a potential to occur at the locations of IW-5A, IW-5B, and MW-5A/5B/5C and along an approximately 0.36-mile section of the water distribution pipelines. Direct impacts to California red-legged frog from construction of the injection wells, monitoring wells, and the water distribution pipelines would be minimized and/or avoided to the greatest extent feasible with the implementation of measures described in Section 5, *Impact Analysis and Mitigation Measures*. No federally designated critical habitat is present within the Study Area.

The Study Area also contains potentially suitable foraging habitat for tricolored blackbird, which is a State Species of Special Concern and a State Threatened species. The Study Area also provides suitable

nesting and foraging habitat for the white-tailed kite, a State Fully Protected species. Direct and indirect impacts to tricolored blackbird and white-tailed kite are not expected to occur with the implementation of the proposed avoidance and minimization measures described in Section 5, *Impact Analysis and Mitigation Measures*.

Based on the presence of suitable habitat, two additional special status animal species may occur on site – the California legless lizard (*Anniella pulchra*) and southwestern pond turtle (*Emys marmorata*), both of which are State Species of Special Concern. In addition, based on the presence of suitable habitat, two special status animal species may migrate by the existing wastewater treatment plant discharge pipeline - the southern sea otter (*Enhydra lutris nereis*) and steelhead-south central California coast distinct population segment (*Oncorhynchus mykiss irideus*), both of which are Federally Threatened species. Furthermore, vegetation within and adjacent to the project site offers potential nesting habitat for bird species that are protected under the federal Migratory Bird Treaty Act and California Fish and Game Code. Direct and indirect impacts to these species are not expected with implementation of the proposed avoidance and minimization measures.

1 Introduction

Rincon Consultants, Inc. (Rincon) has prepared this Biological Resources Assessment (BRA) to document existing conditions and provide a basis for the evaluation of potential impacts to special status biological resources from the implementation of the proposed Central Coast Blue project (herein referred to as “proposed project” or “project”) located in San Luis Obispo County, California.

This BRA has been prepared to provide technical information and impact analysis and to review the proposed project in sufficient detail to determine to what extent the proposed project may impact special status species and sensitive natural communities to support review of the project under the California Environmental Quality Act (CEQA). This assessment focuses on the biological resources that may occur in the vicinity of and/or be impacted by construction and operation of project components with known locations (i.e., the injection wells, monitoring wells, ATF complex, and water distribution pipelines). The biological resources impacts of the remaining project components (i.e., the new production well and the agricultural irrigation pipelines) will be discussed at a programmatic-level in the Environmental Impact Report prepared for the proposed project.

1.1 Project Location and Study Area

The project components analyzed in this BRA area located within Grover Beach and portions of unincorporated San Luis Obispo County, including the community of Oceano, which is a census-designated place. Figure 1 shows the regional location of the project site, which is approximately seven miles south of the city of San Luis Obispo. The project area is regionally accessible from U.S. Highway 101 and locally accessible from California State Route (SR) 1. The project components analyzed in this BRA are located within the *Oceano, California* United States Geological Survey (USGS) 7.5-minute topographical quadrangle within Township 32 South, Range 13 East, Sections 30 and 31, Mount Diablo baseline and meridian (USGS 2019). The majority of the project components are located within the California Coastal Zone (Figure 2). The Study Area analyzed herein is comprised of the footprints of project components as well as a 100-foot buffer around those features in order to capture potential direct and indirect impacts (Figure 2).

1.2 Project Description

The proposed project is a regional advanced purified water project intended to enhance supply reliability by reducing the Santa Maria Groundwater Basin (SMGB) vulnerability to drought and seawater intrusion. The project is a multi-agency collaboration between the City of Pismo Beach, the South San Luis Obispo County Sanitation District (SSLOCS D) and the other Northern Cities Management Area agencies, including the Cities of Grover Beach and Arroyo Grande and the Oceano Community Services District. The proposed project consists of an advanced treatment facility (ATF) complex (including an equalization basin, an advanced purified water storage tank, and a pump station), water distribution pipelines, injection wells, monitoring wells, one new production well, and potential agricultural irrigation pipelines. The project would also involve recharge of the SMGB with advanced purified water via injection wells installed at various locations in the SMGB. Water for the project would be sourced from two of the region’s wastewater treatment facilities, the Pismo Beach Wastewater Treatment Plant (WWTP) and the SSLOCS D WWTP. The project would alter the pumping

Figure 1 Regional Location Map



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★ Project Location

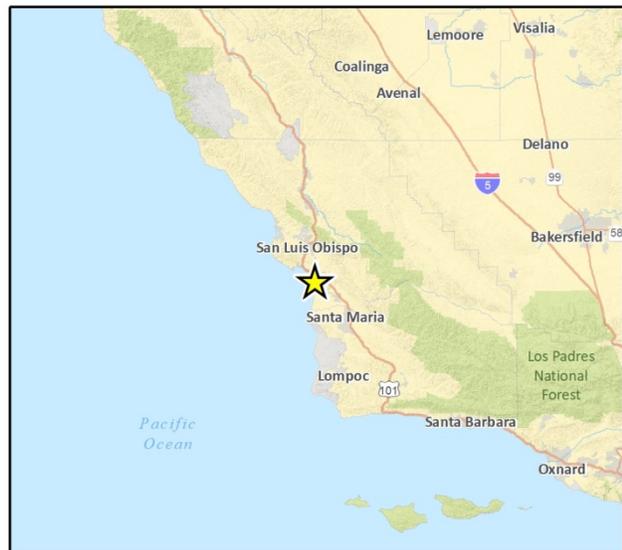
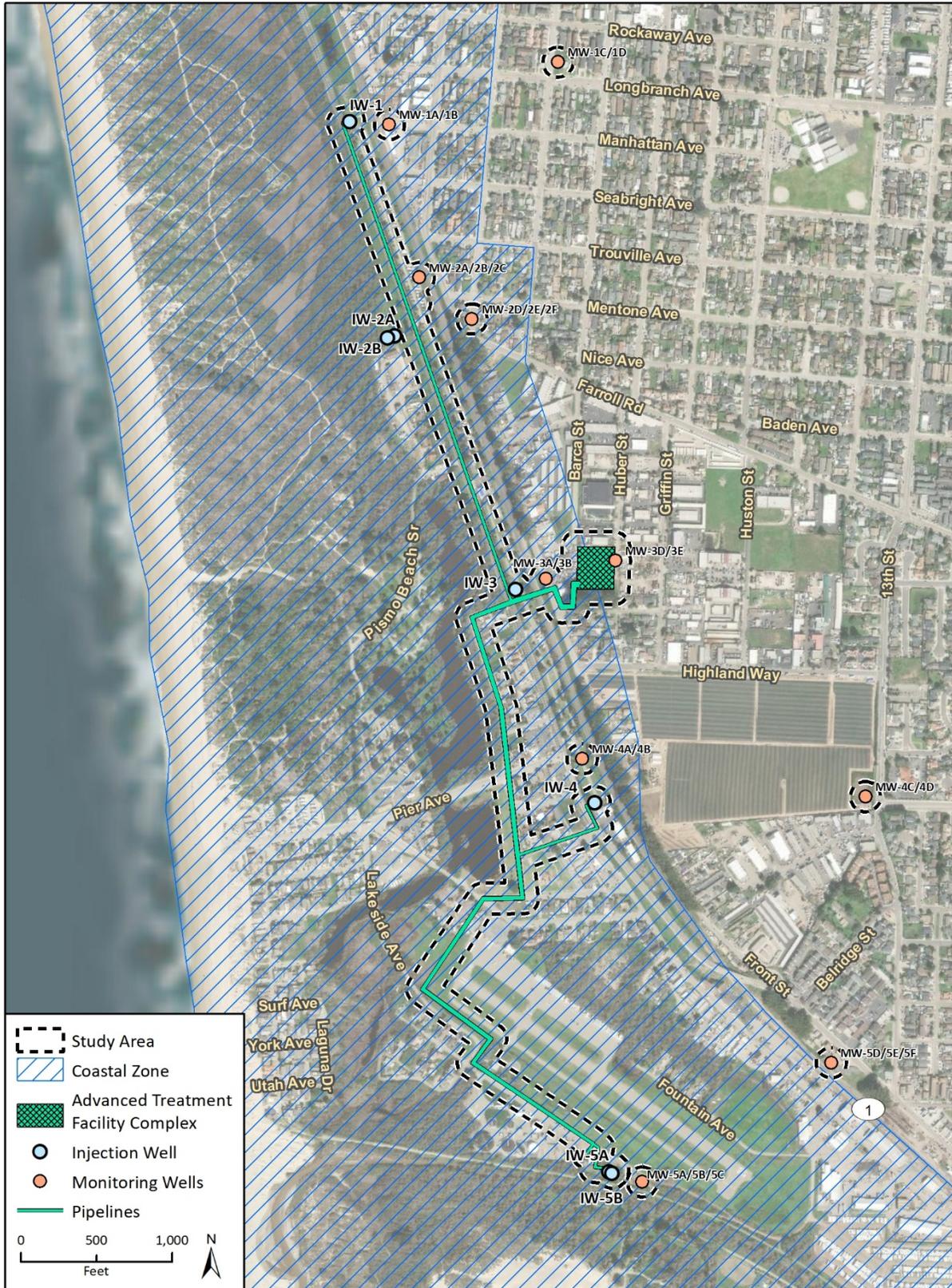


Fig 1 Regional Location

Figure 2 Proposed Injection Wells, Monitoring Wells, ATF Complex, and Study Area



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Fig X Bio Project Components

regime of existing, operational production wells in the project area and also would include construction of one new production well to optimize groundwater production in the area.

The project components include potential agricultural irrigation pipelines to transport water to agricultural lands to the south of Oceano; however, the locations of these pipelines are unknown at this time.

The new production well would be owned and operated by the City of Pismo Beach and likely would be located in Grover Beach on land leased or acquired by the City. The characteristics of the new production well would be similar to those of the City's existing production wells. Water distribution pipelines would be located within the public rights-of-way along the majority of the pipeline alignments.

Injection Wells and Monitoring Wells

Seven injection wells would be installed at the locations shown in Figure 2. The injection wells would be located generally within one-half mile of the coast and would each require approximately 3,000 square feet of land.¹ Each injection well would be capable of injecting approximately 200 to 300 acre-feet per year. The advanced purified water would be injected at a depth of approximately 200 to 600 feet below ground surface. The injection well network would be accompanied by a network of nested monitoring wells at ten locations throughout the project area. Nested monitoring wells would each include two to three well casings that would extend to varying depths up to 400 feet. Each monitoring well would have a surface footprint of approximately 25 square feet and would be equipped to measure and monitor water level and water quality. Injection wells would include aboveground piping and infrastructure such as electrical panels, control panels, and storage facilities that would be approximately six feet in height. Maintenance of the injection wells would involve monitoring of pressures, frequent inspections, cleaning out the well casings, and removing microbial build-up once every two years.

Water Distribution Pipelines

Water distribution pipelines would be installed along the alignments shown in Figure 2. These pipelines would accomplish four purposes: 1) convey secondary treated effluent from the Pismo Beach WWTP from the existing WWTP discharge pipeline to the proposed ATF; 2) convey secondary treated effluent from the SSLOCSD WWTP to the proposed ATF; 3) convey advanced purified water from the proposed ATF to the injection wells; and 4) convey concentrate from the proposed ATF to the existing WWTP discharge pipeline. Construction methods for the proposed pipelines would predominantly involve open trenching, with jack and bore or horizontal directional drilling methods used as needed.

Advanced Treatment Facility Complex

The ATF complex would treat secondary treated wastewater flows from the Pismo Beach and SSLOCSD WWTPs via microfiltration/ultrafiltration, reverse osmosis, and UV disinfection/advanced oxidation treatment processes and discharge to the ocean through the existing WWTP discharge pipeline. The proposed ATF would produce a clean water stream (permeate) and a wastewater stream (concentrate). The reverse osmosis component of the ATF would produce a percentage of concentrate water, which contains a higher concentration of the dissolved particles than were in the source water and would be discharged to the Pacific Ocean outfall that currently receives all flows

¹ This is a conservative assumption of the footprint of each injection well.

from the Pismo Beach and SSLOCSD WWTPs under the City of Pismo Beach's and SSLOCSD's existing National Pollutant Discharge Elimination System permits. No physical modifications to the current ocean outfall would be required. The ATF would occupy approximately 0.85 acre, and the support facilities would occupy approximately 0.14 acre.

The ATF would be accompanied by an approximately 7,500-square foot equalization basin to address fluctuations in flow from the WWTPs, an approximately 538,632-gallon advanced purified water storage tank to be located underground, and a pump station, all of which would be located on the same property as the ATF as part of the ATF complex. The storage tank would be located below ground, and the pump station would be located above the storage tank.

Construction Activities

Project construction would occur in two main phases. Phase I would include construction of five injection wells (IW-1, IW-2a, IW-3, IW-4, and IW-5a), the water distribution pipelines, and the ATF complex with its initial capacity (1.0 million gallons per day of produced water) designed to treat flows from the Pismo Beach WWTP. Phase II would include construction of the remaining two injection wells (IW-2b and IW-5b), installation of approximately 40 feet of additional water distribution pipelines to connect these injection wells to the water distribution pipeline constructed under Phase I, construction of the agricultural irrigation pipelines, and expansion upgrades to the ATF complex to accommodate flows from the SSLOCSD WWTP (3.9 million gallons per day of produced water).

Construction of the project components with known locations is anticipated to last approximately 24 months. Construction of the project components is not expected to result in removal of large numbers of mature trees. Also, the project would include planting trees for accenting, screening, or other purposes as space allows, with a preference for native trees.

The location of the ATF complex would likely need to be graded to provide a level base for the ATF and appurtenant structures, to provide site access, and to provide appropriate stormwater drainage. It is assumed that a moderate amount of existing soil would be excavated and exported, and a moderate amount of clean engineered fill or another suitable substrate would be imported to provide geotechnical stability for the ATF and appurtenant structures. Soil export would also be required to accommodate the underground storage tank. Excavation depth is not anticipated to exceed 20 feet for any of the project components other than the injection, monitoring, and production wells, which would be excavated to a depth of up to 600 feet.

2 Methodology

2.1 Regulatory Overview

Regulated resources studied and analyzed herein include special status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement corridors, and locally protected resources, such as protected trees. Regulatory authority over biological resources is shared by federal, state, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the County of San Luis Obispo and City of Grover Beach).

Definition of Special Status Species

For the purposes of this report, special status species include:

- Species listed as threatened or endangered under the federal Endangered Species Act (species that are under review may be included if there is a reasonable expectation of listing within the life of the project)
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW)
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy. California Rare Plant Rank (CRPR) List 1B and List 2 plant species are typically regarded as rare, threatened, or endangered under CEQA by lead agencies and were considered as such in this document. CRPR List 3 and List 4 plant species are typically not considered for analysis under CEQA except where they are part of a unique community, from the type locality, designated as rare or significant by local governments or where cumulative impacts could result in population-level effects. The CRPR 3 and 4 species reported from the region are not locally designated as rare or significant, are not part of a unique community, and the Study Area is not known to be the type locality for any ranked plant species. Therefore, CRPR 3 and CRPR 4 species were not included in this analysis.

2.2 Environmental Statutes

For the purpose of this report, potential impacts to terrestrial and marine biological resources were analyzed based on the following statutes, which are detailed in Appendix A:

- California Environmental Quality Act
- Federal Endangered Species Act
- California Endangered Species Act
- Federal Clean Water Act
- California Fish and Game Code
- Porter-Cologne Water Quality Control Act

- California Coastal Act (Administered through the County of San Luis Obispo and City of Grover Beach Local Coastal Programs)
- Migratory Bird Treaty Act
- The Bald and Golden Eagle Protection Act
- County of San Luis Obispo General Plan
- City of Grover Beach General Plan

2.3 Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by Appendix G of the CEQA Guidelines, were used to evaluate potential environmental impacts. Based on these criteria, the proposed project would have a significant impact on biological resources if it would:

- a) *Have substantial adverse effects, 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 CDFW or United States Fish and Wildlife Service;*
- b) *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by CDFW or United States Fish and Wildlife Service;*
- c) *Have a substantial adverse effect on state or federally protected wetlands (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; or*
- 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.*

2.4 Literature Review

Queries of the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation System (IPaC; USFWS 2019a), the CDFW California Natural Diversity Database (CNDDDB; CDFW 2019a), and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (2019) were conducted to obtain comprehensive information regarding State and federally listed species as well as other special status species considered to have potential to occur within the *Oceano, California* 7.5-minute topographic quadrangle and the surrounding seven quadrangles (*Pismo Beach, Arroyo Grande NE, Tar Springs Ridge, Nipomo, Point Sal, Guadalupe* and *Santa Maria*). No quadrangles occur west of the *Oceano* and *Point Sal* 7.5-minute quadrangles. The results of these scientific database queries were compiled into a table that is presented below in Appendix B.

In addition, the following resources were reviewed for information about the Study Area:

- Aerial photographs of the Study Area and vicinity (Google Earth 2019)
- *Oceano, California* USGS 7.5-minute topographic quadrangle
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (2019a)
- Soil Survey of San Luis Obispo County, California (USDA NRCS 1984)
- USFWS Critical Habitat Portal (USFWS 2019b)
- National Marine Fisheries Service (NMFS) Critical Habitat (National Oceanic and Atmospheric Administration Fisheries 2019)
- National Wetlands Inventory (NWI) (USFWS 2019c)

2.5 Field Reconnaissance Surveys

Two field reconnaissance surveys were conducted within the Study Area by Rincon Senior Biologist Douglas Drynan and Associate Biologist Carolynn Daman on December 19, 2019 and March 3, 2020.

The field reconnaissance survey was conducted on foot where access was granted and by the use of binoculars for areas where access was limited to record all biological resources encountered in the Study Area. Additionally, a windshield survey was conducted along the water distribution pipeline alignments within existing roadways. The survey was conducted to document existing site conditions and to evaluate the potential for presence of regulated biological resources, including special status plant and animal species, sensitive plant communities, and habitat for nesting birds protected by federal and State laws. During the survey, an inventory of all plant and animal species observed was compiled (Appendix D) and an evaluation of potentially jurisdictional aquatic features was conducted.

Plant species nomenclature and taxonomy followed *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). All plant species encountered were noted and identified to the lowest possible taxonomic level. The vegetation classification system used for this analysis is based on *A Manual of California Vegetation, Second Edition* (MCV2; Sawyer et al. 2009) but has been modified as needed to accurately describe the existing habitats observed on site.

Wildlife identification and nomenclature followed standard reference texts, including *Sibley Birds West: Field Guide to Birds of Western North America* (Sibley 2016), *Field Guide to Western Reptiles and Amphibians* (Stebbins 2003), and *Mammals of North America* (Bowers et al. 2004).

The habitat requirements for each regionally occurring special status species were assessed and compared to the type and quality of the habitats observed within the Study Area during the field survey. Several special status species were eliminated from consideration as having potential to occur on site due to lack of suitable habitat, lack of suitable soils/substrate, and/or knowledge of regional distribution.

3 Existing Conditions

This section summarizes the results of the reconnaissance-level field survey and literature review. Discussions regarding the general environmental setting, vegetation communities present, plant and animals observed, and potential special status species issues on site are presented below. Representative photographs of the Study Area are provided in Appendix C, and a complete list of all plant and animal species observed on site during the field survey is presented as Appendix D.

3.1 Physical Characteristics

The Study Area is located in San Luis Obispo County where the moderate climate typifies a Mediterranean climate throughout the year. The majority of rainfall occurs during the winter months. The Study Area is also within the South Coast Ranges geographic subregion of California. The South Coast Ranges subregion is a component of the larger Central Western California Region, which occurs within the even larger California Floristic Province (Baldwin et al. 2012).

The Study Area is located at the western edges of Grover Beach and community of Oceano, extending from West Grand Avenue in the north along SR 1 to Arroyo Grande Creek and levee in the south. Residences occur primarily to the east of the site along with agricultural lands, the County's Coastal Dunes RV Park, and industrial land uses. Additional residences occur west of SR 1 along with open space and park lands, including Oceano Lagoon, Meadow Creek, Pismo State Beach, and the Oceano Dunes State Vehicular Recreational Area. The majority of the Study Area has been previously developed and disturbed due to the existing wastewater treatment facilities, recreational and RV Park facilities, roadways, and urban development. The topography within the Study Area consists generally of level topography with elevation ranging from 10 to 40 feet above mean sea level.

3.2 Watershed and Drainages

The Study Area is located within the Meadow Creek-Frontal Pacific Ocean subwatershed (Hydrologic Unit Code 12 – 180600060705) and Lower Arroyo Grande Creek subwatershed (Hydrologic Unit Code 180600060605) (USGS 2019). The NWI depicts Freshwater Forested/Shrub Wetland areas associated with Meadow Creek and Arroyo Grande Creek occurring at or within 100 feet of some of the proposed injection well, monitoring well, and water distribution pipeline locations (Table 1; USFWS 2019c). The drainages and wetlands mapped by the NWI are generally consistent with the observations made during the field reconnaissance survey.

Table 1 Drainages and Wetlands Mapped by the NWI within the Study Area

Project Component	Project Component Located within NWI Feature?	Project Component Located within 100 Feet of NWI Feature (Yes/No)
IW-1	No	Yes (Meadow Creek)
IW-2A	No	No
IW-2B	No	No
IW-3	No	Yes (Meadow Creek)
IW-4	No	No
IW-5A	No	Yes (Arroyo Grande Creek)
IW-5B	No	Yes (Arroyo Grande Creek)
MW-1A/1B	No	No
MW-1C/1D	No	No
MW-2A/2B/2C	No	No
MW-2D/2E/2F	No	No
MW-3A/3B	No	No
MW-3D/3E	No	No
MW-4A/4B	No	No
MW-4C/4D	No	No
MW-5A/5B/5C	No	Yes (Arroyo Grande Creek)
MW-5D/5E/5F	No	No
ATF	No	No
Water Distribution Pipelines	No	Yes (Meadow Creek)

NWI = National Wetlands Inventory; IW= injection well; MW= monitoring well; ATF=advanced treatment facility

Source: USFWS 2019c

During the reconnaissance survey, in addition to those drainages and wetlands mapped by the NWI, a roadway drainage and a detention basin were also observed. The roadway drainage was observed adjacent to SR 1 and Pismo State Beach Road within 100 feet of the proposed location of the water distribution pipelines (see Figure 4b in Section 3.1.4, *Vegetation and Other Land Cover*). The drainage begins at the intersection of SR 1 and Pismo State Beach Road and drains at a southwest direction towards Oceano Lagoon. The roadway drainage is ephemeral and only conveys water during rain events. The drainage contained a vegetated bed lacking a defined ordinary high water mark. The banks were also vegetated, and the distance between top of banks was approximately two feet wide. The overstory consisted of arroyo willows (*Salix lasiolepis*) and coast live oak (*Quercus agrifolia*), and the understory consisted of non-native grasses including riggut brome (*Bromus diandrus*). A detention basin was observed adjacent to South 13th Street, where MW-4C/4D is proposed. The detention basin is excavated in uplands and has no connectivity to any drainages or streams. The basin contained non-native, upland vegetation along the basin and banks, and no evidence of water was observed. The detention basin is a City of Grover Beach stormwater detention basin (City of Grover Beach 2010), but based on historical aerials, this basin has not held water for an extended period of time.

3.3 Soils

The project is located in the *San Luis Obispo County, California, Coastal Part* soil survey area. The USDA NRCS Web Soil Survey delineates three soil map units within the Study Area: Mocho fine sandy loam (0 to 2 percent slopes, major land resource area [MLRA] 14), Oceano sand (0 to 9 percent slopes), as well as psamments and fluvents, wet (USDA NRCS 2019a). One additional unit is mapped by the Web Soil Survey within the Study Area, Water. This map unit is comprised of 100 percent water as defined by the Web Soil Survey. Therefore, it is not discussed further within this section. Site-specific soil observations are consistent with those mapped by the USDA NRCS *Web Soil Survey*. Soil distribution within 100 feet of the locations of project components is depicted in Figure 3, and each soil map unit is described below.

Mocho Fine Sandy Loam, 0 to 2 Percent Slopes, MLRA 14

Mocho fine sandy loam soils are well-drained soils that occur on alluvial fans and flats. They are formed in alluvium derived from sedimentary rock. A typical soil profile consists of fine sandy loam to a depth of 18 inches, silty clay loam between 18 and 45 inches, and stratified sand to gravelly sand between 45 and 60 inches. For Mocho fine sandy loam, 0 to 2 percent slopes, available water storage is moderate (about 6.5 inches), and the runoff class is low. This soil map unit is included on the *National Hydric Soils List*, which lists soils that are permanently or seasonally saturated by water resulting in anaerobic conditions typically found in wetlands (USDA NRCS 2019b).

Oceano Sand, 0 to 9 percent slopes

Oceano sand soils are deep, excessively-drained soils that formed in material weathered from sandy eolian deposits. They are present on rolling dune-like topography near the ocean. Available water storage is low (2.75 inches) with very slow runoff and rapid permeability. A typical soil profile consists of sandy textures up to 60 inches. This soil map unit is not included on the *National Hydric Soils List* (USDA NRCS 2019b).

Psamments and Fluvents, Wet

Psamments and fluvents are entisols, which have no diagnostic horizons. In the Study Area, they are found on floodplains that receive frequent deposits of alluvium. Fluvents are freely-drained and formed in recent water-deposited sediments along rivers and small streams. They are frequently flooded. Psamments are unconsolidated sandy deposits common in dune habitat. In the Study Area, these mixed entisols are found on and near permanently wet areas, such as ponds and vegetated wetlands. This soil map unit is included on the *National Hydric Soils List*, which lists soils that are permanently or seasonally saturated by water resulting in anaerobic conditions typically found in wetlands (USDA NRCS 2019b).

Figure 3 Soils Map Units within the Study Area



Imagery provided by Microsoft Bing and its licensors © 2020.
 Additional data provided by USDA NRCS SSURGO 2019.

Fig X Soils

3.4 Vegetation and Other Land Cover

Seven terrestrial vegetation communities or land cover types occur within the Study Area: developed/landscaped, eucalyptus stand, arroyo willow riparian, blackberry bramble, non-native grassland, iceplant mat, and ruderal. Vegetation was classified and mapped during the reconnaissance-level surveys conducted on December 19, 2019 and March 3, 2020 to characterize the Study Area. A summary of the vegetation/land cover types identified in the Study Area is presented in Table 2 and shown in Figure 4a through Figure 4g.

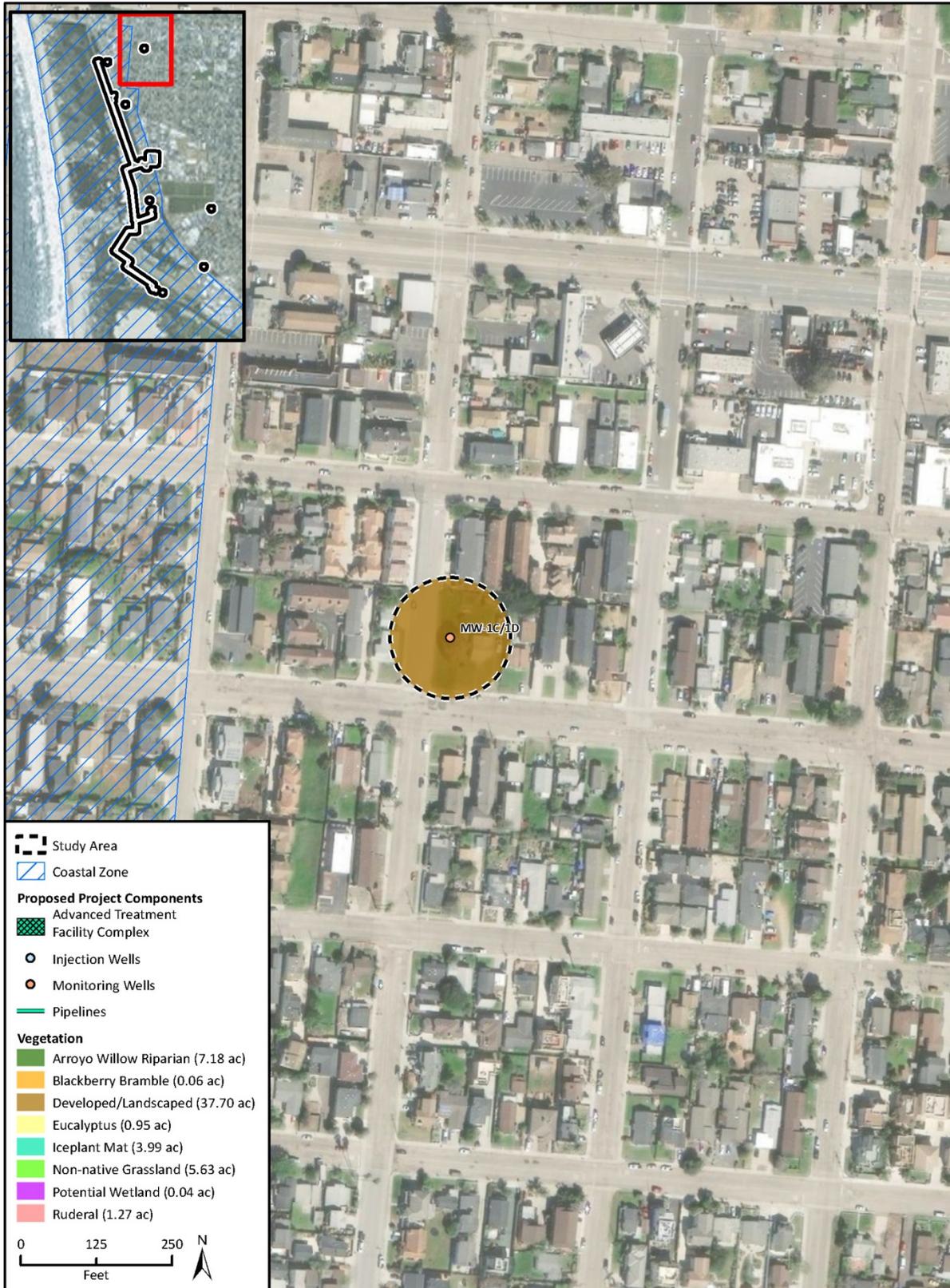
Habitat characterizations were based on the classification system presented in MCV2 (Sawyer et al. 2009) and *Preliminary Description of Terrestrial Natural Communities of California* (Holland 1986) but have been modified slightly to most accurately reflect existing site conditions. The CDFW (1988) California Wildlife Habitat Relationships database was also referenced for describing the habitat types within the Study Area. Plant species nomenclature and taxonomy used for the Study Area follow treatments within Baldwin et al. (2012).

Table 2 Terrestrial Vegetation and Land Cover Types

Vegetation Community/Land Cover	Project Component Locations Within Vegetation Community/Land Cover	Project Component Locations within 100-foot of Vegetation Community/Land Cover	Total Acreage in Study Area
Developed/Landscaped	MW-1A/1B, MW-1C/1D, MW-2A/2B/2C, MW-2D/2E/2F, MW-3A/3B, MW-3D/3E, MW-4A/4B, MW-5D/5E/5F IW-1, IW-2A, IW-2B, IW-3, IW-4, IW-5A, IW-5B ATF Complex Water Distribution Pipelines	MW-1A/1B, MW-1C/1D, MW-2A/2B/2C, MW-2D/2E/2F, MW-3A/3B, MW-3D/3E, MW-4A/4B, MW-4C/4D, MW-5A/5B/5C, MW-5D/5E/5F IW-1, IW-2A, IW-2B, IW-3, IW-5A, IW-5B ATF Complex Water Pipelines	37.70
Eucalyptus stand	ATF Complex	MW-2D/2E/2F, MW-3A/3B	0.95
Arroyo willow riparian	Water Distribution Pipelines	MW-5A/5B/5C IW-5A, IW-5B Water Distribution Pipelines	7.18
Iceplant mat	MW-3A/3B IW-1, IW-2A, IW-2B, IW-3, IW-4 Water Distribution Pipelines	MW-3A/3B IW-1, IW-2A, IW-2B, IW-3, IW-4	3.99
Non-native grassland	Water Distribution Pipelines	MW-5A/5B/5C	5.63
Blackberry bramble	Water Distribution Pipelines	Water Distribution Pipelines	0.06
Ruderal	MW-4C/4D, 5A/5B/5C IW-5A, IW-5B	MW-5A/5B/5C/5D/5E/5F IW-5A, IW-5B Water Distribution Pipelines	1.27

IW = injection well, MW = monitoring well, ATF = advanced treatment facility

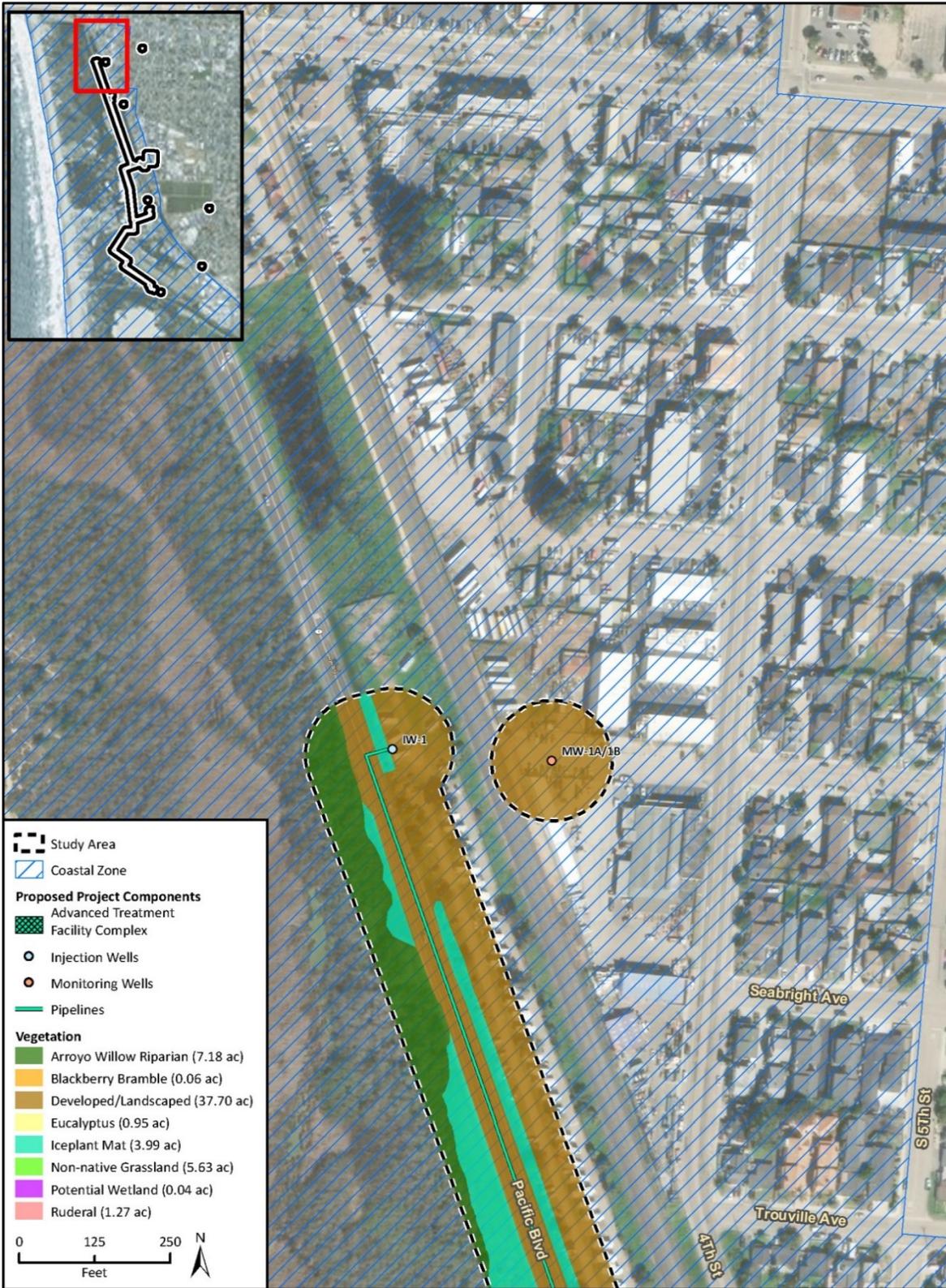
Figure 4a Vegetation and Land Cover - MW-1C/1D



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 Additional data provided by County of San Luis Obispo, 2017.

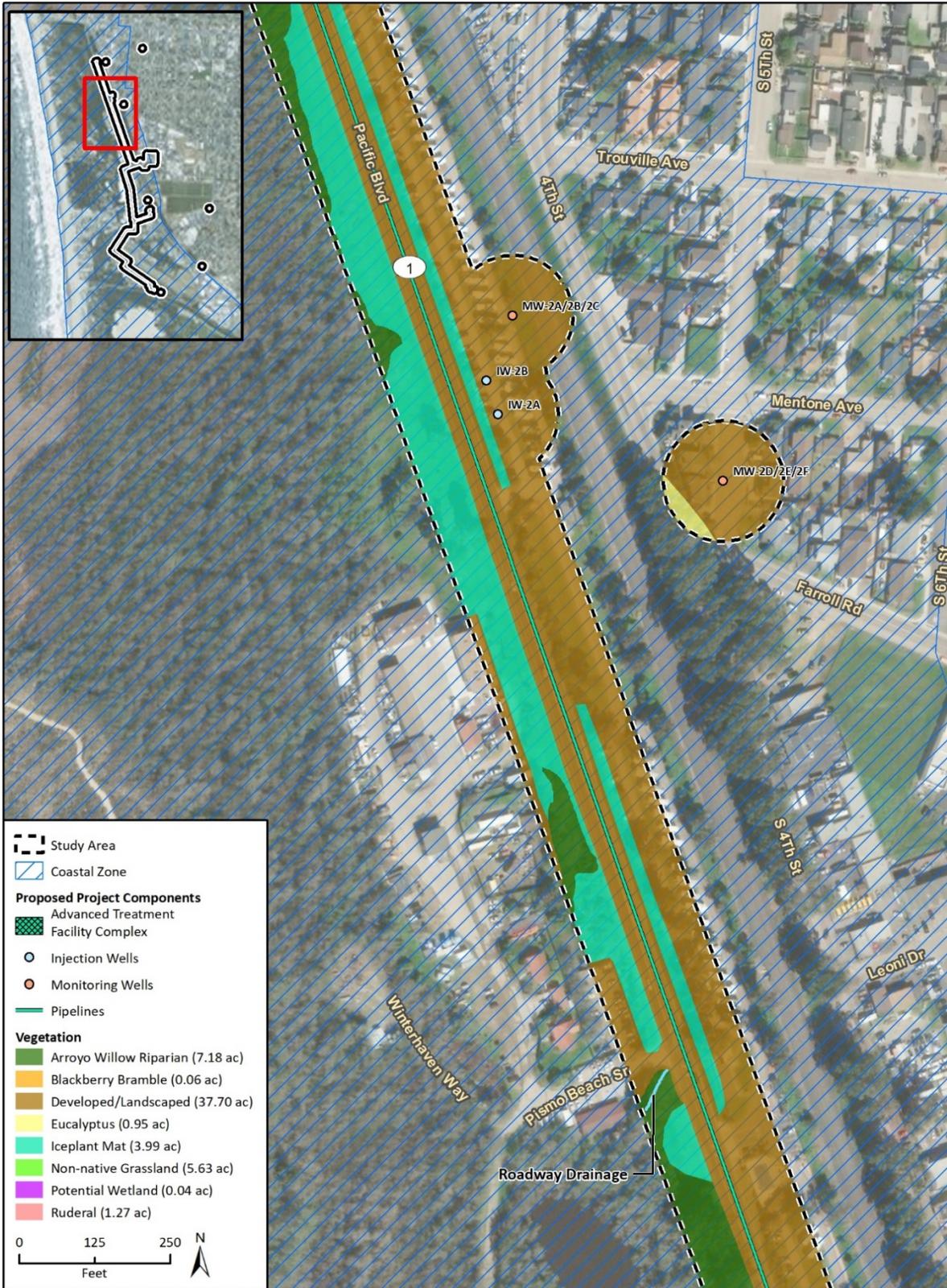
Fig 5 Vegetation_20200311

Figure 4b Vegetation and Land Cover – IW-1, MW-1A/1B, and Water Distribution Pipelines



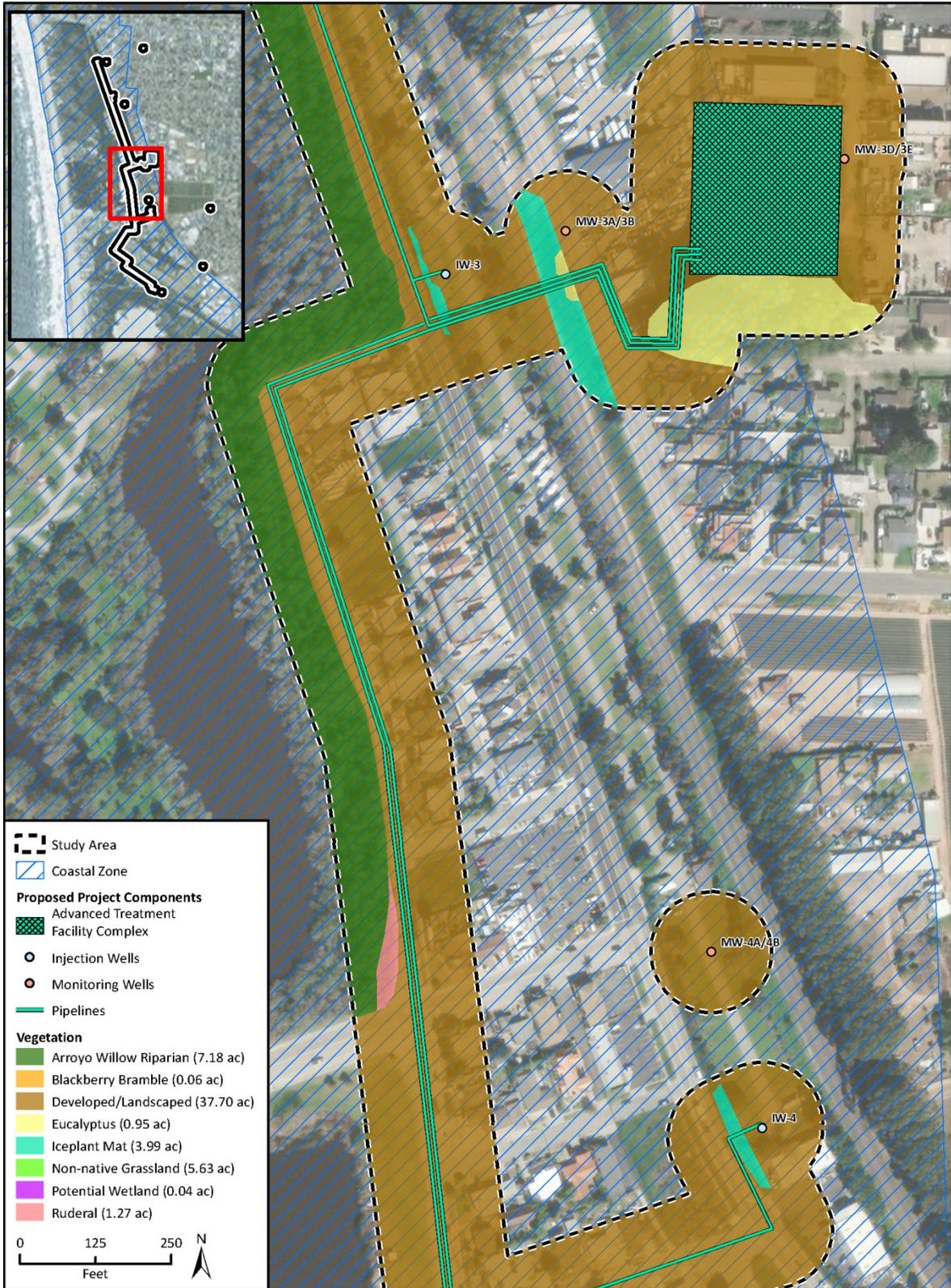
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Figure 4c Vegetation and Land Cover – MW-2A/2B/2C, IW-2A, IW-2B, MW-2D/2E/2F, and Water Distribution Pipelines



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 Additional data provided by County of San Luis Obispo, 2017.

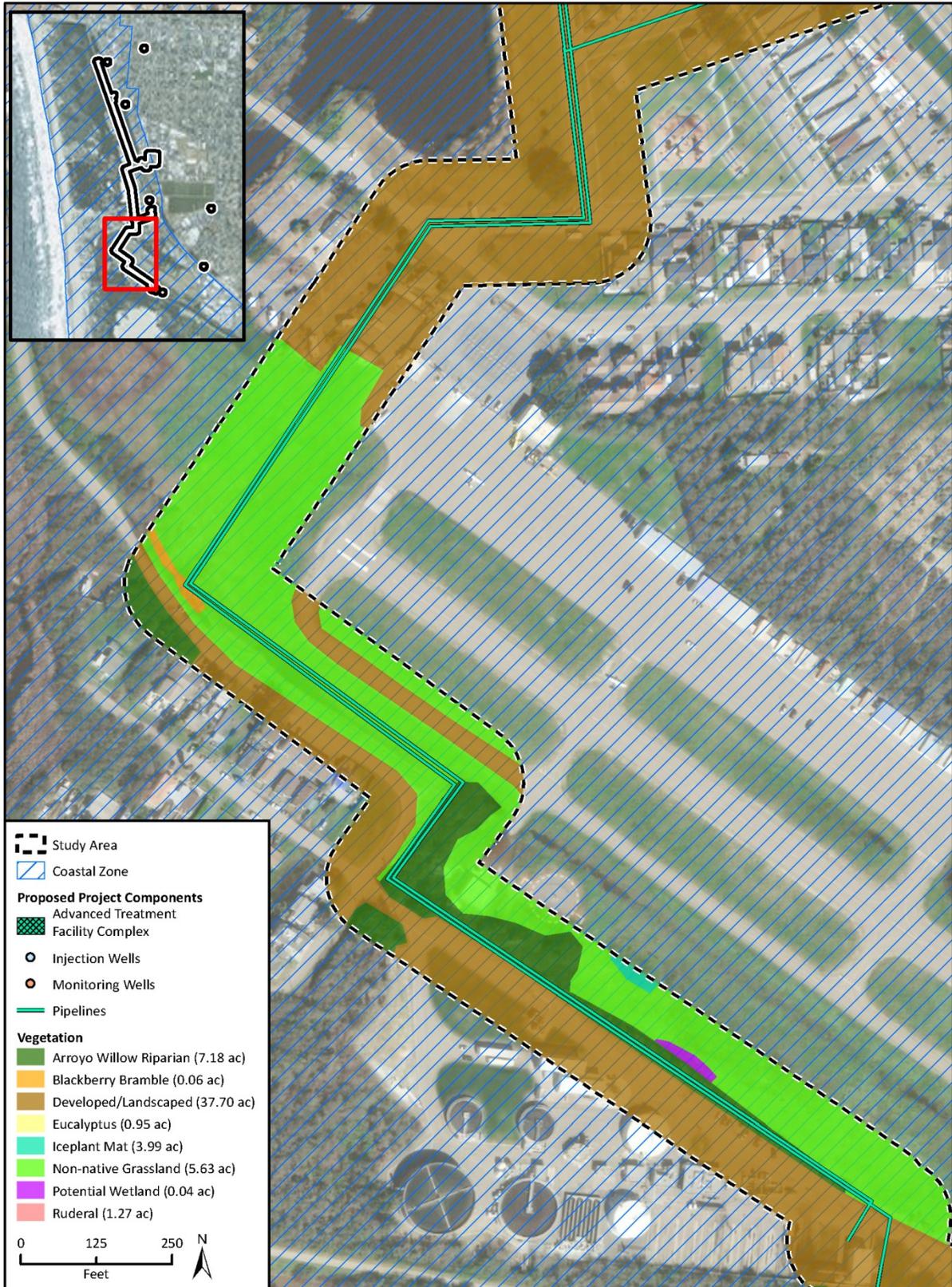
Figure 4d Vegetation and Land Cover – IW-3, IW-4, MW-3A/3B, MW-3D/3E, MW-4A/4B, ATF Complex, and Water Distribution Pipelines



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 Additional data provided by County of San Luis Obispo, 2017.

Fig 5 Vegetation_20200311

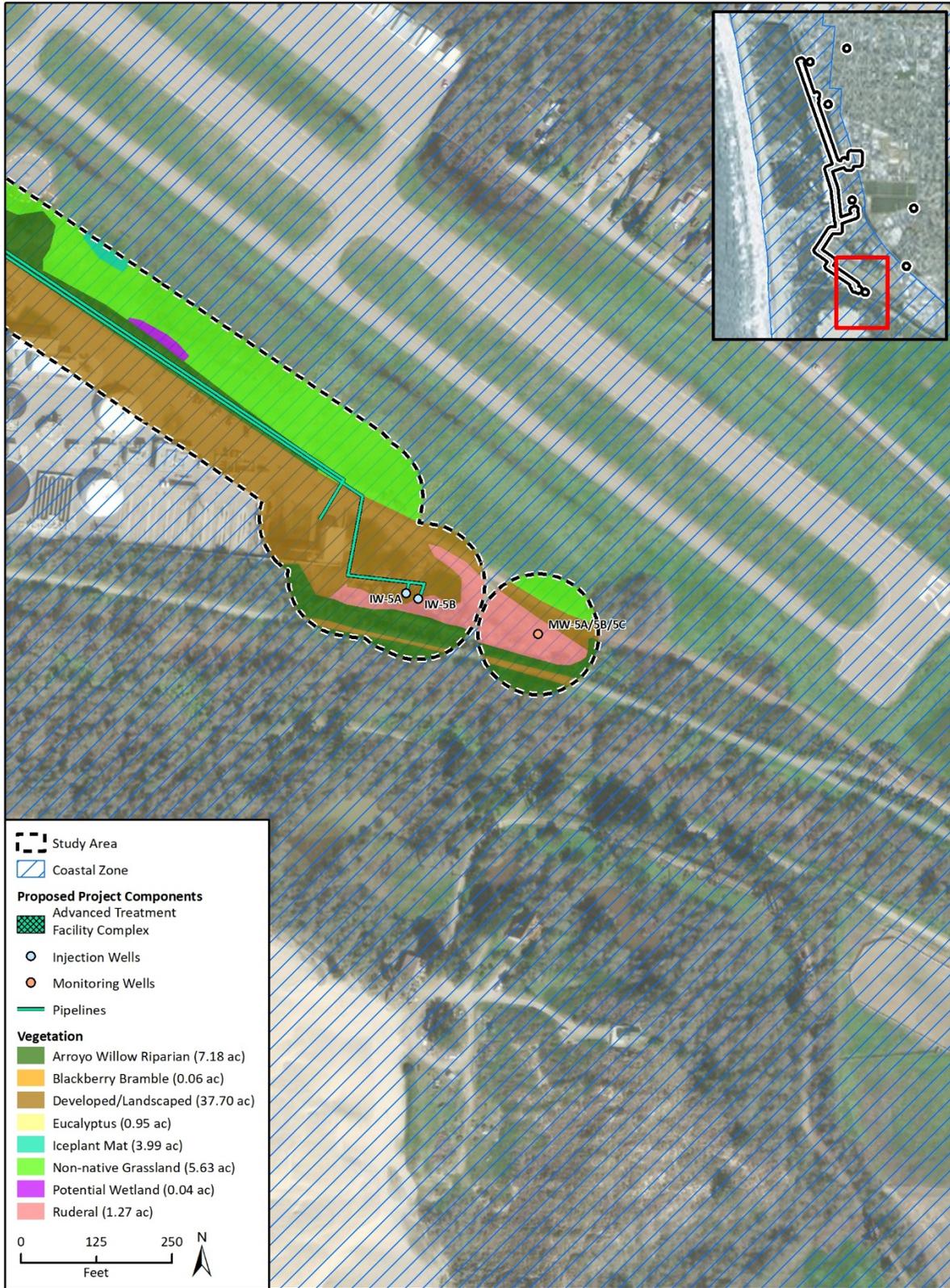
Figure 4e Vegetation and Land Cover – Water Distribution Pipelines



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 Additional data provided by County of San Luis Obispo, 2017.

Fig 5 Vegetation_20200311

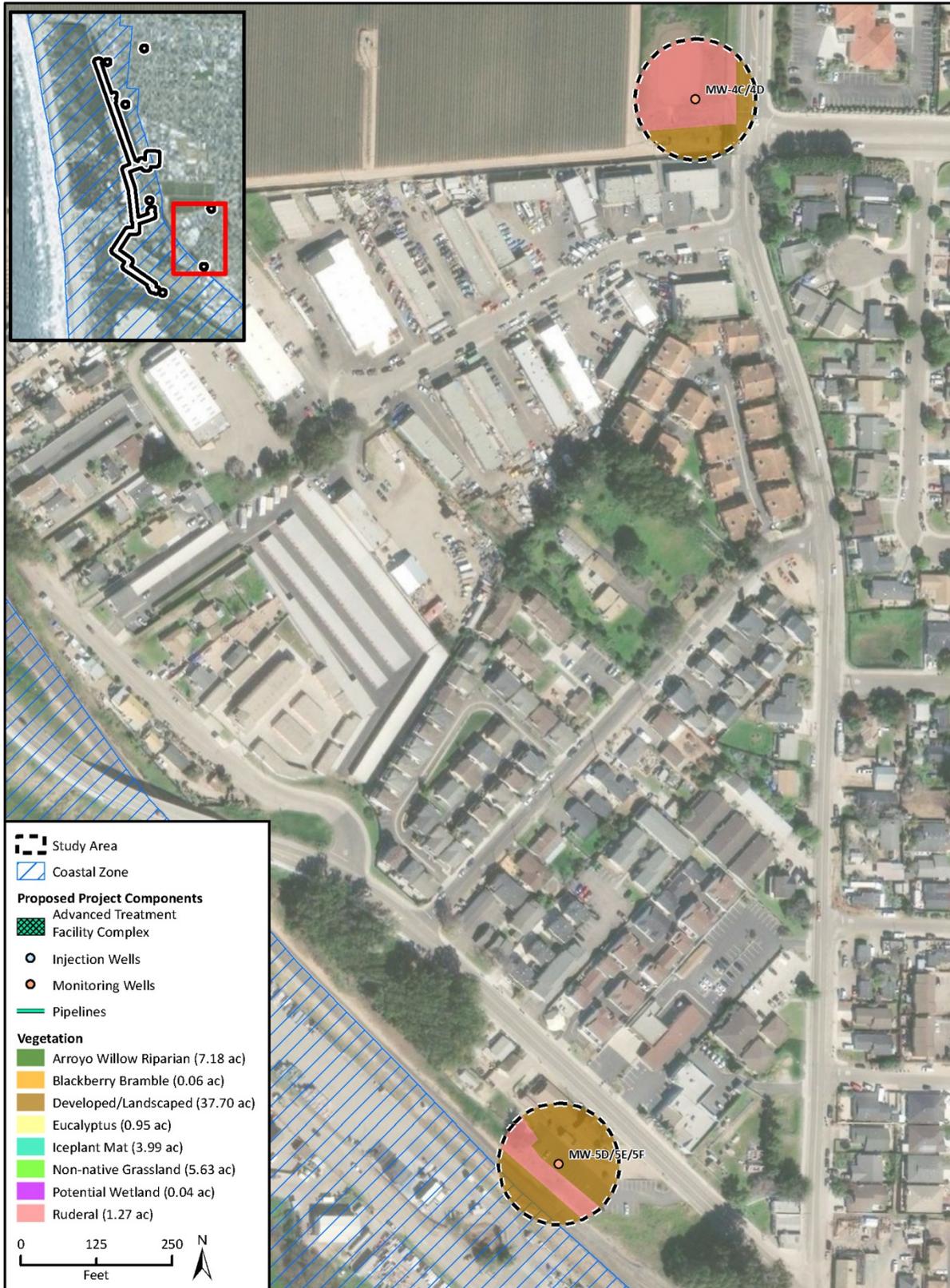
Figure 4f Vegetation and Land Cover – Water Distribution Pipelines, IW-5A, IW-5B, and MW-5A/5B/5C



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Additional data provided by County of San Luis Obispo, 2017.

Fig 5 Vegetation, 20200311

Figure 4g Vegetation and Land Cover – MW-4C/4D and MW-5D/5E/5F



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 Additional data provided by County of San Luis Obispo, 2017.

Fig 5 Vegetation_20200311

Developed/Landscaped

The developed/landscaped land cover type is the largest land coverage within the Study Area, occupying approximately 37.70 acres. This land cover type includes roads, residential and commercial buildings, campgrounds, and parking lots. The landscaped portion of this community is closely associated with development. Landscaped plants, including lollypop tree (*Myoporum laetum*), trumpet creeper (*Campsis radicans*), and Bermuda grass (*Cynodon dactylon*), occur in these areas.

Developed areas are not classified in the MCV2 classification system (Sawyer et al. 2009) or the Holland (1986) classification system but are included in the CDFW California Wildlife Habitat Relationships database as Urban (Mayer and Laudenslayer 1988).

Eucalyptus Stand

The eucalyptus stand land cover covers approximately 0.95 acre of the Study Area. This land cover is dominated by blue gum (*Eucalyptus globulus*). The understory was primarily ruderal vegetation and blue gum debris. This land cover provides habitat for nesting birds including raptors. The eucalyptus stand most closely corresponds to *Eucalyptus* ssp. Woodland Semi-Natural Alliance described in the MCV2 (Sawyer et al. 2009).

Arroyo Willow Riparian

The arroyo willow riparian habitat type is associated with Arroyo Grande Creek and Meadow Creek. Arroyo willow riparian occurs in the Study Area and predominantly outside the project area (Figure 4a through Figure 4g) and covers approximately 7.18 acres. Vegetation consists of a canopy of mature arroyo willow trees and occasional coast live oak tree, blue elderberry (*Sambucus nigra*) and California coffeeberry (*Frangula californica*). The understory is dense and dominated by California blackberry (*Rubus ursinus*), coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), wild radish (*Raphanus sativus*), and celery (*Apium graveolens*). The arroyo willow riparian most closely corresponds to the *Salix lasiolepis* Shrubland Alliance in the MCV2 (Sawyer et al. 2009).

Iceplant Mat

Iceplant (*Carpobrotus edulis*) is a non-native invasive species, originally planted in the 1940s and 1950s for landscaping and dune stabilization (CDFW 2019a). These perennial ground-hugging succulents form large monospecific mats (Sawyer et al. 2009). Iceplant has a California Invasive Plant Council rating of “High” for its invasive tendencies. This hardy species spreads readily from landscaped areas into dune and scrub habitats, outcompeting native species for space, nutrients, and moisture. This community most closely resembles the *Carpobrotus edulis* or Other Iceplant Semi-Natural Herbaceous Stand Alliance described by Sawyer et al. (2009). Approximately 3.99 acres of iceplant mat occurs within the Study Area.

Interspersed within the ice plant mat are landscaped trees, including ironwood (*Lyonothamus floribundus*), and small patches of non-native forbs and grasses, including thick leaved pittosporum (*Pittosporum crassifolium*) and rigput brome. Monterey pine (*Pinus radiata*) is also dispersed throughout this community; however, these interspersed trees and grasses are not classified as their own vegetation community due to their lack of dominance within this community.

Ruderal

Ruderal vegetation is associated with and adjacent to areas of active disturbance within the Study Area. This vegetation community occurs where ground has previously been disturbed and is currently

not in active use. Approximately 1.27 acres of ruderal occurs in the Study Area. The ruderal vegetation is dominated by jimson weed (*Datura stramonium*) with other non-native herbaceous species such as flax-leaved horseweed (*Erigeron bonariensis*) and black mustard (*Brassica nigra*) occasionally interspersed. The ruderal areas most closely correspond to the *Brassica nigra* - *Raphanus* spp. Herbaceous Semi-Natural Alliance in the MCV2 (Sawyer et al. 2009).

Blackberry Bramble

The blackberry bramble covers approximately 0.06 acre of the Study Area. This land cover is an independent stand dominated by California blackberry (*Rubus ursinus*). The blackberry bramble most closely corresponds to *Rubus (parviflorus, spectabilis, ursinus)* Shrubland Alliance described in the MCV2 (Sawyer et al. 2009).

Non-Native Grassland

The non-native grassland covers approximately 5.63 acres of the southern portion of the Study Area. This vegetation type is dominated by Bermuda grass (*Cynodon dactylon*) with sweet fennel (*Foeniculum vulgare*), foxtail brome (*Bromus madritensis*), poison hemlock (*Conium maculatum*), English plantain (*Plantago lanceolata*), common sowthistle (*Sonchus oleraceus*), and mustard (*Hirschfeldia incana*). This vegetation type closely corresponds to non-native grassland alliance described in Holland (1986) classification.

3.5 General Wildlife

Wildlife activity was moderate during the field reconnaissance survey. The arroyo willow riparian habitat within and adjacent to the Study Area provides habitat for a variety of birds including raptors. Bird species such as red-tailed hawk (*Buteo jamaicensis*), California towhee (*Melospiza crissalis*), black phoebe (*Sayornis nigricans*) and Bewick's wren (*Thryomanes bewickii*) were observed. Mammal sign consisted of pocket gopher (*Thomomys bottae*). For a complete list of wildlife observed see Appendix D.

The riparian corridors adjacent to Arroyo Grande Creek and Meadow Creek function as wildlife corridors within the area. The habitat value for wildlife west and east of the corridor is limited by urban development and the Pacific Ocean.

4 Regulated Biological Resources

Local, state, and federal agencies regulate special status species and other biological resources. This section discusses regulated biological resources observed in the Study Area and evaluates the potential for the Study Area to support additional regulated biological resources. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDDB, species occurrence records from other sites in the vicinity of the survey area, previous reports for the SSLOCSDD WWTP property, and the results of surveys of the project site. The potential for each special status species to occur in the study area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site. Protocol surveys (if conducted) did not detect species.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present, and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDDB or other reports) on the site recently (within the last five years).

4.1 Special Status Species

For the purpose of this report, special status species are defined as those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS or NMFS under the federal Endangered Species Act; those listed or candidates for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act; and animals designated as “Species of Special Concern” by the CDFW or “Fully Protected” under the California Fish and Game Code. Additionally, rookery sites for species that nest colonially, such as bat maternity roosts are also treated as special status.

Special Status Plant Species

Based on the database and literature review of records from the *Oceano, California* USGS 7.5-minute topographic quadrangle and surrounding seven quadrangles as well as the USFWS IPaC list of federally listed species, 59 special status plant species are known to occur or have the potential to occur within the vicinity of the Study Area (Appendix B). However, due to development, landscaping, and the establishment of ice plant mats throughout most of the Study Area, only one special status plant species has the potential to occur within the Study Area based on the presence of suitable habitat.

Black-flowered Figwort

The black-flowered figwort (*Scrophularia atrata*), a CRPR 1B.2 species, was not detected during the reconnaissance-level survey. However, the survey was not conducted within the blooming period (March-July) for this species, and as such its potential to occur within the Study Area is based solely on the presence of suitable habitat and the proximity of the Study Area to occurrences documented in the CNDDDB. The arroyo willow riparian habitat within the alignment of the water distribution pipelines within Oceano County Airport is suitable habitat for this species. In addition, potentially suitable arroyo willow riparian habitat occurs within 100 feet of MW-5A/5B/5C, IW-5A, IW-5B and the water distribution pipelines elsewhere in the Study Area.

Special Status Animal Species

Thirty-three special status animal species were identified in the region by using the *Oceano, California* USGS 7.5-minute topographic quadrangle and surrounding seven quadrangles as well as the USFWS IPaC list of federally listed species. Of the 33 animal species, the following ~~seven~~ eight special status animal species may occur within the Study Area based on the presence of suitable habitat:

- Tri-colored blackbird (*Agelaius tricolor*) - State Threatened, State Species of Special Concern (SSC)
- White-tailed kite (*Elanus leucurus*) - State Fully Protected
- California red-legged frog (*Rana draytonii*) - Federally Threatened, SSC
- California legless lizard (*Anniella pulchra*) - SSC
- Southwestern pond turtle (*Emys marmorata*) - SSC
- Southern sea otter (*Enhydra lutris nereis*) – Federally Threatened, SSC
- Steelhead-south-central California coast DPS (*Oncorhynchus mykiss*) – Federally Threatened
- Tidewater goby (*Eucyclogobius newberryi*) – Federally Endangered, SSC

In addition, although the California overwintering population of monarch butterfly (*Danaus plexippus*) is not a federally or state listed species, it has been petitioned to be federally listed and it is a locally sensitive species; and therefore, will be analyzed herein as a special status species.

Although definitive surveys for special status animal species were not conducted, no individual or sign indicating the presence of these special status animal species were observed during the reconnaissance-level survey. As such, the following analysis of potential for occurrences is based on the habitat suitability and CNDDDB occurrences of these species in the vicinity.

Tri-colored Blackbird

Potentially suitable foraging habitat for tri-colored blackbird, a State Threatened species and SSC, occurs throughout the Study Area. Tri-colored blackbird requires open water, protected nesting substrate, and adequate foraging area with insect prey within a few miles of the colony. Suitable nesting substrate is not within the Study Area; however, potentially suitable nesting habitat can be found in the larger vicinity outside the Study Area in areas in proximity to open water such as Oceano Lagoon (which is 150 feet west of the proposed water distribution pipelines along SR 1, Coolidge Drive, and Norswing Drive) in areas containing cattails forming protected nesting substrate. No CNDDDB occurrences have been documented within five miles of the Study Area; however, the species has been documented at numerous locations within a 10-mile radius of the Study Area in areas similar in nature to Oceano Lagoon. Other resources, including eBird, have documented the species within Oceano Lagoon (observed in 2018) as well as at the confluence of Oceano Lagoon with Arroyo Grande

Creek (observed in 1992; eBird 2019). Based on the habitats found within the Study Area, this species is only expected to occur incidentally as it forages or moves through the area.

White-tailed Kite

The Study Area contains potentially suitable habitat for white-tailed kite, a State Fully Protected species. Potential foraging and nesting habitat for white-tailed kite occurs throughout the Study Area. White-tailed kite requires open grassland or marshes for foraging and dense-topped trees for nesting and perching. Eucalyptus, Monterey pines, and Monterey cypress trees scattered throughout the Study Area may be potential nesting habitat for the species, and the non-native grassland within the southern portion of the Study Area may be potential foraging habitat for the species. No CNDDDB occurrences have been documented within five miles of the Study Area; however, the species has been documented adjacent to Oceano Lagoon (observed each year from 2006 through 2019) (eBird 2019).

California Red-legged Frog

The California red-legged frog (CRLF), a Federally Threatened species and SSC, inhabits quiet pools of streams, marshes, and ponds. All life history stages are most likely to be encountered in and around breeding sites, which include coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams, as well as artificial impoundments such as stock ponds, irrigation ponds, and siltation ponds. Eggs are typically deposited in permanent pools, attached to emergent vegetation.

The Study Area is located within the known range of CRLF in San Luis Obispo County based upon the current range depicted in the Arroyo Grande Creek core area of the USFWS (2002) *Recovery Plan for the California Red-Legged Frog*. CRLF are known to occur within Arroyo Grande Creek from Oceano Lagoon to approximately 1.4 miles upstream (CDFW 2019a). The CNDDDB documents multiple years where records of the species were made within the section of Arroyo Grande Creek between Oceano Lagoon and to approximately one mile upstream.

The majority of the Study Area is developed or heavily disturbed. No aquatic breeding habitat occurs within the Study Area. IW-5A, IW-5B, and MW- 5A/5B/5C as well as portions of the water distribution pipeline alignments are adjacent to potentially suitable dispersal habitat for the CRLF, in the form of arroyo willow riparian associated with Arroyo Grande Creek (see Figure 4a through Figure 4g). Encountering CRLF within the project site is anticipated to be low and could be expected during conditions suitable for amphibian terrestrial movement such as during wet conditions during or following rain events or at night. Although no suitable aquatic habitat for CRLF exists within the project footprint, encounters with CRLF during implementation are still possible due to the close proximity to known occurrences within Arroyo Grande Creek and Meadow Creek and known breeding areas within dispersal distance.

California Legless Lizard

The Study Area contains suitable habitat for California legless lizard, a SSC. California legless lizard requires sandy soils with moisture and sparse vegetation. The CNDDDB documents an occurrence within the southern extent of the Study Area, adjacent to Arroyo Grande Creek within coastal dune habitat (Occurrence # 174; CDFW 2019a). No evidence of California legless lizard was found on site during the reconnaissance survey; however, marginally suitable habitat is located within Study Area. Soils throughout the Study Area are generally suitable for this species due to their sandy characteristics. Habitats within the Study Area that can support the California legless lizard consist of

the ruderal areas, ice plant mats and potentially landscaped areas where soils are sufficiently loose. However, due to regular disturbance and/or the presence of dense non-native plants such as iceplant, these habitats are of marginal quality. Nevertheless, this species still has the potential to occur within the Study Area.

Southwestern Pond Turtle

Southwestern pond turtle, a SSC, is an aquatic turtle that occurs in ponds, marshes, rivers, streams and irrigation ditches that typically support aquatic vegetation. The species requires downed logs, rocks, mats of vegetation, or exposed banks for basking. Southwestern pond turtle lay their eggs in nests that are dug along the banks of streams or other uplands in sandy, friable soils. Southwestern pond turtles, especially those that reside in creeks, are also known to over winter in upland habitats. Upland movements can be quite extensive, and individuals have been recorded nesting or overwintering hundreds of feet from aquatic habitats. The typical nesting season is usually from April through August; however, variation exists depending upon geographic location.

No southwestern pond turtles or basking sites were observed within the Study Area during the field survey. The CNDDDB documents occurrences within five miles of the Study Area within Arroyo Grande Creek and Pismo Creek. The closest occurrence (Occurrence #77) was recorded in Pismo Creek approximately 1.2 miles north of the Study Area. Suitable upland habitat for this species is comprised of the arroyo willow riparian habitats adjacent to Meadow Creek and Arroyo Grande Creek which can be used as nesting habitat (see Table 2 and Figure 4a through Figure 4g). Therefore, the species has the highest potential to occur at the IW-5A, IW-5B and MW-5A/5B/5C locations, which are adjacent to riparian habitat.

Southern Sea Otter

Southern sea otter, a Federally Threatened species and SSC, inhabits the Pacific Ocean coastline from San Mateo County to Santa Barbara County and San Nicolas Island (USFWS 2015). Sea otters are found closely in association with rocky habitats and kelp forest dominated areas with an abundance of invertebrates including abalone, rock crabs, sea urchins, kelp crabs, mussels, barnacles, scallops and clams. Breeding typically occurs from June through November.

Southern sea otters are known to occur approximately five miles north along the rocky coast near the Shell Beach area of Pismo Beach. The species has a low potential to migrate near the existing discharge point of the ocean outfall pipeline in the Pacific Ocean. However, this location lacks dense kelp forest or rocky substrates and therefore does not provide suitable habitat for this species.

Steelhead-South-Central California Coast DPS

The south-central California coast distinct population segment (DPS) of steelhead, a Federally Threatened species, is an anadromous fish that spends the majority of its lifespan within the ocean and migrates to freshwater coastal streams for spawning (NMFS 2013). This DPS ranges from the Pajaro River in Monterey County to the Arroyo Grande Creek in San Luis Obispo County. Steelhead require freshwater spawning sites, freshwater rearing sites and freshwater migration corridors free of obstruction for reproduction. Steelhead spend up to three years in freshwater before migrating to the ocean where they spend up to four years maturing in a marine environment before returning to the freshwater environments (NMFS 2013).

Steelhead are known to occur within the segments of Arroyo Grande Creek that contain suitable spawning habitat for the species; however, an earthen levee separates the Study Area from Arroyo

Grande Creek, Meadow Creek and Oceano Lagoon, located more than 100 feet west and south of the Study Area, are also isolated from the Study Area due to existing roadways and development. This species has a low potential to migrate near the discharge point of the existing ocean outfall pipeline in the Pacific Ocean.

Other Protected Species

Structures, trees, and shrubs in and surrounding the Study Area provide habitat for other bird species to nest, protected under the Migratory Bird Treaty Act and similar provisions under the California Fish and Game Code. Several species of birds common to the area that typically nest in the habitats found within the Study Area, such as California towhee, bushtit, house finch, black phoebe, and American robin, were detected during the reconnaissance survey. Although no raptor nests were detected during the survey, the eucalyptus trees within and adjacent to the Study Area could be utilized by raptors for nesting.

Overwintering Population of Monarch Butterfly

Although monarch butterflies are not a federally or state listed species, the USFWS has been petitioned to list this species under the federal Endangered Species Act and has initiated the Species Status Assessment process. The listing decision is expected to be published in December 2020 (USFWS 2020). In addition, it is a species of local concern. Therefore, the California overwintering population of monarch butterfly will be analyzed herein as a special status species. Potential suitable overwintering habitat for a population of monarch butterflies occurs within the Study Area adjacent to the ATF complex. The California population of overwintering monarch butterflies requires stands or groves of trees that predominantly consist of eucalyptus species but may also include Monterey cypress, Monterey pine, and other trees in groves along the California coast from October to February (Monarch Joint Venture 2020). As depicted on the Western Monarch Count Overwintering Sites, the grove of eucalyptus trees located directly south of the ATF complex is identified as site 3063 (Xerces Society 2020). Monarchs were first documented at this location in 1982 and at the time the observers noted that more study was needed (CDFW 2019a; Xerces Society 2020). Monarchs have not been documented at the location since at least 2010 based on Xerces Society 2020 data. Based on these data, this species has potential to utilize the eucalyptus grove adjacent to the ATF complex, however because it is unclear whether the eucalyptus grove is being utilized as an overwintering site it would not currently be considered an environmentally sensitive habitat area (ESHA).

4.2 Sensitive Plant Communities and Critical Habitats

The CNDDDB lists six sensitive natural communities in the eight quadrangles that include and surround the Study Area (Appendix B). None of the sensitive natural communities listed in Appendix B occur within the Study Area. The Sensitive Natural Communities List in CNDDDB is not currently maintained, and no new information has been added in recent years. Therefore, on-site vegetation types were also compared with the List of Vegetation Alliances and Associations (CDFW 2019c). According to the CDFW's Vegetation Program, Alliances with State ranks of S1 through S3 are considered to be imperiled and thus potentially of special concern. No vegetation alliances with rank S1 through S3 or vegetation types in the hierarchical list are present in the Study Area.

Critical habitat for tidewater goby (*Eucyclogobius newberryi*), South/Central California Coast Distinct Population Segment steelhead (steelhead; *Oncorhynchus mykiss irideus*), western snowy plover (*Charadrius alexandrinus nivosus*), and La Graciosa thistle (*Cirsium loncholepis*) occurs within five

miles of the Study Area. The Study Area does not occur within federally designated critical habitat for the aforementioned species.

4.3 California Coastal Zone and Environmentally Sensitive Habitat Areas

All injection and monitoring well locations except MW-1C/1D, MW-3D/3E, MW-4C/4D, MW-5D/5E/5F and portions of the ATF complex location occur within the Coastal Zone designated by the California Coastal Commission under the California Coastal Act. Because the injection well, monitoring well, and ATF complex locations occur within the jurisdictions of the City of Grover Beach and unincorporated San Luis Obispo County, it is anticipated that these project components would be regulated pursuant to the City's and County's Local Coastal Program (LCP). LCPs typically identify ESHAs, which are areas in which plant or animal life or their habitats 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. The Coastal Commission considers saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens to be wetlands (Coastal Act Section 30121). Coastal wetlands include "land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate" (California Code of Regulations Section 13577[b]). Within the Study Area, the City of Grover Beach and the County of San Luis Obispo each have an adopted LCP that identifies Meadow Creek, Arroyo Grande Creek, and their respective riparian areas as ESHA. See Table 2 and Figure 4a through Figure 4g for information on locations of riparian habitat that would be considered ESHA.

4.4 Jurisdictional Waters and Wetlands

As noted in Section 3.1.2, *Watersheds and Drainages*, and Section 3.1.4, *Terrestrial Vegetation and Other Land Cover Types*, Meadow Creek, Arroyo Grande Creek, and their associated riparian vegetation, as well as the roadway drainage observed during the reconnaissance survey, occur within injection well locations or in the larger Study Area (see Table 1 and Table 2). These features are potentially under the jurisdiction(s) of the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), CDFW, and local agencies pursuant to the California Coastal Act and associated Coastal Commission-approved LCPs (i.e., the City of Grover Beach and County of San Luis Obispo). These agencies make the final determination regarding limits of jurisdiction, typically at the time permits are requested for activities within these areas.

Additionally, a potential approximately 0.04-acre wetland feature is located in the southern section of the Study Area within the Oceano County Airport and was observed during the reconnaissance survey within 100 feet of the proposed water distribution pipeline alignment (see Figure 4f). No formal wetland delineation was conducted at this location. This feature may potentially be under the jurisdiction(s) of the USACE, RWQCB, CDFW, and/or County of San Luis Obispo. Additional wetlands or waters, if discovered within the Study Area, would require evaluation as potentially subject to local, CDFW, RWQCB, and/or USACE jurisdiction(s).

4.5 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a habitat connection between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The habitats within the link do not necessarily need to be the same as the habitats that are being linked. Rather, the link merely needs to contain sufficient cover and forage to allow temporary inhabitation by ground-dwelling species. Typically, habitat linkages are contiguous strips of natural areas, although dense plantings of landscape vegetation can be used by certain disturbance-tolerant species. Depending on the species using a given corridor, specific physical resources (such as rock outcroppings, vernal pools, or oak trees) may need to be located within the habitat link at certain intervals to allow slower-moving species to traverse the link. For highly mobile or aerial species, habitat linkages may be discontinuous patches of suitable resources spaced sufficiently close together to permit travel along a route in a short period of time.

Wildlife movement corridors can be both large and small scale. Regionally, the Study Area is not located within an Essential Connectivity Area (ECA) as mapped in the report *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (CDFW 2010). ECAs represent principle connections between Natural Landscape Blocks. ECAs are regions in which land conservation and management actions should be prioritized to maintain and enhance ecological connectivity. ECAs are mapped based on coarse ecological condition indicators, rather than the needs of particular species and thus serve the majority of species in each region. Within the Study Area, the arroyo willow riparian habitat provides suitable small-scale corridor for wildlife to travel locally.

4.6 Resources Protected by Local Policies and Ordinances

Any native trees proposed for removal associated within the project site are subject to the permit and approval requirements included in San Luis Obispo County Code (SLOCC) Sections 23.05.060, 23.05.062, and 23.05.060. Native trees including arroyo willow and Monterey cypress can be found within the Study Area. In addition, the County of San Luis Obispo and City of Grover Beach LCPs as well as San Luis Obispo County Coastal Zone Land Use Ordinance include Policies and Ordinances which regulate activities within and adjacent to ESHA (see Section 4.3, *California Coastal Zone and Environmentally Sensitive Habitat Areas*, for a discussion of ESHA). Currently, the City of Grover Beach and County of San Luis Obispo LCPs and associated ordinances require 50-foot and 100-foot setbacks, respectively, from ESHA.

4.7 Habitat Conservation Plans

A Habitat Conservation Plan for Arroyo Grande Creek between Lopez Dam and the flood control channel is under development; however, this plan has not yet been adopted (Stetson Engineers, Inc. 2004). The project site is not located within an area with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

5 Impact Analysis and Mitigation Measures

This section discusses the possible impacts to biological resources that may occur from implementation of the proposed project and suggests appropriate avoidance, minimization, and mitigation measures that would reduce those impacts to less-than-significant levels. The criteria used to evaluate potential project-related impacts to biological resources are summarized in Section 2.3, *Guidelines for Determining CEQA Significance*.

5.1 Special Status Species

The proposed project would have a significant effect on biological resources if it would:

- a) Have substantial adverse effects, 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 CDFW or USFWS.

Special Status Plants

One special status plant species, black-flowered figwort, was determined to have the potential to occur within the Study Area based on the presence of suitable habitat, specifically arroyo willow riparian habitat. The majority of project impacts would occur on previously disturbed or iceplant mat habitat outside the limits of riparian habitats. However, IW-5A and IW-5B would be located in close proximity to suitable habitat for black-flowered figwort. Direct impacts from project construction would include ground-disturbing activities that could result in removal of the species, if present. Indirect impacts would occur if construction equipment inadvertently transports residual plant material from other construction sites (e.g., seeds of invasive plant species carried to the site within the undercarriage or tires of heavy equipment that has not been cleaned thoroughly between construction sites), which could lead to the spread of invasive, non-native species from construction equipment. Invasive, non-native plant species can out-compete native species and/or alter habitat towards a state that is unsuitable for the survival of special status species. For example, the spread of certain weed species can reduce the biodiversity of native habitats through displacement of vital pollinators or through competition with native plants for space, water and light.

The project footprint of the injection wells, monitoring wells and the water distribution pipelines would be relatively small, and the impacts associated with construction would be primarily temporary in nature in developed/landscaped land cover. Furthermore, injection wells would be located along edges of larger habitat blocks for this species. Therefore, only a relatively small number of black-flowered figworts, if any, would be impacted in comparison to the population that could inhabit the remaining regionally occurring suitable habitat associated with Arroyo Grande Creek. Therefore, construction of the injection wells, monitoring wells, and the water distribution pipelines would not be expected to remove or degrade habitat to such an extent as to cause a downward trend in the species range-wide or regional/local populations or cause a restriction in the species range that would lead to a federal or state listing. Therefore, impacts to black-flowered figwort from construction and operation of injection wells, monitoring wells, and water distribution pipelines would be less than significant, and no mitigation measures are recommended.

Special Status Animals

California Red-Legged Frog

CRLFs have the potential to occur in and adjacent to Arroyo Grande Creek. However, CRLF only has potential to be present within the limits of the IW-5A, IW-5B, MW-5A/5B/5C and water distribution pipeline locations adjacent to Arroyo Grande Creek. Encounters with CRLF would be limited to dispersing and foraging adults and sub-adults and would be dependent upon favorable weather conditions (e.g., during rain events or other times with elevated moisture levels). No impacts to eggs or tadpoles would occur because all injection well footprints are located in upland areas. However, if CRLF individuals are present within the project components, potential direct impacts would occur during project construction and/or during ground disturbing maintenance activities if harassment, injury, or mortality of CRLF individuals occurs. Indirect impacts to CRLF would also result from general project-related disturbance and noise in the vicinity of these well locations that may impact normal breeding and dispersal patterns for the species in the area. The project also has potential to result in direct impacts to CRLF upland habitat at the water distribution pipelines located within the Oceano County Airport, as currently sited, through removal of riparian vegetation associated with Arroyo Grande Creek. No impacts to breeding habitat would occur because all project components with known locations are located in upland areas. Given the potential for direct and indirect impacts to CRLF individuals as well as direct impacts to CRLF habitat, impacts to CRLF would be potentially significant. See *Recommended Mitigation Measures* for measures which include avoidance of CRLF habitat and implementation of avoidance and minimization measures for CRLF during construction activities that would reduce impacts to a less-than-significant level.

California Legless Lizard

California legless lizards have the potential to occur in native or non-native vegetation and therefore have the potential to be present within project component locations that are not located within developed areas (i.e., IW-1, IW-2A, IW-2B, IW-3, IW-5A, IW-5B, MW-2A/2B/2C, MW-4C/4D, MW-5A/5B/5C, MW-5D/5E/5F, and some water distribution pipeline alignments). Direct impacts, including mortality, to California legless lizard could occur during ground-disturbing construction and maintenance activities (e.g., grading, excavation, and trenching) at water distribution pipeline locations containing native or non-native vegetation. Considering the marginal quality of the habitat at the injection well, monitoring well and the water distribution pipeline locations as well as the relatively small footprint of the injection wells and monitoring wells and largely temporary nature of impacts associated with construction activities, only a small number of California legless lizards, if any, would be directly impacted compared to the size of the regional population in native habitats. Based on these factors, impacts resulting from the proposed project are not expected to cause a downward trend in the species range-wide or regional/local populations or cause a restriction in the species range that would lead to a federal or state listing. Therefore, impacts to California legless lizard would be less than significant, and no mitigation measures are recommended.

Southwestern Pond Turtle

Southwestern pond turtle have the potential to occur in and adjacent to Arroyo Grande Creek. However, the species only has the potential to be present within the limits of the IW-5A, IW-5B and MW-5A/5B/5C locations adjacent to Arroyo Grande Creek and portions of the water distribution pipeline alignments within 50 feet of Arroyo Grande Creek. Potential direct impacts to southwestern pond turtle include destruction of nests as well as harassment, injury, and mortality of individuals if they are present during construction activities. Due to the potential for impacts to individual turtle

nest sites, that would impact the reproductive success of the local and regional population, impacts to southwestern pond turtle from construction of the water distribution pipelines would be potentially significant. See *Recommended Mitigation Measures* for avoidance and minimization measures for southwestern pond turtle to be implemented during construction activities, which would be reduce impacts to a less-than-significant level.

Overwintering Population of Monarch Butterfly

California overwintering population of monarch butterfly have the potential to occur within the eucalyptus grove directly south of the ATF complex location. Encounters with monarch butterflies would be limited to foraging adults dependent upon sunny weather conditions between October and February. No impacts to the eucalyptus grove would occur because the grove is located outside the ATF complex footprint. No direct impacts to monarch butterfly related to their mobility or their overwintering habitat are anticipated. At this time, monarch overwintering has not been confirmed at the eucalyptus grove in the vicinity of the proposed ATF complex; therefore, this area would not be currently considered ESHA. See *Recommended Mitigation Measures*, which include avoidance of overwintering monarch butterfly habitat during construction activities, which would reduce impacts to a less-than-significant level.

Southern Sea Otter

Southern sea otter has a low potential to occur near the discharge point of the existing ocean outfall pipeline in the Pacific Ocean. The project would alter the volume and quality of water discharged through the existing ocean outfall, resulting in an incrementally higher concentration (but not volume) of salinity and other constituents in the effluent. The reverse osmosis process at the proposed ATF complex would produce a concentrate that would contain a higher concentration of the dissolved particles than the source water flow. This concentrate will ultimately be mixed with the remaining secondary effluent and discharged to the ocean through the existing ocean outfall that currently receives all the flow from the Pismo Beach and SSLOCSD WWTPs. The concentrate from the reverse osmosis process would be substantially diluted by mixing with remaining effluent, and the resulting secondary effluent ocean discharge would be significantly less saline than ocean water or effluent discharge from ocean desalination facilities. The ocean discharge would continue to be regulated by the State Water Resources Control Board under the Pismo Beach and SSLOCSD WWTP's National Pollutant Discharge Elimination System (NPDES) permits, which include effluent limitations for protection of marine aquatic life. Furthermore, the pipeline outfall is not located within a kelp forest, which sea otters are dependent on; therefore, no direct impact to southern sea otter is anticipated. Southern sea otters may migrate near the discharge point to feeding areas to the north or to the south; however, the change in water salinity output is not expected to cause an impact to the species given compliance with existing NPDES permit limitations. Therefore, impacts to southern sea otter would be less than significant, and no mitigation measures are recommended.

Steelhead - South-Central California Coast DPS

Steelhead has a low potential to occur near the discharge point of the existing ocean outfall pipeline in the Pacific Ocean. No suitable freshwater migration or spawning habitat occurs within the Study Area. Arroyo Grande Creek, located approximately 50 feet south of Study Area, contains suitable habitat for the species; however, an earthen levee separates the Study Area from the creek. Meadow Creek and Oceano Lagoon, located more than 100 feet west and south of the Study Area, are also isolated from the Study Area due to existing roadways and development. The species may migrate near the discharge point of the existing ocean outfall pipeline in the ocean during migration towards

Arroyo Grande Creek. The project would alter the volume and quality of water discharged through the existing ocean outfall, resulting in an incrementally higher concentration (but not volume) of salinity and other constituents in the effluent. However, as discussed under *Southern Sea Otter* above, the secondary effluent ocean discharge would be required to comply with the existing Pismo Beach and SSLOCSDD WWTP's NPDES permits, which include effluent limitations for protection of marine aquatic life. As a result, the change in water salinity output is not expected to cause a disruption of migration to the spawning sites. Therefore, impacts to steelhead would be less than significant, and no mitigation measures are recommended.

Tidewater Goby

Arroyo Grande Creek, approximately 50 feet south of known locations of project components, contains suitable habitat for tidewater goby; however, an earthen levee separates the known locations of project components from the creek. Meadow Creek and Oceano Lagoon, located more than 100 feet west and south of the known locations of project components, are also isolated from the known locations of project components due to existing roadways and development. Therefore, given the distance and intervening topographical features, no impacts to tidewater goby would occur as a result of the construction and operation of the injection wells, monitoring wells, water distribution pipelines, and the ATF complex. No mitigation measures are recommended.

Nesting Birds and Special Status Birds (Including Tri-colored Blackbird and White-tailed Kite)

In addition to the special status animal species discussed above, several bird species protected by the California Fish and Game Code may also nest in trees and shrubs within or in close proximity to the injection well and monitoring well locations as well as the water distribution pipelines and the ATF complex. One State fully protected bird species (white-tailed kite) and one bird species listed as a State Threatened/SSC (tri-colored blackbird) also have the potential to occur at the injection and monitoring well locations and within the water distribution pipeline alignments based on the presence of potentially suitable habitat. Impacts to tri-color blackbird are unlikely given that the injection well, monitoring well, water distribution pipeline, and ATF complex locations and immediate surroundings only provide foraging habitat for the species. Therefore, no direct impacts to tri-color blackbird nesting would occur. However, direct impacts to nesting birds of other species, including white-tailed kite, may occur due to removal or trimming of trees, shrubs, and other nesting substrates that may contain active nests. Indirect impacts to nesting birds may also occur during construction activities in the vicinity of an active nest resulting from distress to adults and disruption of nesting behavior due to construction noise that may lead to nest abandonment or failure. Therefore, impacts to nesting birds, including the white-tailed kite, from construction of the injection wells, monitoring wells, water distribution pipelines and the ATF complex would be potentially significant. See *Recommended Mitigation Measures* for avoidance and minimization measures for nesting birds to be implemented during construction activities, which would reduce impacts to a less-than-significant level.

Groundwater Extraction

During Phase I of the proposed project, approximately 900 AFY of advanced purified water would be injected into the SMGB, and the NCMA agencies may extract approximately 2,500 AFY (i.e., a net increase of 1,400 AFY over existing conditions). By extracting more than is injected, local alluvial groundwater levels around Arroyo Grande Creek may lower, resulting in greater percolation (i.e., inflow) of surface waters from Arroyo Grande Creek into the alluvial aquifer of the SMGB. If the rate

of percolation is substantially increased as a result of the proposed project, the surface water level of Arroyo Grande Creek may lower, resulting in adverse impacts to habitat for special-status amphibian and fish species including CRLF, steelhead, and tidewater goby. However, an analysis prepared by Geoscience Support Services, Inc. (included in Appendix E) determined that Phase I of the proposed project would result in a negligible impact to percolation rates of Arroyo Grande Creek during normal and dry years. In especially wet years (as represented by years 1983, 1995, 1996, 1997, 1998), Phase I of the proposed project would increase streambed percolation rates by approximately 0.2 to 29 AFY compared to the baseline pumping scenario. The driving factor behind the increase in streambed percolation rates is the increase in pressure due to higher stream levels that would push more water into the groundwater basin, rather than a drawdown resulting from the proposed project. In especially wet years, stream levels would be higher than average, which would result in adequate stream flow for aquatic species and riparian habitat despite the minor increase in percolation rates. Under Phase II of the proposed project, more advanced purified water would be injected into the SMGB than extracted; therefore, this phase of the project would not have an adverse impact on percolation rates and corresponding surface water levels of Arroyo Grande Creek. Therefore, groundwater extraction facilitated by the proposed project would not substantially alter the hydrology of Arroyo Grande Creek such that adverse impacts to special status aquatic species would occur. Impacts from groundwater extraction would be less than significant.

Recommended Mitigation Measures

The following measures would reduce impacts to special status animal species to a less-than-significant level. It should be noted that the majority of the Study Area is located within the Coastal Zone, where arroyo willow riparian habitat associated with Arroyo Grande Creek would be considered ESHA pursuant to the County of San Luis Obispo and City of Grover Beach LCPs (see Section 4.3, *California Coastal Zone and Environmentally Sensitive Habitat Areas*). The project would be required to comply with all applicable regulatory requirements pertaining to setbacks from ESHA, including those contained in the County of San Luis Obispo and City of Grover Beach LCPs, the Grover Beach Municipal Code, and the San Luis Obispo County Code (see Section 5.2, *Sensitive Plant Communities*, and Section 5.5, *Local Policies and Ordinances*), thereby avoiding impacts to CRLF and black-flowered figwort habitat (see Section 5.2, *Sensitive Plant Communities*, and Section 5.5, *Local Policies and Ordinances*).

California Red-legged Frog Habitat Avoidance

Injection well, monitoring well and water distribution pipeline locations and associated construction work areas (including staging, access, and laydown) shall be sited outside of native vegetation communities, such as arroyo willow riparian. Prior to construction, the limits of construction shall be clearly demarcated by bright orange fencing. Areas outside of the limits of construction shall be considered environmentally sensitive, and access and construction shall be restricted.

California Red-legged Frog Impact Avoidance Measures

The following avoidance and minimization measures shall be implemented during project construction and maintenance activities requiring ground disturbance at the IW-5A, IW-5B, and MW 5A/5B/5C locations and water distribution pipeline locations within 50 feet of Arroyo Grande Creek:

- A qualified biologist shall survey the project site no more than 48 hours before the start of construction and ground-disturbing maintenance activities, including but not limited to grading, excavation, and trenching. If a CRLF is found within the project footprint, no work shall begin, and

consultation with the USFWS shall be initiated. Work shall not begin until authorization is provided by the USFWS to continue or applicable measures from a Biological Opinion/Incidental Take Permit issued by the USFWS for the project are successfully implemented.

- For construction activities occurring during the wet season (October 15 and April 15), daily surveys shall be conducted by a qualified biologist prior to the start of construction activities. If a CRLF is found within the project footprint, work shall halt, and consultation with the USFWS shall be initiated. Work shall not re-commence until authorization is provided by the USFWS to continue or applicable measures from a Biological Opinion/Incidental Take Permit issued by the USFWS for the project are successfully implemented.
- Before any construction or ground-disturbing maintenance activities begin, a biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of CRLF and its habitat, the specific measures that are being implemented to avoid dispersing CRLF, and the boundaries within which the project 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.
- All vehicles and equipment shall be in good working condition and free of leaks. A spill prevention plan shall be established in the event of a leak or spill.
- Work shall be restricted to daylight hours to the extent feasible. If construction activities occur at night, a biological monitor shall be present. If a CRLF is found within the project footprint during active construction, all work shall stop, and the USFWS shall be notified. Work shall not recommence until authorization is provided by the USFWS to continue or applicable measures from a Biological Opinion and Incidental Take Statement or other authorization issued by the USFWS for the project are successfully implemented.
- Water shall not be impounded in a manner that may attract CRLF.
- All excavations or trenches shall be covered or shall contain earthen ramps sufficient for CRLF to escape when not actively under construction to avoid entrapment of CRLF or other wildlife species.
- Herbicides shall not be used on site during construction.
- No pets shall be permitted on site.
- A biological monitor shall be present during all initial ground-disturbing activities for construction and maintenance activities, including but not limited to grading, excavation, and trenching. If a CRLF is found within the project footprint during active construction, all work shall stop, and the USFWS shall be notified. Work shall not recommence until authorization is provided by the USFWS to continue or applicable measures from a Biological Opinion and Incidental Take Statement or other authorization issued by the USFWS for the project are successfully implemented.
- All construction and ground-disturbing maintenance activities (e.g., grading, excavation, and trenching) conducted at injection well, monitoring well, and water distribution pipeline locations within 50 feet of Arroyo Grande Creek shall be conducted during dry conditions (i.e., days with less than 0.1 inch of predicted rainfall), outside of the wet season (October 15 through April 30), unless authorization is provided by the USFWS or a Biological Opinion/Incidental Take Statement issued by the USFWS for the project authorizes work during such conditions.

Southwestern Pond Turtle Impact Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during project construction and maintenance activities requiring ground disturbance at the IW-5A, IW-5B, and MW 5A/5B/5C locations and water distribution pipeline locations within 50 feet of Arroyo Grande Creek:

- A qualified biologist shall conduct a visual survey of work areas within 50 feet of Arroyo Grande Creek within 48 hours of initial ground-disturbing activities, including but not limited to grading, excavation, and trenching, associated with construction of injection wells. The survey area shall include the proposed disturbance area plus a 100-foot buffer. Prior to the survey, suitable receptor sites shall be identified within Arroyo Grande Creek. A biologist authorized to relocate turtles shall be present for activities that require the removal of riparian habitat to monitor for turtles. If a turtle is observed in the work area, the biologist shall relocate it out of the work area to the respective receptor site.
- For the duration of project construction activities at the IW-5A, IW-5B, and MW 5A/5B/5C locations and water distribution pipeline locations within 50 feet of Arroyo Grande Creek, daily surveys shall be conducted by a qualified biologist prior to the start of construction activities. If a turtle is observed in the work area, a biologist authorized to relocate turtles shall relocate it out of the work area to the respective receptor site.
- All excavations or trenches shall be covered when not actively under construction or shall contain earthen ramps sufficient for southwestern pond turtle to escape to avoid entrapment of southwestern pond turtle or other wildlife species.
- In the event that a southwestern pond turtle egg clutch is discovered during pre-construction surveys, the location shall be surrounded with high visibility fencing under the guidance of a qualified biologist. The nest shall be avoided by construction activities until a qualified biologist determines that the clutch has hatched. The CDFW shall also be contacted to provide additional guidance in the event that a southwestern pond turtle nest is discovered. If, during construction, a southwestern pond turtle nest is discovered, construction shall cease immediately upon the discovery, and CDFW shall be notified.
- To the extent feasible, construction activities shall be scheduled outside of the typical nesting season for southwestern pond turtle, which is April through August (Stebbins 2003).

Monarch Butterfly Overwintering Habitat Avoidance

The ATF complex and associated construction work areas shall be sited outside of monarch butterfly overwintering habitat. Prior to construction and during the overwintering period (October through February) for monarchs in the region (i.e., October through February), a survey shall be conducted at the eucalyptus grove adjacent to the ATF complex to determine if monarch butterflies are utilizing the habitat for overwintering. If monarch butterflies are confirmed to overwinter within the eucalyptus grove, the grove shall be considered ESHA ,and design of the ATF complex shall be modified to incorporate the appropriate setbacks included in the City of Grover Beach LCP and GBMC. The limits of construction shall be clearly demarcated by bright orange fencing in order to avoid work within designated setback areas. Areas outside of the limits of construction shall be considered environmentally sensitive, and access and construction shall be restricted. If butterflies are present, all construction adjacent to overwintering habitat shall be conducted outside the overwintering season (i.e., October to February), if feasible. However, if construction must occur during this time period, a pre-construction survey of the monarch overwintering habitat adjacent to the ATF complex location shall be conducted to confirm presence or absence of monarch butterflies. If no butterflies are observed, construction may commence. If butterflies are observed, construction may only

commence if a City-approved monarch butterfly expert determines that the construction activities would not adversely impact foraging, roosting, or other behaviors of the species.

Nesting Bird Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during project construction activities:

- Initial site disturbance shall occur outside the general avian nesting season (February 1 through August 31), if feasible.
- If initial site disturbance occurs in a work area within the general avian nesting season indicated above, a qualified biologist shall conduct a preconstruction nesting bird survey no more than 14 days prior to initial disturbances in the work area. The survey shall include the entire area of disturbance area plus a 50-foot buffer (relevant to non-raptor species) and 300-foot buffer (relevant to raptors) around the site. If active nests are located, all construction work should be conducted outside a buffer zone from the nest to be determined by the qualified biologist. The buffer should be a minimum of 50 feet for non-raptor bird species and at least 300 feet for raptor species. Larger buffers may be required and/or smaller buffers may be established depending upon the species, status of the nest, and construction activities occurring in the vicinity of the nest. The buffer area(s) should be closed to all construction personnel and equipment until the adults and young are no longer reliant on the nest site. A qualified biologist should confirm that breeding/nesting is completed and young have fledged the nest prior to removal of the buffer. If a white-tailed kite nest is detected during the nesting bird survey no work shall begin until the CDFW is consulted to confirm that implementation of the project and avoidance buffers are sufficient to avoid “take”.
- If construction activities in a given work area cease for more than 14 days, additional surveys shall be conducted for the work area. If active nests are located, the aforementioned buffer zone measures shall be implemented.

5.2 Sensitive Plant Communities

The proposed project would have a significant effect on biological resources if it would:

- 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.*

The large majority of the project would not have effects to riparian habitat or other sensitive habitat types. No effects to riparian habitat or other natural communities are anticipated at the injection well, monitoring well, and ATF complex locations. However, construction of the water distribution pipelines would directly impact the arroyo willow riparian vegetation community associated with Arroyo Grande Creek through habitat removal on the Oceano County Airport property. The arroyo willow riparian habitat is identified as ESHA under the adopted LCPs for the City of Grover Beach and the County of San Luis Obispo. Direct impacts to arroyo willow riparian habitat and ESHA could occur through ground disturbance, vegetation removal, and conversion of habitats to developed land uses. Indirect impacts would occur if construction equipment inadvertently transports residual plant material from other construction sites (e.g., seeds of invasive plant species carried to the site within the undercarriage or tires of heavy equipment that has not been cleaned thoroughly between construction sites), which could lead to the spread of invasive, non-native species from construction equipment. Invasive, non-native plant species can out-compete native species and/or convert riparian

habitat to non-native habitat. Direct and indirect impacts to sensitive plant communities and ESHA from construction of the water distribution pipelines in the Oceano County Airport would be potentially significant.

Recommended Mitigation Measure

The following measure would reduce impacts to sensitive plant communities to a less-than-significant level. It should be noted that the majority of the project components are located within the Coastal Zone, where arroyo willow riparian habitat associated with Arroyo Grande Creek would be considered ESHA pursuant to the County of San Luis Obispo and City of Grover Beach LCPs (see Section 4.3, *California Coastal Zone and Environmentally Sensitive Habitat Areas*). The project would be required to comply with all applicable regulatory requirements pertaining to setbacks from ESHA, including those contained in the County of San Luis Obispo and City of Grover Beach LCPs, the Grover Beach Municipal Code, and the San Luis Obispo County Code (see Section 5.2, *Sensitive Plant Communities*, and Section 5.5, *Local Policies and Ordinances*).

Sensitive Plant Community and Environmentally Sensitive Habitat Area Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during project construction and maintenance activities requiring vegetation disturbance within arroyo willow habitat.

- Temporary impact areas to arroyo willow habitat shall be restored at a one to one (1:1) ratio (one acre of restoration for each acre of impact) to offset temporary losses in wetland, stream, or riparian function. Permanent impacts shall be offset through creation, restoration, and/or enhancement of in-kind habitats at a minimum ratio of 2:1 to mitigate unavoidable permanent impacts to arroyo willow habitat. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared by a biologist familiar with restoration and mitigation techniques. The plan shall include, but not be limited to the following components:
 - Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type);
 - Goal(s) of the compensatory mitigation project (type[s] and area[s] of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type(s) to be established, restored, enhanced, and/or preserved);
 - Description of the proposed compensatory mitigation site (location and size, ownership status, existing functions and values of the compensatory mitigation-site);
 - Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan [including plant species to be used, container sizes, seeding rates, etc.]);
 - Maintenance activities during the monitoring period, including weed removal and irrigation as appropriate (activities, responsible parties, schedule);
 - Monitoring plan for the compensatory mitigation site, including no less than five years of monitoring with quarterly monitoring for the first year (performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports);

- Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, at least 80 percent survival of container plants and 30 percent relative cover by vegetation type;
 - An adaptive management program and remedial measures to address negative impacts to restoration efforts;
 - Notification of completion of compensatory mitigation and agency confirmation; and
 - Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).
- During construction, the project shall make all reasonable efforts to limit the use of imported soils for fill. Soils currently existing on site should be used for fill material. If the use of imported fill material is necessary, the imported material shall be obtained from a source that is known to be free of invasive plant species.
 - All equipment and vehicles must be free of weed seeds/propagules before accessing and leaving the work areas.

5.3 Jurisdictional Waters and Wetlands

The proposed project would have a significant effect on biological resources if it would:

- c) *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

The majority of the injection wells, monitoring wells, and water distribution pipelines as well as the ATF complex are located within the Coastal Zone, and coastal wetlands receive protection from degradation or destruction caused by coastal development under the Coastal Act, which is implemented by the City of Grover Beach and the County of San Luis Obispo through their LCPs. Therefore, arroyo willow riparian habitat within the Study Area would likely be under the jurisdictions of the City of Grover Beach, County of San Luis Obispo, USACE, RWQCB, and CDFW and the potential wetland would likely be under the jurisdiction of the County of San Luis Obispo, USACE, CDFW, and RWQCB. Although a portion of the ATF complex is located within the Coastal Zone, no coastal wetlands or potentially jurisdictional waters occur within or adjacent to the ATF complex location. No impacts to the bed or bank of any potentially jurisdictional drainage would occur. However, direct impacts would include the removal of riparian habitat to accommodate the water distribution pipelines within the Oceano County Airport property. Direct impacts would also occur if spills or leaks occur within the arroyo willow riparian habitat during construction at locations within or adjacent to this habitat. Therefore, impacts to jurisdictional waters and wetlands would be potentially significant, and the project would require the issuance of permits by the RWQCB and CDFW as well as the County of San Luis Obispo, and the City of Grover Beach under the Coastal Act. See *Recommended Mitigation Measures*, which include preparation of a jurisdictional delineation and implementation of subsequent avoidance measures, which would reduce impacts to a less-than-significant level.

Groundwater Extraction

During Phase I of the proposed project, approximately 900 AFY of advanced purified water would be injected into the SMGB, and the NCMA agencies may extract approximately 2,500 AFY (i.e., a net increase of 1,400 AFY over existing conditions). By extracting more than is injected, local alluvial groundwater levels around Arroyo Grande Creek may lower, resulting in greater percolation (i.e.,

inflow) of surface waters from Arroyo Grande Creek into the alluvial aquifer of the SMGB. If the rate of percolation is substantially increased as a result of the proposed project, the surface water level of Arroyo Grande Creek may lower, resulting in hydrological interruption, which could have a substantial adverse effect on state and federally protected wetlands. However, an analysis prepared by Geoscience Support Services, Inc. (included in Appendix M) determined that Phase I of the proposed project would result in a negligible impact to percolation rates of Arroyo Grande Creek during normal and dry years. In especially wet years (as represented by years 1983, 1995, 1996, 1997, 1998), Phase I of the proposed project would increase streambed percolation rates by approximately 0.2 to 29 AFY. The driving factor behind the increase in streambed percolation rates is the increase in pressure due to higher stream levels that would push more water into the groundwater basin, rather than a drawdown resulting from the proposed project. In especially wet years, stream levels would be higher than average, which would result in adequate stream flow for wetlands and riparian habitat. Under Phase II of the proposed project, more advanced purified water would be injected into the SMGB than extracted; therefore, this phase of the project would not have an adverse impact on percolation rates and corresponding surface water levels of Arroyo Grande Creek. Therefore, groundwater extraction facilitated by the proposed project would not result in hydrological interruption to state and federally protected wetlands. Impacts from groundwater extraction would be less than significant.

Recommended Mitigation Measure

The following measures would reduce impacts to jurisdictional waters and wetlands to a less-than-significant level. It should be noted that the majority of the project components are located within the Coastal Zone, where arroyo willow riparian habitat associated with Arroyo Grande Creek would be considered ESHA pursuant to the County of San Luis Obispo and City of Grover Beach LCPs (see Section 4.3, *California Coastal Zone and Environmentally Sensitive Habitat Areas*). The project would be required to comply with all applicable regulatory requirements pertaining to setbacks from ESHA, including those contained in the County of San Luis Obispo and City of Grover Beach LCPs, the Grover Beach Municipal Code, and the San Luis Obispo County Code (see Section 5.2, *Sensitive Plant Communities*, and Section 5.5, *Local Policies and Ordinances*).

Jurisdictional Delineation

Prior to final determination of the water distribution pipeline locations and associated construction work areas within the Oceano County Airport property, a qualified biologist shall complete a jurisdictional delineation of the project site to aid in the siting of the water distribution pipeline alignments as well as project areas. The jurisdictional delineation shall determine the extent of the jurisdiction(s) for local agencies (i.e., the City of Grover Beach and County of San Luis Obispo), CDFW, USACE, and/or RWQCB and shall be conducted in accordance with the requirements set forth by each agency.

Drainages and Wetlands Impact Mitigation

Impacts to drainages and wetlands identified by the Jurisdictional Delineation (Mitigation Measure 3[a]) shall be mitigated at a minimum of 1:1 (acre impacted: acre restored/created). Restoration on the project site is preferable. However, the City may approve off-site restoration at a location in the same watershed as where the project impacts occur that results in equal compensatory value. An HMMP shall be prepared which identifies the approach for implementing the compensatory mitigation. The HMMP shall be prepared by a qualified biologist/restoration ecologist and shall outline the compensatory mitigation. As part of the HMMP, a final mitigation implementation plan

shall be submitted to and approved by the City prior to project implementation. Specifically, the HMMP shall include the following:

- Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type);
- Goal(s) of the compensatory mitigation project (type[s] and area[s] of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type[s] to be established, restored, enhanced, and/or preserved);
- Description of the proposed compensatory mitigation-site (location and size, ownership status, existing functions and values of the compensatory mitigation site);
- Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan [including plant species to be used, container sizes, seeding rates, etc.]);
- Maintenance activities during the monitoring period, including weed removal and irrigation as appropriate (activities, responsible parties, schedule);
- Monitoring plan for the compensatory mitigation site, including no less than five years of monitoring with quarterly monitoring for the first year (performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports);
- Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, at least 80 percent survival of container plants and 30 percent relative cover by vegetation type;
- An adaptive management program and remedial measures to address negative impacts to restoration efforts;
- Notification of completion of compensatory mitigation and agency confirmation; and
- Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).

5.4 Wildlife Movement

The proposed project would have a significant effect on biological resources if it would:

- 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.*

The arroyo willow riparian habitats along Meadow Creek and Arroyo Grande Creek provide suitable small-scale corridors for wildlife to travel locally. However, urban development east and west of SR 1 currently limits wildlife movement throughout the majority of the Study Area, and existing fencing south of IW-5A, IW-5B, and MW-5A/5B/5C, currently prevent wildlife movement to the SSLOCSO WWTP. Although the injection wells include aboveground components, the project footprint at all injection wells will be relatively small and would not preclude wildlife movement. Furthermore, the proposed injection wells, monitoring wells, ATF complex, and water distribution pipelines would not create new barriers to an existing corridor since ground movement of wildlife is already constrained by development along the SR 1 corridor. In addition, as discussed in Sections 5.1 and 5.3, groundwater extraction facilitated by the proposed project would not result in significant adverse impacts to surface water levels of Arroyo Grande Creek such that migration of steelhead and tidewater goby would be impaired. Therefore, the project would not substantially interfere with the movement of

native resident or migratory fish or wildlife species, with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, and no mitigation measures are recommended.

5.5 Local Policies and Ordinances

The proposed project would have a significant effect on biological resources if it would:

- e) *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance*

Trees may be removed to accommodate the proposed injection wells, monitoring wells, ATF complex and water distribution pipelines; however, the species and number of trees is not known at this time. Most of the trees that may be removed are landscaped/ornamental trees and are not protected trees. The removal of native trees in unincorporated San Luis Obispo County would be subject to the permit and approval requirements included in SLOCC Sections 23.05.060, 23.05.062, and 23.05.060. If removal of native trees under the proposed project does not occur in accordance with these requirements, impacts would be potentially significant. See *Recommended Mitigation Measures*, which includes a native tree inventory and compliance measures, which would reduce impacts to a less-than-significant level.

The County of San Luis Obispo and City of Grover Beach LCPs, the San Luis Obispo County Code, and the Grover Beach Municipal Code require setbacks from ESHA, and the San Luis Obispo County Coastal Zone Land Use Ordinance includes regulations for activities within ESHA as discussed in Section 4.3, *California Coastal Zone and Environmentally Sensitive Habitat Areas* above. The project would be required to comply with the ESHA setback requirements of each jurisdiction. Therefore, the project would not conflict with local policies or ordinances protecting ESHA, and no impact would occur.

Recommended Mitigation Measure

The following measure would reduce impacts related to local policies and ordinances to a less-than-significant level.

Native Tree Inventory, Protection, and Replacement

A Tree Preservation Plan shall be prepared by a certified arborist to inventory native trees that would be trimmed or removed by construction. Native trees shall be avoided to the maximum extent feasible. The plan shall include, but would not be limited to, an inventory of trees within the construction site plus a 50-foot buffer zone, requirements for setbacks from trees and protective fencing, restrictions regarding grading and paving near trees, and direction regarding pruning and digging within root zone of trees. If removal of native trees is required, the trees shall be replaced consistent with the requirements of the local agency which has jurisdiction as well as the associated tree removal permit that may be issued.

Prior to the onset of construction activities, highly visible orange construction fencing shall be installed around existing stands and individuals identified in the Tree Preservation Plan to be retained at a buffer/extent radius of six feet beyond the canopy dripline, wherever feasible, or otherwise marked in the field to protect them from harm during implementation of the proposed project.

5.6 Adopted or Approved Plans

The proposed project would have a significant effect on biological resources if it would:

- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.*

The project area is not subject to an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur, and no mitigation measures are recommended.

6 Limitations, Assumptions, and Use Reliance

This BRA has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Reconnaissance biological surveys for certain taxa may have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDDB, may vary with regard to accuracy and completeness. In particular, the CNDDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A

Regulatory Setting

Regulatory Setting

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the Study Area, which are detailed in the following subsections, include:

- United States Army Corps of Engineers (USACE; wetlands and other waters of the United States);
- Central Coast Regional Water Quality Control Board (Central Coast RWQCB; waters of the State);
- United States Fish and Wildlife Service (USFWS; federally listed species and migratory birds);
- California Department Fish and Wildlife (CDFW; riparian areas, streambeds, and lakes; state-listed species; Species of Special Concern; nesting birds);

A number of federal, state, and local statutes, ordinances, and policies, which are detailed in the following subsections, provide a regulatory structure that guides the protection of biological resources. These include:

- California Coastal Act
- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (FESA)
- California Endangered Species Act (CESA)
- Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Porter-Cologne Water Quality Control Act
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Rivers and Harbors Act of 1899
- California Ocean Plan
- City of Grover Beach Local Coastal Program
- County of San Luis Obispo Local Coastal Program

Agencies

United States Army Corps of Engineers

Under Section 404 of the Clean Water Act, the USACE has authority to regulate activities that could discharge fill of material into wetlands or other “waters of the United States.” Perennial and intermittent creeks are considered waters of the United States if they are hydrologically connected to other jurisdictional waters (typically a navigable water). The USACE also implements the federal policy embodied in Executive Order 11990, which is intended to result in no net loss of wetland value or acres. In achieving the goals of the Clean Water Act, the USACE seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any fill of wetlands that are hydrologically connected to jurisdictional waters would require a permit from the USACE prior to the start of work. Typically, when a project involves impacts to waters of the United States, the goal of no

net loss of wetland acres or values is met through avoidance and minimization to the extent practicable, followed by compensatory mitigation involving creation or enhancement of similar habitats.

Central Coast Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and the Central Coast RWQCB have jurisdiction over “waters of the State” pursuant to the Porter-Cologne Water Quality Control Act. “Waters of the State” are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. The SWRCB has issued general Waste Discharge Requirements (WDRs) regarding discharges to “isolated” waters of the State (Water Quality Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction). The Central Coast RWQCB administers actions under this general order for isolated waters not subject to federal jurisdiction and is also responsible for the issuance of water quality certifications pursuant to Section 401 of the Clean Water Act for waters subject to federal jurisdiction.

United States Fish and Wildlife Service

The USFWS implements the Migratory Bird Treaty Act (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the FESA (16 USC Section 153 et. seq.). Generally, the USFWS implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in “take” of any federally threatened or endangered species are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the FESA, depending on the involvement by the federal government in permitting and/or funding of the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. “Take” under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the FESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

California Department of Fish and Wildlife

The CDFW derives its authority from the California Fish and Game Code (CFGF). The CESA (CFGF Section 2050 et. seq.) prohibits take of state listed threatened or endangered. Take under the CESA is restricted to direct mortality of a listed species; however, the law does not prohibit indirect harm by way of habitat modification. Where incidental take would occur during construction or other lawful activities, the CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated.

The CDFW also enforces CFGF Sections 3511, 4700, 5050, and 5515, which prohibits take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided.

CFGF Sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. CFGF Section 3503.5 protects all birds-of-prey and their eggs and nests against

take, possession, or destruction of nests or eggs. CFGC Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Species of Special Concern (SSC) is a category used by the CDFW for those species considered to be indicators of regional habitat changes or considered to be potential future protected species. Species of Special Concern do not have any special legal status except that which may be afforded by the CFGC as noted above. The SSC category is intended by the CDFW for use as a management tool to include these species in special consideration when decisions are made concerning the development of natural lands. The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (CFGC Section 1900 et. seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Effective in 2015, the CDFW promulgated regulations (14 California Code of Regulations Section 786.9) under the authority of the NPPA, establishing that the CESA's permitting procedures would be applied to plants listed under the NPPA as "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Perennial, intermittent, and ephemeral streams and associated riparian vegetation, when present, also fall under the jurisdiction of the CDFW. CFGC Section 1600 et seq. (Lake and Streambed Alteration Agreements) gives the CDFW regulatory authority over activities that divert, obstruct, or alter the channel, bed, or bank of any river, stream or lake.

Regulations

California Coastal Act

In October 1972, the United States Congress passed Title 16 USC Sections 1451-1464, which established a federal coastal zone management policy and created a federal coastal zone. By that legislation, the Congress declared a national interest in the effective management, beneficial use, protection and development of the coastal zone in order to balance the nation's natural, environmental and aesthetic resource needs with commercial-economic growth. The Congress found and declared that it was a national policy "to encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone giving full consideration to ecological, cultural, historic, and aesthetic values as well as to the need for economic development (16 USC Section 1452b). As a result of that federal enactment, coastal states were provided a policy and source of funding for the implementation of federal goals.

The California Coastal Zone Conservation Act of 1972 (Proposition 20) was a temporary measure passed by the voters of the state as a ballot initiative. It set up temporary regional Coastal Commissions with permit authority and a directive to prepare a comprehensive coastal plan. The coastal commissions under Proposition 20 lacked the authority to implement the Coastal Plan but were required to submit the Plan to the legislature for "adoption and implementation."

The California Coastal Act of 1976 is the permanent enacting law approved by the State legislature. The Coastal Act established a different set of policies, a different boundary line, and different permitting procedures than Proposition 20. Furthermore, it provides for the transfer of permitting authority, with certain limitations reserved for the State, to local governments through adoption and certification of Local Coastal Programs (LCPs) by the California Coastal Commission.

California Environmental Quality Act

CEQA is a state statute that requires State and local agencies to identify the significant environmental impacts of certain actions and to avoid or mitigate those impacts, if feasible. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a “project.” A project is an activity undertaken by a public agency or a private activity that must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency and that may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

Federal Endangered Species Act

The purpose of the FESA is to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the USFWS and the NMFS. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS mainly consist of marine wildlife, such as whales and anadromous fish such as salmon.

Under the FESA, species may be listed as either endangered or threatened. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened. For the purposes of the FESA, the United States Congress defined “species” to include subspecies, varieties, and, for vertebrates, distinct population segments.

California Endangered Species Act

The CESA (CFG Sections 2050-2116) sets forth procedures by which individuals, organizations, or the CDFW can submit petitions to the Fish and Game Commission requesting that a species, subspecies, or variety of plant or animal be added to, deleted from, or changed in status on the State lists of rare, threatened or endangered species. The factors that contribute to determining the need to list a species include the present or threatened modification or destruction of habitat, competition, predation, disease, overexploitation by collectors, or other natural occurrences or human-related activities. Procedures governing the submission and review of petitions for listing, uplisting, downlisting, and delisting of endangered and threatened species of plants and animals are described in Title 14 California Code of Regulations Section 670.1.

Clean Water Act

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA, enacted in 1948, was called the Federal Water Pollution Control Act. However, this act was significantly reorganized and expanded in 1972, at which time “Clean Water Act” became the act’s common name.

Under the CWA, the United States Environmental Protection Agency (USEPA) has implemented pollution control programs, such as setting wastewater standards for industry. The USEPA has also developed national water quality criteria recommendations for pollutants in surface waters.

The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained. The USEPA’s National Pollutant Discharge Elimination System (NPDES) permit program controls discharges from point sources, which are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal sewer system, use a septic

system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.

California Fish and Game Code

Enacted in 1957, many of the CFGC provisions are derived from the former 1947 Fish and Game Code as well as older statutes under the former Penal and Political Codes originally enacted in 1872. The new statutes covering more modern topics, such as endangered species, were added at a later time. The CFGC is a fluid code amending and adjusting older California game laws, for example, to comply with newer protected species lists and regulations.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act 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 (California Water Code Section 13000 et. seq.), the policy of the State is as follows:

- That the quality of all the waters of the State shall be protected
- That all activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- That 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 established nine RWQCBs (based on hydrogeologic barriers) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source-related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Migratory Bird Treaty Act

The MBTA makes it illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid federal permit. Migratory bird species protected by the MBTA are listed in 50 Code of Federal Regulations Section 10.13. The USFWS has statutory authority and responsibility for enforcing the MBTA under 16 USC Section 703-712. The MBTA implements Conventions between the United States and four countries (Canada, Mexico, Japan and Russia) for the protection of migratory birds.

The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Sections 668-668c), enacted in 1940 and amended several times since, prohibits anyone from “taking” bald or golden eagles, including their parts, nests, or eggs, without a permit issued by the Secretary of the Interior. The Act provides criminal penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle... [or any golden eagle], alive or dead, or

any part, nest, or egg thereof.” The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”

Rivers and Harbors Act of 1899

Section 9 of the Rivers and Harbors Appropriation Act of 1899 (33 USC Section 403), commonly known as the Rivers and Harbors Act of 1899, prohibits the construction of any bridge, dam, dike or causeway over or in navigable waterways of the United States without Congressional approval. Administration of Section 9 has been delegated to the Coast Guard. Structures authorized by State legislatures may be built if the affected navigable waters are completely within one State, provided that the plan is approved by the Chief of Engineers and the Secretary of Army (33 USC Section 401).

Under Section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. Service concerns include contaminated sediments associated with dredge or fill projects in navigable waters.

California Ocean Plan

The California Ocean Plan is one of five statewide water quality control plans established by the SWRCB (2019) to preserve and enhance California’s territorial ocean waters for the use and enjoyment of the public. The Ocean Plan provides control for the discharge of waste to ocean waters and ensures the protection of beneficial uses of ocean waters. Discharge of waste can include stormwater runoff, municipally-treated sewage outflow, and other discharges by industry under RWQCB and SWRCB permits. The Ocean Plan sets forth water quality objectives (WQOs) for protection of marine aquatic life as well as objectives for bacterial, physical, chemical, and biological characteristics for ocean waters.

The Ocean Plan is reviewed every three years to guarantee its WQOs are adequate to prevent degradation of marine species and protect public health. The Ocean Plan was first adopted by the SWRCB on July 6, 1972 and has been amended five times since it was last reviewed in 2011. The most recent amendment to the Ocean Plan was in 2019 to incorporate revised statewide bacteria water quality objectives and implementation options to protect recreational users from the effects of pathogens (SWRCB 2019).

The WQOs in the Ocean Plan are applicable to all point source discharges to the ocean. The effluent limits are imposed such that the Ocean Plan WQOs are not exceeded in the receiving water upon completion of initial dilution. If a conflict exists between the Ocean Plan WQOs and the NPDES permit effluent limits, the more stringent provision apply.

City of Grover Beach Local Coastal Plan

The City of Grover Beach’s Local Coastal Plan (2014) outlines the goals in protecting biological resources under the California Coastal Act, which include the following:

- **General Policy 3.** The City shall preserve and protect wetland resources including creeks and other seasonal wetland areas in conformance with Coastal Act Sections 30233 and 30236; all adverse impacts to riparian resources from any allowable development within wetlands or streams shall be fully mitigated.
- **General Policy 5.** ESHA shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

- **General Policy 6.** ESHA shall be buffered by a minimum of 50 feet. Development in areas adjacent to ESHA 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.

County of San Luis Obispo Local Coastal Program

The County's Coastal Zone Land Use Ordinance was certified by the CCC in 1986 pursuant to Section 30519.5 of the Coastal Act and was most recently revised in April 2019. The ordinance, contained in San Luis Obispo County Code (SLOCC) Title 23, outlines the identification and protection of ESHA including:

- **SLOCC Section 23.05.034 - Grading Adjacent to Environmentally Sensitive Habitats.** Grading shall not occur within 100 feet of any Environmentally Sensitive Habitat except:
 - Where a setback adjustment has been granted as set forth in SLOCC Sections 23.07.172d(2) (Wetlands) or 23.07.174d(2) (Streams and Riparian Vegetation); or
 - Within an urban service line when grading is necessary to locate a principally permitted use and where the approval body can find that the application of the 100-foot setback would render the site physically unsuitable for a principally permitted use. In such cases, the 100-foot setback shall only be reduced to a point where the principally-permitted use, as modified as much as practical from a design standpoint, can be located on the site. In no case shall grading occur closer than 50 feet from the Environmentally Sensitive Habitat or as allowed by planning area standard, whichever is greater.

SLOCC Section 23.07.172 includes requirements for development proposed within or adjacent to (within 100 feet of the upland extent of) a wetland area shown on the Environmentally Sensitive Habitat Maps. The following provisions would be applicable to the proposed project:

- **SLOCC Section 23.07.172 - Wetland Setbacks(d).** New development in areas within the Wetlands combining designation shall be located a minimum of 100 feet from the upland extent of all wetlands, except as provided by subsection d(2). If the biological report determines that such setback will provide an insufficient buffer from the wetland area, and the applicable approval body cannot make the finding, then a greater setback may be required.
 - **Permitted uses within wetland setbacks:** Within the required setback buffer, permitted uses are limited to passive recreation, educational, existing non-structural agricultural development in accordance with best management practices, utility lines, pipelines, drainage and flood control of facilities, bridges and road approaches to bridges to cross a stream and roads when it can be demonstrated that:
 - Alternative routes are infeasible or more environmentally damaging.
 - Adverse environmental effects are mitigated to the maximum extent feasible.
 - **Wetland setback adjustment:** The minimum wetland setback may be adjusted through Minor Use Permit approval (but in no case shall be less than 25 feet), provided that the following findings can be made:
 - The site would be physically unusable for the principal permitted use unless the setback is reduced.
 - The reduction is the minimum that would enable a principal permitted use to be established on the site after all practical design modifications have been considered.

- That the adjustment would not allow the proposed development to locate closer to the wetland than allowed by using the stringline setback method pursuant to SLOCC Section 23.04.118a.
- **Requirements for wetland setback adjustment:** Setbacks established that are less than 100 feet consistent with this section shall include mitigation measures to ensure wetland protection. Where applicable, they shall include landscaping, screening with native vegetation and drainage controls. The adjustment shall not be approved until the approval body considers the following:
 - Site soil types and their susceptibility to erosion.
 - A review of the topographic features of the site to determine if the project design and site location has taken full advantage of natural terrain features to minimize impacts on the wetland.
 - The biologists report required by SLOCC Section 23.07.170 shall evaluate the setback reduction request and identify the types and amount of vegetation on the site and its value as wildlife habitat in maintaining the functional capacity of the wetland.
 - Type and intensity of proposed development.
 - Lot size and configuration and location of existing development.

SLOCC Section 23.07.174 includes requirements for development proposed within or adjacent to coastal streams and adjacent riparian areas. The following provisions would be applicable to the proposed project:

- **SLOCC Section 23.07.174(d) - Riparian Vegetation Setbacks.** New development shall be setback from the upland edge of riparian vegetation the maximum amount feasible. In the urban areas (inside the urban reserve line [URL]), this setback shall be a minimum of 50 feet. In the rural areas (outside the URL) this setback shall be a minimum of 100 feet.² A larger setback will be preferable in both the urban and rural areas depending on parcel configuration, slope, vegetation types, habitat quality, water quality, and any other environmental consideration. These setback requirements do not apply to non-structural agricultural developments that incorporate adopted nest management practices in accordance with LUP Policy 26 for Environmentally Sensitive Habitats.
- **Permitted uses within the setback:** Permitted uses are limited to those specified in Section 23.07.172d(1) (for wetland setbacks), provided that the findings required by that section can be made. Additional permitted uses that are not required to satisfy those findings include pedestrian and equestrian trails, and non-structural agricultural uses.

All permitted development in or adjacent to streams, wetlands, and other aquatic habitats shall be designed and/or conditioned to prevent loss or disruption of the habitat, protect water quality, and maintain or enhance (when feasible) biological productivity. Design measures to be provided include, but are not limited to:

 - Flood control and other necessary instream work should be implemented in a manner than minimizes disturbance of natural drainage courses and vegetation.

² A URL is a boundary separating urban/suburban land uses and rural land uses. URLs are delineated in the San Luis Obispo County General Plan Land Use Element Frameworks for Planning (County of San Luis Obispo 2015 and 2018).

- Drainage control methods should be incorporated into projects in a manner that prevents erosion, sedimentation, and the discharge of harmful substances into aquatic habitats during and after construction.
- **Riparian habitat setback adjustment:** The minimum riparian setback may be adjusted through Minor Use Permit approval, but in no case shall structures be allowed closer than 10 feet from a stream bank, and provided the following findings can first be made:
 - Alternative locations and routes are infeasible or more environmentally damaging; and
 - Adverse environmental effects are mitigated to the maximum extent feasible; and
 - The adjustment is necessary to allow a principal permitted use of the property and redesign of the proposed development would not allow the use with the standard setbacks; and
 - The adjustment is the minimum that would allow for the establishment of a principal permitted use.
- **SLOCC Section 23.07.174(e) – Alteration of Riparian Vegetation.** Cutting or alteration of natural riparian vegetation that functions as a portion of, or protects, a riparian habitat shall not be permitted except:
 - For streambed alterations allowed by SLOCC Section 23.07.174(a) and (b);
 - Where an issue of public safety exists;
 - Where expanding vegetation is encroaching on established agricultural uses;
 - Minor public works projects, including but not limited to utility lines, pipelines, driveways and roads, where the Planning Director determines no feasible alternative exists;
 - To increase agricultural acreage provided that such vegetation clearance will:
 - Not impair the functional capacity of the habitat;
 - Not cause significant streambank erosion;
 - Not have a detrimental effect on water quality or quantity;
 - Be in accordance with applicable permits required by the Department of Fish and Game.
 - To locate a principally permitted use on an existing lot of record where no feasible alternative exists and the findings of SLOCC Section 23.07.174d(2) can be made.

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Appendix B

Special Status Species Evaluation Tables

Special Status Plant Species in the Regional Vicinity of the Study Area

Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Agrostis hooveri</i> Hoover's bent grass	-/- 1B.2	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Valley and foothill grassland. Usually sandy. 6 to 610 meters. Perennial herb. Blooms April through July.	None	Although sandy soils are present, no suitable habitats for the species are present within the Study Area. Seven occurrences have been recorded within five miles; however, all occurrences were documented in suitable habitat, and none are located within the Study Area (CDFW 2019a).
<i>Aphanisma blitoides</i> aphanisma	-/- 1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub. Sandy or gravelly. 1 to 305 meters. Annual herb. Blooms February through June.	None	Coastal bluff and scrub required by the species. No occurrence of the species has been recorded within five miles of the Study Area (CDFW 2019a).
<i>Arctostaphylos crustacea</i> ssp. <i>eastwoodiana</i> Eastwood's brittle-leaf manzanita	-/- 1B.1	Chaparral (maritime, sandy). 90 to 365 meters. Perennial evergreen shrub. Blooms March.	None	The Study Area is outside the elevation range of the species.
<i>Arctostaphylos luciana</i> Santa Lucia manzanita	-/- 1B.2	Chaparral, Cismontane woodland. Shale. 350 to 850 meters. Perennial evergreen shrub. Blooms December to March.	None	The Study Area is outside the elevation range of the species.
<i>Arctostaphylos pechoensis</i> Pecho manzanita	-/- 1B.2	Closed-cone coniferous forest, Chaparral, Coastal scrub. Siliceous shale. 125 to 850 meters. Perennial evergreen shrub. Blooms November to March.	None	The Study Area is outside the elevation range of the species.
<i>Arctostaphylos pilosula</i> Santa Margarita manzanita	-/- 1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland. Sometimes sandstone. 75 to 1100 meters. Perennial evergreen shrub. Blooms December to May.	None	The Study Area is outside the elevation range of the species.
<i>Arctostaphylos purissima</i> La Purisima manzanita	-/- 1B.1	Chaparral (sandy), Coastal scrub. 60 to 555 meters. Perennial evergreen shrub. Blooms November to May.	None	The Study Area is outside the elevation range of the species.

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Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Arctostaphylos rudis</i> sand mesa manzanita	-/- 1B.2	Chaparral (maritime), Coastal scrub. Sandy. 25 to 322 meters. Perennial evergreen shrub. Blooms November to February.	None	Sandy soils required by this species are present in the Study Area. Seven occurrences have been recorded within five miles; however, no manzanita species, which are readily identifiable year-round, were observed during the reconnaissance survey within the Study Area. (CDFW 2019a).
<i>Arenaria paludicola</i> marsh sandwort	FE/SE 1B.1	Marshes and swamps (freshwater or brackish). sandy, openings. 3 to 170 meters. Perennial stoloniferous herb. Blooms May to August.	None	Suitable soil types are present in the Study Area; however, no marsh habitat occurs within the Study Area. Ten occurrences have been recorded in marsh habitat within five miles; however, none are within the Study Area (CDFW 2019a).
<i>Astragalus didymocarpus milesianus</i> Miles' milk-vetch	-/- 1B.2	Coastal scrub (clay). 20 to 90 meters. Annual herb. Blooms March to June.	None	Suitable soils required by the species are not present within the Study Area.
<i>Atriplex serenana</i> var. <i> davidsonii</i> Davidson's saltscale	-/- 1B.2	Coastal bluff scrub, Coastal scrub. Alkaline. 10 to 200 meters. Annual herb. Blooms April to October.	None	Suitable soils required by the species are not present within the Study Area.
<i>Calochortus obispoensis</i> San Luis mariposa lily	-/- 1B.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland. Often serpentinite. 50 to 730 meters. Perennial bulbiferous herb. Blooms May to July.	None	The Study Area is outside the elevation range of the species.
<i>Calochortus simulans</i> La Panza mariposa lily	-/- 1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland. Sandy, often granitic, sometimes serpentinite. 325 to 1150 meters. Perennial bulbiferous herb. Blooms April to June.	None	The Study Area is outside the elevation range of the species.
<i>Carex obispoensis</i> San Luis Obispo sedge	-/- 1B.2	Closed-cone coniferous forest, Chaparral, Coastal prairie, Coastal scrub, Valley and foothill grassland. Often serpentinite seeps, sometimes gabbro; often on clay soils. 10 to 820 meters. Perennial herb. Blooms April to June.	None	Suitable habitats and soils required by the species are not present within the Study Area.

Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Castilleja densiflora</i> var. <i>obispoensis</i> San Luis Obispo owl's- clover	-/- 1B.2	Meadows and seeps, Valley and foothill grassland. Sometimes serpentine. 10 to 430 meters. Annual herb (hemiparasitic). Blooms March to May.	None	Meadows and wet areas and serpentine soils are not present within the Study Area.
<i>Ceanothus impressus</i> var. <i>impressus</i> Santa Barbara ceanothus	-/- 1B.2	Chaparral. Sandy. 40 to 470 meters. Perennial shrub. Blooms February to April.	None	The Study Area is outside the elevation range of the species.
<i>Caulanthus californicus</i> California jewelflower	FE/SE 1B.1	Chenopod scrub, Pinyon and juniper woodland, Valley and foothill grassland. Sandy. 61 to 1000 meters. Annual herb. Blooms February to May.	None	The Study Area is outside the elevation and geographical ranges of the species.
<i>Ceanothus impressus</i> var. <i>nipomensis</i> Nipomo Mesa ceanothus	-/- 1B.2	Chaparral. Sandy. 30 to 245 meters. Perennial shrub. Blooms February to April.	None	Sandy soils are present within the Study Area, although no suitable chaparral habitat is present. Seven occurrences have been recorded within five miles; however, none are within the Study Area (CDFW 2019a).
<i>Centromadia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant	-/- 1B.1	Valley and foothill grassland (alkaline). 0 to 230 meters. Annual herb. Blooms May to October(November)	None	Non-native grasslands are not present within the Study Area and no CNDDDB records for this species occur within five miles.
<i>Chenopodium littoreum</i> coastal goosefoot	-/- 1B.2	Coastal dunes. 10 to 30 meters. Annual herb. Blooms April to August.	None	Dune habitat required by the species is not present within the Study Area.
<i>Chlorogalum</i> <i>pomeridianum</i> var. <i>minus</i> dwarf soaproot	-/- 1B.2	Chaparral (serpentine). 305 to 1000 meters. Perennial bulbiferous herb. Blooms May to August.	None	The Study Area is outside the elevation range of the species.
<i>Chloropyron maritimum</i> ssp. <i>Maritimum</i> Salt marsh bird's-beak	FE/SE 1B.2	Marshes and swamps, coastal dunes. Limited to the higher zones of salt marsh habitat. 0 to 10 meters. Annual herb (hemiparasitic). Blooms May to October (November).	None	Salt marsh habitat required by the species is not present within the Study Area.
<i>Chorizanthe aphanantha</i> Irish Hills spineflower	-/- 1B.1	Chaparral, coastal scrub. Serpentine, rocky to gravelly. 100 to 370 meters.	None	The Study Area is outside the elevation range of the species.
<i>Chorizanthe breweri</i> Brewer's spineflower	-/- 1B.3	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Coastal scrub. Serpentine, rocky or gravelly. 45 to 800 meters. Annual herb. Blooms April to August.	None	The Study Area is outside the elevation range of the species.

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Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Chorizanthe rectispina</i> straight-awned spineflower	-/- 1B.3	Chaparral, Cismontane woodland, Coastal scrub. 85 to 1035 meters. Annual herb. Blooms April to July.	None	The Study Area is outside the elevation range of the species.
<i>Cirsium fontinale</i> var. <i>obispoense</i> San Luis Obispo fountain thistle	FE/SE 1B.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland. Serpentinite seeps, drainages. 35 to 385 meters. Perennial herb. Blooms February to July (August to September).	None	Non-native grasslands are not present within the Study Area, and no CNDDDB records for this species occur within five miles.
<i>Cirsium occidentale</i> var. <i>compactum</i> Compact cobwebby thistle	-/- 1B.2	Chaparral, Coastal dunes, Coastal prairie, Coastal scrub. 5 to 150 meters. Perennial herb. Blooms April to June,	None	Suitable habitat for this species does not occur within the Study Area. No occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a).
<i>Cirsium rhotophilum</i> Surf thistle	-/ST 1B.2	Coastal bluff scrub, Coastal dunes. 3 to 60 meters. Perennial herb. Blooms April to June,	None	Suitable habitat for this species does not occur within the Study Area. One historic occurrence overlapping the Study Area has been recorded; however, that occurrence is believed to have been extirpated (CDFW 2019a).
<i>Cirsium scariosum</i> var. <i>loncholepis</i> La Graciosa thistle	FE/ST 1B.1	Cismontane woodland, Coastal dunes, Coastal scrub, Marshes and swamps (brackish), Valley and foothill grassland. Mesic, sandy. 4 to 220 meters. Perennial herb. Blooms May to August.	None	Suitable habitat for this species does not occur within the Study Area.
<i>Cladium californicum</i> California sawgrass	-/- 2B.2	Meadows and seeps, Marshes and swamps, Alkaline or Freshwater. 60 to 1600 meters. Perennial rhizomatous herb. Blooms June to September.	None	The Study Area is outside the elevation range of the species.
<i>Clarkia speciosa</i> ssp. <i>immaculata</i> Pismo clarkia	FE/SR 1B.1	Chaparral (margins, openings), Cismontane woodland, Valley and foothill grassland. Sandy. 25 to 185 meters. Annual herb. Blooms May to July.	None	Although sandy soils are present within the Study Area, no suitable habitat is present. All CNDDDB records for this species within five miles of the Study Area are located within suitable habitat for the species (CDFW 2019a).

Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Deinandra</i> <i>increscens</i> <i>ssp. villosa</i> Gaviota tarplant	FE/CE 1B.1	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland. 20 to 430 meters. Annual herb. Blooms May to October.	None	Suitable habitat for this species does not occur within the Study Area. No occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a).
<i>Delphinium</i> <i>parryi</i> ssp. <i>blochmaniae</i> dune larkspur	-/- 1B.2	Chaparral (maritime), Coastal dunes. 0 to 200 meters. Perennial herb. Blooms April to June.	None	Maritime chaparral and dune habitats required by the species are not present within the Study Area.
<i>Delphinium</i> <i>parryi</i> ssp. <i>eastwoodiae</i> Eastwood's larkspur	-/- 1B.2	Chaparral (openings), Valley and foothill grassland. Serpentine, coastal. 75 to 500 meters. Perennial herb. Blooms (February)March to March.	None	The Study Area is outside the elevation range of the species.
<i>Delphinium</i> <i>umbraculorum</i> umbrella larkspur	-/- 1B.3	Chaparral, Cismontane woodland. 400 to 1600 meters. Perennial herb. Blooms April to June.	None	The Study Area is outside the elevation range of the species.
<i>Dithyrea</i> <i>maritima</i> beach spectaclepod	-/ST 1B.1	Coastal dunes, Coastal scrub (sandy). 3 to 50 meters. Perennial rhizomatous herb. Blooms March to May.	None	Although sandy soils required by this species are present in the Study Area, no suitable dune or coastal scrub habitat is present. A historic occurrence is recorded within 0.25 mile; however, the species is thought to be extirpated from nearby dune habitat (CDFW 2019a).
<i>Dudleya</i> <i>abramsii</i> ssp. <i>bettinae</i> Betty's dudleya	-/- 1B.2	Chaparral, Coastal scrub, Valley and foothill grassland. Serpentine, rocky. 20 to 180 meters. Perennial herb. Blooms May to July.	None	Suitable habitats are not present within the Study Area, and no occurrences have been recorded within five miles.
<i>Dudleya</i> <i>abramsii</i> ssp. <i>murina</i> mouse-gray dudleya	-/- 1B.3	Chaparral, Cismontane woodland, Valley and foothill grassland. Serpentine. 90 to 525 meters. Perennial leaf succulent. Blooms May to June.	None	The Study Area is outside the elevation range of the species.
<i>Dudleya</i> <i>blochmaniae</i> ssp. <i>blochmaniae</i> Blochman's dudleya	-/- 1B.1	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland. Rocky, often clay or serpentine. 5 to 450 meters. Perennial herb. Blooms April to June.	None	The Study Area is outside the elevation range of the species.

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Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Erigeron blochmaniae</i> Blochman's leafy daisy	-/- 1B.2	Coastal dunes, Coastal scrub. 3 to 45 meters. Perennial rhizomatous herb. Blooms June to August.	None	Suitable substrate and soils are not present within the Study Area, and no occurrences have been recorded within five miles.
<i>Eriodictyon altissimum</i> Indian Knob mountainbalm	FE/SE 1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub. Sandstone. 80 to 270 meters. Perennial evergreen shrub. Blooms March to June.	None	The Study Area is outside the elevation range of the species.
<i>Eryngium aristulatum</i> var. <i>hooveri</i> Hoover's button-celery	-/- 1B.1	Vernal pools. 3 to 45 meters. Annual/Perennial herb. Blooms (June) July (August).	None	Vernal pools are not present within the Study Area, and no occurrences have been recorded within five miles.
<i>Horkelia cuneata</i> var. <i>puberula</i> mesa horkelia	-/- 1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub. Sandy or gravelly. 70 to 810 meters. Perennial herb. Blooms February to July (September).	None	The Study Area is outside the elevation range of the species.
<i>Horkelia cuneata</i> var. <i>sericea</i> Kellogg's horkelia	-/- 1B.1	Closed-cone coniferous forest, Chaparral (maritime), Coastal dunes, Coastal scrub. Sandy or gravelly, openings. 10 to 200 meters. Perennial herb. Blooms April to September.	None	Although sandy soils are present in the Study Area, suitable maritime chaparral and coastal dune habitat are not present.
<i>Layia jonesii</i> Jones' layia	-/- 1B.2	Chaparral, Valley and foothill grassland. Clay or serpentinite. 5 to 400 meters. Annual herb. Blooms March to May.	None	Suitable soils required by the species are not present within the Study Area.
<i>Lupinus ludovicianus</i> San Luis Obispo County lupine	-/- 1B.2	Chaparral, Cismontane woodland. Sandstone or sandy. 50 to 525 meters. Perennial herb. Blooms April to July.	None	The Study Area is outside the elevation range of the species.
<i>Lupinus nipomensis</i> Nipomo Mesa lupine	FE/SE 1B.1	Coastal dunes. 10 to 50 meters. Annual herb. Blooms December to May.	None	Dune habitat required by this species is not present within the Study Area.
<i>Malacothamnus gracilis</i> slender bush-mallow	-/- 1B.1	Chaparral. Usually rocky. 190 to 575 meters. Perennial deciduous shrub. Blooms May to October.	None	The Study Area is outside the elevation range of the species.
<i>Monardella sinuata</i> ssp. <i>sinuata</i> southern curly-leaved monardella	-/- 1B.2	Chaparral, Cismontane woodland, Coastal dunes, Coastal scrub (openings). Sandy. 0 to 300 meters. Annual herb. Blooms April to September.	None	Although sandy soils required by this species are present in the Study Area, no suitable dune, chaparral or woodland habitat is present.
<i>Monardella undulata</i> ssp. <i>crispa</i> crisp monardella	-/- 1B.2	Coastal dunes, Coastal scrub. 10 to 120 meters. Perennial rhizomatous herb. Blooms April to August (December).	None	Suitable dune or coastal scrub habitat is not present within the Study Area.

Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Monardella undulata</i> ssp. <i>undulata</i> San Luis Obispo monardella	–/– 1B.2	Coastal dunes, Coastal scrub (sandy). 10 to 200 meters. Perennial rhizomatous herb. Blooms May to September.	None	Although sandy soils required by this species are present in the Study Area, no suitable dune or coast scrub habitat is present.
<i>Muhlenbergia utilis</i> aparejo grass	–/– 2B.2	Meadows and seeps, marshes and swamps, chaparral, coastal scrub, cismontane woodland. Sometimes alkaline, sometimes serpentinite. 25 to 2325 meters.	None	Marshes required by this species are not present within the Study Area, and no occurrences of this species have been recorded within five miles.
<i>Nasturtium gambelii</i> Gambel's water cress	FE/ST 1B.1	Marshes and swamps (freshwater or brackish). 5 to 330 meters. Perennial rhizomatous herb. Blooms April to October.	None	Marshes required by this species are not present within the Study Area.
<i>Navarretia fossalis</i> spreading navarretia	FT/– 1B.1	Vernal pools, chenopod scrub, marshes and swamps, playas. San Diego hardpan and San Diego clay pan vernal pools; in swales and vernal pools, often surrounded by other habitat types. 15 to 850 meters. Annual herb. Blooms April to June.	None	No vernal pools are present, and no occurrences of this species have been recorded within five miles.
<i>Nemacaulis denudata</i> var. <i>denudata</i> coast woolly-heads	–/– 1B.2	Coastal dunes. 0 to 100 meters. Annual herb. Blooms April to September.	None	Dune habitat required by this species is not present within the Study Area.
<i>Nemacladus secundiflorus</i> var. <i>robbinsii</i> Robbins' nemacladus	–/– 1B.2	Chaparral, Valley and foothill grassland. openings. 350 to 1700 meters. Annual herb. Blooms April to June.	None	The Study Area is outside the elevation range of the species.
<i>Scrophularia atrata</i> black-flowered figwort	–/– 1B.2	Closed-cone coniferous forest, Chaparral, Coastal dunes, Coastal scrub, Riparian scrub. 10 to 500 meters. Perennial herb. Blooms March to July.	Low	Riparian habitat required by this species is present within the Study Area. Seven occurrences have been recorded within five miles; however, none are documented within the Study Area (CDFW 2019a).
<i>Senecio aphanactis</i> chaparral ragwort	–/– 2B.2	Chaparral, Cismontane woodland, Coastal scrub. sometimes alkaline. 15 to 800 meters. Annual herb. Blooms January to April (May).	None	Chaparral and woodland habitat as well as alkaline soils are not present within the Study Area.

Scientific Name Common Name	Status FESA/CESA CRPR	Habitat Requirements	Potential to Occur	Rationale
<i>Symphotrichum defoliatum</i> San Bernardino aster	—/ 1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic). near ditches, streams, springs. 2 to 2040 meters. Perennial rhizomatous herb. Blooms July to November (December).	None	Coastal scrub and meadow or marsh habitats required by this species are not present within the Study Area. Additionally, no vernal mesic grassland habitat is present within the Study Area. The species was not observed during the reconnaissance survey.

Regional Vicinity refers to within an 8-quad search radius of site.

FESA = Federal Endangered Species Act; CESA = California Endangered Species Act; CRPR = California Rare Plant Rank (as determined by the California Native Plant Society); CNDDDB = California Natural Diversity Database; CDFW; California Department of Fish and Wildlife; ssp. = subspecies; var. = variety

FE = Federally Endangered FT = Federally Threatened FC = Federal Candidate Species
 SE = State Endangered ST = State Threatened SC = State Candidate SR = State Rare

CRPR

- 1A = Presumed Extinct in California
- 1B = Rare, Threatened, or Endangered in California and elsewhere
- 2A = Plants presumed extirpated in California, but more common elsewhere
- 2B = Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension

- .1 = Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- .2 = Fairly endangered in California (20 to 80 percent occurrences threatened)
- .3 = Not very endangered in California (less than 20 percent of occurrences threatened)

Source: CDFW 2019a

Special Status Animal Species in the Regional Vicinity of the Study Area

Scientific Name Common Name	Status		Habitat Requirements	Potential to Occur	Rationale
	FESA/CESA	CDFW			
Invertebrates					
<i>Bombus occidentalis</i> western bumble bee	-/SC		Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease.	None	Abundant floral resources are required to provide suitable habitat for this species. Due to a number of threats, including urbanization, fragmentation, and declines due to disease, populations are thought to be limited to high elevations in the Sierra Nevada since 2012 (Xerces Society et al. 2018).
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT/-		Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	None	Vernal pool habitat required by the species is not present within the Study Area. No occurrences have been recorded in the Study Area (CDFW 2019a). The species is not expected to occur.
Fish					
<i>Eucyclogobius newberryi</i> tidewater goby	FE/- SSC		Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still, but not stagnant, water and high oxygen levels.	None	No suitable habitat occurs within the Study Area. Arroyo Grande Creek, approximately 50 feet south of Study Area, contains suitable habitat for the species; however, an earthen levee separates the Study Area from the creek. Meadow Creek and Oceano Lagoon, located more than 100 feet west and south of the Study Area, are also isolated from the Study Area due to existing roadways and development. The species is not expected to occur in the Study Area.
<i>Gila orcuttii</i> arroyo chub	-/- SSC		Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave and San Diego River basins. Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	None	No suitable habitat occurs within the Study Area. Arroyo Grande Creek, located approximately 50 feet south of Study Area, contains suitable habitat for the species; however, an earthen levee separates the Study Area from the creek. The species is not expected to occur.
<i>Oncorhynchus mykiss irideus</i> pop. 9 steelhead - south-central California coast DPS	FT/-		Federal listing refers to runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.	Low	No suitable spawning or freshwater migration habitat occurs within the Study Area. Arroyo Grande Creek, located approximately 50 feet south of Study Area, contains suitable habitat for the species; however,

Scientific Name Common Name	Status FESA/CESA CDFW	Habitat Requirements	Potential to Occur	Rationale
				an earthen levee separates the Study Area from the creek. Meadow Creek and Oceano Lagoon, located more than 100 feet west and south of the Study Area, are also isolated from the Study Area due to existing roadways and development. The species is only expected to occur near the discharge point of the existing ocean outfall pipeline during migration.
Amphibians				
<i>Ambystoma californiense</i> California tiger salamander	FT/ST	The Central Valley Distinct Population Segment is federally listed as threatened. Santa Barbara and Sonoma counties Distinct Population Segment is federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	None	The Study Area is located well outside the known geographic range of the species.
<i>Rana boylei</i> foothill yellow-legged frog	-/SC SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	None	No suitable aquatic habitat occurs within the Study Area. No occurrences have been recorded within five miles of the Study Area (CDFW 2019a).
<i>Rana draytonii</i> California red-legged frog	FT/- SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	Low	No suitable aquatic habitat occurs within the Study Area. However, suitable aquatic habitat is present within Arroyo Grande Creek approximately 50 feet south of the Study Area, where there are documented occurrences (CDFW 2019a), and within Meadow Creek/Oceano Lagoon located to the west and south of the Study Area. This species has the potential to occur within the Study Area as a transient individual if migrating between suitable aquatic sites.
<i>Spea hammondi</i> western spadefoot	-/- SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	None	No suitable grassland habitat occurs within the Study Area, and no occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a).

Scientific Name Common Name	Status FESA/CESA CDFW	Habitat Requirements	Potential to Occur	Rationale
<i>Taricha torosa</i> Coast Range newt	-/- SSC	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats and will migrate over one kilometer to breed in ponds, reservoirs, and slow-moving streams.	None	No suitable aquatic habitat occurs within the Study Area. No occurrences have been documented within five miles of the Study Area.
Reptiles				
<i>Anniella pulchra</i> northern California legless lizard	-/- SSC	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Low	Suitable sandy and sparse vegetated habitat is present within the Study Area. No occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a).
<i>Emys marmorata</i> Southwestern pond turtle	-/- SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation. Needs basking sites and suitable upland habitat (sandy banks or grassy open fields) up to 0.5 kilometer from water for egg-laying.	Low	No suitable aquatic habitat occurs within the Study Area; however, suitable aquatic habitat is present within Arroyo Grande Creek approximately 50 feet south of the Study Area and Meadow Creek within 100 feet west of the Study Area. One occurrence of the species has been documented within the Arroyo Grande Creek approximately 4.4 miles upstream. This species has the potential to occur within the Study Area as a transient individual if migrating
<i>Gambelia sila</i> blunt-nosed leopard lizard	FE/SE FP	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows under shrubs or structures, such as fence posts. They do not excavate their own burrows.	None	The Study Area is located well outside the known geographic range of the species.
<i>Phrynosoma blainvillii</i> coast horned lizard	-/- SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	None	No suitable sandy wash habitat or scattered low bushes with little ground cover is present within the Study Area. Additionally, no abundant supply of ants was observed during the reconnaissance survey.
<i>Thamnophis hammondi</i> two-striped gartersnake	-/- SSC	Coastal California from the vicinity of Salinas to northwest Baja California. From sea to about 7,000 feet elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	None	No suitable aquatic habitat occurs within the Study Area. No occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a).

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Central Coast Blue Project

Scientific Name Common Name	Status FESA/CESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Birds				
<i>Agelaius tricolor</i> tricolored blackbird	-/ST SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Moderate	The riparian habitat adjacent to the Arroyo Grande Creek and Meadow Creek within the Study Area may provide suitable nesting habitat. No occurrences of the species have been documented within five miles of the Study Area in CNDDDB (CDFW 2019a); however, numerous occurrences of the species have been documented in eBird within one mile of the Study Area (eBird 2019).
<i>Athene cunicularia</i> burrowing owl	-/- SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	None	No suitable mammal burrows required by the species are present within the Study Area. No occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a), and the species was not observed during the reconnaissance survey.
<i>Buteo swainsoni</i> Swainson's hawk	-/ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	None	The Study Area is located well outside the known geographic range of the species.
<i>Brachyramphus marmoratus</i> marbled murrelet	FT/SE	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	None	No suitable nesting habitat occurs within the Study Area. No occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a).
<i>Charadrius alexandrinus nivosus</i> western snowy plover	FT/- SSC	Sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	None	No suitable nesting habitat occurs within the Study Area. No occurrences of the species have been documented within five miles of the Study Area (CDFW 2019a).
<i>Coccyzus americanus occidentalis</i> western yellow- billed cuckoo	FT/SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	None	The riparian habitat within the Study Area lacks the structural diversity and contiguous habitat required by the species. The Study Area is located outside the current breeding range of this species. The only documented CNDDDB occurrence in San Luis Obispo County is from 1932 and

Scientific Name Common Name	Status FESA/CESA CDFW	Habitat Requirements	Potential to Occur	Rationale
<i>Elanus leucurus</i> white-tailed kite	-/- FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Low	is believed to have been extirpated (CDFW 2019a). There have been no documented breeding records in the County since that date. The species breeds further south in Ventura County and overwinters in Mexico. This species is not expected to occur.
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	FE/SE FP	Riparian woodlands in Southern California. For nesting, requires dense riparian habitats (cottonwood/willow and tamarisk vegetation) with microclimatic conditions dictated by the local surroundings. Saturated soils, standing water, or nearby streams and pools is a component of nesting habitat that also influences the microclimate and density vegetation component. Habitat not suitable for nesting may be used for migration and foraging.	None	The riparian habitat within the Study Area lacks the structural diversity and contiguous habitat required by the species. The Study Area is located outside the current breeding range of this species. No occurrence of the species has been documented within five miles of the Study Area (CDFW 2019a). The species breeds further south in Santa Barbara County and overwinters in Mexico. This species is not expected to occur.
<i>Falco peregrinus anatum</i> American peregrine falcon	-/- FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	None	No occurrences have been recorded in the Study Area (CDFW 2019a). This species is not expected to occur.
<i>Gymnogyps californianus</i> California condor	FE/SE FP	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	None	No suitable nesting habitat is present within the Study Area. No occurrences have been recorded in the Study Area (CDFW 2019a). This species is not expected to occur.
<i>Laterallus jamaicensis coturniculus</i> California black rail	-/ST FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about one inch that do not fluctuate during the year and dense vegetation for nesting habitat.	None	No suitable marsh habitat or nesting habitat is present within the Study Area. One occurrence of the species within five miles of the Study Area (CDFW 2019a). This species is not expected to occur.

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Scientific Name Common Name	Status FESA/CESA CDFW	Habitat Requirements	Potential to Occur	Rationale
<i>Rallus obsoletus</i> California Ridgway's rail	FE/SE FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	None	The Study Area is located outside the San Francisco Bay and lacks a pickleweed community. No occurrences have been recorded in the Study Area (CDFW 2019a). This species is not expected to occur.
<i>Sternula antillarum browni</i> California least tern	FE/SE FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates such as sand beaches, alkali flats, landfills, or paved areas.	None	No suitable nesting habitat is present within the Study Area. The two documented occurrences of the species within five miles of the Study Area are within coastal dune habitat (CDFW 2019a).
<i>Vireo bellii pusillus</i> least Bell's vireo	FE/SE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, <i>Baccharis</i> , mesquite.	None	The riparian habitat within the Study Area lacks the structural diversity and contiguous habitat required by the species. No occurrences have been recorded in the Study Area (CDFW 2019a).
Mammals				
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	-/- SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	None	The Study Area is located within a heavily developed area where human disturbance is high.
<i>Dipodomys ingens</i> giant kangaroo rat	FE/SE	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Need level terrain and sandy loam soils for burrowing.	None	The Study Area is located outside the current range of the species.
<i>Enhydra nereis</i> southern sea otter	FT/- SSC	Nearshore marine environments from about Ano Nuevo, San Mateo county to Point Sal, Santa Barbara county. Needs canopies of giant kelp and bull kelp for rafting & feeding. Prefers rocky substrates with abundant invertebrates.	Low	No giant kelp forests or rocky substrate occurs at the discharge point of the existing ocean outfall pipeline; therefore, this species is only expected to migrate through this area between feeding locations.

Scientific Name	Status		Potential	
Common Name	FESA/CESA	Habitat Requirements	to Occur	Rationale
	CDFW			
<i>Taxidea taxus</i> American badger	-/- SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	None	No suitable friable soils with sufficient food base, or dry open stages of suitable habitat is present within the Study Area.

Regional Vicinity refers to within an 8-quad search radius of site.

FESA = Federal Endangered Species Act; CESA = California Endangered Species Act; CDFW; California Department of Fish and Wildlife; CNDDDB = California Natural Diversity Database; ssp. = subspecies; var. = variety

FE = Federally Endangered FT = Federally Threatened FC = Federal Candidate Species

SE = State Endangered ST = State Threatened SC = State Candidate

SSC = CDFW Species of Special Concern FP = State Fully Protected

Source: CDFW 2019a

Table 3 Special Status Natural Communities in the Regional Vicinity of the Study Area

Plant Community	Potential for Impact	Rationale
Central Dune Scrub	None	No central dune scrub habitat present within the Study Area.
Central Foredunes	None	No central foredune habitat present within the Study Area.
Central Maritime Chaparral	None	No chaparral habitat present within the Study Area.
Coastal and Valley Freshwater Marsh	None	No coastal and valley freshwater marsh habitat present within the Study Area.
Southern Vernal Pool	None	No vernal pool habitat is present within the Study Area.
Valley Needlegrass Grassland	None	No valley needlegrass grassland habitat is present within the Study Area.

Source: CDFW 2019a

Appendix C

Site Photographs



Photograph 1. Water Distribution Pipeline Alignment: Roadway Drainage at the intersection of Pismo State Beach Road and SR-1 within 50 feet of the proposed water distribution pipeline alignment. Photo taken facing southwest. December 19, 2019.



Photograph 2. IW-3: Developed/landscaped within the Study Area at a proposed injection well site. Photo taken facing north. December 19, 2019.



Photograph 3. IW-1: Ruderal with landscaped trees and iceplant mat. Photo taken facing south. December 19, 2019.



Photograph 4. ATF: Developed/landscaped with adjacent eucalyptus within the proposed ATF complex. Photo taken facing south. March 3, 2020.



Photograph 5. MW-1A/1B-1: Developed/landscaped within the Study Area at a proposed monitoring well site. Photo taken facing west. March 3, 2020.



Photograph 6. Water Distribution Pipeline: Non-native grassland with the blackberry bramble and arroyo willow in the background at the proposed water distribution pipeline alignment. Photo taken facing north. March 3, 2020.



Photograph 7. Water Distribution Pipeline: Potential wetland surrounded by non-native grassland within 50 feet of the proposed water distribution pipeline alignment. Photo taken facing north. March 3, 2020.



Photograph 8. MW-4C/4D: Ruderal vegetation within the detention basin at the proposed monitoring well. Photo taken facing north. March 3, 2020.

Appendix D

Floral and Faunal Compendium

Plant Species Observed Within the Study Area on December 19, 2019 and March 3, 2020

Scientific Name	Common Name	Status (Cal-IPC)	Native or Introduced
Plants			
Trees			
<i>Eucalyptus globulus</i>	Blue gum	Limited	Introduced
<i>Hesperocyparis macrocarpa</i>	Monterey cypress	–	Native
<i>Lyonothamnus floribundus</i>	Ironwood	–	Native
<i>Myoporum laetum</i>	Lollypop tree	Moderate	Introduced
<i>Quercus agrifolia</i>	Coast live oak	–	Native
<i>Pinus radiata</i>	Monterey pine	–	Native
<i>Platanus racemosa</i>	California sycamore	–	Native
<i>Prunus domestica</i>	European plum	–	Introduced
<i>Salix lasiolepis</i>	Arroyo willow	–	Native
Shrubs			
<i>Acacia longifolia</i>	Golden wattle		Introduced
<i>Agave americana</i>	American century plant	Not rated	Introduced
<i>Baccharis pilularis</i>	Coyote brush	–	Native
<i>Frangula californica</i>	California coffeeberry	–	Native
<i>Rhus integrifolia</i>	Lemonade berry	–	Native
<i>Rubus ursinus</i>	California blackberry	–	Native
<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Blue elderberry	–	Native
Herbs			
<i>Apium graveolens</i>	Celery	Not rated	Introduced
<i>Bulbine frutescens</i>	Orange stalked Bulbine	Not rated	Introduced
<i>Bromus madritensis</i>	Foxtail brome	High	Introduced
<i>Campsis radicans</i>	Trumpet creeper	Not rated	Introduced
<i>Carduus pycnocephalus</i>	Italian thistle	Moderate	Introduced
<i>Carpobrotus edulis</i>	Ice plant	Not rated	Introduced
<i>Conium maculatum</i>	Poison hemlock	Moderate	Introduced
<i>Cyperus involucratus</i>	Umbrella plant	Not rated	Introduced
<i>Delairea odorata</i>	Cape ivy	High	Introduced
<i>Erigeron bonariensis</i>	Flax-leaved horseweed	Not rated	Introduced
<i>Foeniculum vulgare</i>	Sweet fennel	Moderate	Introduced
<i>Hedera helix</i>	English ivy	High	Introduced
<i>Hedera canariensis</i>	Canary ivy	High	Introduced
<i>Helminthotheca echioides</i>	Bristly ox-tongue	Limited	Introduced
<i>Hirschfeldia incana</i>	Mustard	Moderate	Introduced
<i>Iris</i> sp.	Iris	Not rated	Introduced
<i>Lupine</i> sp.	Lupine	–	Native
<i>Malva parviflora</i>	Cheeseweed	Not rated	Introduced
<i>Oxalis pes-caprae</i>	Bermuda buttercup	Moderate	Introduced

City of Pismo Beach
 Central Coast Blue Project

Scientific Name	Common Name	Status (Cal-IPC)	Native or Introduced
<i>Plantago lanceolata</i>	English plantain	Limited	Introduced
<i>Potentilla anserina ssp. pacifica</i>	Silverweed	–	Native
<i>Raphanus sativus</i>	Wild radish	Limited	Introduced
<i>Sonchus oleraceus</i>	Common sowthistle	Not rated	Introduced
<i>Toxicodendron diversilobum</i>	Poison oak	–	Native
<i>Vinca minor</i>	Common periwinkle	Not rated	Introduced
<i>Zantedeschia aethiopica</i>	Callalily	Limited	Introduced
Grasses			
<i>Bromus diandrus</i>	Ripgut brome	Moderate	Introduced
<i>Cynodon dactylon</i>	Bermuda grass	Moderate	Introduced

– = Not applicable because these species are native.

Cal-IPC = California Invasive Plant Council

Sources: Calflora 2019; Cal-IPC 2019

Animal Species Observed Within the Study Area on December 19, 2019 and March 3, 2020

Scientific Name	Common Name	Status	Native, Introduced, or Domesticated
Birds			
<i>Ardea alba</i>	Great Egret	Common	Native
<i>Buteo jamaicensis</i>	Red-tailed Hawk	Common	Native
<i>Calypte anna</i>	Anna's Hummingbird	Common	Native
<i>Cathartes aura</i>	Turkey Vulture	Common	Native
<i>Dryobates pubescens</i>	Downy Woodpecker	Common	Native
<i>Haemorhous mexicanus</i>	House Finch	Common	Native
<i>Melospiza crissalis</i>	California Towhee	Common	Native
<i>Passer domesticus</i>	House Sparrow	Common	Native
<i>Pipilo maculatus</i>	Spotted Towhee	Common	Native
<i>Psaltiriparus minimus</i>	Bushtit	Common	Native
<i>Regulus calendula</i>	Ruby-crowned Kinglet	Common	Native
<i>Sayornis nigricans</i>	Black Phoebe	Common	Native
<i>Setophaga coronata</i>	Yellow-rumped Warbler	Common	Native
<i>Thryomanes bewickii</i>	Bewick's Wren	Common	Native
<i>Turdus migratorius</i>	American Robin	Common	Native
Mammals			
<i>Thomomys bottae</i>	Bottas pocket gopher	Common	Native
<i>Canis lupus familiaris</i>	Domestic dog	Common	Domesticated

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Appendix E

Streambed Percolation Analysis

Technical Memorandum

To:	Mr. Daniel Heimel, MS, PE Water Systems Consulting, Inc. 805 Aerovista Place, Suite 201 San Luis Obispo, California 93401	
From:	Johnson Yeh, Ph.D., PG, CHG Principal Geohydrologist GEOSCIENCE Support Services, Inc.	Lauren Wicks, PG Project Geohydrologist GEOSCIENCE Support Services, Inc.
Date:	January 19, 2021	
Subject:	Pismo Beach Phase 1B EIR Support – Streambed Percolation Analysis	

1.0 INTRODUCTION

Central Coast Blue (CCB) is a regional recycled water project that will reduce the risk of seawater intrusion and improve water supply sustainability in northwestern Santa Maria River Valley Groundwater Basin (Basin). The project will use advanced-treated recycled water from the City of Pismo Beach and the South San Luis Obispo County Sanitation District (SSLOCS) Wastewater Treatment Plants (WWTPs) as an injection water source. This water will be injected in the Arroyo Grande-Tri-Cities Mesa portion of the Basin to establish a seawater intrusion barrier and improve the reliability of groundwater supplies in the region.

As part of the Phase 1B Hydrogeologic Evaluation, GEOSCIENCE Support Services, Inc. (GEOSCIENCE) was tasked with expanding the previous Regional Groundwater Sustainability Project (RGSP) Phase 1A Model to include an evaluation of injection and extraction scenarios with flows from the SSLOCS and City of Pismo Beach WWTPs. This evaluation was included in the draft Environmental Impact Report (EIR), summarizing the proposed project’s potential environmental impacts. Comments received on the draft EIR included questions from the California State Parks about potential impacts of CCB on streambed percolation. This technical memorandum (TM) was developed in response to these questions.

2.0 PHASE 1B MODEL

The CCB Phase 1B Model was developed for the unconsolidated to semi-consolidated water-bearing sediments within the Northern Cities Management Area (NCMA), Nipomo Mesa Management Area (NMMA), and portion of the Santa Maria Valley Management Area (SMVMA) (Figure 1). SEAWAT, a block-centered, finite-difference groundwater flow code developed by the United States Geologic Survey (USGS; Guo and Langevin, 2002), represents the model code used for model development (refer to GEOSCIENCE, 2019a and 2019c for detailed model description and discussion). The main water-bearing formations are the Paso Robles Formation and the Careaga Sand, which constitute the deeper aquifer, and the dune sand, terrace deposits, and quaternary alluvium, which constitute the shallow aquifer (LSCE, 2017). The low-yield formations which underlie and generally flank the main groundwater basin are considered impermeable and are not part of the modeled groundwater flow system.

2.1 Model Calibration in the Shallow Aquifer

The method of calibration used for the Phase 1B Model was the industry standard “history matching” technique, which involves adjusting model parameters to produce the best-fit between simulated and observed groundwater system responses. During the process of calibration, model parameters are adjusted using reasonable anticipated values until model-generated water levels and concentrations match historical observations. In addition, the model was calibrated in a multi-step process involving external review of initial calibration results by the Technical Advisory Committee (TAC)¹ and implementation of revisions to the model as part of subsequent calibration efforts.

The transient calibration period used for model calibration was from 1977 through 2016 using monthly stress periods. Calibration results for wells completed in the Shallow Aquifer along Arroyo Grande Creek are shown on Figure 2. Calibration in these wells shows a good correlation and model-calculated water levels reflect the general pattern and long- and short-term temporal trends in groundwater observations.

¹ The Phase 1B Model development represented a collaborative process by which the model development and calibration was modified based on feedback from the Technical Advisory Committee (TAC). Members of the TAC included representatives of the Nipomo Mesa Management Area Technical Group (NMMA TG), GSI (representing the NCMA), and Water Systems Consulting, Inc. (WSC). Comments during the process were provided during routine progress meetings as well as in response to a series of technical memorandums (TMs) that were issued throughout the process of developing the model and running project scenarios to document the work.

2.2 Model-Calculated Streambed Percolation

2.2.1 Streamflow Routing Package

Streams are simulated in the Phase 1B Model by the Streamflow Routing Package. Surface water runoff and interflow estimated by the surface water model are routed downstream by the sequential numbering of reaches and segments. A stream reach is a section of the stream that is associated with a particular finite-difference cell. The reaches are numbered in a downstream order to represent the direction of flow. Reaches can be grouped into segments that represent lengths of the stream between connections with another stream or tributary, lake, or watershed boundary. The streambed locations modeled in the Phase 1B Model are indicated on Figure 3.

Inflows to a stream reach include user-specified inflow to the first reach of a stream segment, inflows from upstream reaches, precipitation directly onto the stream channel, surface runoff and interflow from adjacent watershed areas, and groundwater discharge to the streambed. Outflows include diversions, evaporation, downward leakage across the streambed, and stream outflow. The downward leakage or streambed percolation is calculated as a function of the hydraulic conductivity of the streambed, the wetted perimeter of the streambed, the length of the stream reach, the underlying groundwater head, the stream stage, and the streambed thickness.

In the Phase 1B Model, streambed elevation was determined from Digital Elevation Models (DEMs) for the 7.5" topographic quadrangles in the model area. DEMs consist of a sampled array of elevations for a number of ground positions at regularly spaced intervals. These digital cartographic/geographic data files are produced by the USGS as part of the National Mapping Program.

2.2.2 Mechanisms of Percolation

A stream gains or loses water depending on the relative head in the stream and in the underlying aquifer. This interchange of water between the stream and the aquifer (e.g., Dune Sand or alluvium) varies spatially and temporally, and is influenced most by changes in the height of the nearby groundwater table and by changes in the hydraulic conductivity of the streambed deposits. To explore this further, we can consider three different theoretical scenarios with different groundwater level positions. In the first case, the water table, or groundwater head, is below the bottom of the streambed and the stream loses water to the aquifer – as shown in the figure below.

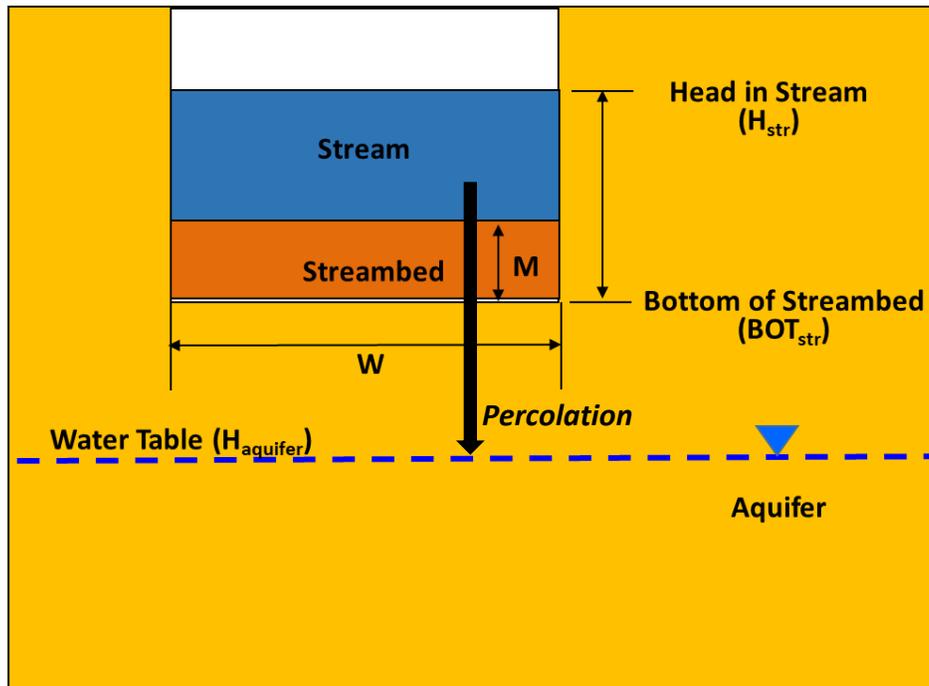


Figure A. Surface Water and Groundwater Interaction – Water Table below Bottom of Streambed

Under these conditions, streambed percolation can be described through the following equation:

When $BOT_{str} > H_{aquifer}$,

$$\text{Streambed Percolation} = C_{str} (H_{str} - BOT_{str}) \quad \text{Eqn. (1)}$$

$$C_{str} = K_{str} \times W \times L \times M \quad \text{Eqn. (2)}$$

Where

- BOT_{str} = Bottom of streambed,
- $H_{aquifer}$ = Water table or groundwater surface,
- C_{str} = Streambed conductance,
- H_{str} = Head in stream,
- K_{str} = Hydraulic conductivity of streambed sediments,
- W = Width of streambed,
- L = Length of streambed segment, and
- M = Streambed sediment thickness.

As indicated by Eqn (1), the streambed percolation under these conditions (i.e., water table below the bottom of the streambed) is only a function of the streambed conductance and the stream head. Percolating water is therefore in freefall condition below the stream and the groundwater level relative to the streambed has no impact on percolation until the water table rises high enough to come in contact with the streambed. Under this second case, let us consider a water table that is positioned above the bottom of the streambed but below the head in the stream – as shown below.

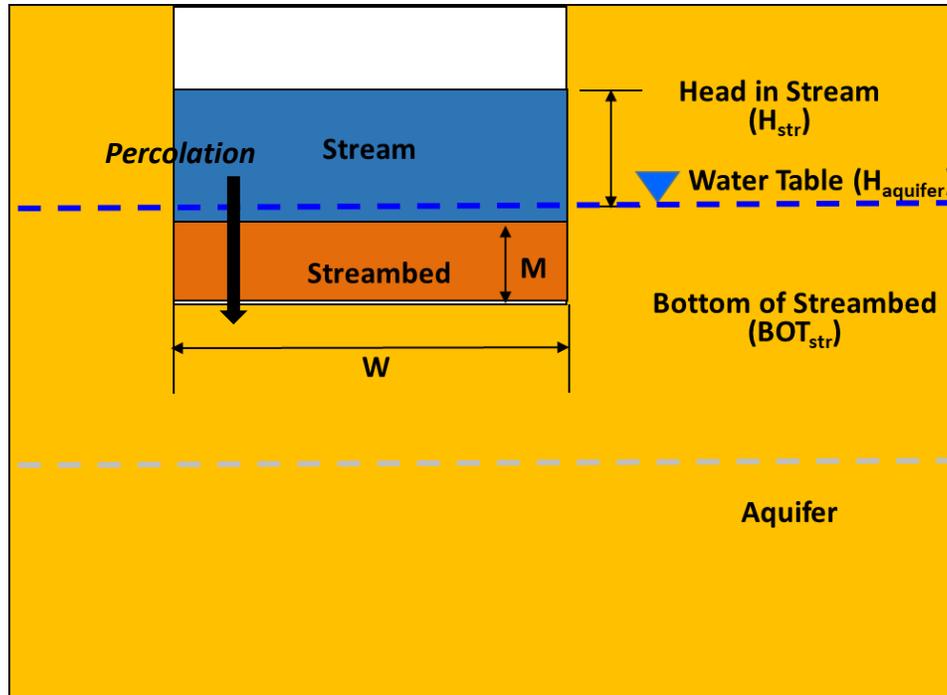


Figure B. Surface Water and Groundwater Interaction – Water Table above Bottom of Streambed but below Head in Stream

Under these conditions, the stream is still losing water to the aquifer. Streambed percolation can be described using the following equation:

When $H_{str} > H_{aquifer} > BOT_{str}$,

$$\text{Streambed Percolation} = C_{str} (H_{str} - H_{aquifer}) \quad \text{Eqn. (3)}$$

Eqn. (3) indicates that under these conditions (i.e., water table that is positioned above the bottom of the streambed but below the head in the stream), streambed percolation is a function of the streambed conductance, stream head, and groundwater level elevation. Therefore, fluctuation of the groundwater surface within this range will affect how much streambed percolation occurs (the greater the difference

in head, the more percolation will occur). However, if the head in the aquifer rises above the head in the stream, the stream will become a gaining stream and gain water from the aquifer. This third case is illustrated below.

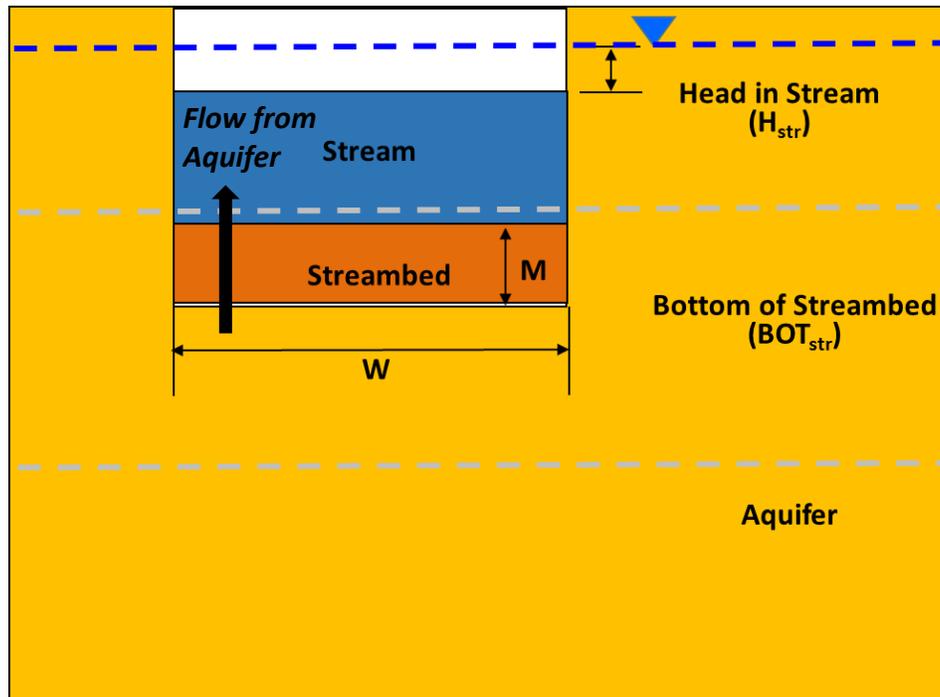


Figure C. Surface Water and Groundwater Interaction – Water Table above Head in Stream

Under these conditions, streambed percolation can be described using the following equation:

When $H_{\text{aquifer}} > H_{\text{str}}$,

$$\text{Groundwater Flow to Stream} = C_{\text{str}} (H_{\text{aquifer}} - H_{\text{str}}) \quad \text{Eqn. (4)}$$

Eqn. (4) indicates that when the water table is positioned above the head in the stream, the groundwater flow from the aquifer system to the stream is a function of the streambed conductance, groundwater level elevation, and stream head. As with the previous case, fluctuation of the groundwater surface above the stream head stage will affect how much flow from the aquifer occurs (the greater the difference in head, the more gaining streamflow will occur).

2.2.3 Scenario Results

Streamflow into the model area in the Arroyo Grande and Los Berros Creek was based on USGS gaged streamflow from the Arroyo Grande at Arroyo Grande Gage (Site No. 11141500) and Los Berros Creek near Nipomo CA Gage (Site No. 11141600), respectively. Surface runoff within the model area also contributed to streamflow and was calculated based on land use type (with industrialized land use having less permeability and more potential for runoff).

The development of streambed conductivity values was conceptual and aided by previous studies. During model calibration, conductivity values were adjusted to match observed water level conditions and are within published ranges of typical conductivity values. With limited reliable streamflow data available to assess model simulation of flow and streambed percolation, the accuracy of the magnitude of model-calculated streambed percolation may be limited. However, it is reasonable and industry standard to use the model to estimate the relative changes between a baseline and scenario runs – thereby isolating potential project effects.

A baseline and six project scenarios were made with the Phase 1B model using MODFLOW groundwater flow model code. The results are presented in GEOSCIENCE (2019b). For the purpose of this discussion, only results from Scenario 2 are provided, as Scenario 2 represents the first phase of the project and was identified by State Parks as being of particular concern. Major assumptions for the Baseline scenario and Scenario 2 are summarized in the following table.

Table 2-1. Model Scenario Assumptions

Model Scenario	Hydrology	Groundwater Pumping			CCB Implementation
		Agricultural	NMMA	NCMA	
Baseline	Historical (1977-2016)	Based on 2016 Crop Distribution and Historical Rainfall	Average of Last 5 Years (2012-2016) (5,663 AFY)	Average of Last 5 Years for Municipal (1,080 AFY) and Small Purveyors	None
2	Historical (1977-2016)	Based on 2016 Crop Distribution and Historical Rainfall	Average of Last 5 Years (5,663 AFY)	Municipal Extraction of 2,500 AFY	Phase 1 (900 AFY)

For the purpose of this evaluation, streambed percolation was analyzed in two areas of the Arroyo Grande Creek: Part 1 and Part 2 (see Figure 3). The relative difference in streambed percolation between the Baseline scenario and Scenario 2 (Scenario 2 minus Baseline) is presented in attached Table 1. As shown, the proposed project is not anticipated to affect streambed percolation in Part 2 of the Arroyo Grande

Creek. Streambed conductance in this area is lower than in Part 1 (conceptually, lower stream reaches typically have greater concentrations of fine-grained sediments which reduce the ease with which water can percolate through the streambed) and water levels tend to fluctuate less closer to the coast due to the influence of the ocean (constant head). Since streambed percolation is a function of streambed conductance and head (both in the surrounding aquifer system and stream), low conductance and less change in head lead to overall lower percolation rates.

In Part 1, streambed percolation shows predicted increases in five of the 40 years included in the model simulation period. These five years reflect hydrological conditions from 1983, 1995, 1996, 1997, and 1998 – all with above average rainfall. During these wet years, water levels in the surrounding aquifer system rise, creating conditions similar to those shown in Figures 2-2 and 2-3 above. Under these conditions, groundwater elevation affects the amount of streambed percolation, and that is why slight differences are seen between baseline (no project) conditions and CCB Scenario 2 project conditions. In other years, groundwater conditions are likely similar to those shown in Figure 2-1, and the fluctuation of groundwater elevation does not affect streambed percolation. However, the predicted increased streambed percolation (leading to a corresponding reduction in streamflow) under Scenario 2 conditions is minimal – ranging from 0.2 acre-ft/yr in 1996 to 29.0 acre-ft/yr in 1998, occurring in wet years during which streamflow is higher than average conditions. Therefore, under Scenario 2 conditions, the proposed CCB project is not anticipated to significantly impact streambed percolation or surface flow in Arroyo Grande Creek.

3.0 REFERENCES

GEOSCIENCE, 2019a. City of Pismo Beach and South San Luis Obispo County Sanitation District Central Coast Blue Phase 1B Hydrogeologic Evaluation – Technical Memorandum No. 3: Model Calibration. Prepared for Water Systems Consulting, Inc. Dated May 14.

GEOSCIENCE, 2019b. City of Pismo Beach and South San Luis Obispo County Sanitation District Central Coast Blue Phase 1B Hydrogeologic Evaluation – Technical Memorandum No. 4: Model Scenario Evaluation. Prepared for Water Systems Consulting, Inc. Dated May 14.

GEOSCIENCE, 2019c. City of Pismo Beach and South San Luis Obispo County Sanitation District Central Coast Blue Phase 1B Hydrogeologic Evaluation – Executive Summary. Prepared for Water Systems Consulting, Inc. Dated November 25.

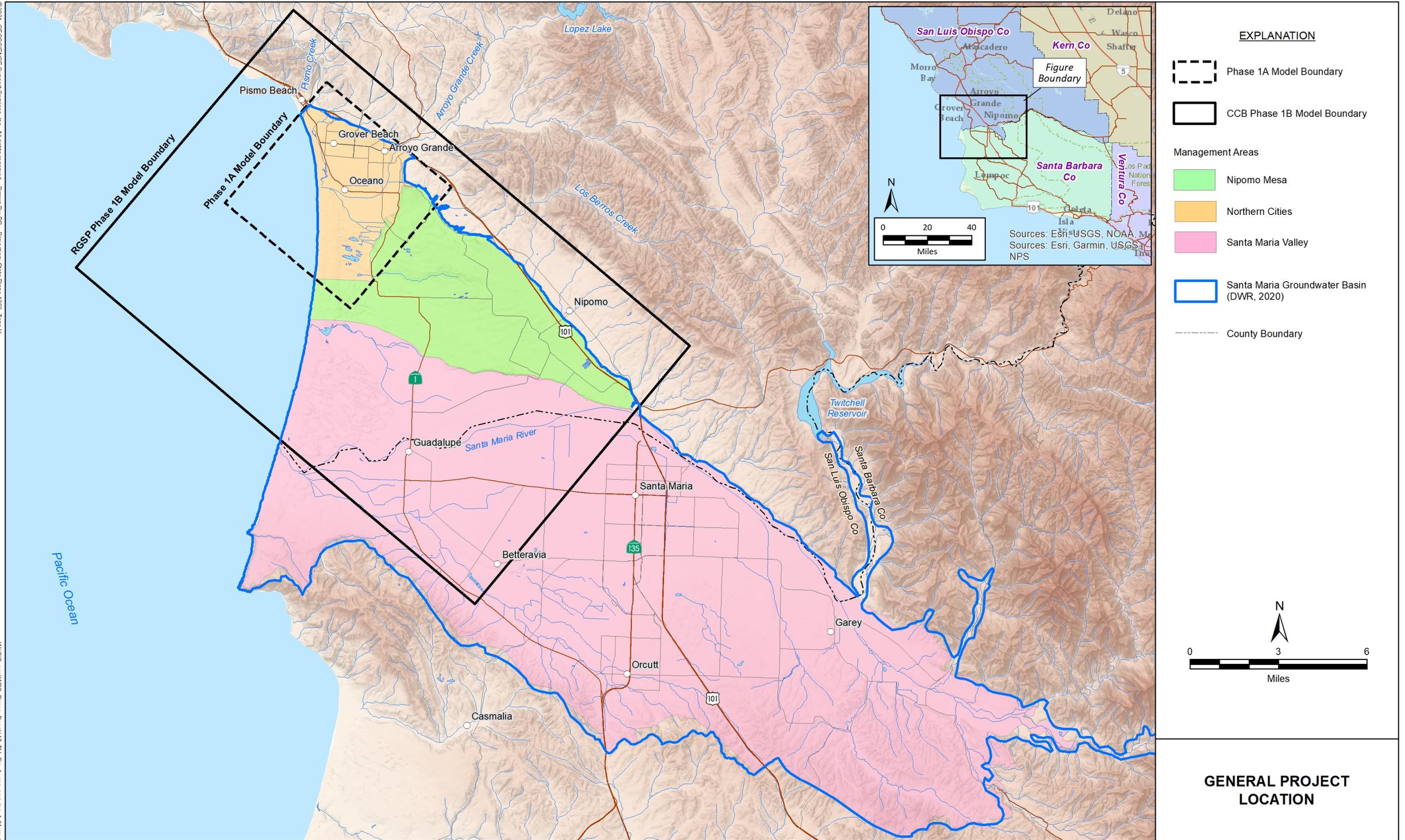
Guo, W., and C.D. Langevin, 2002. User’s Guide to SEAWAT: A Computer Program for Simulation of Three-Dimensional Variable-Density Ground-Water Flow. U.S. Geological Survey Techniques of Water-Resources Investigations 6-A7.

LSCE (Luhdorff & Scalmanini Consulting Engineers), 2017. 2016 Annual Report of Hydrogeologic Conditions, Water Requirements, Supplies and Disposition – Santa Maria Valley Management Area. Dated April.

FIGURES

GEOSCIENCE

A decorative flourish consisting of a horizontal line with a downward-pointing curve at its center, positioned below the word "GEOSCIENCE".



EXPLANATION

- Phase 1A Model Boundary
- CCB Phase 1B Model Boundary

Management Areas

- Nipomo Mesa
- Northern Cities
- Santa Maria Valley

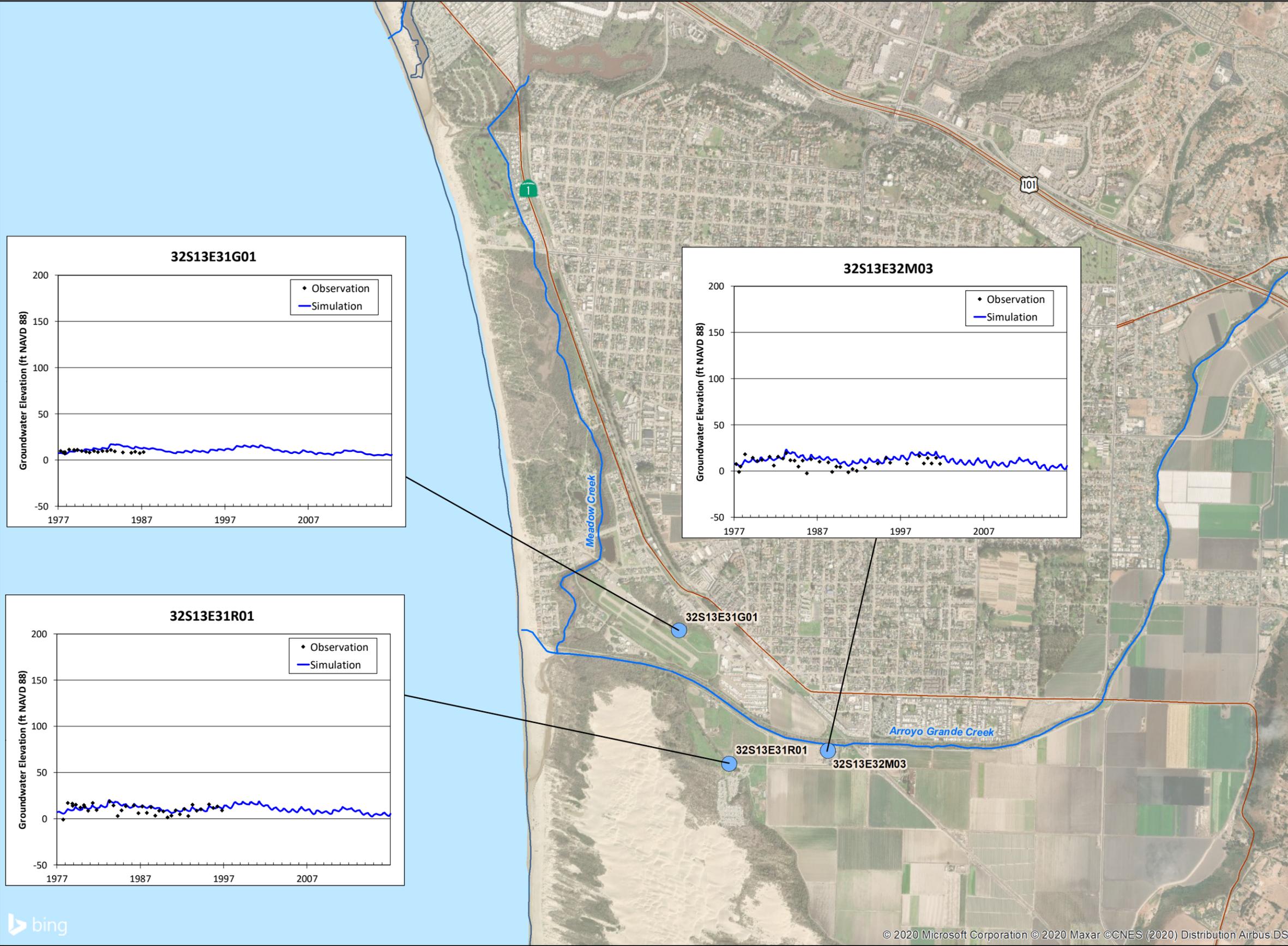
- Santa Maria Groundwater Basin (DWR, 2020)
- County Boundary

GENERAL PROJECT LOCATION

FIGURE 1

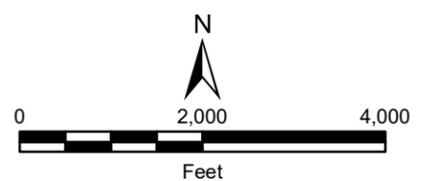
©2021, GEOSCIENCE Support Services, Inc. All rights reserved. Drawn By: DB. Projection: State Plane 1983, Zone V.

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EXPLANATION

● Water Level Target for Shallow Aquifer



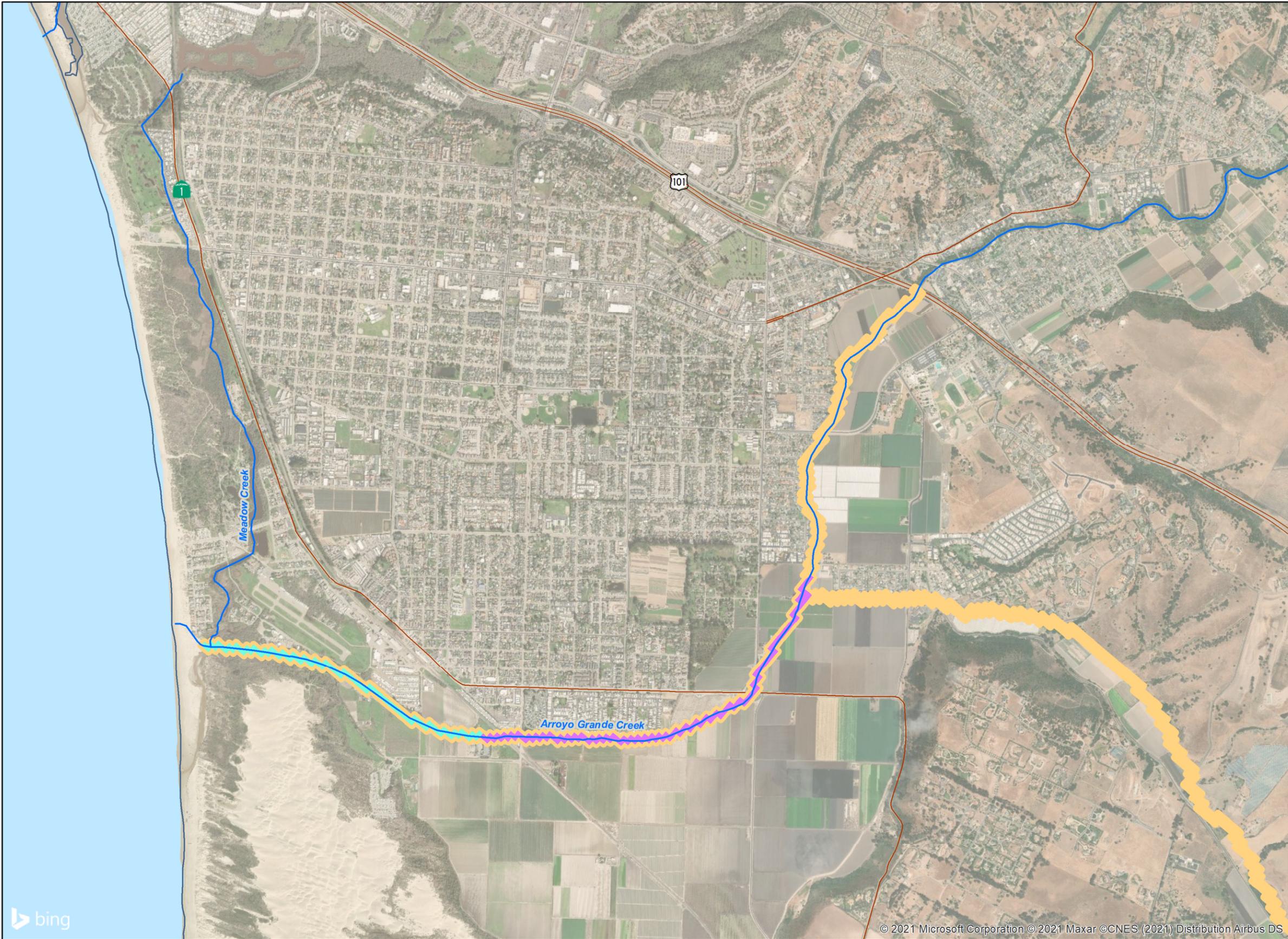
**SELECTED HYDROGRAPHS
ALONG
ARROYO GRANDE CREEK
(SHALLOW AQUIFER)**

© 2020 Microsoft Corporation © 2020 Maxar © CNES (2020) Distribution Airbus DS

Jan-21

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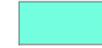


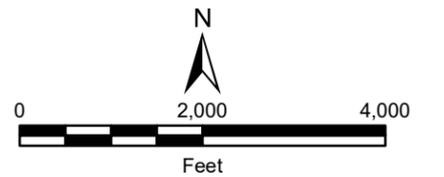
EXPLANATION

 Model Cells Used to Simulate Streambed Percolation

Selected Model Cells Used for Streambed Percolation Analysis

 Part 1

 Part 2



LOCATION OF STREAMBED PERCOLATION

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Jan-21

TABLE

GEOSCIENCE



Streambed Percolation along Arroyo Grande Creek (1977 - 2016)

Year	Scenario 2 minus Baseline	
	Part 1	Part 2
	acre-ft/yr	acre-ft/yr
1977	0.0	0.0
1978	0.0	0.0
1979	0.0	0.0
1980	0.0	0.0
1981	0.0	0.0
1982	0.0	0.0
1983	25.3	0.0
1984	0.0	0.0
1985	0.0	0.0
1986	0.0	0.0
1987	0.0	0.0
1988	0.0	0.0
1989	0.0	0.0
1990	0.0	0.0
1991	0.0	0.0
1992	0.0	0.0
1993	0.0	0.0
1994	0.0	0.0
1995	5.7	0.0
1996	0.2	0.0
1997	13.6	0.0
1998	29.0	0.0
1999	0.0	0.0
2000	0.0	0.0
2001	0.0	0.0
2002	0.0	0.0
2003	0.0	0.0
2004	0.0	0.0
2005	0.0	0.0
2006	0.0	0.0
2007	0.0	0.0
2008	0.0	0.0
2009	0.0	0.0
2010	0.0	0.0
2011	0.0	0.0
2012	0.0	0.0
2013	0.0	0.0
2014	0.0	0.0
2015	0.0	0.0
2016	0.0	0.0
Average	1.8	0.0