

Final Environmental Impact Report for the
**Coastal Treatment Plant Export Sludge
Force Main Replacement Project**
State Clearinghouse #2011051010



MARCH 2013

PREPARED FOR:
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, CA 92629

PREPARED BY:
DUDEK
605 Third Street
Encinitas, CA 92024

FINAL

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Coastal Treatment Plant
Export Sludge Force Main Replacement Project
SCH #2011051010**

Prepared for:

South Orange County Wastewater Authority

34156 Del Obispo Street
Dana Point, California 92629
Contact: Brian Peck

Prepared by:

DUDEK

605 Third Street
Encinitas, California 92024
Contact: Shawn Shamlou

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
ACES	Aliso Creek Emergency Sewer
ACOE	U.S. Army Corps of Engineers
ACPU	Aliso Creek Planning Unit
ACWHEP	Aliso Creek Wildlife Habitat Enhancement Project *Note: This seen/used online both as "Wildlife" and "Wetlands."
amsl	above mean sea level
AOU	American Ornithologists' Union
APST	aboveground petroleum storage tank
APCD	Air pollution control district
AQMD	Air quality management district
AQMP	Air Quality Management Plan
ASTM	American Society for Testing and Materials
AVCA Road	Aliso Viejo Community Association Road
AWCWP	Aliso and Wood Canyons Wilderness Park
AWMA	Aliso Water Management Agency
AWMA Road	Aliso Water Management Agency Road
BEP	Business Emergency Plan
bgs	below ground surface
BMP	best management practice(s)
BTR	biological resources technical report (or biological technical report) (general); capitalize in reference to the BTR prepared for this project.
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAISO	California Independent System Operator
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Health and Safety Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Code
CCA	California Coastal Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDP	Coastal Development Permit
CEC	California Energy Commission
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
CHRIS	California Historic Resource Information System
CLG	Certified Local Government
CNEL	community noise equivalent level
CNPS	California Native Plant Society
County	Orange County/County of Orange
CPOM	coarse particulate organic matter
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CSS	coastal sage scrub
CTP	Coastal Treatment Plant
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DAMP	Drainage Area Management Plan
dB	decibels
dB(A)	A-weighted sound (in decibels)
DOC	Department of Conservation
EDR	environmental data resources
EIR	environmental impact report
EISA	Energy Independence and Security Act
EPA	Environmental Protection Agency
EPAct	Energy Policy Act
ERP	Ecosystem Restoration Project
ETM	effluent transmission main
FERC	Federal Energy Regulatory Commission
FINDS	Facility Index System
FESA	Federal Endangered Species Act
g	local acceleration due to gravity
GPS	Global Positioning System
GWh	gigawatt hours
HA	hydrologic area
HDPE	high density polyethylene
HMBP	hazardous materials business plan
HMD	hazardous materials disclosure
HAS	hydrologic subarea
HU	hydrologic unit
HW	hazardous waste
Hz	hertz
IA	Implementation Agreement
JPA	Joint Powers Authority
JBLTP	Jay B. Latham Wastewater Treatment Plant
kV	kilovolt
kWh	kilowatt hours

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
LACM	Natural History Museum of Los Angeles County
LCP	local coastal plan
Leq	Equivalent Sound Level
LSE	Load Serving Entities
MA	Management Authorization
MEA	Master Environmental Assessment
mgd	million gallons per day
mg/l	milligrams per liter
M _{max}	maximum moment magnitude
MM	mitigation measure
MMRP	mitigation and monitoring reporting program
MM therms	Million therms
MNWD	Moulton Niguel Water District
MVC	Mission Viejo Company
MW	megawatts
NAAQS	National Ambient Air Quality Standards
NABA	North American Butterfly Association
NAHC	Native American Heritage Commission
NCCP Act	Natural Community Conservation Planning Act
NCCP/HCP	Natural Communities Conservation Plan/Habitat Conservation Plan (general) Natural Communities Conservation Plan/Habitat Conservation Plan, County of Orange Central and Coastal Subregion (specific; Chapter 2)
NHPA	National Historic Preservation Act
NHTSA	National Highway and Traffic Safety Administration
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NROC	Nature Reserve of Orange County
OC Parks	Orange County Parks
OEHHA	Office of Environmental Health Hazard Assessment
OHP	Office of Historic Preservation
OS	Open Space
OSR	Open Space Reserve
PCH	Pacific Coast Highway
PGA	peak horizontal ground acceleration
psi	pounds per square inch
RA	Resource Adequacy
RCRA-SQG	Resource Conservation and Recovery Act Small Quantity Generator
REACES	Rehabilitation of the East Aliso Creek Emergency Sewer
RFS	Renewable Fuel Standard
RMP	Resource Management Plan
ROC	reactive organic compounds
ROG	reactive organic gases

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ROW	right-of-way
RPS	Renewables Portfolio Standard
RTP	Regional Treatment Plant
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCWD	South Coast Water District
SDNHM	San Diego Natural History Museum
SERRA	South East Regional Reclamation Authority
SHRC	State Historical Resources Commission
SGE	Southern California Gas Company
SLIC	Spills, Leaks, Investigations, and Cleanup (database)
SOCRA	South Orange County Reclamation Authority
SOCWA	South Orange County Wastewater Authority
SSMP	Sewer System Management Plan
SSOPP/SSORP	Sanitary Sewer Overflow Prevention Plan and Response Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMDL	total maximum daily load
TWAS	thickened waste activated sludge
UBC	Uniform Building Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compounds
WMP	Watershed Management Plan

EXECUTIVE SUMMARY

ES-1 SUMMARY OF PROPOSED PROJECT

This environmental impact report (EIR) addresses the potential environmental consequences of the proposed Coastal Treatment Plant (CTP) Export Sludge Force Main Project (proposed project), which would replace approximately 16,600 feet of two existing parallel 4-inch pipelines between the CTP and Alicia Parkway. The proposed project would replace the existing force mains with a single 6-inch force main made of high density polyethylene (HDPE). The pipeline is proposed to be constructed on the east side of Aliso Creek, parallel to Moulton Niguel Water District's sewer line within the existing dirt utility access road right-of-way.

Construction of the proposed project would occur over approximately 7.5 months and would potentially include a 3 week period during which sludge would be transported from the CTP to the Regional Treatment Plant (RTP) using an 18-wheeler tanker truck. Pipeline installation would occur within a 30-foot easement within which 3 feet would be excavated for the pipeline trench.

The development of this Draft EIR has lasted over 18 months. This work has involved extensive field surveys, background research, engineering analysis, and communication with stakeholders and interested members of the public. The Draft EIR development was based on consideration of twelve alternatives, as described in *Chapter 8*. These alternatives were narrowed down to a smaller group of viable options based on the project objectives defined in *Chapter 3*. The final recommendation of a proposed project is described in *Chapter 8* and based on the evaluation presented in *Chapter 4*.

ES-2 SUMMARY OF PROJECT OBJECTIVES

The following project objectives were developed by SOCWA for the proposed project:

1. To move sludge from the CTP to the RTP in a reliable, cost-effective manner that minimizes risk to surrounding environment.
2. To abandon or remove the existing export sludge force mains in an expedient manner to avoid adverse impacts of a failure of the existing system on Aliso Creek and the surrounding environment.
3. To limit the impact of construction and operations on the surrounding Aliso and Woods Canyon.

ES-3 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

The project’s public scoping meeting was held at SOCWA’s Administrative Building at 34156 Del Obispo Street, Dana Point at 6 p.m. on Wednesday, May 18th, 2011. Public comments at the scoping meeting and during the scoping period expressed concerns about impacts related to cultural resources, biological resources (specifically the Southwestern pond turtle, tidewater goby, Southern steelhead trout, and Arroyo Toad), hydrology and water quality (including location of the pipeline at the base of the watershed), and Energy (specifically the efficiency of pumping sludge from the CTP to the RTP for treatment rather than expanding the CTP to treat on-site). In addition, concerns regarding the siting, operations, and lack of new technology at the CTP were expressed. These concerns have been identified as areas of known controversy and are analyzed in this EIR. *Appendix A* contains the transcript of the scoping meeting, and comment letters received during the Notice of Preparation (NOP) public scoping period.

ES-4 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table ES-1 provides a summary of significant impacts of the proposed project pursuant to the CEQA Guidelines Section 15123(b)(1) for environmental topics addressed in *Chapter 4* of this EIR. Several environmental topics were not found to be significant with mitigation incorporated as described in this EIR, including: biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and paleontological resources. The remaining topics discussed were found to be less than significant and include land use and planning, aesthetics, air quality, energy, greenhouse gas emissions, noise, and recreation. Several topics were determined to have no impacts related to the proposed project and were not addressed in *Chapter 4* of this EIR, including: agricultural and forestry resources, mineral resources, population and housing, public services, transportation and traffic, and utilities and service systems.

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
<i>Biological Resources</i>			
a. Substantial Adverse Effect on Candidate, Sensitive, or Special-Status Species	Potentially Significant Impact	BIO-1 The following avoidance measures shall be implemented prior to construction to prevent inadvertent impacts to special-status birds: <ul style="list-style-type: none"> • Pre-construction nest surveys shall be conducted by an 	Less than Significant

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		<p>appropriately qualified biologist within 1 week prior to vegetation clearing if construction occurs during the nesting season of species known or with potential to nest in the study area. Locations of nesting birds shall be mapped and appropriate no-work buffers shall be established, including 500-foot buffers for listed species such as California gnatcatcher and least Bell's vireo, 500 feet for special-status raptors, and 50-foot buffers for non-listed passerine species.</p> <ul style="list-style-type: none"> • SOCWA and its biologist shall coordinate the procedures for minimizing harm to or harassment of wildlife encountered during construction with the SOCWA contractor and other key construction personnel prior to clearing, grubbing, or grading. • SOCWA's biologist and contractor shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities. <p>BIO-2 To prevent inadvertent impacts to western pond turtle, pre-construction surveys and exclusionary fencing shall be implemented. Starting in mid-March prior to scheduled construction, a qualified turtle biologist, specializing in pond turtle "nesting" behavior, shall survey the project footprint and adjacent areas within the study area in order to assess the areas for possible nesting sites and to map the limits of those potential habitats. Potential nesting areas shall be excluded with fencing material that is regularly monitored for integrity (i.e., no damage, breeches or gaps). This shall be accomplished through one of two alternative methods:</p> <ul style="list-style-type: none"> • Exclude the entire Aliso Creek riparian zone from the pipeline modification study area. This shall consist of a single line of exclusion fencing (i.e., several segments of silt fence attached to one another), uninterrupted from the upstream portion of the study area to the downstream portion and deflected back from the creek a sufficient distance to prevent end-runs. This shall prevent turtles from moving into the project zone. The fence shall be maintained with no breaks and/or openings throughout the project duration. The fence shall be placed before the nesting season begins (i.e., before March 1), even if the pipeline construction does not begin until summer and/or fall. The fencing material shall be at least 24 inches tall, with 6 inches keyed into the soil (buried) and 18 inches above ground. 	

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		<p>-OR-</p> <ul style="list-style-type: none"> • Exclude only those areas deemed by the turtle biologist as possible nesting areas. This shall include completely surrounding those areas with an exclusion fence. The size of the exclusion areas shall depend on available nesting habitat (could be small and/or large, and could be many). The exclusion fence(s) shall be maintained at all times with no breaks and installed as directed above. <p>BIO-3 A biological monitor with turtle experience shall be onsite during all construction activities. The monitor shall periodically survey the modification zone and exclusion fence to make sure that there are no openings and that no turtles have entered the study area. If a turtle is observed, it shall be captured, processed, its reproductive status determined (palpating for eggs), and either relocated back to Aliso Creek out of harm’s way or redirected to an area that is unencumbered by silt fencing. The monitor palpating ensure that female turtles attempting to return to same area to nest later that day or over the next few days are relocated out of the construction area.</p>	
<p>b. Substantial Adverse Effect on Riparian or Other Sensitive Natural Community</p>	<p>Potentially Significant Impact</p>	<p>BIO-4 Temporary, direct impacts to 11.3 acres of special-status vegetation communities shall be mitigated through on-site restoration at a 1:1 ratio to restore impacted special-status vegetation communities to pre-construction conditions. A revegetation plan shall be developed, and all revegetation efforts shall be consistent with the management plan developed for the Central-Coastal Subregion NCCP/HCP for this particular reserve area. The revegetation plan shall include a monitoring program, clearly defined success criteria, and contingency measures, and shall be submitted to OC Parks prior to commencement of grading or trenching activities.</p> <p>BIO-5 To prevent inadvertent disturbance to special-status vegetation communities, including riparian communities, outside the limits of the construction easement, vegetation removal shall be monitored by a biologist and standard best management practices (BMPs) (see measures listed in Table 3-1 related to the minimization of fugitive dust, the containment of accidental spills of hazardous materials, and water quality protection) shall be implemented. A biologist shall be contracted to perform biological monitoring during all clearing activities.</p>	<p>Less than Significant</p>

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		<p>The following duties shall be carried out by the biological monitor:</p> <ul style="list-style-type: none"> • Review and/or designate the vegetation removal area in the field with the contractor in accordance with the final plan; • Be present during initial vegetation clearing, grubbing, and grading; and • Record any advertent impacts to vegetation communities outside the designated construction easement in daily monitoring reports. 	
<p>c. Substantial Adverse Effect on Federally Protected Waters</p>	<p>Less than Significant</p>	<p>BIO-5 Refer to above. BIO-6 To reduce temporary impacts to 2.94 acres of jurisdictional waters / wetlands, the following shall be required of SOCWA:</p> <ul style="list-style-type: none"> • Prior to construction, the following agency permits shall be obtained, or verification that they are not required shall be obtained: • SOCWA shall obtain a CWA, Section 401/404 permit issued by the California RWQCB and the ACOE for all project-related disturbances of water of the United States and/or associated wetlands. • A Section 1602 Streambed Alteration Agreement shall be obtained from CDFG for all project-related disturbances of any streambed. These permits will specify the mitigation requirements for impacts to jurisdictional waters / wetlands. • For temporary impacts resulting from the proposed project, restoration in place is typically required at a 1:1 ratio, but may be as high as 2:1. The permits will also likely stipulate standard construction best management practices that will be required by SOCWA to ensure that adjacent preserved wetlands will not be impacted by the project. • As part of the permit conditions, SOCWA will be required to enter into a minimum 5-year maintenance and monitoring agreement in which the restoration areas are monitored by a qualified biologist to ensure they are meeting success criteria and performance standards. These criteria and standards will be established and defined during the permit process period. The plan shall be prepared and submitted to the regulatory agencies for approval. 	<p>N/A</p>

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
d. Interfere Substantially With Movement of Native Resident or Migratory Fish or Wildlife	Less than Significant	N/A	N/A
e. Conflict With Local Policies or Ordinances Protecting Biological Resources	Less than Significant	N/A	N/A
f. Conflict With Provisions of Adopted Local, Regional, or State Habitat Conservation Plan	Less than Significant	N/A	N/A
<i>Cultural Resources</i>			
a. Adverse change in the significance of a historical resources	No Impact	N/A	N/A
b. Adverse change in significance of an archaeological resource	Potentially Significant	<p>CUL-1 A pre-construction workshop shall be conducted by a qualified archaeologist and a local Native American representative. Attendees will include SOCWA representatives, an archaeologist, local Native American representative(s), construction supervisors, and equipment operators to ensure that all parties understand the cultural resources monitoring program and their respective roles and responsibilities. All construction personnel who will work within the CA-ORA-582 site boundary, and 100-foot buffer around the boundary, shall be required to attend the workshop. The names of all personnel who attended shall be recorded.</p> <p>The workshop will review the following: types of archaeological materials that may be uncovered; examples of common archaeological artifacts and other cultural materials to examine; describe why monitoring is required; describe what makes an archaeological resource significant; identify monitoring procedures; identify what would temporarily halt construction and for how long; describe a reasonable worst-case resource discovery scenario (i.e., discovery of intact human remains or an unknown, intact, substantial midden deposit); and describe reporting requirements and the responsibilities of the construction supervisor and crew.</p>	Less than Significant

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		<p>The workshop shall make attendees aware of prohibited activities and educate construction workers about the inappropriateness of unauthorized collecting of artifacts that can result in impacts on cultural resources.</p> <p>CUL-2 All ground disturbances within the defined CA-ORA-582 site boundary, and a 100-foot buffer around the boundary, shall be monitored by a qualified archaeologist and a local Native American representative.</p> <p>A construction monitoring treatment plan will be developed by a qualified archaeologist and implemented to ensure that unexpected features or artifact concentrations are adequately recorded, evaluated, and, if significant, mitigated. The plan will describe the following:</p> <ul style="list-style-type: none"> a. procedures for notifying SOCWA and other involved or interested parties in case of an unexpected discovery b. procedures that would be used to record, evaluate, and mitigate an unexpected discovery with a minimum of delay c. procedures that would be followed in case of discovery of disturbed, as well as intact, human burials and burial-associated artifacts d. specifications that all ground disturbances within the recorded CA-ORA-582 site boundary and a 100-foot buffer around the boundary will be monitored by a qualified archaeologist and a Native American representative. The monitors shall have the authority to temporarily halt or redirect construction in the vicinity of any potentially significant discovery to allow for adequate recordation, evaluation, and mitigation. <p>CUL-3 In the event that cultural materials are encountered during construction of the proposed pipeline, trenching shall be temporarily redirected and/or suspended until a qualified archaeologist and local Native American representative are retained to evaluate the find, including mapping and collecting any diagnostic (time-sensitive) artifacts.</p>	
c. Disturbance of human remains	Potentially Significant	<p>CUL-2 Refer to above.</p> <p>CUL-3 Refer to above.</p>	Less than Significant
<i>Geology and Soils</i>			
a. Structures exposed to adverse effects	—	—	—

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
i. Faulting	Less than Significant	N/A	N/A
ii. Strong seismic ground shaking	Less than Significant	N/A	N/A
iii. Seismic related ground failure including liquefaction	Less than Significant	N/A	N/A
iv. Landslides	Less than Significant	N/A	N/A
b. Soil erosion or loss of topsoil	Less than Significant	N/A	N/A
c. Located on or would cause unstable soil	Potentially Significant	GEO-1 Prior to construction, SOCWA shall conduct a design-level geotechnical investigation to evaluate the potential for unstable geologic conditions that may affect the approved project. If subsurface exploration presents the possibility for unstable conditions, the force main design shall be modified to limit excavations and fills, and to implement suitable drainage provisions. Excavations in areas near mapped landslides shall be less than 5 feet. Alternatives to trench excavations could also be employed to avoid landslide deposits. The geotechnical investigation shall be prepared by a certified geologist prior to construction of the proposed pipeline.	Less than Significant
d. Located on expansive soil	Less than Significant	N/A	N/A
e. Soils incapable of supporting septic tanks	Less than Significant	N/A	N/A
<i>Hazards and Hazardous Materials</i>			
a. Transport, use, disposal of hazardous materials	Less than Significant	N/A	N/A
b. Release of hazardous materials into environment	Less than Significant	N/A	N/A
c. Exposing school to hazardous materials	Less than Significant	N/A	N/A
d. Located on a hazardous materials site	Less than Significant	N/A	N/A
e. Near an airport or within an airport land use plan	Less than Significant	N/A	N/A

**Table ES-1
Summary of Significant Project Impacts**

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
f. Within vicinity of private airstrip	No Impact	N/A	N/A
g. Impair emergency response	Potentially Significant	HAZ-1 Prior to construction, SOCWA shall develop a Traffic Management Plan to identify alternative routes which will enable emergency access in the case of an emergency situation. Traffic congestion and road blockages shall be minimized to the maximum extent possible. The Plan shall be submitted to the Orange County Fire Authority for review and approval prior to commencement of construction.	N/A
h. Wildland fires	Less than Significant	N/A	N/A
<i>Hydrology and Water Quality</i>			
a. Violate water quality standards	Less than Significant	N/A	N/A
b. Deplete groundwater supplies	Potentially Significant	HYD-1a If groundwater is encountered during grading/trenching and is proposed to be discharged to surface waters, SOCWA shall obtain a General Waste Discharge Requirements for Discharges of Extracted Groundwater to Surface Waters within the San Diego Region Except for San Diego Bay (RWQCB Order No. R9-2008-0002) and shall comply with all requirements of the waste discharge requirements. HYD-1b As an alternative to obtaining a waste discharge requirements permit, groundwater could be discharged to the sanitary sewer or to an upland area where it does not enter back into the stream or other surface waters, or can be used for dust control.	Less than Significant
c. Alter drainage pattern causing erosion	Less than Significant	N/A	N/A
d. Alter drainage pattern causing flooding	Less than Significant	N/A	N/A
e. Excess runoff water	Less than Significant	N/A	N/A
f. Degrade water quality	Less than Significant	N/A	N/A
g. Introduction of housing within flood hazard area	Less than Significant	N/A	N/A
h. Introduction of structures to redirect flood flows	Less than Significant	N/A	N/A
i. Loss, injury, or death due to inundation or failure of a dam	Less than Significant	N/A	N/A

Table ES-1
Summary of Significant Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
j. Seiche, tsunami, mudflow	Less than Significant	N/A	N/A
<i>Paleontological Resources</i>			
a. Alteration of government facilities including:	Potentially Significant	<p>PAL-1 SOCWA shall retain an Orange County-certified paleontologist to monitor all ground-disturbing activities associated with construction of the proposed project. Prior to construction, the paleontologist shall prepare a Paleontological Monitoring and Discovery Plan that indicates the treatments recommended for the area of the proposed disturbance, the methods of fossil and data recovery, the level of monitoring, the types of field personnel, the post-field treatment of recovered paleontological resources, the designated specimen repository, and the format of the final mitigation report.</p> <p>In the event that paleontological resources are discovered during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by the qualified paleontologist. The paleontologist shall notify the appropriate agencies to determine procedures that should be followed before construction is allowed to resume at the location of the find. If the project applicant determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the proposed project on the qualities that make the resource important. The plan shall be submitted to the County for review and approval prior to implementation.</p>	Less than Significant

ES-5 SUMMARY OF ALTERNATIVES

Five alternatives were fully evaluated in the EIR. These alternatives include a “No Project” alternative, a “Force Main (FM) 2” alternative, a “Trucking Alternative No. 1” alternative, a “Trucking Alternative No. 2” alternative and a “Solids Handling” alternative. Additional alternatives consisting of a hybrid alignment, relining of the existing force mains, and elimination of the CTP were considered but initially rejected and are therefore not fully evaluated in the EIR.

A matrix displaying the major characteristics and significant environmental effects of each alternative is provided in *Table ES-2* to summarize the comparison. The matrix also indicates whether the alternative would be feasible in terms of meeting the project objectives as defined in *Chapter 3*.

ES-5.1 Environmentally Superior Alternative

As shown in *Table ES-2* the No Project Alternative would be environmentally superior to the proposed project, based on the minimization or avoidance of most of the proposed project's significant environmental impacts. However, the No Project Alternative does not meet most of the basic project objectives. Additionally, CEQA Guidelines, Section 15126.6(c) require that, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

Based on the summary provided in *Table ES-2*, the Solids Handling Alternative and Trucking Alternative 2 would result in reduced impacts to four topics (Biological Resources, Cultural Resources, Geology and Soils, and Paleontological Resources). However, Trucking Alternative 2 would result in greater impacts to air quality when compared to the proposed project, and hence, this alternative does not afford the same degree of impact reduction as the Solids Handling Alternative. It would also not meet most of the basic project objectives.

The Solids Handling Alternative would result in the greatest degree of reduction of the proposed project's identified significant impacts, while increasing impacts to other topics, since it would result in greater impacts to Aesthetics, Air Quality, Greenhouse Gas Emissions, and Noise. This alternative would meet most of the basic project objectives, and therefore it is the environmentally superior alternative. However, since all of the proposed project's significant impacts would be fully mitigated to below a level of significance, this alternative would not offer a substantial advantage in terms of impact avoidance for any environmental topic, while increasing impacts elsewhere.

**Table ES-2
Summary of Alternatives' Impacts**

Environmental Issue	No Project	FM-2 Alternative	Trucking Alternative No. 1	Trucking Alternative No. 2	Solids Handling Alternative
Land Use and Planning	Similar	Greater impacts	Greater impacts	Greater impacts	Similar
Aesthetics	Similar	Greater impacts	Slightly greater impacts	Similar	Greater impacts
Air Quality	Similar	Similar	Greater impacts	Greater impacts	Greater impacts
Biological Resources	Greater impacts	Reduced impacts	Reduced impacts	Reduced impacts	Reduced impacts
Cultural Resources	Greater impacts	Greater impacts	Similar	Reduced impacts	Reduced impacts
Energy	Similar	Similar	Reduced impacts	Reduced impacts	Greater impacts
Geology and Soils	Reduced impacts	Slightly reduced impacts	Reduced impacts	Reduced impacts	Reduced impacts
Greenhouse Gas Emissions	Similar	Similar	Reduced impacts	Reduced impacts	Greater impacts
Hazards and Hazardous Materials	Greater impacts	Similar	Greater impacts	Greater impacts	Similar
Hydrology and Water Quality	Greater impacts	Similar	Reduced impacts	Reduced impacts	Similar
Noise	Similar	Similar	Greater impacts	Greater impacts	Slightly greater impacts
Paleontological Resources	Reduced impacts	Greater impacts	Reduced impacts	Reduced impacts	Reduced impacts
Recreation	Greater impacts	Greater impacts	Greater impacts	Similar	Similar
Meet Project's Objectives?	No	Yes	No	No	Yes

CHAPTER 1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

This environmental impact report (EIR) addresses the potential environmental consequences of the proposed Coastal Treatment Plant (CTP) Export Sludge Force Main Replacement Project (proposed project), which would replace approximately 16,600 feet of two existing parallel 4-inch pipelines between the CTP and Alicia Parkway.

The South Orange County Wastewater Authority (SOCWA) is the lead agency in preparing this EIR in accordance with the California Environmental Quality Act of 1970 (CEQA) statutes (California Public Resources Code, Section 21000 et seq., as amended) and implementing state CEQA Guidelines (California Code of Regulations, Title 14 (14 CCR), Section 15000 et seq.).

The development of this Draft EIR has lasted over 18 months. This work has involved extensive field surveys, background research, engineering analysis, and communication with stakeholders and interested members of the public. The Draft EIR development was based on consideration of ten alternatives, as described in *Chapter 8*. These alternatives were narrowed down to a smaller group of viable options based on the project objectives defined in *Chapter 3*. The final recommendation of a proposed project is described in *Chapter 8* and based on the evaluation presented in *Chapter 4*.

The proposed project is located within the Aliso and Wood Canyons Wilderness Park (AWCWP), an Orange County-designated wilderness park which encompasses approximately 3,900 acres of natural open space lands within southwestern Orange County (County); the park includes the hills, canyons, and floodplain surrounding Aliso and Wood Canyons and portions of Laguna Canyon. The AWCWP is almost completely surrounded by urban development associated with the communities of Aliso Viejo, Laguna Niguel, Laguna Hills, Laguna Woods, and Laguna Beach. The Aliso Creek Golf Course is located immediately to the south of the CTP. Residential development primarily lines the rims of the canyons along the border of the AWCWP. Other land uses bordering the park include neighborhood parks, Soka University, and an elementary school. The CTP is located approximately 1 mile inland from the Pacific Ocean. The regional location of the proposed project is illustrated in *Figure 1-1* and the local vicinity is shown on *Figure 1-2*.

EIRs are informational documents “which will inform public agency decision makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project” (14 CCR 15121). The purpose of this EIR is to evaluate the environmental effects of the proposed project.

The EIR does not set forth SOCWA policy about the desirability of the proposed project, but rather is an informational document to be used by interested parties including SOCWA decision makers, SOCWA staff, the general public, and other government agencies. The EIR provides relevant information concerning the potential environmental effects and mitigation associated with the construction and operation of the proposed project. The EIR also provides alternatives which in some cases may lessen anticipated environmental impacts of the project (*Chapter 8*).

1.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS

The proposed project would require discretionary action by SOCWA as CEQA lead agency. A discretionary action must be thoroughly reviewed by the lead agency to fully document and disclose any potential environmental effects. This EIR has been prepared in accordance with CEQA (Public Resources Code Sections 21000 et. seq.) and the state CEQA Guidelines published by the Resources Agency of the State of California (14 CCR 15000 et. seq.) and fully examines all potential environmental impacts of the proposed project and incorporates feasible mitigation where needed to lessen any potentially significant impacts to a less-than-significant level. This EIR represents the independent judgment of SOCWA regarding the proposed project.

In compliance with 14 CCR 15082, SOCWA circulated a Notice of Preparation (NOP) dated May 5, 2011, to interested agencies, groups, and individuals, including the California State Clearinghouse. The State Clearinghouse monitors compliance of state agencies in providing timely responses, assigns a state identification number (in this case, 2011051010), and assists with distribution of the EIR to potentially interested state agencies. The NOP is included in Appendix A of this EIR. The NOP was intended to encourage interagency communication concerning the proposed action and to provide sufficient background information about the proposed action so that agencies, organizations, and individuals could respond with specific comments and questions on the scope and content of the EIR. The 30-day public comment period for the NOP ended on June 4, 2011.

A scoping meeting for the public and any other interested parties/agencies was held on May 18, 2011, at the SOCWA offices in Dana Point. SOCWA and the EIR consultant presented information on the project and solicited input from the community. All comments received during the NOP review period and public agency scoping meeting were considered during the preparation of this Draft EIR; written comments and a meeting transcript are included in Appendix A.

Another public meeting was held on May 31, 2012, at the SOCWA offices in Dana Point, to present information related to alternatives and other critical topics (e.g., cultural resources and biological resources) following initial surveys and the collection of existing conditions

information for each of the alignments under consideration. Public comments received during this meeting were taken into consideration during the selection of the alignment to constitute the “proposed project” analyzed in this EIR.

1.3 SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

The comment letters received during the NOP public scoping period indicated that the following environmental topical categories would be analyzed in this EIR:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Noise
- Recreation
- Transportation/Traffic.

Aside from the environmental analyses contained herein for the issues listed above, this EIR also includes the following chapters: *Cumulative Impacts (Chapter 5)*; *Other California Environmental Quality Act Requirements (Chapter 6)*; *Effects Not Found to be Significant (Chapter 7)*; and *Project Alternatives (Chapter 8)*. The remaining contents of the EIR document are provided as set forth in the Table of Contents.

1.4 PROJECT SPONSORS AND CONTACTS

SOCWA is the lead agency under CEQA and the project sponsor. The contact information is as follows:

South Orange County Wastewater Authority
Brian Peck, Director of Engineering
34156 Del Obispo Street
Dana Point, California 92629
949.264.5411

1.5 REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

This Draft EIR has been distributed to local, state, and federal responsible and trustee agencies; groups; and individuals interested in the project or who responded to the NOP or expressed interest in the project. The document will be available for review and comment for a 60-day period, from November 9, 2012, through January 7, 2013. Throughout this review period, the EIR and all technical appendices are available for review at the following locations:

South Orange County Wastewater Authority

34156 Del Obispo Street
Dana Point, California 92629

Aliso Viejo Library

1 Journey
Aliso Viejo, California 92656

Laguna Beach Library

363 Glenneyre Street
Laguna Beach, California 92651

Laguna Niguel Library

30341 Crown Valley Parkway
Laguna Niguel, California 92677

The document can also be viewed on SOCWA's website: www.SOCWA.com.

Interested agencies, organizations, and individuals are encouraged to submit written comments regarding the adequacy of the analysis presented in the Draft EIR. Written comments should be addressed to Mr. Brian Peck, P.E., Director of Engineering, with SOCWA at the address listed in *Section 1.4*.

Upon completion of the public review period, written responses to all comments will be prepared by SOCWA and incorporated into the Final EIR. SOCWA will hold a public hearing to consider certification of the Final EIR and various other project approval decisions. All commenters who submitted comments on the Draft EIR will be provided a copy of the written responses prepared to their comment letter at least 10 days prior to the scheduled SOCWA Council hearing.

1.6 RELATED ENVIRONMENTAL INFORMATION

In addition to the project technical studies (included as appendices to this Draft EIR), a number of other environmental documents and technical studies were consulted to aid in the preparation of this Draft EIR. These documents include the Aliso Creek Watershed Management Study (ACOE 2002); SOCWA’s Coastal Treatment Plant Export Sludge Pipeline Alignment Study (Dudek 2006); the U.S. Army Corps of Engineers’ (ACOE) Feasibility Scoping Meeting Documentation for the Aliso Creek Mainstem Ecosystem Restoration Study (ACOE and County of Orange 2009); the Biological Resources Technical Report (BTR) for the Aliso Creek Emergency Sewer (ACES) and Park Improvements Project (Dudek 2001); the AWCWP Resource Management Plan (RMP) (LSA 2009), including Appendix C of the RMP, the Existing Conditions Report (LSA 2006); the Orange County General Plan (2011); the Preliminary Geotechnical Evaluation for the Coastal Treatment Plant Export Sludge System for SOCWA (Ninyo and Moore 2011); the Preliminary Geotechnical Evaluation, Rehabilitation of the East Aliso Creek Emergency Sewer (REACES), Moulton Niguel Water District (MNWD), Laguna Niguel, California (Ninyo and Moore 2003); and the Lower Aliso Creek Erosion Assessment (Tetra Tech 2012).

These documents are available for review at SOCWA and two local libraries (addresses are provided in *Section 1.5*).

1.7 MITIGATION MONITORING AND REPORTING PROGRAM

As mandated by 14 CCR 15097 and 15091, SOCWA will prepare a mitigation monitoring and reporting program (MMRP) prior to project approval. The MMRP will include all mitigation measures outlined in the EIR, the responsible entity for implementation, implementation timing (prior to construction, during construction, post-construction), and any follow-up reporting requirements (such as submittal of materials to regulatory agencies).

1.8 INTENDED USES OF THE ENVIRONMENTAL IMPACT REPORT

As the designated lead agency, SOCWA has assumed responsibility for preparing this document. SOCWA will use the information included in this EIR to consider potential impacts to the physical environment associated with the project when making the decision to approve or deny the project. The Draft EIR will be made available for review to the public and public agencies for 45 days to provide comments on the “sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated” (14 CCR 15204(a)).

In addition, other agencies will use the EIR and supporting documentation in its decision to issue discretionary permits, including the following.

Responsible Agency Actions

County of Orange:

- Public Properties/Encroachment Permit

Potentially Affected Agency Actions

Regional Water Quality Control Board:

- National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity—to grade more than 1 acre of land; approval of the Stormwater Pollution Prevention Plan (SWPPP).
- Section 401 Water Quality Certification.

California Department of Fish and Game:

- California Fish and Game Code Section 1602 Streambed Alteration Agreement.

South Coast Air Quality Management District:

- Permit for construction and operation of equipment and grading.

Army Corps of Engineers:

- Section 404 Nationwide Permit.

California Coastal Commission:

- Coastal Development Permit.

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— Proposed Alignment

DUDEK

SOURCE: USGS 7.5-Minute Series San Jaun Capistrano Quadrangle.

**Figure 1-2
Vicinity Map**

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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CHAPTER 2.0 ENVIRONMENTAL SETTING

This chapter provides a description of the surrounding land uses, existing site characteristics, and land use planning context relevant to the proposed project. This chapter also provides an overview of the environmental sensitivities present on and around the project site. Finally, this chapter includes a description and map of related projects within the project area. The related projects are referenced for the purpose of the cumulative impacts analysis provided for each of the environmental impact analyses in *Chapter 5*.

2.1 REGIONAL SETTING

2.1.1 Location

The AWCWP is located in unincorporated Orange County (County). It lies west of Interstate 5 and just inland from the Pacific Coast Highway (PCH). The park stretches from El Toro Road and Laguna Canyon Road on the west to Moulton Parkway and Alicia Parkway on the east. The AWCWP encompasses approximately 3,900 acres of natural open space lands within southwestern Orange County and includes the hills, canyons, and floodplain surrounding Aliso and Wood Canyons and portions of Laguna Canyon. Because of its size and its “Y” shaped configuration, the park has a lengthy perimeter that borders several different communities including: the City of Laguna Beach to the south and west; El Toro Road, Rossmoor/Leisure World, and Sycamore Hills Open Space to the northwest; Aliso Viejo in the north-central area of the park; and Laguna Niguel to the east (LSA 2009). The regional location of the proposed project is illustrated in *Figure 1-1* and the local vicinity is shown on *Figure 1-2*.

2.1.2 Geographical Setting

The 4,000-acre regional park consists of undeveloped land located in an unincorporated area of Orange County, California. The park encompasses the hills, canyons, and floodplain surrounding Aliso and Wood Canyons and portions of the Laguna Canyon/El Toro Cliffs area. The park includes a wide variety of terrain and vegetation types that can be described according to several geographic subareas: Upper Aliso Canyon, the Aliso and Wood Canyons Confluence, Lower Aliso Canyon, and Wood Canyon (see *Figure 2-1*).

Upper Aliso Canyon. Upper Aliso Canyon constitutes the northwestern arm of the park and includes the upper segment of Aliso Creek as well as the paleontological rock outcropping known as the Pecten Reef formation. Upper Aliso Canyon is a flat alluvial valley that winds among low to moderate hillsides. The surrounding hills to the west, east, and north are largely developed with residential, commercial, and industrial park uses.

This narrow section of the park follows Aliso Creek along the alignment of the Aliso Creek Bikeway from Moulton Parkway south to its interface with Laguna Niguel Regional Park and the main park entrance at Alicia Parkway. Sulphur Creek crosses Alicia Parkway traveling from the northeast to southwest and enters AWCWP just before joining with Aliso Creek. Its western boundary is formed by four schools, six parks, and a church. Hillside bluffs topped with major arterial roads line the eastern boundary. In addition, the San Joaquin Hills Transportation Corridor (Highway 73), Pacific Park Drive, and Aliso Creek Road bisect this section of the park at three locations along its length. Due to its linear nature, adjoining land uses, and the presence of the Aliso Creek Bikeway, this section of the park acts primarily as a transportation corridor connecting people to destinations north, south, and east (LSA 2006).

Aliso and Wood Canyons Confluence. The Aliso and Wood Canyons confluence region extends east–west from the main park entrance to Moulton Meadows. This geographic area forms the heart of the park and is the primary jumping off point for most park visits. The Aliso Canyon Trail (Lower Aliso Creek Trail) provides direct access from the main park entrance to the confluence and the Wood Canyon Trail, the spine of the park trail system.

From the main park entrance, Aliso Canyon narrows between steep hillsides as it approaches the confluence of Aliso and Wood Canyons. A major promontory known as Sheep Hills divides the two canyons. The steep topography of Sheep Hills ranges from 300 feet to more than 600 feet. The surrounding hills are largely developed with single-family residences and Soka University. As Aliso Creek wraps around Sheep Hills, it enters a relatively flat area. The creek flows west through this flat area to its confluence with Wood Canyon and then continues south through lower Aliso Canyon.

Wood Canyon is generally narrower, steeper, and more densely vegetated than Aliso Canyon. From its confluence with Aliso Canyon, Wood Canyon trends northerly, winding between the steep elevations of Sheep Hills and the equally steep ridge separating Wood Canyon from Laguna Canyon to the west. This western ridgeline is developed with single-family residences that are visible from the confluence.

To the west of the Aliso and Wood Canyons confluence lies Moulton Meadows. Located on a mountain top plateau, Moulton Meadows provides magnificent vistas up Aliso Canyon and out to the Pacific Ocean. Moulton Meadows is surrounded on three sides by County and City of Laguna Beach open space, including the City of Laguna Beach Moulton Meadows Park to the south. This part of the park functions as a formal trailhead for the Meadows Trail leading down to the Aliso and Wood Canyons confluence and for the Aswut Trail along the ridge to the west (LSA 2006).

Lower Aliso Canyon. Lower Aliso Canyon is relatively narrow with a flat bottom occupied by Aliso Creek’s meandering streambed and very steep canyon walls. The valley floor is occupied

by natural scrub vegetation and riparian vegetation along the creek banks. The streambed is largely unimproved throughout most of this length except for the limited riprap placed at some of the creek's meanders. The slopes of lower Aliso Canyon are occupied by chaparral and coastal sage scrub. Single-family homes line the ridgelines to the east and west.

A paved road enters Aliso Canyon from Aliso Creek Road and parallels the creek through the center of the canyon. The road provides access for service vehicles to the CTP operated by SOCWA. The CTP is located in lower Aliso Canyon above the Aliso Creek Golf Course. A dirt utility access road runs along the east side of lower Aliso Canyon, providing access to the SOCWA pipelines.

At its southern terminus, Aliso Creek winds through the fairways of the Aliso Creek Golf Course into an open channel. The creek then flows under PCH and forms a lagoon at Aliso Beach before it enters the Pacific Ocean. Downstream of the Aliso Creek Golf Course is a maintenance/storage yard and lift station owned and operated by the South Coast Water District (SCWD), an affiliate of SOCWA. SCWD also owns the stretch of road from PCH to the Aliso Creek Golf Course (LSA 2006).

Wood Canyon. Wood Canyon is a large canyon containing two smaller subsidiary canyons—Mathis Canyon and Corral Canyon. North of Wood Canyon's confluence with Aliso Canyon, Corral Canyon extends east toward Soka University. Opposite Corral Canyon on the western slopes, a second minor canyon known as Mathis Canyon extends northwest. Mathis Canyon is heavily wooded with oak trees and sycamores. North of these two side canyons, Wood Canyon continues to narrow between increasingly steeper slopes. The narrow valley and stream banks are heavily vegetated with mature stands of coastal live oaks (*Quercus agrifolia* var. *oxyadenia*) and other woodland species. The canyon reaches its head at El Toro Ridge. The park boundary extends to the base of the ridge where El Toro Road meets Laguna Canyon Road. Even though AWCWP maps include the trails along the west ridge of Wood Canyon, these are actually on City of Laguna Beach property. The County leases this land and is responsible for its management.

Wood Canyon contains the majority of the park's 30 miles of trails, including the popular Wood Canyon, Rock-It, and Mathis Canyon trails (for more information on trails, refer to *Section 4.12*). Despite this heavy recreation use, Wood Canyon functions as a natural ecosystem preserve supporting sensitive vegetation and unique landforms including Dripping Cave in Mathis Canyon and some of the best examples of undisturbed oak woodland and California sycamore (*Platanus racemosa*) within the Orange County coast (LSA 2006).

2.1.3 Topography

AWCWP is located in the San Joaquin Hills, which are part of the Peninsular Ranges Geomorphic Province of Southern California. During the Miocene Age, igneous rocks were

injected into cracks and veins in the overlying sedimentary rocks. During the Holocene, Pliocene, and Pleistocene times (10 million years ago to the present time), uplifting occurred forming the San Joaquin Hills. These geologic processes have created a varied and distinctive topographic range within the park. Elevations range from 20 feet above sea level at the mouth of lower Aliso Canyon to an elevation of 891 feet at Moulton Meadows and Niguel Hill.

The northeastern boundary of the park abuts the tip of a broad alluvial plain. From there, the park continues south along a narrow floodplain bordered on the west by steep hills. Both Aliso and Wood Canyons are characterized by steep canyon walls and a narrow valley floor bisected by Aliso Creek. Notable sandstone rock outcroppings occur along a ridge forming the east side of Wood Canyon and the west side of the upper Aliso Canyon.

High above the steep canyon walls and bordering the city of Laguna Beach, Moulton Meadows—a plateau—overlooks lower Aliso Canyon. From here, broad panoramic views of the Pacific Ocean and inland views continuing all the way to the mouth of upper Aliso Canyon and beyond are available. El Toro Ridge, which forms the northern end of Wood Canyon, is comprised of near vertical sandstone cliffs and rock outcroppings that taper to a narrow valley floor bordering El Toro Road and ending at Laguna Canyon Road (LSA 2006).

2.2 SURROUNDING LAND USES

The AWCWP is almost completely surrounded by urban development associated with the communities of Aliso Viejo, Laguna Niguel, Laguna Hills, Laguna Woods, and Laguna Beach. The Aliso Creek Golf Course is located immediately to the south of the CTP, and Aliso Beach County Park is located immediately to the west of the golf course. Residential development primarily lines the rims of the canyons along the border of the AWCWP. Other land uses bordering the park include neighborhood parks, Soka University, and Wood Canyon Elementary School. The CTP is located approximately 1 mile inland from the Pacific Ocean.

2.3 EXISTING SITE CHARACTERISTICS

The project area parallels the east side of Aliso Creek from the intersection with Alicia Parkway southwest to the CTP and passes through a diversity of landscapes, including oak woodlands, grassland, and coastal sage scrub.

The existing dual 4-inch force mains are aligned within SOCWA's existing 30-foot effluent transmission main (ETM) easement, east of the creek. The 36-inch ETM is constructed at a variety of depths between 5 feet and 15 feet, approximately 10 feet inside the eastern easement boundary. The existing force mains are constructed approximately 4 feet west of the ETM, at a depth of approximately 5 feet to 9 feet. In addition to the ETM and force mains, Moulton Niguel Water District (MNWD) constructed an 18-inch vitrified clay sewer within an easement that

parallels the ETM easement. This sewer alignment varies considerably in relation to the ETM alignment, from approximately 5 feet inside the western ETM easement boundary to over 30 feet outside the western ETM easement boundary. The sewer is constructed at a depth of approximately 10 feet. The ETM and force mains are located further away from Aliso Creek compared to the existing MNWD pipeline.

A dirt utility access road runs along the east side of Aliso Creek from Alicia Parkway to the CTP located over or in the vicinity of the MNWD sewer and ETM alignments, and falling largely within the MNWD sewer easement. SOCWA staff uses the dirt access road to observe aboveground conditions relative to the export sludge alignment and to service the air-vacuum release valves for the ETM. The dirt utility access road is generally adjacent to grassland and coastal sage scrub habitats supporting native vegetation. Approximately halfway between Alicia Parkway and the CTP, there is a concrete headworks structure straddling Aliso Creek as part of the Aliso Creek Wildlife Habitat Enhancement (ACWHEP) Project. There is also a County of Orange storage area and an apiary located alongside the road.

On the west side of the creek, the Aliso Water Management Agency (AWMA) Road, which is paved, originates at the main park entrance and parallels the creek through Aliso Canyon to the CTP. The AWMA Road is generally closed to the public; however, an agreement between Orange County Parks (OC Parks) and SOCWA allows use of the AWMA Road on weekends and holidays for public use by park patrons. The Aliso Creek Trail begins at the park headquarters just off Alicia Parkway and follows the AWMA Road until the confluence with Wood Canyon.

2.4 LAND USE AND ZONING

OC Parks owns, manages, and operates AWCWP. The park is designated Open Space Reserve (OSR) and identified as a Wilderness Park, which as defined by the OC General Plan Recreation Element means “a regional park in which the land retains its primeval character with minimal improvements and which is managed and protected to preserve natural processes” (County of Orange 2011). The park is zoned by the Orange County Zoning Code as Open Space (OS) (County of Orange 2005).

2.4.1 Nature Reserve of Orange County

AWCWP is located within the Nature Reserve of Orange County (NROC) (*Figure 2-2*), a reserve system established by the Orange County Central and Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) (Meade 1996). The NCCP/HCP program is the result of the Natural Community Conservation Planning Act enacted by the California Legislature in 1991. The Central-Coastal Subregion NCCP/HCP, approved by the participating agencies in July 1996, addresses a range of species issues, in particular, subregional habitat needs of the coastal California gnatcatcher (*Polioptila californica*) (Meade 1996).

The Central-Coastal Subregion NCCP/HCP provides take authorization or conditional take authorization for certain species and habitats to participants in the Central-Coastal Subregion NCCP/HCP program. In general, the program is a habitat-based multiple-species management and conservation strategy that focuses on conserving natural vegetation communities, such as coastal sage scrub, cliff and rock, coastal chaparral, and oak woodlands. In addition to habitat types, the program focuses on a few identified or target plant and animal species that are indicators of ecosystem health.

The majority of lands within the AWCWP are designated by the Central-Coastal Subregion NCCP/HCP as “Reserve Lands.” These lands include Wood Canyon and Lower Aliso Canyon. Upper Aliso Canyon is designated by the Central-Coastal Subregion NCCP/HCP as “Non-Reserve Open Space Lands.” Within the Reserve Lands, take of coastal sage scrub habitat and the federally listed as threatened coastal California gnatcatcher are allowed only in relation to specified planned activities (i.e., allowable uses) regarding the amount of take and other parameters specified in the Central-Coastal Subregion NCCP/HCP Implementation Agreement (IA). For example, a planned activity or allowable use includes construction of infrastructure facilities, defined in the Central-Coastal Subregion NCCP/HCP as “all public and quasi-public service facilities and structures, including, but not limited to roads, landfills, flood control facilities, water transmission lines and facilities, electric utility lines and sewer facilities” (LSA 2006).

2.4.2 Local Coastal Program

The California Coastal Act of 1976 (CCA) established the California Coastal Commission (CCC) as the lead agency responsible for carrying out California’s federally approved coastal management program. The CCC plans and regulates land and water uses in the coastal zone consistent with the policies of the CCA. Under the CCA, cities and counties are encouraged to prepare local coastal plans (LCPs) that guide implementation of conservation, development, and regulatory policies required by the CCA within the local coastal zone. Completed LCPs are submitted to the CCC for certification, which ensures that the plan complies with the CCA. In Orange County, the cities responsible for preparing an LCP include Seal Beach, Huntington Beach, Newport Beach, Laguna Beach, Dana Point, and San Clemente. The County also has areas subject to an LCP (OCEMA 1987).

The AWCWP is within the coastal zone (see *Figure 2-3*) and is part of the Aliso Viejo Segment of the Aliso Creek Planning Unit (ACPU) LCP under the jurisdiction of the County. The LCP covers the AWCWP and the entire length of Aliso Creek from the Laguna Beach City limits to the south, to Aliso Creek Road to the north (*Figure 2-4*). The LCP received final County and state certification on September 11, 1986.

2.5 LAND USE HISTORY

The AWCWP lands were historically part of the Rancho Niguel, granted to Juan Avila in 1842. The land was used for cattle, and later sheep ranching from the early 1840s into the 1870s. During this time, many of the large landholdings were subdivided, and a diversified agriculture centered on citrus fruits, grapes, and grains appeared. From the late 1880s until the 1950s, the ranch maintained a diversified economy based on cattle ranching, agriculture (including farming), and tenant farming. Following World War II, pressure for urbanization came from the rapid Orange County housing expansion that was occurring in nearby cities. The ranch was divided and developed into what eventually became Aliso Viejo, Laguna Woods, Laguna Hills, and Laguna Niguel (LSA 2006).

The County began acquiring park lands in 1979. At that time, the Mission Viejo Company, master developer of the Aliso Viejo community, made an Irrevocable Offer of Dedication of nearly 2,351 acres of undeveloped open space to the County in conjunction with approval of the Aliso Viejo Planned Community. The following year, the County's Board of Supervisors approved this dedication for inclusion into the County's park system for a new regional park. This core dedication continues to be augmented by offers of dedication extending from Laguna Niguel Ridge to the Aliso Creek valley floor and back up to the City of Laguna Beach. Other undeveloped land parcels adjacent to the core dedication have subsequently been added to the AWCWP (LSA 2006).

SOCWA is responsible for management of wastewater within the Aliso Creek watershed. SOCWA was formed as the AWMA in 1972 to provide regional wastewater collection, treatment, and disposal (ACOE 2002). AWMA installed the original force mains in 1982, prior to formation of AWCWP. SOCWA was formed in 2001 by the consolidation of three separate joint powers authorities: AWMA, the South East Regional Reclamation Authority (SERRA), and the South Orange County Reclamation Authority (SOCRA). AWMA and SERRA were created in the 1970s in an effort to regionalize wastewater treatment in South Orange County and take maximum advantage of the recently enacted federal and state Clean Water Acts. The agencies that were originally members of AWMA and SERRA and continue to be part of SOCWA include MNWD, El Toro Water District, Irvine Ranch Water District, the City of Laguna Beach, City of San Clemente, City of San Juan Capistrano, Santa Margarita Water District, and the South Coast Water District. AWMA and SERRA were constructed around the Aliso Creek and San Juan Creek Watershed Basins respectively. SOCRA was formed in the early 1990s to manage water reuse permits within South Orange County. SOCRA did not directly manage any physical facilities. The Trabuco Canyon Water District, in addition to several of the agencies listed above, was also a member of SOCRA (SOCWA 2010).

2.6 RELATED PROJECTS

CEQA Guidelines Section 15130 requires identification of related projects, both public and private, that together with the proposed project could have cumulative impacts on the environment. CEQA Guidelines Section 15355 defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” A discussion of related projects is provided in *Chapter 5*.

Aliso Creek Wildlife Habitat Enhancement Project

The ACWHEP is located in the AWCWP. Initiated in 1990 as a mitigation bank project, the ACWHEP utilized a constructed headworks structure to divert creek low flows through irrigation lines to downstream planted riparian terraces. The project is currently not functioning as intended due to storm damage.

The ACWHEP was initiated as a cooperative venture between the County and the Mission Viejo Company (MVC). The bank was established to mitigate impacts to wetlands vegetation incurred by private development or public projects that required permits under Section 404 of the Clean Water Act (CWA) and/ or the California Department of Fish and Game (CDFG) Section 1601–1603 Streambed Alterations Agreements. The ACWHEP agreement formalizing the process for establishment of the mitigation bank, the role of the participants, use of credits, and performance criteria was fully signed in October 1989. Signatory parties included the U.S. Fish and Wildlife Service, CDFG, MVC, and the County. Ownership, maintenance, and operation of the ACWHEP were transferred from MVC to the County in November 1995.

The intent of the ACWHEP was to improve riparian habitat along a 4,000-foot long segment of the historical floodplain associated with Aliso Creek, starting downstream of the constructed headworks structure where erosion had caused at least 10 feet of incision within the streambed. The channel downcutting was a result of past heavy storm runoff and the effects of urbanization. The first phase of the project was composed of about 37 acres of plantings of willow (*Salix* spp.), cottonwood (*Populus* spp.), California sycamore (*Platanus racemosa*), and mulefat (*Baccharis salicifolia* ssp. *salicifolia*), in relatively flat areas between the creek and the base of the hills along each side of the valley. An additional phase, which called for an additional 35 acres as a future expansion of the plan, was never realized.

The ACWHEP headworks structure occupies the historic floodplain and is approximately 450 feet in total width. It is an armored earth fill embankment that straddles Aliso Creek approximately 3.3 miles upstream of the ocean outlet. The structure is protected from erosion and high flow damage by concrete or rock facing on the upstream and downstream faces and on top of the embankment, and protected by flanking by a concrete cutoff grade stabilizer across the

floodplain. A 12-foot wide roadway crosses the creek on the embankment to provide light vehicle and pedestrian access (official use only) to the east side of the creek.

Since its construction, the ACWHEP has suffered much damage from major storm events. Downstream of the structure, which acts as a grade control, significant downcutting has occurred. Banks and affected plantings have been washed downstream. The large storm event in the winter of 1997–1998 caused severe rupturing and loss of portions of the irrigation system. The irrigation function of the ACWHEP Structure has not been active since the late 1990's. The downstream end of the ACWHEP structure is subject to undermining due to a large scour hole that has formed. The structure and its downstream flanks must be periodically maintained by the County with the addition of grouted stone to prevent a loss in structural integrity and failure. It is apparent that the structure provides upstream stability of the channel. Failure of the structure and the resulting headcut moving upstream would jeopardize existing upstream infrastructure along Aliso Creek. Other than armoring repair to the structure, no other maintenance is performed (ACOE 2009).

AWCWP Resource Management Plan

The County of Orange Parks Department produced a final draft of the AWCWP Resource Management Plan (RMP) in August 2009, defining the County's long-term vision for development within the park. The fundamental objective of the RMP is to identify the best framework to manage, protect, and enhance the natural resource values of AWCWP while providing safe recreational and educational opportunities to the public. RMP goals fall into the following categories: public use and access, biological resources, water quality, cultural resources, interpretation/education, visual resources, and stewardship. The RMP proposes development of and/or enhancement of two recreational areas which could potentially impact SOCWA activities: (1) an extension of the Aliso Creek Bikeway along the AWMA Road on the west side of the creek along with a parallel riding and hiking path and (2) opening up the east side of Aliso Creek to Park users to create a loop trail between the Aliso Creek Wildlife Habitat Enhancement Project (ACWHEP) structure and the proposed trail on the west side of the creek, requiring an additional creek crossing at the southern end (LSA 2009).

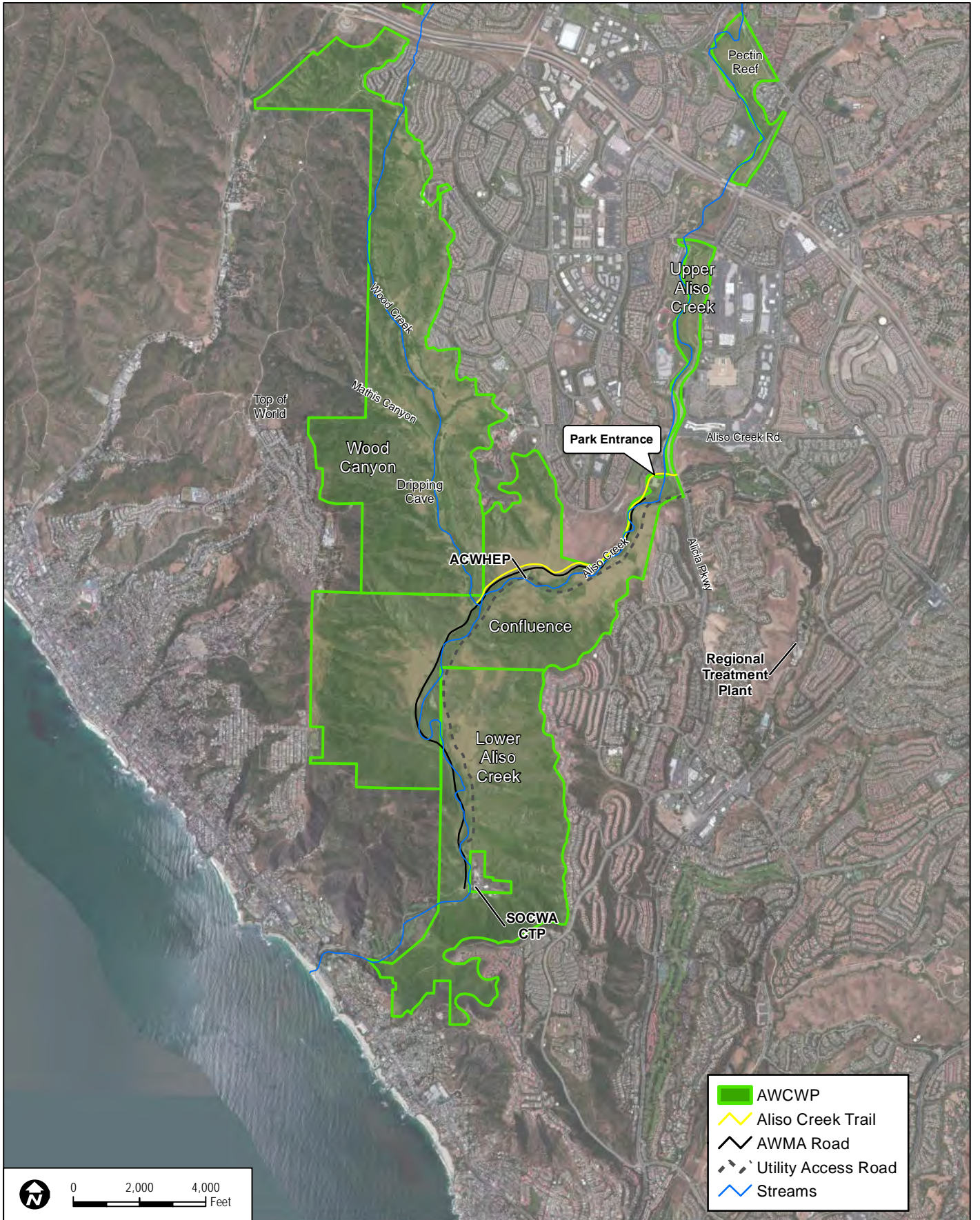
Ecosystem Restoration Project (ERP)

In July 1999, the U.S. Army Corps of Engineers (ACOE) completed the Aliso Creek Watershed Management Feasibility Study, which was sponsored by the ACOE, the County of Orange, and municipalities and water districts within the Aliso Creek watershed. The feasibility study identified a number of water resource issues including erosion and damage to habitat and utilities. In 2002, the ACOE completed the Aliso Creek Watershed Management Study, which examined management measures that could address the watershed problems identified by the feasibility study. The Aliso Creek Ecosystem Restoration Project

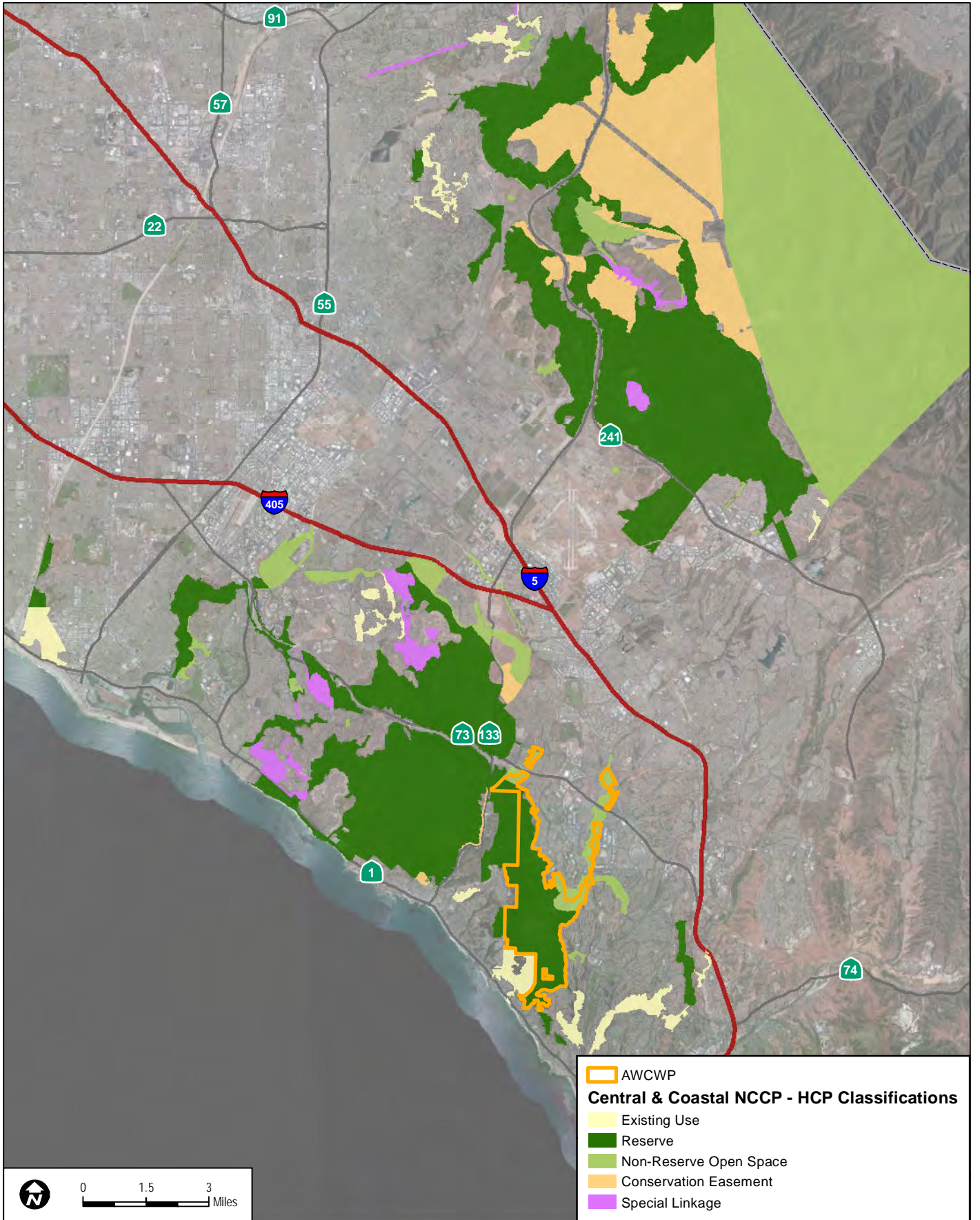
(ERP) was one of the recommended projects resulting from the management study. A Federal Cost Sharing Agreement has been executed between the ACOE and the County of Orange to conduct a study, the Aliso Creek Mainstem Ecosystem Restoration Feasibility Study, to evaluate opportunities for restoring degraded ecosystem function and stream channel stability in the lower Aliso Creek Mainstem. The study is intended to formulate ecosystem restoration solutions designed to improve the potential for long-term survival of native, aquatic, wetland, and terrestrial complexes as self-regulating, functioning systems. A draft Feasibility Scoping Document was completed in 2009.

One of the elements of the proposed ERP is to provide streambank stabilization of the lower reaches of Aliso Creek. This will provide protection to both the SOCWA and MNWD infrastructure in Aliso Canyon. Since the completion of the Feasibility Scoping Document in 2009, the ACOE and County of Orange project has been beset by multiple delays. The schedule for both finalization of the ERP concept and the implementation of the project is uncertain. Given this delay, SOCWA retained the firm Tetra Tech to prepare the Lower Aliso Creek Erosion Assessment (2012) to identify and prioritize areas of potential erosion impact that would need to be addressed through localized projects if the ERP continues to be delayed. These interim improvements would be needed to protect the MNWD sewer and the SOCWA ETM regardless of the selected alternative for the export sludge handling system replacement.

SOCWA would optimally like to combine ~~construction-replacement of the third phase of the export sludge handling system~~ force main with construction of the ERP, in an effort to minimize disturbance activities in the AWCWP and to ensure that potential ERP realignments of roads and trails are consistent with the pipeline alignments. However, the ERP is unlikely to be implemented within the next 5 years, and the replacement of the export sludge force main requires more immediate action.



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SOURCE: Bing Maps, Orange County

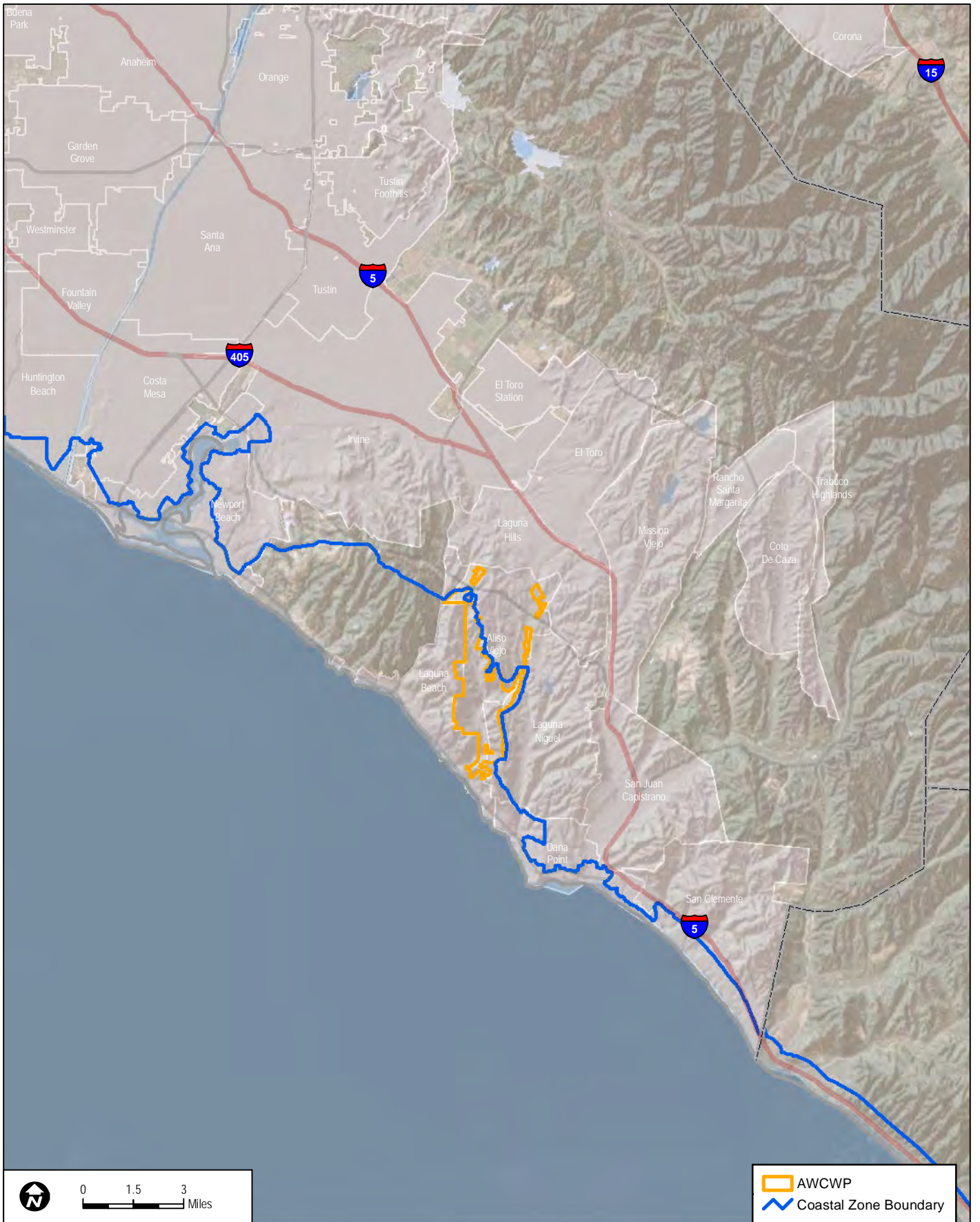
Figure 2-2

Nature Reserve of Orange County

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COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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0 1.5 3 Miles



AWCWP



Coastal Zone Boundary

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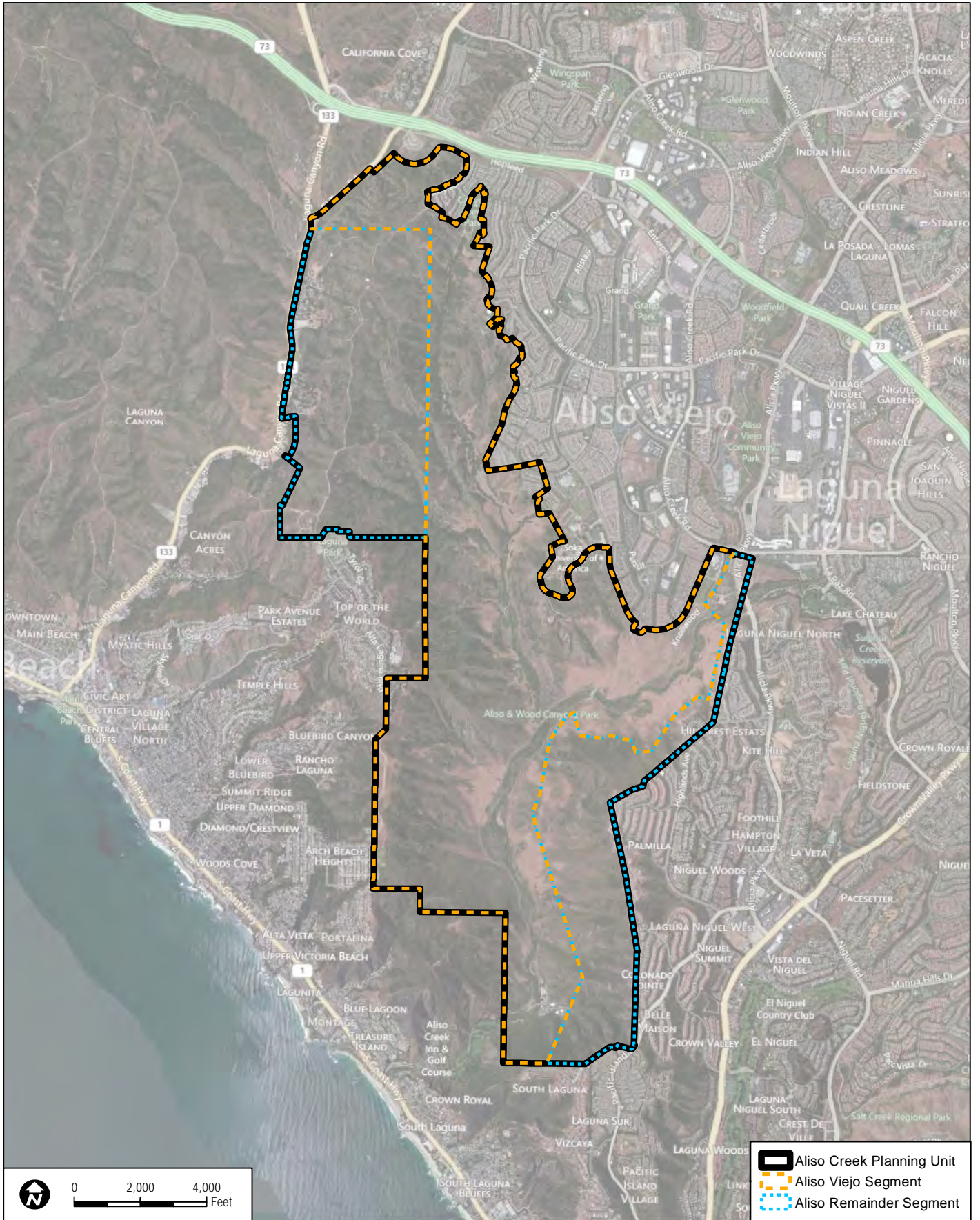
SOURCE: Bing Maps, CA Coastal Commission




**Figure 2-3
Coastal Zone**

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COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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-  Aliso Creek Planning Unit
-  Aliso Viejo Segment
-  Aliso Remainder Segment

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SOURCE: Bing Maps, CA Coastal Commission

Figure 2-4

Aliso Creek Planning Unit Local Coastal Program

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COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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CHAPTER 3.0 PROJECT DESCRIPTION

This section provides a description of the proposed project, the environmental effects of which are evaluated in *Chapters 4 through 8* of this EIR. The project location, history, purpose and need, and objectives are described in this section, followed by a description of project characteristics and a summary of the discretionary actions that would be required. Section 15124 of the State CEQA Guidelines set forth specific technical requirements for the project description, and includes items such as the precise location of the project; a statement of the project's objectives; a general description of the project's technical, economic, and environmental characteristics; and a statement briefly describing the intended uses of the EIR.

3.1 PROJECT LOCATION

The proposed project is located within the AWCWP. The CTP is located in the lower Aliso Canyon, approximately 1 mile inland from the Pacific Ocean; the Aliso Creek Golf Course is located immediately to the south of the CTP. Residential development primarily lines the rims of the canyons along the border of the AWCWP. Other land uses bordering the park include neighborhood parks, Soka University, a church, and an elementary school. The export sludge force main runs along the eastern side of Aliso Creek from its origin at the CTP in the southern region of the AWCWP to Alicia Parkway at the northeastern boundary of the park through Aliso Canyon. The force main continues through the Laguna Niguel Regional Park to its terminus at the Regional Treatment Plant (RTP); however, this portion of the pipeline alignment is not part of the proposed project. The project location is shown on *Figure 1-2*.

3.2 PROJECT HISTORY AND BACKGROUND

The South Orange County Wastewater Authority (SOCWA), the legal successor to the Aliso Water Management Agency (AWMA), was created on July 1, 2001, to facilitate and manage the collection, transmission, treatment, and disposal of wastewater for more than 500,000 homes and businesses across South Orange County. SOCWA is a Joint Powers Authority (JPA) with ten member agencies, consisting of local retail water agencies and cities that provide water to their residents. SOCWA operates four wastewater treatment plants, including the RTP, the CTP, the Jay B. Latham Treatment Plant, and the 3A Treatment Plant. Approximately 36% of the water treated by SOCWA is treated to secondary standards and discharged to the ocean through one of two outfall pipes. The remaining water undergoes tertiary treatment and is reused throughout South Orange County as recycled water.

The CTP is located within the southern portion of the AWCWP and has a capacity of 6.7 million gallons per day (mgd). Primary sludge and thickened waste activated sludge (TWAS), byproducts of the primary and secondary treatment phases, are combined in the export sludge wet well at the CTP and pumped off site for treatment at the RTP. The CTP has been in

operation since the 1940s for wastewater treatment. Construction of the modern CTP began in 1967. In 1982, the plant was expanded from 2.5 mgd to its current capacity. During the expansion, two 4-inch force mains were constructed to convey the sludge from the CTP to the RTP. This system was termed the export sludge handling system and is currently in operation.

3.2.1 Existing Sludge Export Facilities

The existing CTP export sludge pump station consists of a sludge wet well and two positive displacement sludge pumps. Only one pump is needed for current sludge volumes, with the second pump acting as a redundant emergency unit. The pumps are progressing cavity, positive displacement pumps equipped with variable frequency drives. The pump speed varies with wet well level and discharge pressure. Discharge pressure is limited at 240 pounds per square inch (psi). The export sludge pumps are automatically shut down when that pressure is exceeded.

The existing export sludge system is comprised of two parallel 4-inch ductile iron force mains. The force mains were placed into service approximately 30 years ago. The pipelines are approximately 23,000 linear feet in length (4.36 miles). The force mains are constructed approximately 4 feet west of the effluent transmission main (ETM), at a depth of approximately 5 feet to 9 feet. The force mains were constructed on a constantly rising grade, thereby avoiding the need for combination sewage air-vacuum valves at high points or blow-offs at low points.

In the early 1990s, the South Coast Water District (SCWD), which at that time was responsible for the administration of the export sludge handling system, planned a three-phase replacement of the piping system due to concerns regarding the integrity of the system (see *Section 3.3, Project Purpose and Need*, for a more detailed discussion on this issue). The first phase, completed in 1999, installed a new 6-inch pipeline through the Laguna Niguel Regional Park, including a crossing beneath Alicia Parkway. The Phase II portion of the project was completed in early 2000 and consisted of a new 6-inch pipeline beneath the Aliso Viejo Community Association Road (AVCA Road). This portion of the pipeline was capped at each end and is not currently in use. Phase II would not be used as part of the export sludge handling system as part of the proposed project defined in this EIR. Phase III includes was planned as the replacement of the last portion of the pipeline between the CTP and Alicia Parkway, but was never completed. Since completion of the first two phases, SOCWA has gained jurisdiction of the export sludge handling system.

3.2.2 Previous Studies

2001 Biological Resources Technical Report for the Aliso Creek Emergency Sewer and Aliso Creek Emergency Sewer and Park Improvement Project

In 2001, a biological resources technical report (BTR) was prepared for the Aliso Creek Emergency Sewer and Park Improvement Project (ACES Project), which proposed the

construction of approximately 19,300 linear feet of replacement sewer pipeline to be built by the Moulton Niguel Water District (MNWD) and a replacement sludge force main and new reclaimed water pipeline to be built by AWMA (now SOCWA). The replacement lines were proposed to follow the lower AWMA Road, adjacent to the Aliso Creek on the west side. The emergency sewer pipeline would extend from a tie-in with an existing sewer line at Aliso Creek Road to the CTP downstream. Also included in the proposed project were park improvements, including a 10-foot wide paved bikeway and a 10-foot wide unpaved hiking and riding trail. The BTR found that the proposed project would result in permanent, indirect impacts to 7.6 acres of native habitat and temporary impacts to 6.4 acres of natural habitat within the right-of-way for the sewer line and the new riding/hiking trail and bikeway. Impacts to southern willow scrub, mulefat scrub, coastal sage–chaparral scrub, coastal sage scrub, and native grassland would be significant and require mitigation. Construction costs for the emergency sewer were determined to be too high and the proposed pipelines were not built (Dudek 2001).

2006 SOCWA Export Sludge Pipeline Alignment Study (Alignment Study)

As a result of higher-than-anticipated construction costs for the alignment studied in the 2001 ACES Project, SOCWA decided to explore alternate pipeline alignments. In 2004, SOCWA identified five preliminary alignments to be studied and evaluated the five alternative alignments in an alignment study (Dudek 2006). These alternatives are discussed below.

Alternative 1: This route follows the west side of Aliso Creek along the route permitted under the 2001 ACES Project. This alternative would follow the existing AWMA Road except for a few locations where critical segments would be relocated further west, away from the creek, and would involve construction of a new paved roadway.

Alternative 2: This alternative would follow the west side of Aliso Creek along the existing paved road for the entire route, without relocating any critical segments further west.

Alternative 3: This alternative would follow the east side of Aliso Creek along the existing dirt access road and would place the new pipeline near the existing MNWD 18-inch sewer.

Alternative 4: This alternative would follow the east side of Aliso Creek along the existing SOCWA export sludge handling system.

Alternative 5: This alternative combines Alternatives 2 and 4 by placing the pipe along the east side of Aliso Creek in the existing alignment, similar to Alternative 4. However, it would cross the creek at the existing cul-de-sac and tie into the existing 6-inch force main along the west side of the creek beneath the AWMA Road similar to Alternative 2.

Additional information regarding the land use history of the AWCWP and related projects is presented in *Sections 2.5* and *2.6*.

3.3 PROJECT PURPOSE AND NEED

Since installation in 1982, the export sludge handling system has experienced a number of problems, including variability in sludge concentration, pumping pressure, and intermittent operational scenarios leading to internal deposition, and concern over interior and exterior corrosion. Recently, in the winter of 2010-2011 the pipelines have experienced failures near Alicia Parkway due to the age and deteriorating integrity of the pipelines. In the early 1990s, plans to replace the force mains between the CTP and RTP began. A three-phase replacement project was developed, and the first two phases were completed in early 2000, but have yet to be placed into operation. The final phase, which is the connection from Alicia Parkway to the CTP, and the subject of the project evaluated in this EIR, is yet to be replaced.

3.4 PROJECT OBJECTIVES

The following project objectives were developed by SOCWA for the proposed project:

1. To move sludge from the CTP to the RTP in a reliable, cost-effective manner that minimizes risk to surrounding environment.
2. To abandon or remove the existing export sludge force mains in an expedient manner to avoid adverse impacts of a failure of the existing system on Aliso Creek and the surrounding environment.
3. To limit the impact of construction and operations on the surrounding Aliso and Woods Canyons Wilderness Park and adjacent areas.

3.5 PROJECT CHARACTERISTICS

The proposed project involves the replacement of approximately 16,600 feet of the force main along the lower portion of the export sludge handling system (see *Figure 3-1*). The system currently consists of two 4-inch ductile iron pipelines which run along the eastern side of Aliso Creek, parallel to MNWD's sewer line between Alicia Parkway and the CTP.

The proposed project would replace the existing force mains with a single 6-inch force main made of high density polyethylene (HDPE), which would minimize anticipated corrosion challenges. The HDPE material was selected due to its smaller interior diameter, which increases the velocity of the sludge. HDPE pipe, due to its thermal fusion joints and material strength, could also continue to operate even if the surrounding soil was eroded by a storm event or the pipeline was exposed.

The replacement pipeline is projected to parallel the existing ETM and MNWD sewer alignments (see *Figures 3-2a, 3-2b, and 3-2c*) and is generally planned to be constructed approximately 7 feet to the east of the ETM alignment at a depth of approximately four feet (alignment A on *Figure 3-3*). Depending on site characteristics, in some locations along the

alignment the replacement pipeline would be located between 5 and 9 feet to the west of the existing ETM (alignments B and C on *Figure 3-3*). The pipeline would tie in with the new force main installed beneath AVCA Road in the early 2000s (*Figure 3-4*).

A plan profile drawing (*Figure 3-2a, 3-2b, and 3-2c*) shows the entire proposed alignment from two perspectives. The profile view (the top gridded section) is an elevation view in a longitudinal direction. The plan view (the bottom ungridded section) is an overhead perspective. Stationing is used as the horizontal reference grid on the centerline. The stationing increases from left to right at increments of 100 feet. Any point between two stations is shown as X+X. For example, 23 feet ahead of Station 30 is written as Station 30+23.

Constrained conditions located at approximately Station 80+00 (refer to *Figure 3-2b*) of the proposed force main alignment results in the need for special construction. The alignment is constrained by a large rock outcropping on the east side of the alignment and by Aliso Creek on the west. For an approximate 170-foot-long section in this area, the pipeline would be constructed along the surface of the ground and would be encased within a treated wooden box camouflaged to blend with the surrounding site. No trenching would be required for its construction.

3.5.1 Construction

Construction of the export sludge force main would be contained within a temporary 30-foot easement, which would be delineated by temporary orange fencing along the entire alignment. Only 3 feet of the 30-foot easement will be excavated for the pipeline trench; the remainder of the easement area will be used for access and temporary construction staging. The 30-foot construction easement is located within an approximately 110-foot construction corridor of which portions were previously disturbed during construction of the ETM, MNWD sewer, and existing force mains.

The FM-1 alignment was selected in part due to its avoidance of environmental impacts. For instance, as shown on *Figure 3-5*, the alignment is routed along the existing disturbed dirt road and within grassland, as opposed to undisturbed native habitat. In some locations, the alignment could not be engineered to avoid coastal sage scrub or riparian habitat; however, those resources were avoided to the extent practicable. In addition, based on cultural resource investigations, the alignment would occur outside of recorded sites where feasible. Refer to *Sections 4.4 and 4.5* for additional information related to biological and cultural resources, respectively.

Pipeline installation would consist of excavation and trenching, placement of the pipe bedding and pipe, and backfilling then compacting of the trench. Some bedrock may be encountered during excavation, but would be broken up using ripping techniques. It is assumed that trenching would require operation of one excavator and one tractor/loader/backhoe for 8 hours per day, 5 days per week (22 days per month), for approximately 7.5 months.

Construction activity would occur over 7.5 months, starting in approximately April 2014 and ending in November 2014, subject to SOCWA's obtainment of various permits listed in *Section 1.8*. One month of mobilization prior to pipeline construction and one month of demobilization post pipeline construction would be required, for a total construction period of 9-10 months, from March 2014 to December 2014. Approximately 80 to 150 feet of pipeline will be constructed per day. Approximately 6–8 workers would be on-site for daily construction operations.

Depending on the contractor's approach to construction, during approximately 3 weeks of the construction period, sludge would be transported from the CTP to the RTP using 18-wheeler tanker trucks (*Figure 3-6*). Trucks weighing 70,000 to 80,000 pounds with a capacity of 5,500 gallons would make an average of 6 round-trips per day, 5 days per week. Only one truck would operate at a time. Trucks would load up with sludge at the CTP, then travel along the AWMA Road north through the AWCWP until the road exits the park becoming AVCA Road. Trucks would travel west on Knollwood then north on Wood Canyon Drive to Aliso Creek Road, passing Wood Canyon Elementary School. Trucks would take Aliso Creek Road east to La Paz Road south, ending at the RTP. The distance between the CTP and RTP is approximately 5 miles (*Figure 3-7*). Sludge would be unloaded at the RTP, the truck would be cleaned, and then it would return to the CTP. All trucking operations would when school is not in session and would occur during the daytime only.

3.5.2 Operation

Implementation of the proposed project would not increase the amount of sludge conveyed from the CTP to the RTP, nor would it increase the amount of sludge processed daily at the CTP. Once the new force main is installed, it is anticipated to carry an average of 89,000 gallons per day of sludge from the CTP to the RTP. The new 6-inch force main will be flushed regularly (on a quarterly basis or as necessary based on operational need). Flushing of the force main will remove any build-up on the internal surfaces of the pipeline, thereby preventing the occurrence of potential pipeline blockages and assuring that sludge is flowing at the optimal velocity at all times. –No ground disturbing activities would be required for annual maintenance.

The existing 4-inch force mains would be capped and abandoned in place. To accomplish this, the existing 4-inch force mains would be filled with sand or grout, and capped at either end. This abandonment method prevents any future impact to the environment as the existing pipe materials deteriorate. The sand or grout fill inside the pipelines prevent any soil subsidence over time. Capping the pipeline at either end contains the sand or grout, and eliminates water from getting inside the abandoned pipe. Over time, the pipe materials would naturally deteriorate. This method is typical for abandonment operations throughout southern California and the majority of the United States.

3.5.3 Project Design Features and Construction Measures

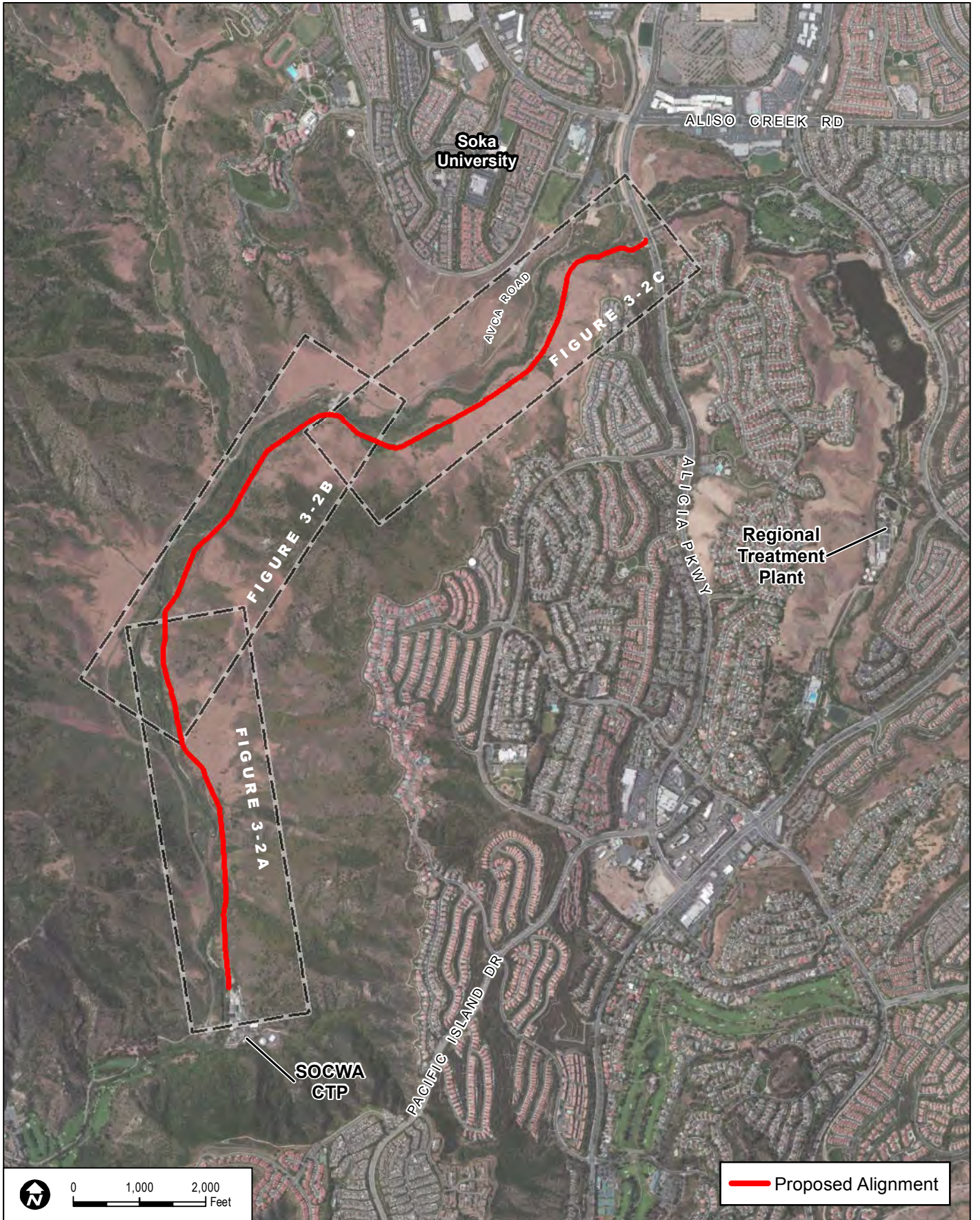
SOCWA has incorporated project design features and construction measures into the proposed project to reduce the potential for environmental effects. Construction will be performed by qualified contractors, and contract documents, plans, and specifications will incorporate stipulations regarding standard legal requirements and acceptable construction practices including, but not limited to, noise; geologic conditions; water quality protection and erosion and sedimentation control; construction equipment operation; and air quality. The project will be designed in accordance with the State of California Building Code and Municipal Code requirements. These measures are described in *Table 3-1, Summary of Project Design Features and Construction Measures*, and referenced throughout the impact discussions in *Chapter 4, Environmental Analysis*, of this EIR. The project design features and construction measures listed below in *Table 3-1* will be made conditions of the CUP. In addition, the mitigation measures identified throughout Chapter 4 of this EIR will be required to be implemented—for instance, refer to *Sections 4.4.7 and 4.5.7*.

**Table 3-1
Summary of Project Design Features and Construction Measures**

Subject Area	Design Feature or Construction Measure
Air Emissions/ Construction Equipment Operation	<p>The following measures shall be implemented to reduce air quality and greenhouse gas (GHG) emission impacts from construction equipment:</p> <ul style="list-style-type: none"> • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum • Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use.
Air Emissions/Fugitive Dust	<p>The following measures shall be implemented during construction to control fugitive dust and reduce impacts to air quality:</p> <ul style="list-style-type: none"> • All disturbed areas, including bulk material storage which is not being actively utilized, shall be effectively stabilized, and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material such as vegetative ground cover. • All on-site and off-site unpaved roads shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering. • The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material. • All track-out or carry-out shall be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area. • Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line. • Water exposed soil with adequate frequency for continued moist soil.

Table 3-1
Summary of Project Design Features and Construction Measures

Subject Area	Design Feature or Construction Measure
	<ul style="list-style-type: none"> • Replace ground cover in disturbed areas as quickly as possible. • Vehicle speed for all construction vehicles shall not exceed 15 miles per hour (mph) on any unpaved surface at the construction site.
Noise	<p>Construction activities would generally occur Monday through Saturday from 7:00 a.m. to 3:30 p.m. and would not occur after 8 p.m. (in compliance with the County Municipal Code, Section 4.6.7, which requires that construction equipment shall not be operated from 8:00 p.m. to 7:00 a.m. on weekdays or Saturday, or at any time on Sunday or a federal holiday).</p>
Hazardous Materials	<p>SOCWA shall ensure that all equipment required for construction and short-term trucking activities shall be refueled or maintained within designated staging areas (adjacent parking lots). Best Management Practices (BMPs) to contain accidental spills of hazardous materials shall be utilized when performing vehicle maintenance or refueling. Such BMPs may include the following:</p> <ul style="list-style-type: none"> • When equipment is being utilized along the access road, drip pans shall be placed under all potential discharge conduits or leaks. • “Spot clean” leaks and drips routinely to prevent runoff of spillage. • Post signs to remind employees not to top off the fuel tank when filling and signs that ban employees from changing engine oil or other fluids at the project location. • Report leaking vehicles to fleet maintenance.
Water Quality Protection and Erosion and Sedimentation Control	<p>In compliance with the National Pollution Discharge Elimination System (NPDES), the applicant will prepare a storm water pollution prevention plan (SWPPP) that specifies best management practices (BMPs) to be implemented during project construction to prevent pollutants from contacting stormwater and control erosion and sedimentation. The SWPPP will be prepared and submitted to the Regional Water Quality Control Board (RWQCB) for review and approval prior to the start of construction.</p> <p>Project construction will implement the following BMPs to protect water quality and reduce erosion and sedimentation:</p> <ul style="list-style-type: none"> • Physical and/or vegetation stabilization BMPs such as hydroseeding, soil binders, straw mulch, and/or geotextiles, plastic covers and erosion control blankets/mats are required to prevent erosion from exposed slopes. • Sediment control BMPs such as silt fences, fiber rolls, gravel bag berms, sand bag barriers, or straw bale barriers shall be used along the perimeter of the construction site or adjacent to sensitive areas and water bodies to trap soil particles and prevent sedimentation. • Waste and materials management BMPs such as spill prevention and control plans, contaminated soil management, liquid waste management, vehicle equipment cleaning, fueling and maintenance plans, material use, and stockpile management shall be implemented to prevent contaminated runoff to adjacent areas.
<u>Biological Resources</u>	<p>Prior to ground disturbance, a qualified biologist shall conduct focused surveys for thread-leaved <u>brodiaea</u>.</p>



0 1,000 2,000
Feet

— Proposed Alignment

DUDEK

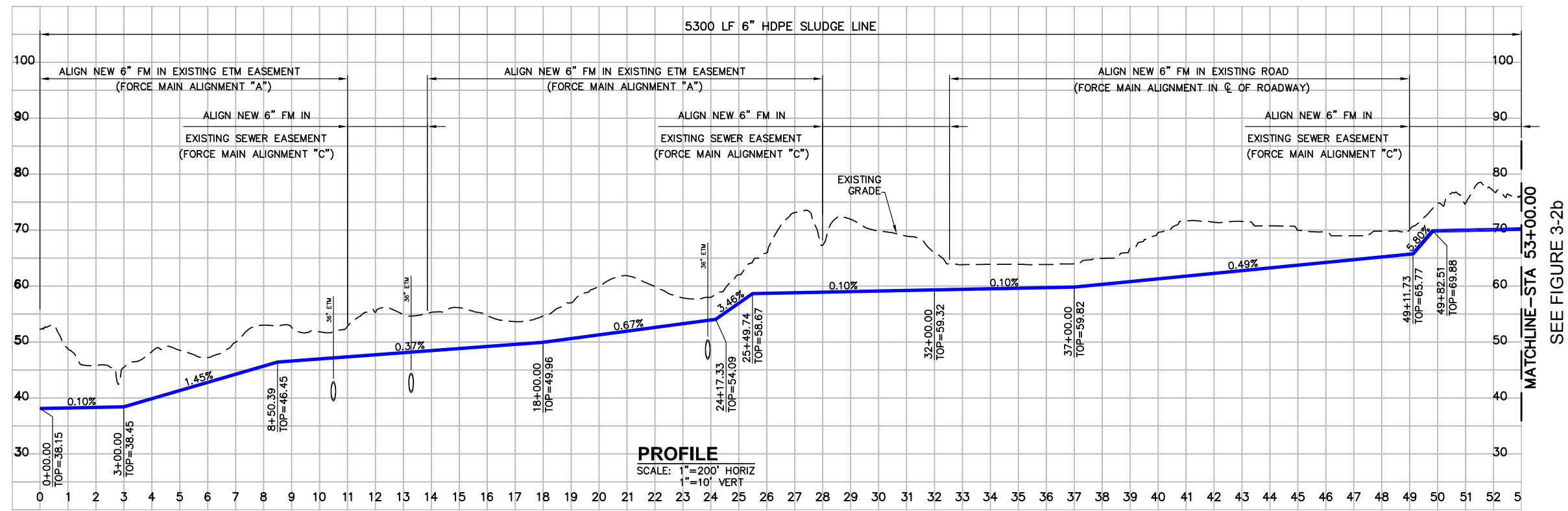
SOURCE: Bing Maps

**Figure 3-1
Proposed Alignment**

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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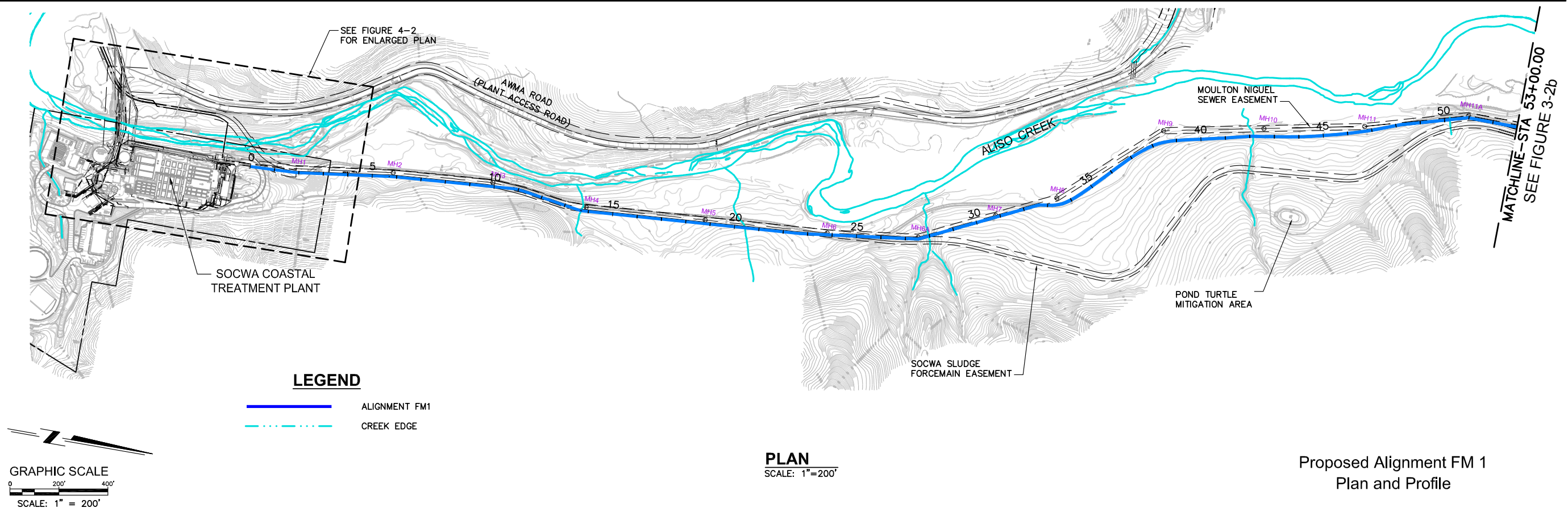


SEE FIGURE 3-2b

MATCHLINE - STA 53+00.00

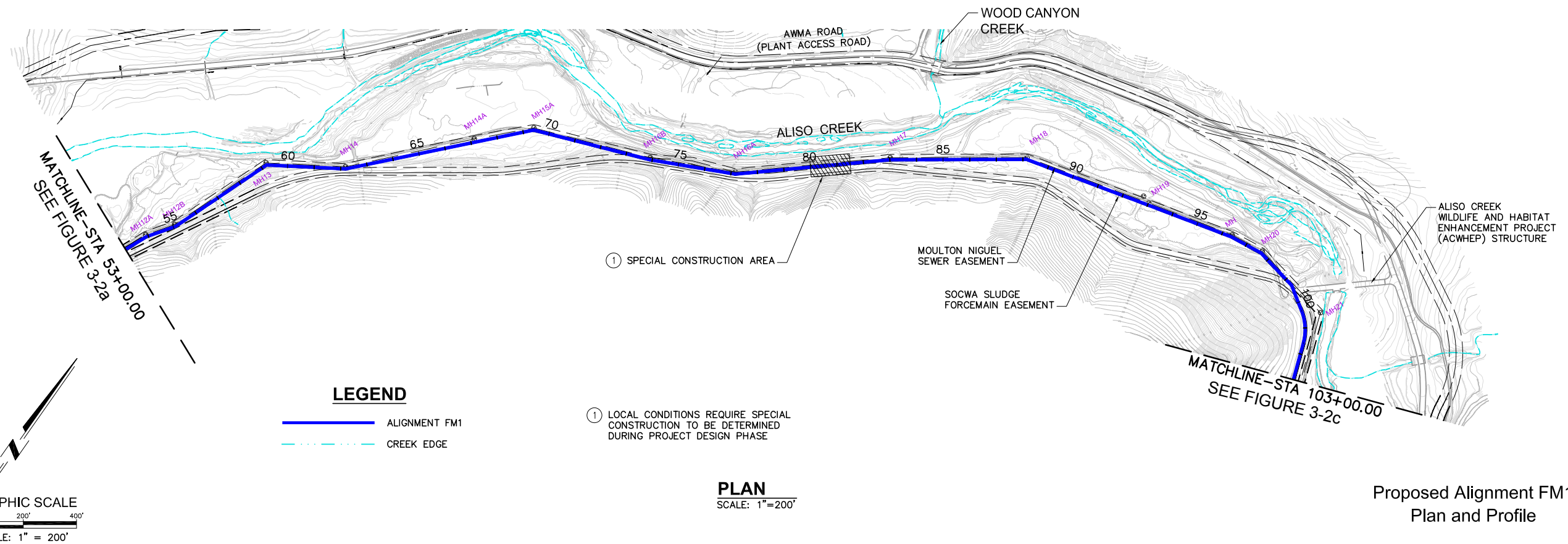
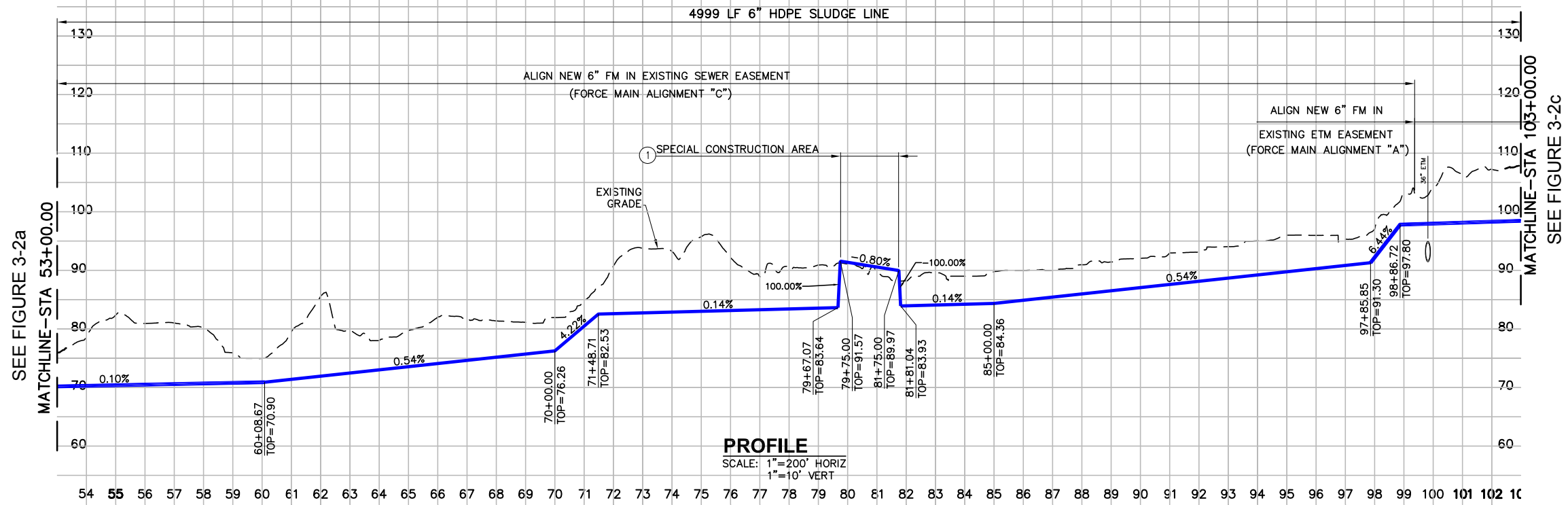
MATCHLINE - STA 53+00.00

SEE FIGURE 3-2b



Proposed Alignment FM 1
Plan and Profile

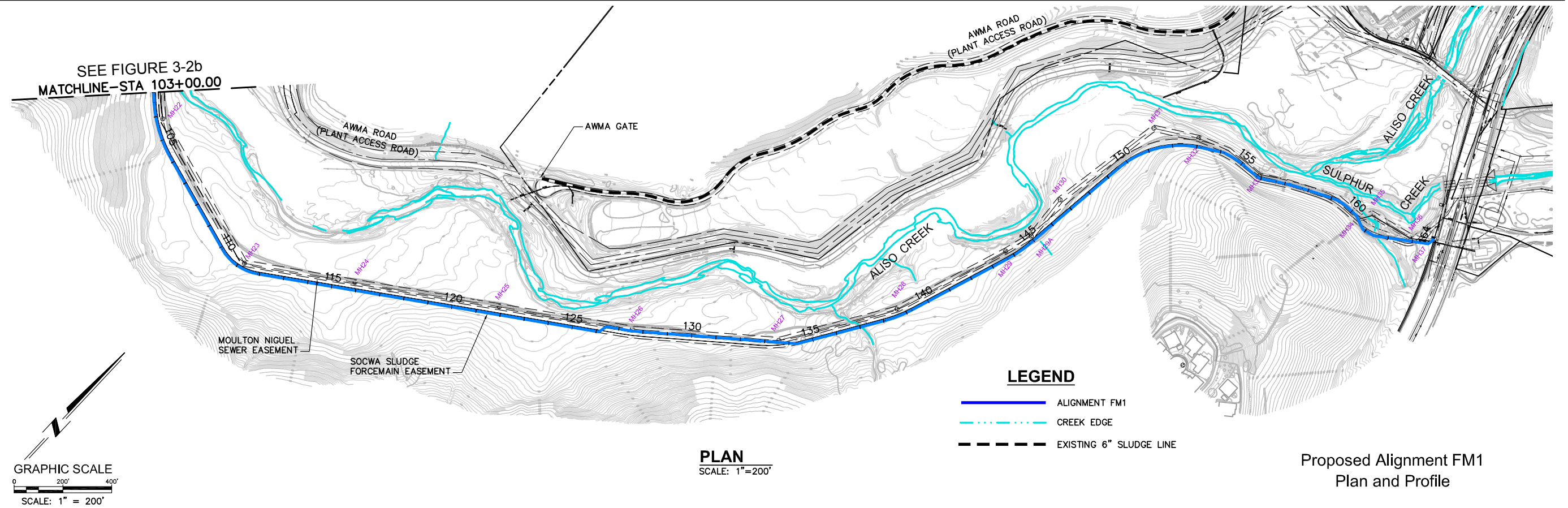
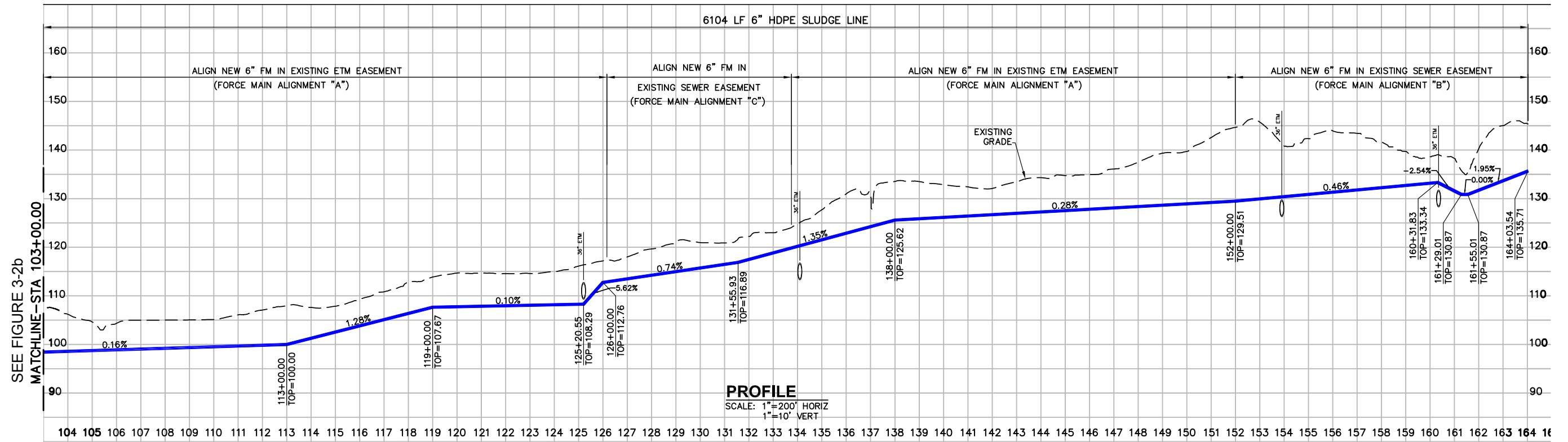
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Proposed Alignment FM1
Plan and Profile

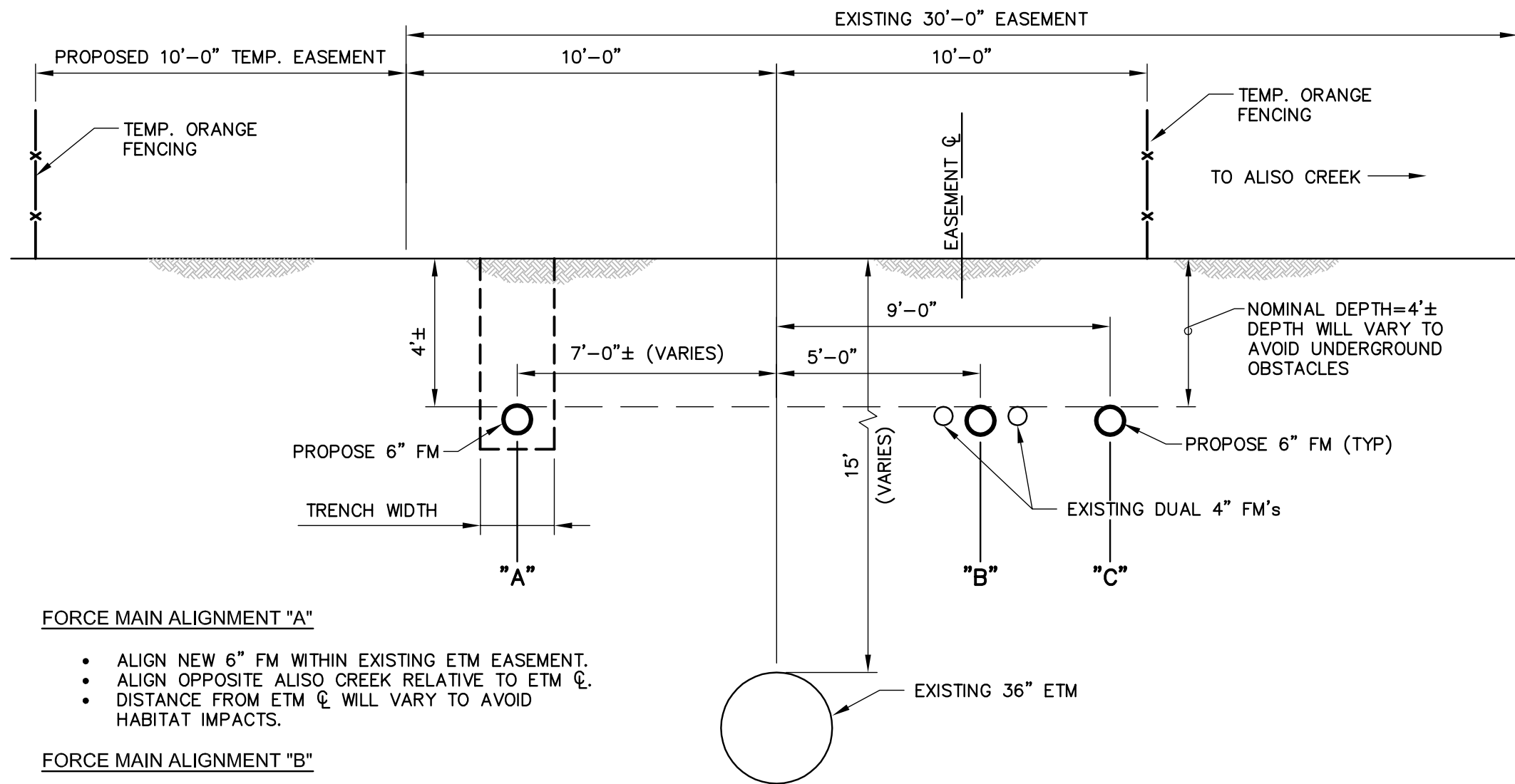
FIGURE 3-2b
Proposed Alignment Plan and Profile

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Proposed Alignment FM1
Plan and Profile

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FORCE MAIN ALIGNMENT "A"

- ALIGN NEW 6" FM WITHIN EXISTING ETM EASEMENT.
- ALIGN OPPOSITE ALISO CREEK RELATIVE TO ETM CL.
- DISTANCE FROM ETM CL WILL VARY TO AVOID HABITAT IMPACTS.

FORCE MAIN ALIGNMENT "B"

- ALIGN NEW 6" FM WITHIN EXISTING ETM EASEMENT.
- ALIGN TO REPLACE EXISTING 4" FM's IN PLACE.

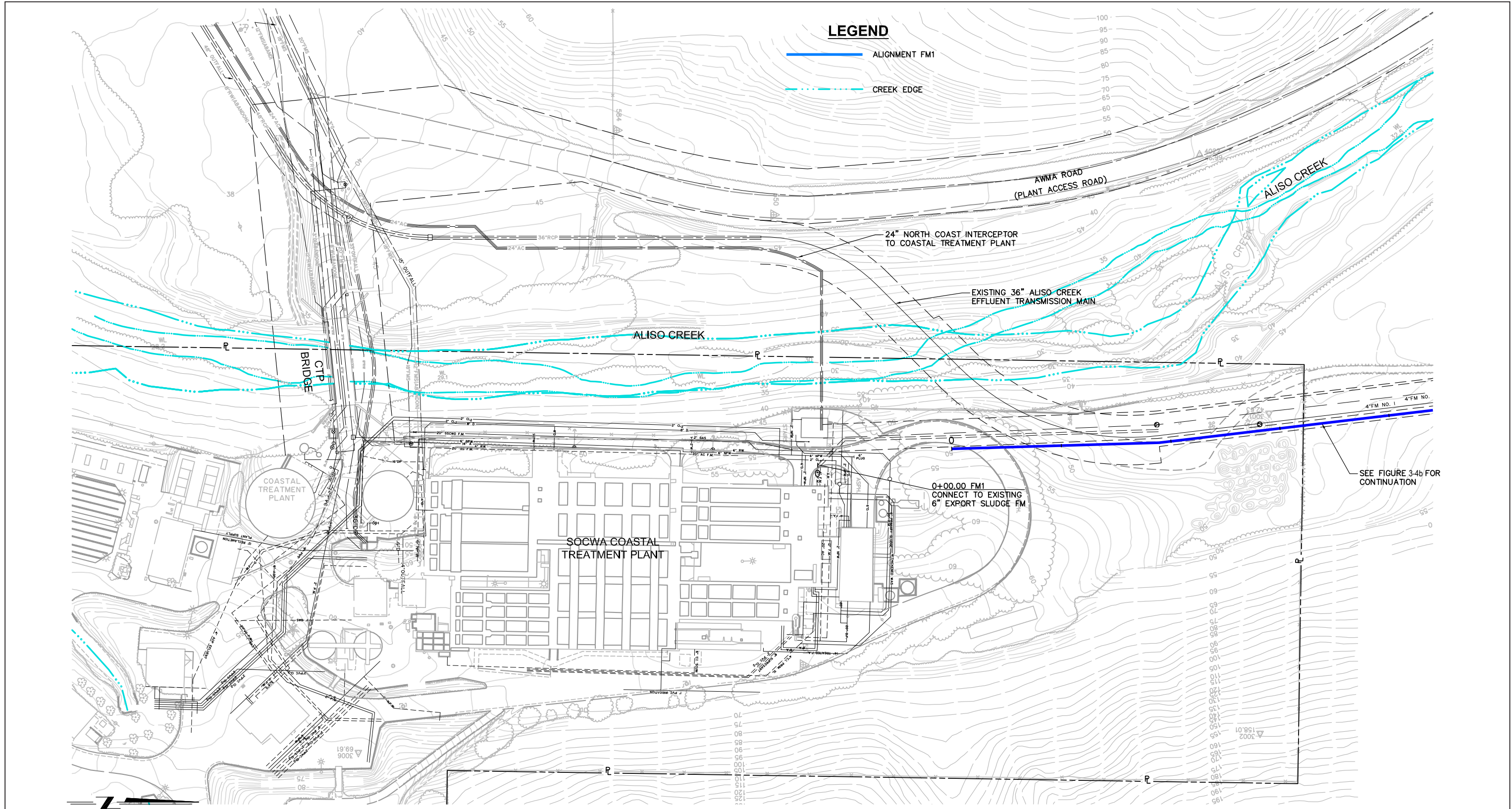
FORCE MAIN ALIGNMENT "C"

- ALIGN NEW 6" FM WITHIN EXISTING ETM OR 18" SEWER EASEMENT.
- ALIGN ON CREEK SIDE OF ETM CL.
- DISTANCE FROM ETM CL WILL VARY TO AVOID HABITAT IMPACTS.
- WHEN IN SEWER EASEMENT, ALIGN 5' OF EASTERN RIGHT-OF-WAY LIMITS.

FM-1 CROSS SECTION

SCALE: 1"=4'

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LEGEND

- ALIGNMENT FM1
- - - CREEK EDGE

PLAN
SCALE: 1"=40'

GRAPHIC SCALE
0 40' 80'
SCALE: 1" = 40'

DUDEK

SOURCE: DUDEK 2012

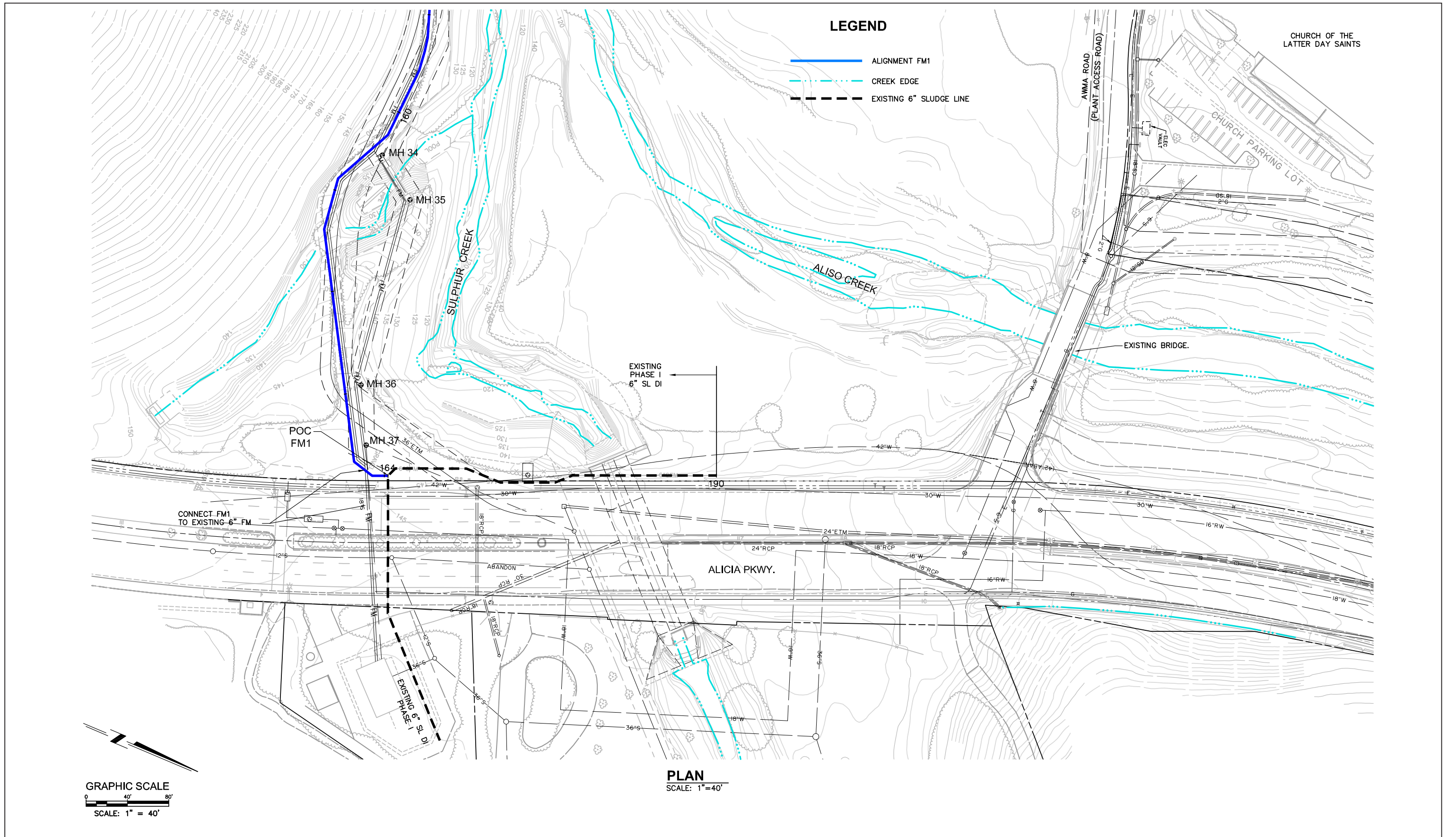
FIGURE 3-4a
Proposed Connections

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

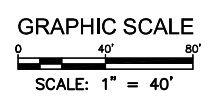
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LEGEND

- ALIGNMENT FM1
- · - · - CREEK EDGE
- - - - - EXISTING 6" SLUDGE LINE



PLAN
SCALE: 1"=40'

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DUDEK

SOURCE:

FIGURE 3-5
Site Photo of Alignment Location

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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FIGURE 3-6
SOCWA 18-Wheeler Tanker Truck

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Figure 3-7
Trucking Route

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CHAPTER 4.0 ENVIRONMENTAL ANALYSIS

4.1 LAND USE AND PLANNING

4.1.1 Introduction & Methodology

The following discussion focuses on the project-specific impacts to land use and planning that would result from the proposed project. This section outlines existing plans and policies that are aimed at reducing environmental impacts and provides a consistency analysis to determine the project's relationship to said regulations. Unless otherwise noted, the information in this section is based on the Regional Management Plan (RMP) prepared for the AWCWP in 2009, the Orange County General Plan (2011) or the Aliso Viejo Segment of the Aliso Creek Planning Unit Local Coastal Program (ACPU LCP) (1987).

The existing land uses were analyzed based on a review of aerial photographs and site visits. In order to analyze potential compatibility impacts to planning documents and policies, research into each applicable plan and policy was conducted.

4.1.2 Existing Conditions

4.1.2.1 Environmental Setting

The project site is located within the AWCWP, an Orange County-designated wilderness park which encompasses approximately 3,900 acres of natural open space lands within southwestern Orange County (County). The park is located west of Interstate 5 (I-5) and less than 1 mile inland from South Coast Highway and the Pacific Ocean. The park stretches from El Toro Road and Laguna Canyon Road on the west to Moulton Parkway and Alicia Parkway on the east. The AWCWP is located at the lower reaches of the Aliso Creek Watershed which covers approximately 36 square miles. The park is shaped in a "Y" configuration and includes the hills, canyons, and floodplain surrounding Aliso and Wood Canyons and portions of Laguna Canyon. Wood Canyon Creek runs from the north western boundary of the park to the center of the park where it joins with Aliso Creek, the main tributary within the Aliso Creek Watershed, which runs south through the park from the northeastern boundary at Alicia Parkway. The regional location of the proposed project is illustrated in *Figure 1-1* and the local vicinity is shown on *Figure 1-2*.

The AWCWP is part of a larger 17,000-acre regional coastal canyon ecosystem comprised of Laguna Coast Wilderness Park, Crystal Cove State Park, and the City of Irvine Open Space. The park forms a large island of habitat in an area almost entirely surrounded by urban development. This network of open space supports coastal sage scrub, chaparral, native grassland, and oak woodland, important habitat types for a number of native animal species. The connectivity between these areas provide functional wildland habitat.

The AWCWP is almost completely surrounded by urban development associated with the communities of Aliso Viejo, Laguna Niguel, Laguna Hills, Laguna Woods, and Laguna Beach. Residential development primarily lines the eastern and western rims of the canyons along the border of the AWCWP. Public open space located adjacent to or near the park includes Moulton Meadows Park and the City of Laguna Beach Open Space, Laguna Niguel Regional Park, Laguna Coast Wilderness Park, Crystal Cove State Park, and Indian Hills community park. At its southern end, the park borders Aliso Creek Golf Course. Soka University, a small private college, occupies a prominent location along the eastern ridge of Wood Canyon. Wood Canyon Elementary School is just off Aliso Creek Road along the western rim of Aliso Canyon. Existing adjacent land uses are shown on *Figure 4.1-1*.

The existing dual 4-inch force mains run along the eastern side of Aliso Creek from its origin at the CTP in the southern region of the AWCWP to Alicia Parkway at the northeastern boundary of the park through Aliso Canyon. The force mains continue through the Laguna Niguel Regional Park to their terminus at the RTP; however, this portion of the pipeline alignment is not part of the proposed project. The pipelines run near the alignment of the effluent transmission main (ETM), which is operated by Moulton Niguel Water District (MNWD). The lower portion of the force mains run through an area of the park that is mostly closed to the public, with access restricted at a number of gates. The Aliso Water Management Agency (AWMA) operates a private roadway which runs along the western side of Aliso Creek, paralleling Aliso Creek. Over 30 miles of public trails traverse the AWCWP. The Aliso Creek Trail borders the northern portion of the AWMA Road along the west side of Aliso Creek and the Aliso Summit Trail runs along the rim of the Aliso Canyon to the east of the force main alignment. The dirt utility access road on the east side of the creek is used by hikers and other recreationalists.

During construction, sludge would be transported from the CTP to the RTP for a short 3-week period. The truck route travels north through the AWCWP, then passes by Wood Canyon Elementary school onto Aliso Creek and La Paz Roads in the City of Aliso Viejo (see *Figure 3-7*).

4.1.2.2 Applicable Land Use Plans and Policies

Orange County General Plan

The Orange County General Plan includes the following seven required elements: 1) Land Use, 2) Circulation, 3) Housing, 4) Conservation, 5) Open Space, 6) Noise, and 7) Safety. The County's General Plan also includes two optional elements: Public Services and Facilities, and Growth Management. Relevant goals, objectives and policies from each element are listed in *Table 4.1-1* below.

Land Use Element

The Land Use Element describes objectives, policies, and land use patterns for all unincorporated territory in both narrative and graphic terms and establishes development criteria and standards, including population density and building intensity. The Land Use Element complements the other elements by incorporating and implementing their land use concerns and recommendations. The Land Use Element supports the Resources Element's open space and natural resource plans through the designation of an Open Space land use category and an Open Space Reserve land use overlay.

The General Plan Land Use Map designates the AWCWP as Open Space Reserve (OSR) with the exception of the CTP which is designated as Public Facilities (*Figure 4.1-2*). The OSR is an overlay category on the Open Space (5) land use category and identifies lands of scenic and natural attraction and areas of ecological, cultural, historical, and recreational significance that are permanently preserved as and restricted to open space and compatible uses. The OSR designation identifies major parks, beaches, forests, harbors, and other territory that is to remain open space.

Recreation Element

The AWCWP is categorized as a regional wilderness park in the Orange County General Plan Recreation Element. A regional wilderness park is:

A regional park in which the land retains its primeval character with minimal improvements and which is managed and protected to preserve natural processes. The park (1) generally appears to have been affected primarily by forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) is of sufficient size to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value. In essence, park uses envisioned will result in minimal impact to existing park resources and are compatible with a wilderness experience.

Resources Element

The Resources Element of the General Plan contains official County policies on the conservation and management of resources. The Resources Element sets forth a comprehensive strategy for the development, management, preservation, and conservation of resources that are necessary to meet Orange County's existing and future demands.

Orange County has many natural resources, many scenic areas including ridgelines and hillsides, a pleasant climate, farmlands, native vegetation and wildlife, and mineral resources. The Natural Resources Element contains policies and programs which are designed to protect and conserve these areas not only because they have economic value, but also because they are necessary to sustain the quality of life in Orange County. The term conservation is used in the Resources Element to mean “planned management, preservation, and wise utilization of natural resources.”

The Open Space Component of the Resources Element identifies High-Priority Open Space Areas, which are areas of high value because they preserve important natural features, provide significant outdoor recreation opportunities, conserve valuable resources, shape and guide urban development and form, and protect public health and safety. The Aliso Creek Corridor is identified as one of these high-priority areas due to the presence of scenic highways, arterial bikeways, regional riding and hiking trails, various local and community parks, and four existing County regional parks (including the AWCWP). The corridor links the Laguna Greenbelt with the Cleveland National Forest, thus connecting the County’s largest coastal and inland open space areas.

Orange County Zoning Code

The AWCWP is identified in the County Zoning Code as Open Space (OS) (County of Orange 2005). The OS District is established to provide relatively large open space areas for the preservation of natural resources, for the protection of valuable environmental features, for outdoor recreation and education, and for the public health and welfare. Public/private utility buildings and structures are permitted within the OS District subject to a site development permit.

Central-Coastal Subregion NCCPHCP

AB 2172 (Natural Community Conservation Planning Act) was formally signed by Governor Wilson in September of 1991. It provided enabling legislation authorizing the California Department of Fish and Game (CDFG) to enter into agreements with any person, for the purpose of preparing and implementing NCCPs. The Orange County Board of Supervisors approved the Central-Coastal Subregion NCCP/HCP on April 16, 1996. The approval of the Central-Coastal Subregion NCCP/HCP established the following:

1. Habitat Reserve System (Nature Reserve of Orange County):

The establishment of a 38,000-acre habitat reserve system includes all habitats found in the County of Orange (*Figure 2-2*). The Nature Reserve of Orange County (NROC) currently includes approximately 18,831 acres of coastal sage scrub (CSS); 7,300 acres of chaparral; 6,100 acres of grassland; 1,800 acres of riparian; 950 acres of woodland; 200 acres of forest; and significant portions of six other native habitat types.

2. Species and Habitat Covered Under the Approved NCCP/HCP:

The focus of the Central-Coastal Subregion NCCP/HCP reserve system is to protect designated “target species”: California gnatcatcher (*Polioptila californica californica*), coastal cactus wren (*Campylorhynchus brunneicapillus*), and orange-throated whiptail lizard (*Aspidoscelis hyperythra*). However, the program also provides regulatory coverage of 35 species (9 plant and 28 animal species), conditional coverage of 7 animal species, and coverage of oak woodlands, Tecate cypress forest, cliff and rock, and chaparral (Coastal Subarea only) habitats.

3. Coastal Sage Scrub Take Authorization:

The Central-Coastal Subregion NCCP/HCP established 7,395 acres of CSS “take authorization” (removal) without regard to whether this habitat is occupied by the California gnatcatcher or other covered species inside and outside of the habitat reserve system. All participating landowners received a 10(a) Permit from the U.S. Fish and Wildlife Service (USFWS) that authorized the removal and/or disturbance of specific CSS acreage amounts and subsequent take of the California gnatcatcher as well as covered and conditionally covered species. The permit also authorized the removal of other specific habitat types within the Coastal and Central subareas of the reserve system. As SOCWA is not a participating agency in the NCCP/HCP, NCCP coverage for take of CSS will either be granted through the County or by SOCWA seeking permits independently.

4. “Mutual Assurances” provisions:

Mutual Assurances provisions are contained within the Implementation Agreement (IA) guaranteeing that the state and federal resource agencies shall not seek additional mitigation resulting from impacts to CSS and other covered habitats and covered species authorized to be removed in accordance with a lawfully approved activity.

5. Adaptive Management Programs:

The approved Central-Coastal Subregion NCCP/HCP requires the preparation of adaptive management programs addressing annual biological resources monitoring, restoration and enhancement, short- and long-term fire management, grazing management, public access and recreation use, and interim management of privately-owned lands prior to their transfer to the public reserve manager.

6. Funding for Reserve Creation and Habitat Management:

An endowment in the amount of approximately \$10,000,000 was created through commitments from the Transportation Corridor Agencies, Irvine Ranch Water District, Chandis–Sherman

Properties, Metropolitan Water District, Santiago County Water District, Southern California Edison, and the County of Orange (using federal pass-through funds). The endowment is to be used on a “non-wasting” basis. That is, the principal would be protected and only interest earned from this endowment may be used in accordance with a budget approved by the nonprofit corporation for management and acquisition of reserve system lands.

7. Nonprofit Corporation:

The approved Central-Coastal Subregion NCCP/HCP also provided the foundation for the creation of a nonprofit corporation, the entity responsible for the administration of the reserve system including properties owned and operated by a number of public agencies as well as those properties currently owned by private landowners but scheduled to be dedicated to a public agency for inclusion into the reserve system.

The NROC was created in December of 1996 as the nonprofit corporation to administer the reserve system with regularly scheduled meetings occurring each quarter. The NROC membership currently includes 13 directors representing participating landowners, public agencies and utility companies, and state and federal resource agencies, as well as three at-large directors and three ex-officio directors.

In addition, the NROC created a technical advisory committee headed by the Nature Conservancy that includes nine technical members/scientists responsible for assisting in establishing the long-term monitoring requirements for the management of the reserve system and reviewing proposed adaptive management programs and/or any project affecting the reserve system.

The Central-Coastal Subregion NCCP/HCP also includes an executed IA which defines and establishes the roles and responsibilities of all participating landowners, the county and cities within the county, and all other signatories to the agreement.

Aliso Viejo Segment of the Aliso Creek Planning Unit Local Coastal Program

The Aliso Viejo Segment of the ACPU LCP implements the California Coastal Act (CCA) policies related to the coastal zone land within that portion of the County. The Aliso Viejo Segment comprises 2,690 acres and generally encompasses Aliso and Wood Canyons (*Figure 2-4*). This LCP was approved by the Orange County Board of Supervisors on July 30, 1980, amended on November 5, 1980, and certified by the California Coastal Commission (CCC) on November 18, 1980. The LCP includes a discussion of relevant planning programs, a land use plan, an implementation plan, and a public participation record.

Aliso and Wood Canyons Wilderness Park Resource Management Plan

The AWCWP RMP was officially adopted by the Orange County Board of Supervisors on August 4, 2009, in accordance with the requirements of the Central-Coastal Subregion NCCP/HCP. The RMP aims to guide Orange County Parks, the governing jurisdiction, on future policy, land use, and resource management decisions for the park; it contains a comprehensive, long-term management plan for the AWCWP. The fundamental objective for the RMP is to identify the best way to manage, protect, and enhance the natural resource values of AWCWP while balancing the needs of the local community for safe recreational and educational opportunities. The major plan objectives are to enhance wildlife habitats, develop vegetation management practices, and provide recreational opportunities and public access that have minimal impacts on resources.

4.1.3 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of a land use impact. Impacts to land use would be significant if the proposed project would:

- Physically divide an established community
- Conflict with any applicable plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, zoning ordinance, etc.) adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.1.4 Impacts

Would the project physically divide an established community?

The proposed project is located within the AWCWP, which is an undeveloped area of Orange County that has been set aside as open space. Urban development surrounding the AWCWP is not linked or connected through the park due to topography, access, and infrastructure restrictions. The proposed project involves the replacement of two parallel 4-inch ductile iron pipelines with a single 6-inch high density polyethylene (HDPE) pipeline to transport primary sludge and thickened waste-activated sludge from the CTP to the RTP for solids processing. Once the new pipeline is installed, the existing pipelines would be capped and abandoned in place. Following construction, no physical evidence of the new or existing pipelines, or physical barriers, will exist above ground, except for a short, approximately 170-foot segment which would be at the

surface. Therefore, the proposed project would not physically divide an established community, and impacts would be **less than significant**.

Would the project conflict with any applicable plan, policy or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect?

The Orange County General Plan (2011) designates the area through which the proposed pipeline replacement would run as OSR; the project site is zoned as OS. Public utilities and structures are allowed within OS zoning designations with a site development permit; therefore, the proposed pipeline would be in accordance with the current zoning designation.

A summary of the goals, objectives and policies of the Orange County General Plan (2011), the AWCWP RMP (2009), and the Aliso Viejo Segment of the ACPU LCP (1987) that may be applicable to the proposed project are provided in *Table 4.1-1*. The third column discusses the project's relationship to the goal or policy, and the fourth column states whether the project is consistent with that goal or policy. As evaluated in the table, the proposed project would be consistent with all applicable goals and policies and hence, no significant impacts would result.

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
<i>Orange County General Plan</i>			
<i>Land Use Element</i>			
Policy 8 Enhancement of Environment	To guide development so that the quality of the physical environment is enhanced.	The proposed project aims to protect the environment by reducing the risk of spill and resultant water quality impacts.	Consistent
Policy 13d Urban and Storm Runoff Regulations	Seek to limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.	The proposed project would impact less than 3 acres of riparian and wetland vegetation communities; all impacts would be mitigated through on-site restoration.	Consistent with mitigation
Policy 13f Urban and Storm Runoff Regulations	Identify and seek to avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss.	Construction Water Quality Best Management Practices (BMPs) would be implemented as a project design feature to reduce erosion and sediment loss. <u>Mitigation measure GEO-1 would also be implemented to reduce erosion and sediment loss.</u>	Consistent
Policy 13h Urban and Storm Runoff Regulations	Look for design opportunities to manage post-development runoff from a site in such a manner that, to the maximum extent practicable, it shall not contain	Once constructed, the proposed project would be located below ground, except for an approximately 170-foot section,	Consistent

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
	pollutant loads that cause or contribute to exceedances of receiving water quality objectives.	which would be located on the surface. Drainage patterns and runoff would not be altered.	
<i>Resources Element: Natural Resources Component</i>			
Goal 1	Protect wildlife and vegetation resources and promote development that preserves these resources.	All direct impacts to vegetation would be mitigated through on-site restoration. Additional mitigation measures would protect sensitive wildlife species.	Consistent with mitigation
Objective 3.1	To minimize to the extent feasible the disruption of significant natural landforms in Orange County.	Construction of the proposed project would occur primarily within the right-of-way (ROW) of an existing, graded dirt utility access road.	Consistent
Policy 1 Wildlife and Vegetation	To identify and preserve the significant wildlife and vegetation habitats of the County.	Biological surveys were conducted to identify sensitive wildlife and vegetation; all sensitive species potentially impacted by the project will be preserved by incorporation of mitigation.	Consistent with mitigation
Policy 5 Landforms	To protect the unique variety of significant landforms in Orange County through environmental review procedures and community and corridor planning activities.	The environmental sensitivity of the proposed project location is the subject of this EIR; substantial public involvement has been incorporated into the process as described in <i>Section 1.2</i> .	Consistent
<i>Resources Element: Open Space</i>			
Goal 1	Retain the character and natural beauty of the environment through the preservation, conservation, and maintenance of open space.	The proposed project would not result in a permanent change to the aesthetic character of the project site and would not prevent the preservation, conservation, or maintenance of open space.	Consistent
Objective 1.1	To designate open space areas that preserve, conserve, maintain, and enhance the significant natural resources and physical features of unincorporated Orange County.	The proposed project would be located in an open space area and would not inhibit the preservation, conservation, maintenance or enhancement of natural resources and physical features of unincorporated Orange County.	Consistent with mitigation
Objective 2.1	To protect life and property by regulating land use in areas subject to flooding, landslides, noise, high fire hazard, and high earthquake potential; and to set aside land for human refuge in times of natural disaster.	The proposed project would not involve development that would place life or property in areas subject to hazards; the project site would remain in open space.	Consistent with mitigation

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
Policy 2.1	To ensure the health and safety of Orange County residents by identifying, planning, and managing open space areas subject to flooding, landslides, noise, high fire hazards, and earthquake potential.	The proposed project would not involve development that would place life or property in areas subject to hazards; the project site would remain in open space.	Consistent with mitigation
Policy 3.1	To encourage the conservation of open space lands which prevent erosion, siltation, flood, and drought, and to discourage the early conversion of open space to some other land use.	The project would not convert the open space designation of the site.	Consistent
Objective 4.1	To encourage the conservation of open space lands which provide recreational scenic, scientific, and educational opportunities.	The project would not convert the open space designation of the site, nor would it result in long-term impacts to the recreational, scenic, scientific, or educational opportunities of the Park.	Consistent
<i>Resources Element: Cultural-Historic Resources</i>			
Goal 2	To encourage through a resource management effort the preservation of the county's cultural and historic heritage.	As detailed in <i>Section 4.5</i> , the proposed project has been designed to avoid and reduce potential impacts to sensitive cultural resources, and includes mitigation requiring the preparation of a Construction Monitoring Treatment Plan to ensure preservation of cultural resources.	Consistent with mitigation
Objective 2.2	Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and educational values.	As detailed in <i>Sections 4.5</i> and <i>4.12</i> , the proposed project has been designed to avoid and reduce potential impacts to sensitive cultural and paleontological resources. The project has been designed to preserve archaeological sites in place; any inadvertent discoveries will be preserved through mitigation, including monitoring and recovery.	Consistent with mitigation
Objective 2.3	Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value.	Refer to Goal 2 and Objective 2.2 above.	Consistent
Policy 2.2	Evaluation of resources shall be completed at intermediate stages of project planning and review such as site plan review, subdivision map approval, or	As analyzed in <i>Section 4.5</i> , a detailed evaluation of cultural resources has been completed as part of the EIR. An intensive	Consistent

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
	at an earlier stage of project review.	pedestrian survey was completed by an archaeologist; additional investigations were conducted, including eight geoprobe analyses.	
Policy 2.3	Final preservation actions shall be completed at final stages of project planning and review such as grading, demolition, or at an earlier stage of project review.	The proposed project includes mitigation which requires recovery and/or preservation of any discovered resources.	Consistent with mitigation
Archaeological Resource Policy 1	To identify archaeological resources through literature and records research and surface surveys.	An archaeological literature and records search was conducted at the California Historical Resources Information System at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, in May 2011, to identify all recorded archaeological sites within 0.5 mile of the project area.	Consistent
Archaeological Resource Policy 2	To evaluate archaeological resources through subsurface testing to determine significance and extent.	Extended Phase I Geoprobe Excavations were used to determine extent of known resources and ensure avoidance.	Consistent
Archaeological Resource Policy 3	To observe and collect archaeological resources during the grading of a project.	The proposed project includes mitigation which requires recovery and/or preservation of any discovered resources.	Consistent with mitigation
Archaeological Resource Policy 4	To preserve archaeological resources by maintaining them in an undisturbed condition, or to preserve archaeological resources by excavating and salvaging materials and information in a scientific manner.	The project has been designed to preserve archaeological sites in place; any inadvertent discoveries will be preserved through mitigation, including monitoring and recovery.	Consistent with mitigation
Paleontological Resource Policy 1	To identify paleontological resources through literature and records research and surface surveys.	As explained in <i>Section 4.12</i> , records search of the paleontological collections at the Natural History Museum of Los Angeles County was conducted, and did not find any paleontological collecting localities within 0.5 mile of the proposed project.	Consistent
Paleontological Resource Policy 2	To monitor and salvage paleontological resources during the grading of a project.	The project incorporates mitigation which requires a paleontological monitor to observe all ground-disturbing activities associated with construction of the proposed project, as well as procedures for the	Consistent with mitigation

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
		recovery of any inadvertent paleontological resource discoveries.	
Paleontological Resource Policy 3	To preserve paleontological resources by maintaining them in an undisturbed condition.	The project incorporates mitigation which requires a paleontological monitor to observe all ground-disturbing activities associated with construction of the proposed project; mitigation emphasizes that avoidance is the preferred method of preservation.	Consistent with mitigation
Historic Resource Policy 1	To identify historic resources through literature and records research and/or on-site surveys.	An archaeological literature and records search was conducted at the California Historical Resources Information System at the SCCIC, California State University, Fullerton, in May 2011, to identify all recorded archaeological sites within 0.5 mile of the project area.	Consistent
Historic Resource Policy 2	To evaluate historic resources through comparative analysis or through subsurface or materials testing.	The proposed project is located in an open space area; no structures are located within the project impact area.	Consistent
Historic Resource Policy 3	To preserve significant historic resources by one or a combination of the following alternatives, as agreed upon by the Resource Development & Management Department and the project sponsor: <ul style="list-style-type: none"> • Adaptive reuse of historic resource. • Maintaining the historic resource in an undisturbed condition. • Moving the historic resource and arranging for its treatment. • Salvage and conservation of significant elements of the historic resources. • Documentation (i.e., research narrative, graphics, photography) of the historic resource prior to destruction. 	The proposed project is located in an open space area; no structures are located within the project impact area.	Consistent
<i>Recreation Element</i>			
Goal 1	Provide a useful, enjoyable, safe, and efficient public regional riding and hiking trail system to meet the needs and desires of the citizens of the entire County.	The proposed project would result in temporary closures of the trail along the east side of Aliso Creek and of the AWMA Road during construction. Closures would be intermittent and all trails would reopen immediately upon completion of construction.	Consistent

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
Goal 2	Create trail linkages between open space and recreation facilities; between community, municipal, state, and federal trail systems; and between the trail systems of surrounding counties.	Refer to Goal 1.	Consistent
Objective 1	Implement and maintain a public regional riding and hiking trail system as depicted conceptually on the Trails Map.	Refer to Goal 1.	Consistent
Objective 5	Develop a regional trail system to meet the recreational needs of equestrians, pedestrians (walkers, hikers, and joggers), and mountain bikers (nonmotorized).	Refer to Goal 1.	Consistent
Policy 1.5	Expansion of existing regional trail facilities shall be sought where attractive opportunities exist.	The proposed project would be constructed within the ROW of the dirt utility access road, but closures would be temporary and would not preclude future expansion of trail facilities.	Consistent
Policy 2.3	Trail closures shall be kept to a minimum and, if a trail is closed, efforts should be made to have alternative trail routes available.	Refer to Goal 1	Consistent
Policy 4.1	Regional riding and hiking trails shall, to the extent possible, be designed and constructed to also afford access for law enforcement, fire, emergency, public utility and maintenance vehicles.	The proposed project would not impede access for law enforcement, fire, emergency, public utility or maintenance vehicles with incorporation of mitigation measure HAZ-1.	Consistent with mitigation
<i>Aliso and Woods Canyons Wilderness Park Resource Management Plan</i>			
<i>Public Use and Access</i>			
USE-2	Provide a trail system that provides a broad public benefit by accommodating diverse trail uses and abilities.	The proposed project would be constructed within the ROW of the dirt utility access road, but closures would be temporary and would not preclude future expansion of trail facilities.	Consistent
USE-4	Provide a trail system that balances recreation demand with the primary purpose to protect the natural and cultural resources within the park.	The proposed project would not hinder the ability to balance recreation demand with the protection of natural and cultural resources within the park.	Consistent
USE-5	Provide sufficient access to the park trail system to adequately serve the public and to discourage the creation of unauthorized and individual access points by adjacent neighbors.	The proposed project would be constructed within the ROW of the dirt utility access road, but closures would be temporary.	Consistent

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
<i>Biological Resources</i>			
BIO-1	Protect and maintain populations of native plant and wildlife with an emphasis on managing NCCP/HCP covered species.	As evaluated in detail in <i>Section 4.4</i> , all impacts to sensitive species would be mitigated through on-site restoration. A revegetation plan will be developed and will be consistent with the management plan developed for the NCCP/HCP.	Consistent
<i>Water Quality</i>			
WQ-1	Protect water quality within the park. Identify water quality problems and work with regulatory agencies and property owners to correct water quality problems from storm water runoff and other causes in the watershed.	As evaluated in detail in <i>Section 4.10</i> , the proposed project would replace an existing pipeline which is at risk for leaks or rupture, the occurrence of which could significantly deteriorate water quality. In addition, the proposed project would implement BMPs to reduce potential impacts to water quality during construction activities.	Consistent
<i>Cultural Resources</i>			
CUL-1	Identify and implement a formal procedure for preserving known cultural resources within the park.	The proposed project includes mitigation requiring the preparation of a Construction Monitoring Treatment Plan to ensure preservation of cultural resources.	Consistent with mitigation
CUL-3	Protect and preserve paleontological resources within the park.	The project incorporates mitigation which requires a paleontological monitor to observe all ground-disturbing activities associated with construction of the proposed project, as well as procedures for the preservation of any inadvertent paleontological resource discoveries.	Consistent with mitigation
CUL-5	Follow established protocol if human remains are encountered during ground-disturbing activities in the park.	The proposed project includes mitigation requiring the preparation of a Construction Monitoring Treatment Plan, which sets forth procedures in the case of discovery of human burials.	Consistent with mitigation
<i>Visual Resources</i>			
VISUAL-1	Protect and enhance views and distinctive landscape features that contribute to the setting, character, and visitor experience of the park.	Once constructed, the force main would be almost entirely underground, except for a short, 170-foot segment of the 16,600-foot alignment. Surrounding	Consistent

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
		vegetation and design of the force main would minimize visibility of the aboveground portion of the pipeline.	
<i>Lower Aliso Canyon</i>			
LALISO-3	Provide a trail on the east side of Aliso Creek from Alicia Parkway to the Coastal Treatment Plant.	The proposed project would not prohibit or impede the County's ability or strategy to provide a trail on the east side of Aliso Creek since the proposed alignment would be located underground.	Consistent
LALISO-8	Protect and restore riparian habitat along Aliso Creek through habitat restoration efforts and control of invasive exotic species.	As evaluated in detail in <i>Section 4.4</i> , approximately 3 acres of riparian habitat would be impacted by the proposed project; all impacts would be mitigated through on-site restoration.	Consistent with mitigation
LALISO-9	Continue to participate in and support Aliso Creek Watershed planning efforts. Implement recommended strategies, as appropriate, to improve water quality.	The proposed project would implement BMPs to minimize project impacts to water quality.	Consistent with mitigation
<i>Aliso Viejo Segment of the ACPU LCP</i>			
Resource Component: Environmentally Sensitive Habitat Areas			
LCP-1-2	To prevent the elimination of fish or wildlife species due to man's activities, to ensure that fish and wildlife populations do not drop below self-perpetuating levels, to preserve for future generations representations of all animal communities, and to provide for public viewing of these species.	As analyzed in <i>Section 4.4</i> , no significant impacts to native fish species would result, and all direct impacts to vegetation would be mitigated through on-site restoration. Additional mitigation measures would protect sensitive wildlife species.	Consistent with mitigation
LCP-1-6	To retain Aliso Creek and other stream channels in a natural state or enhance them to the maximum extent possible.	The proposed project would be constructed almost entirely within the ROW of an existing, graded dirt utility access road. Compliance with the Orange County Drainage Area Management Plan (DAMP), and implementation of BMPs, would avoid alteration to stream channels.	Consistent
LCP-1-9	Preserve significant riparian areas in the Aliso Viejo LCP Segment as sources of shelter and water for wildlife.	The proposed project would impact less than 3 acres of riparian and wetland vegetation communities; all impacts would be mitigated through on-site restoration.	Consistent with mitigation

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
LCP-1-10	Ensure that improvements within the corridor are compatible with the natural environment and do not damage ecologically sensitive areas.	The proposed project would be constructed almost entirely within the ROW of an existing, graded dirt utility access road. Compliance with the Orange County DAMP and implementation of BMPs would avoid alteration to stream channels.	Consistent
Resource Component: Cultural/Scientific Resources			
LCP-1-12	To require a literature search by a qualified archaeologist for valid archaeological surveys conducted in the Aliso Viejo LCP Segment. If such a search determines that no valid survey has been performed within the project area, such a survey will be performed.	An archaeological literature and records search was conducted at the California Historical Resources Information System at the SCCIC, California State University, Fullerton, in May 2011, to identify all recorded archaeological sites within 0.5 mile of the project area.	Consistent
LCP-1-13	To temporarily defer further grading of a resource area if archaeological resources are discovered during grading in order to determine the extent and the relative scientific value of the site to determine prior to resumption of grading whether to preserve, salvage or destroy the site.	Mitigation measure CUL-1 requires that "trenching shall be temporarily redirected and/or suspended until a qualified archaeologist and local Native American observer are retained to evaluate the find."	Consistent with mitigation
LCP-1-14	To require a report and test of impact areas if evidence is found that an archaeological resource is being or will be impacted by a project. To submit the report to the approving agency for the project, defining the scientific importance of the find and a recommendation as to its preservation or disposition.	Extended Phase I Geoprobe Excavations were conducted to determine extent of known resources and ensure avoidance.	Consistent
LCP-1-17	When the determination is made that a site is to be salvaged, the project developer and the archaeologist shall coordinate their activities so as to adequately salvage this site.	Mitigation measure CUL-3 includes preparation of a Construction Monitoring Treatment Plan which must include procedures for notifying SOCWA and other involved parties in case of an unexpected discovery.	Consistent with mitigation
LCP-1-18	An archaeologist shall be retained to observe grading activities in areas where a survey, report, or other information indicates the probable presence of archaeological resources.	Mitigation measure CUL-1 requires that a qualified archaeologist be retained if any cultural materials are encountered during construction of the proposed project.	Consistent with mitigation

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
LCP-1-19	A representative of the Juaneño Band of Indians shall be allowed to work closely with an archaeologist who is certified and approved by the County of Orange during archaeological work in the Aliso Viejo LCP Segment.	Mitigation measure CUL-1 requires that a Native American observer be retained if any cultural materials are encountered during construction of the proposed project.	Consistent with mitigation
LCP-1-22	To require a literature search by a qualified paleontologist for valid paleontological surveys conducted in the Aliso Viejo LCP Segment. If such a search determines that no valid survey has been performed within the project area, such a survey will be performed.	A records search of the paleontological collections at the Natural History Museum of Los Angeles County was conducted, and did not find any paleontological collecting localities within 0.5 mile of the proposed project.	Consistent
LCP-1-23	To temporarily defer further grading of a resource area if paleontological resources are discovered during grading in order to determine the extent and the relative scientific value of the site to determine prior to resumption of grading whether to preserve, salvage, or destroy the site.	Mitigation measure PAL-1 requires excavations to be “temporarily halted or diverted until the discovery is examined by a qualified paleontologist.”	Consistent with mitigation
LCP-1-24	To require a report and test of impact areas if evidence is found that a paleontological resource is being or will be impacted by a project. To submit the report to the approving agency for the project, defining the scientific importance of the find and a recommendation as to its preservation or disposition.	Mitigation measure PAL-1 requires that a qualified paleontologist prepare an Excavation Plan if avoidance of a resource is not feasible.	Consistent with mitigation
LCP-1-27	When the determination is made that a site is to be salvaged, the project developer and the paleontologist shall coordinate their activities so as to adequately salvage this site.	Any Excavation Plan prepared under PAL-1 would be reviewed by SOCWA prior to implementation.	Consistent with mitigation
LCP-1-28	A paleontologist shall be retained to observe grading activities in areas where a survey, report, or other information indicates the probable presence of archaeological resources.	Mitigation measure PAL-1 requires that an Orange County-certified paleontologist be retained to monitor all ground-disturbing activities associated with construction of the proposed project.	Consistent with mitigation
Resources Component: Environmental Hazards			
LCP-1-42	Limit development or improvements within the FP-2 (Standard Project Flood) zone and locate trails outside of this floodplain wherever possible.	The proposed project would be located below ground once constructed, except for a short 170-foot segment. No structures would be within the 100-year flood zone.	Consistent

**Table 4.1-1
Project Consistency with Applicable Land Use Plans and Policies**

Goal/Policy	Summary of Policy	Proposed Project	Consistency
Resources Component: Runoff Management			
LCP-1-55	Enhancement of the appearance of channel slopes, bridging, etc., shall be encouraged through sensitivity of design and landscaping.	The proposed project would not involve the alteration or construction of channel slopes, bridges, etc.	Consistent
Coastal Access Component			
LCP-2-20	Investigate regional systems such as utility easements for possible dual use as regional open space and trail linkages.	The proposed project would be located within an existing utility easement within regional open space; the proposed project would maintain all utilities on the east side of Aliso Creek, allowing for potential future expansion of the trail system on the west side of Aliso Creek within the AWCWP.	Consistent
Public Works and New Development Component			
LCP-3-32	To limit landform alteration in open space lands that occur outside of development areas.	The proposed project would be located within the ROW of the graded dirt utility access road and would not result in the alteration of landforms within the AWCWP.	Consistent
LCP-3-38	Prohibit mass grading and limit landform alteration when determined obtrusive in the natural areas of the creek corridor.	The proposed project would be located within the ROW of the graded dirt utility access road and would not result in the alteration of landforms or mass grading within the Aliso Creek corridor.	Consistent

Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

The project area is located within the Central-Coastal Subregion NCCP/HCP reserve system (see *Figure 2-2*). Infrastructure projects are an allowed use within these reserves, including the “replacement, rehabilitation and upgrading of existing facilities that does not result in permanent loss of existing natural vegetation” (Meade 1996).

Although SOCWA is not listed as a participating landowner in the Central-Coastal Subregion NCCP/HCP, as an infrastructure project in the reserve, the proposed project is a covered activity and in conformance with the Central-Coastal Subregion NCCP/HCP. The project will have minor temporary direct and indirect impacts on the reserve (see *Section 4.4.6, Impacts*, for more details), but will not have a long-term adverse impact on the reserve. Coverage under the

NCCP/HCP would be granted through the County of Orange or by SOCWA seeking a permit of their own. Therefore, impacts related to conformance with adopted HCPs, NCCPs, or other approved local, region, or state habitat conservation plans would be **less than significant**.

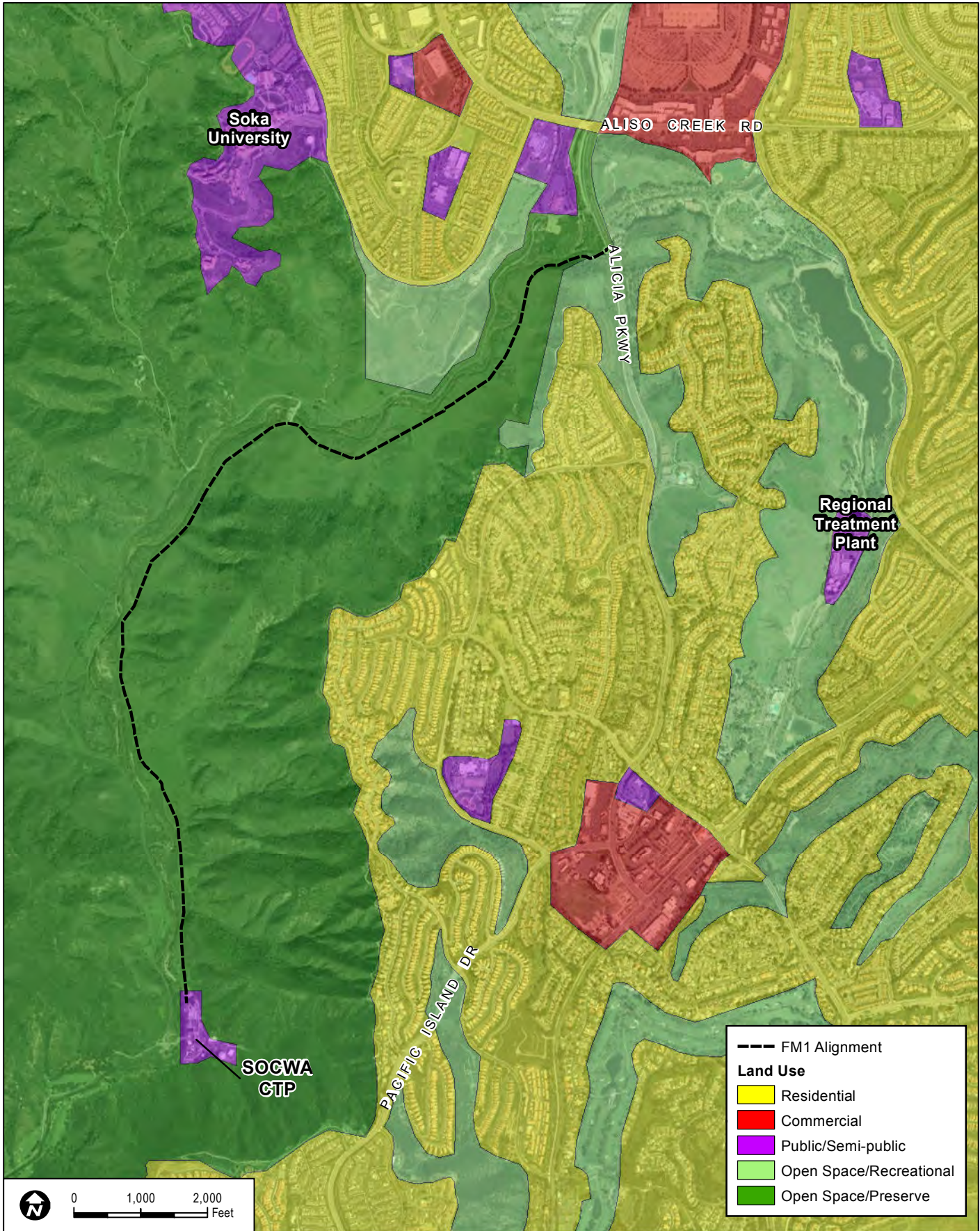
4.1.5 Mitigation Measures

The proposed project will result in no significant impacts related to land use and planning. Therefore, no mitigation measures are required.

4.1.6 Level of Significance after Mitigation

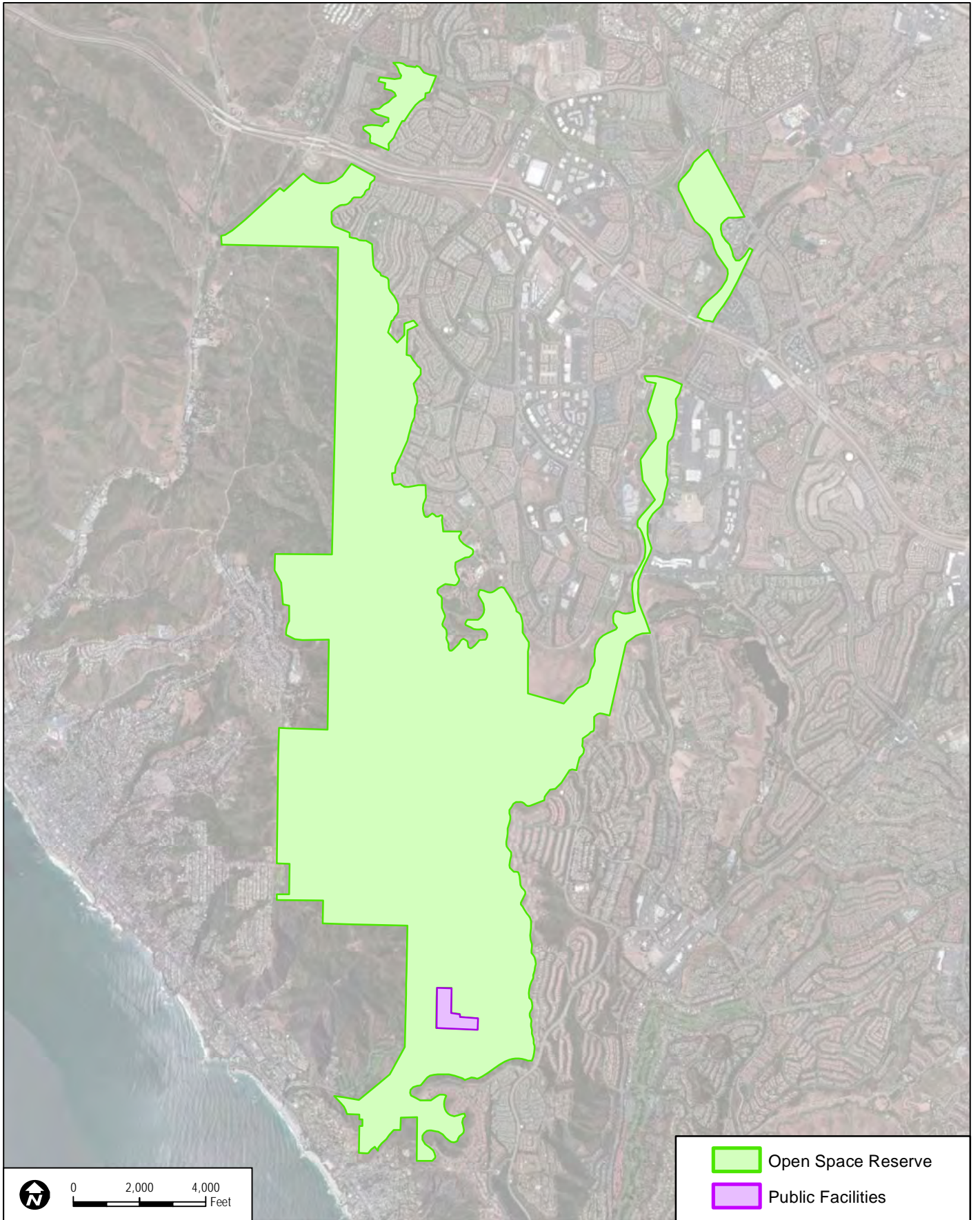
Since no mitigation is required, impacts would remain below a level of significance.



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**Figure 4.1-1
Existing Land Uses**

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	Open Space Reserve
	Public Facilities


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 Feet

DUDEK

SOURCE: Bing 2012

Figure 4.1-2

Orange County General Plan Land Use Designations

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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4.2 AESTHETICS

4.2.1 Introduction & Methodology

This section provides a summary of the existing visual setting, describes the anticipated visual changes that would result from the proposed project, and evaluates whether such changes would have a significant impact on the local aesthetic environment.

The methods used to analyze visual changes associated with the proposed project consisted of an aerial and photographic inventory of the project site and its surrounding land uses, as well as a review of applicable policies in the Orange County General Plan (2011) and AWCWP Resource Management Plan (RMP) (2009). Site visits were also conducted, during which photos were taken of the project site from close and farther ranges. These photos are intended to describe the visual character of the site as well as show visibility of the site from the project vicinity.

4.2.2 Existing Conditions

4.2.2.1 Environmental Setting

The AWCWP is a notable visual and scenic resource within the region. Situated in the midst of a highly developed region, the AWCWP presents a natural landscape which stands in contrast to the urbanized areas surrounding the park. The length and configuration of the park's perimeter, coupled with the hilly topography, provide significant variety in both viewpoint orientation and available viewsheds, creating a wealth of viewing conditions and opportunities. Several viewpoints afford visitors with dramatic panoramic views of the region. Visual resources include a combination of panoramic views in which the canyons form the dominant foreground element and the surrounding hills form the background, along with other distinctive landscape features and built features. *Figure 4.2-1* identifies key visual resources within the project area, including scenic viewpoints and distinctive landscape features.

Scenic Resources

Numerous scenic resources, such as vista points/panoramic views, landscape features, and built features, contribute to an existing positive visual experience for park users and the adjacent community.

Vista Points/Panoramic Views. Due to the varied topography within the park, several points provide a vantage from which to view the area's scenic resources. "Top of the World," which lies just outside the park, is one of the best-known vista points. From this vista point, one is presented with dramatic and high-quality panoramic views of the Pacific Ocean, Santa Catalina Island, and the City of Laguna Beach to the west; the San Gabriel and San Bernardino Mountains

to the northeast; and Wood Canyon and surrounding urban development to the south and east. Moulton Peak—the highest point in the park at 890 feet—provides sweeping views of the canyons, ridgelines, and hillsides of the park. Other viewing areas that provide vistas of the park and the surrounding landscape occur at other high points in the park, such as along the West Ridge, Alwut, Aswut, Aliso Summit, and Aliso Peak trails.

Landscape Features. The aesthetic resources of the park are largely due to the native plant associations found there. The park’s landscape consists of rugged topography characterized by steep hillsides surrounding deep canyons. Views within the park range from intimate, secluded spaces to grand vistas (*Figures 4.2-2 and 4.2-3*). In the upper reaches of the two canyons, canyon walls and trees create enclosed spaces where views can focus on details such as rock formations, plants, and animals. Canyon walls also block views of surrounding development atop the ridgelines. In the wider, lower reaches of the canyons, views consist of broad expanses of grassland and grassy meadows, coastal sage scrub, and the surrounding hillsides.

Distinctive Features. Other visually distinctive features reflect the unique geology and history of the park. Such features include Dripping Cave, Cave Rock, and the Old Corral.

Elements Detracting from Scenic Quality

A number of visual features or characteristics in the park and vicinity detract from the quality of the views and scenic character. Some of these features include urban and rural development immediately adjacent to the park boundary; unauthorized trails created by park users; and infrastructure such as water tanks and utility lines.

Visual Intrusion of Urban Development. As shown in *Figure 4.2-1*, urban and rural development immediately adjacent to the park boundary can be considered visually intrusive from several locations within the AWCWP. As the County continues to urbanize, homes are being built on the ridgelines overlooking the park, where views of the park positively enhance the home values. This development has an adverse effect on views from the park and the overall scenic quality.

Because development is generally located on hillside and ridgeline locations, the homes tend to be silhouetted against the sky, significantly altering the skyline and the perception of the park area as a rural, natural area. This visual intrusion is most evident along Lower Aliso Canyon, lower Wood Canyon, and around the Aliso and Wood Canyons confluence, where residential development hugs the park boundary on bluffs above the park. In addition, hillside areas along the urban interface have been denuded for fire management, degrading views from within the park.

Built Features within the Park. In several locations throughout the park, built features or human intervention detract from the overall visual quality. These features include unauthorized trails, utility corridors, and other infrastructure-related alterations to the landscape.

In certain areas of Wood Canyon, views are marred by unauthorized trails created by mountain cyclists and other park users. These scars on the hillsides mar the natural landscape and ultimately diminish its scenic value.

At several locations within the AWCWP, infrastructure such as utility lines and water tanks interrupt the scenic landscape and reduce the quality of views from significant vista points. A high-tension electrical transmission line crosses the park from Moulton Peak to a point just west of the West Ridge Trail. Clearly visible from several vantage points within the park, the towers and overhead lines are significant foreground features when viewed from several park trails, including the Rock-It, Five Oaks, and West Ridge trails. Two water tanks are located within the park boundaries. These tanks are owned and operated by MNWD and are placed at two of the highest points in the park, at Moulton Peak and along the West Ridge Trail. Due to their elevation, the tanks are highly visible from many vantage points within the park.

Along the east side of Aliso Creek, other unnatural features include the concrete ACWHEP structure, an Orange County storage area and an apiary.

Viewing Locations

Viewing locations (trail routes or overlooks) provide opportunities to appreciate the regional context (e.g., Pacific Ocean or San Gabriel Mountains), the immediate landscape (e.g., chaparral or oak woodland), or the influence of urban development (e.g., residences or utility lines). Several existing trails provide significant views (*Figure 4.2-3*).

Aliso Peak Trail. At 683 feet in elevation, this trail provides views of the Orange County coast, Aliso Beach Park, and lower Aliso Canyon. The trail up the bluff provides access to Aliso Peak, where hikers are afforded views of the Pacific Ocean, Aliso Beach Park, City of Laguna Beach, and Aliso Creek Golf Course.

Aliso Summit Trail. The Aliso Summit Trail follows the eastern ridge of Aliso Canyon in Laguna Niguel and borders residential communities. The trail provides expansive views of Aliso and Wood Canyons and the Pacific Ocean along its entire route. There are a number of public access points and scenic overlooks along this trail, including at Ridge View Park, at the intersection of Pacific Island Drive and La Brise, along Talavera Drive, and at Seaview Park.

Aswut Trail. At 800 feet in elevation the Aswut Trail provides impressive views on either side: to the west lies the city of Laguna Beach and the Pacific Ocean with Santa Catalina Island visible on a clear day; and on the east sprawls the lower half of the AWCWP, dense development east of the park, and the barely discernible San Gabriel and San Bernardino Mountains. This trail begins at Moulton Meadows Park, which also has limited views of the park.

West Ridge Trail. Beginning at an elevation of approximately 1000 feet, the trail traverses the ridge between Wood Canyon and Laguna Canyon providing views of the Pacific Ocean and

Santa Catalina Island to the west and the AWCWP with the San Gabriel and San Bernardino Mountains to the east.

Alwut Trail. The top of the Alwut Trail is designated as one of a handful of scenic overlooks in the park, providing impressive views of Corral, Mathis, and Wood Canyons.

Moulton Peak. At 890 feet in elevation, Moulton Peak offers expansive views of the ridgelines, canyons, and hillsides that define the AWCWP. Single-family residential homes line the ridge immediately east and illustrate the proximity of AWCWP within a densely developed urban environment.

4.2.2.2 Applicable Plans and Policies

Federal Regulations

No federal regulations related to aesthetics are applicable to the proposed project.

State Regulations

California Scenic Highway Program

The California Department of Transportation (Caltrans) administers the state Scenic Highway Program to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways (California Streets and Highways Code, Section 260 et seq.). The state Scenic Highway Program includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in the California Streets and Highways Code, Section 263. The program entails the regulation of land use and density of development; attention to the design of sites and structures; attention to and control of signage, landscaping, and grading; and other restrictions. The local jurisdiction is responsible for adopting and implementing such regulations. If a highway is listed as eligible for official designation, it is also part of the Scenic Highway Program, and care must be taken to preserve its eligibility status (Caltrans 2008b). South Coast Highway (Highway 101) is listed as an eligible scenic highway and is located approximately 1 mile south of the proposed project.

California Coastal Act

The California Coastal Act (CCA) of 1976 is administered by the California Coastal Commission (CCC) and implemented locally by local coastal plans (LCPs). Section 30251 of the CCA specifically discusses the protection of the visual quality of coastal areas (California Public Resources Code, Section 30251):

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration

of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

The CCC has jurisdiction throughout California, and utilizes the LCPs of other jurisdictions to meet and enforce its mission. In addition to development guidelines and requirements included in the local agency's LCP, the CCC can require additional provisions from applicants through their Coastal Development Permit (CDP) approval process. For the project area, the Aliso Viejo Segment of the Aliso Creek Planning Unit LCP is applicable.

Local Plans and Policies

Orange County General Plan

Goals, objectives and policies related to Visual Resources are listed in *Table 4.1-1* in *Section 4.1, Land Use and Planning*.

Recreation Element

The Recreation Element contains the official policies pertaining to the acquisition, development, operation, maintenance, and financing of the County's varied recreation facilities, which include regional recreation facilities, local parks, and riding and hiking trails. The Recreation Element serves to guide and direct local government decision-making regarding recreation issues and facilitates the coordination of local, regional, state, and federal efforts.

Transportation Element

The Transportation Element includes a Scenic Highways Plan which attempts to incorporate safety, utility, economy, and aesthetics into the planning, design, and construction of scenic highways. The Transportation Element identifies viewscape corridors, routes which traverse a corridor within which unique or unusual scenic resources and aesthetic values are found. This designation is intended to minimize the impact of the highway and land development upon the significant scenic resources along the route. Safety roadside rests and vista points should be developed, when feasible and where appropriate, to enhance any exceptional scenic values.

AWCWP Resource Management Plan

The AWCWP RMP is discussed in detail in *Section 4.1, Land Use and Planning*. Additionally, goals and objectives related to visual resources are listed in *Table 4.1-1*.

4.2.3 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of aesthetics impacts. Impacts to aesthetics would be significant if the proposed project would:

- Have a significant adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings;
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.2.4 Impacts

Would the project have a significant adverse effect on a scenic vista?

The proposed project involves the replacement of two parallel 4-inch ductile iron pipelines with a single 6-inch pipeline to transport primary sludge and thickened waste-activated sludge from the CTP to the RTP for solids processing. The proposed alignment would generally follow the existing alignment along the dirt access road on the east side of Aliso Creek. The dirt access road would be closed to the public during construction; and therefore, the project site would not be visible from this vantage point. However, the project site would be visible from higher elevations which have views of the eastern bank of Aliso Creek. The project site would be visible from scenic overlooks located at Plane Wreck, along the Aswut Trail, and at Seaview Park near the southern boundary of the park, as well as from other significant viewing locations such as the Aliso Summit Trail and the Aswut Trail.

During construction, vehicles and equipment would be visible from these scenic overlooks and vista points. Trenching operations would disturb native vegetation and would detract from the visual quality of the AWCWP when viewed from these locations, resulting in a temporary impact. However, once constructed, all but 170 feet of the approximately 16,600 foot pipeline would be located underground. Vegetated areas disturbed during construction would be reseeded with native vegetation. The 170-foot aboveground segment of the pipeline would be concealed in a wooden box designed to substantially blend with the surrounding environment. The color, shape, and limited height would substantially limit the visibility of the pipeline from mid-ground and distant viewpoints, such as the scenic overlook and vista point locations. Views of the project area would be similar to those before the project once the short-term construction period ends, and therefore, long-term, permanent impacts would be **less than significant**.

Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No state scenic highways are located in the vicinity of the AWCWP or the proposed project. South Coast Highway (Highway 101), which follows the coast about 0.5 mile south of the southernmost border of the park and about 1 mile from the southerly terminus of the proposed project, is an eligible state scenic highway; however, it has not been officially designated (CalTrans 2008b). Due to distance and intervening topography, the proposed project would not be visible from this highway, nor would it damage any scenic resources within the viewshed of this highway; impacts would therefore be **less than significant**.

Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The project alignment follows the dirt access road along the eastern side of Aliso Creek. The visual character of the project area is dominated by dense vegetation and natural hydrologic features. Numerous vegetated tributaries to Aliso Creek intersect the proposed alignment. The alignment is mostly located on primarily flat grassland and sage scrub terraces near the base of foothills which support dense coastal sage scrub and other native upland habitats. While a number of man-made structures exist along the alignment, including the dirt access road, the concrete ACWHEP headworks structure, the County of Orange storage area, and an apiary, the area is primarily natural.

The project site is located on the east side of Aliso Creek; the dirt utility access road would be closed to the public during construction. Views of the project site from the paved access road and Aliso Creek Trail on the west side of Aliso Creek are mostly blocked by dense riparian vegetation along Aliso Creek. The project site is located within the foreground of recreationalists using the Aliso Creek Trail, within the mid-ground view of recreationalists using the Aliso Summit, Meadows, and Woods Creek Trails or at the nature center, and within the background view from more distant locations adjacent to the park, such as Ridge View and Moulton Meadows Parks, and from homes along the eastern rim of Aliso Canyon.

During construction of the pipeline, an open trench would be dug and pipeline and other construction materials would be laid out alongside the trench in staging areas. Vegetation within a 30-foot easement of the trench would be disturbed. This would reduce the natural aesthetics of the site and its surroundings and result in a short-term impact related to the degradation of the existing visual character and quality of the site. However, once in place, the pipeline would be located entirely below ground (except for a 170-foot segment), and the trench would be filled in. The 170-foot aboveground segment of the pipeline would be concealed in a box designed to blend with the surrounding environment, and the remainder of the site would be revegetated and returned to its

existing character. The project would therefore not result in a long-term substantial degradation of the visual quality or character of the site and impacts would be **less than significant**.

Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

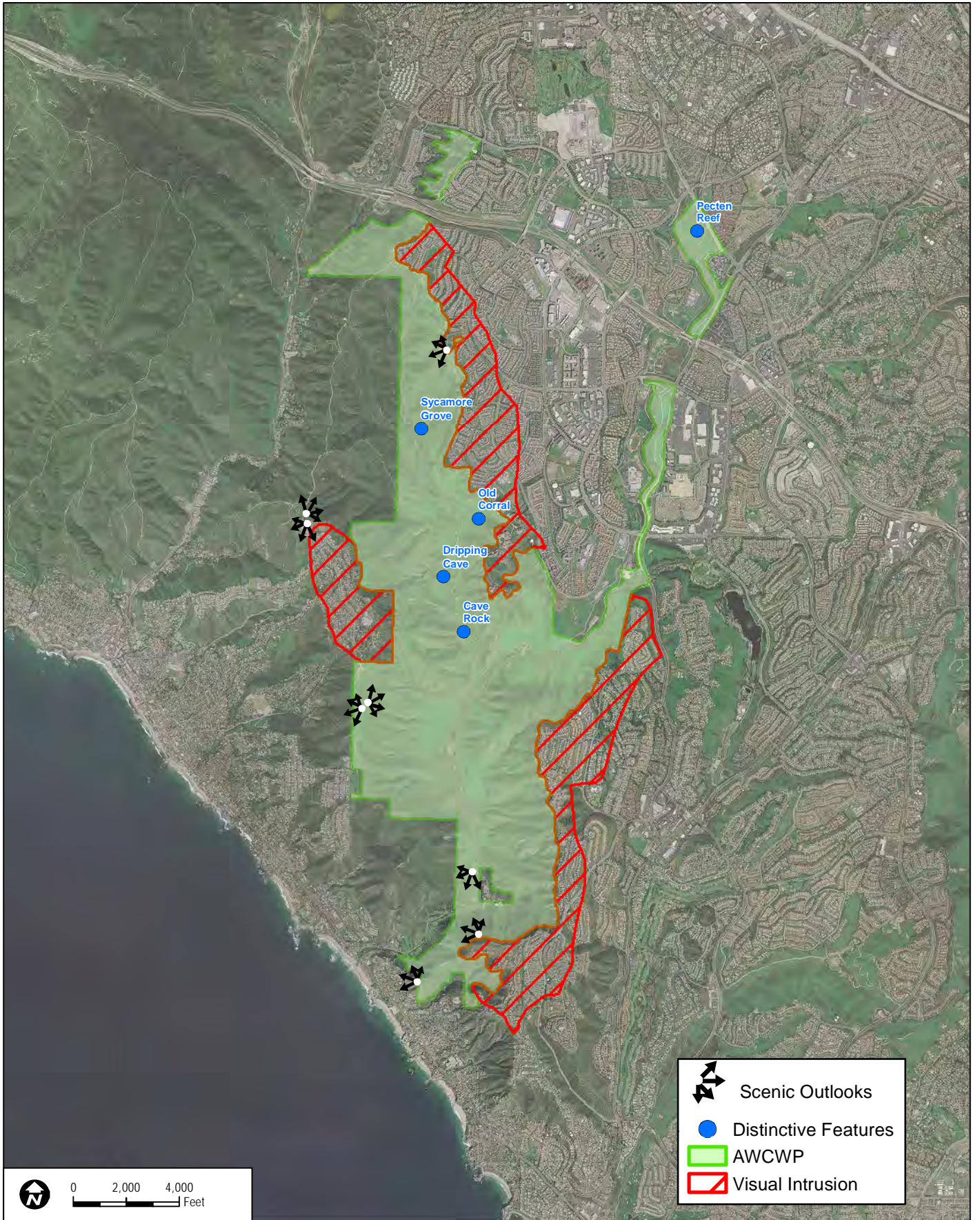
Construction would occur during the day and would not necessitate the use of any additional lighting. No reflective materials would be used for construction. Once constructed, only a short 170-foot segment of the pipeline would remain aboveground and no new sources of light or glare would be introduced. Therefore, the proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Impacts would be **less than significant**.

4.2.5 Mitigation Measures

No significant impacts to aesthetics would occur; therefore, no mitigation measures are required.

4.2.6 Level of Significance after Mitigation

Since no mitigation is required, impacts would remain below a level of significance.



	Scenic Outlooks
	Distinctive Features
	AWCWP
	Visual Intrusion

0 2,000 4,000
 Feet

DUDEK

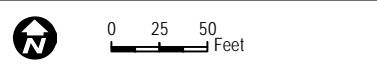
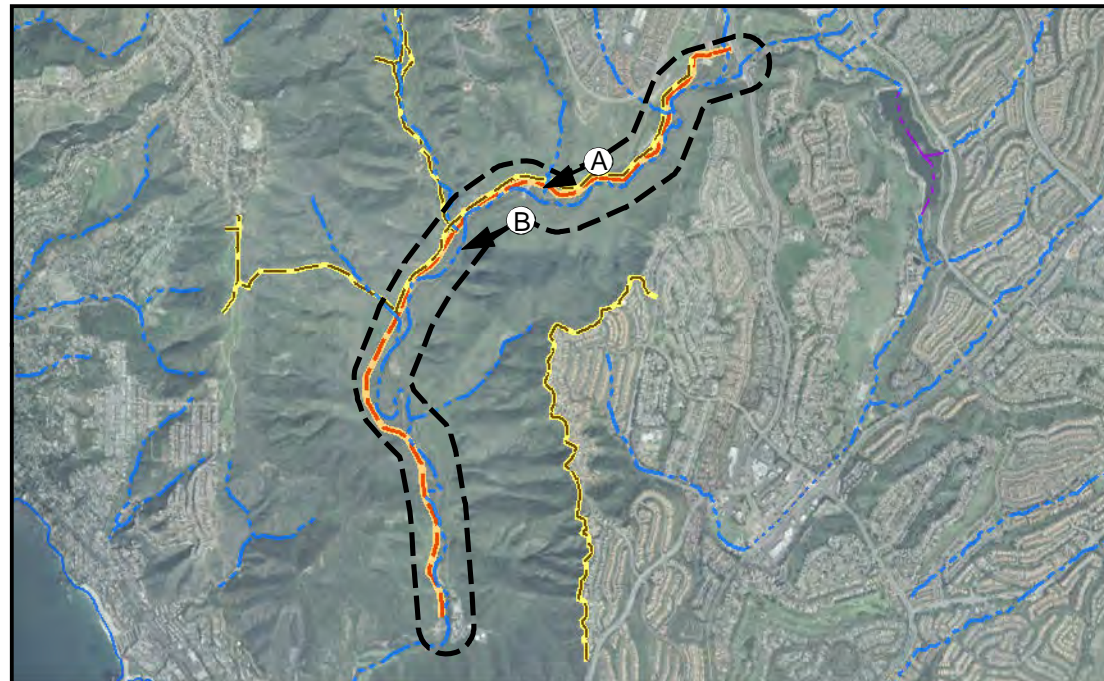
SOURCE: OC Public Works 2008, 2009; DigitalGlobe 2008

**Figure 4.2-1
Visual Resources**

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COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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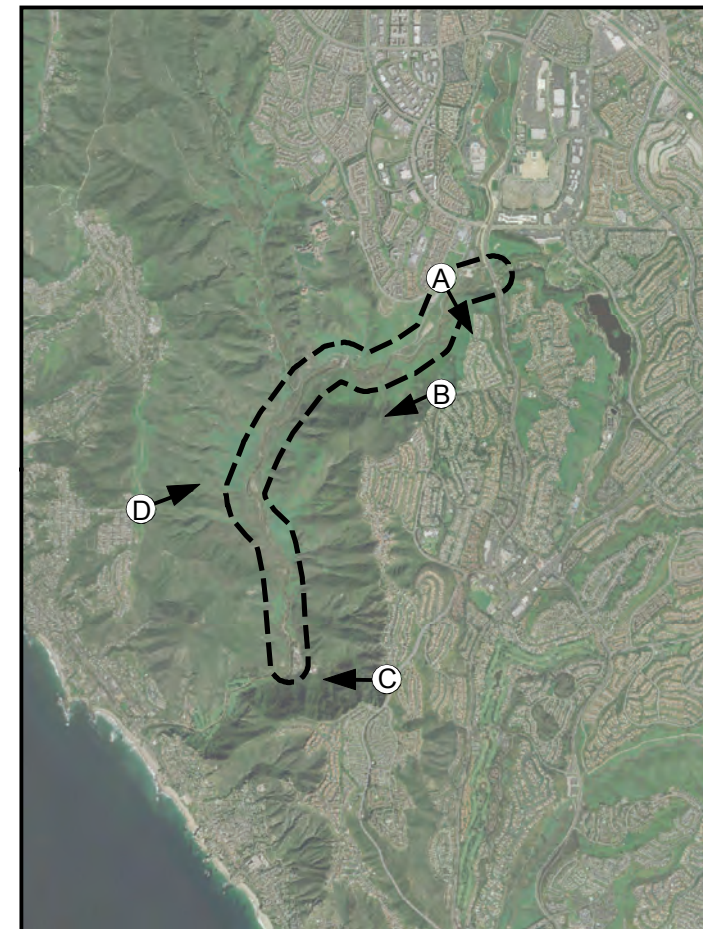
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COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

FIGURE 4.2-2
Existing Site Photos

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SITE MAP

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4.3 AIR QUALITY

4.3.1 Introduction

The purpose of this section is to estimate and evaluate the potential air quality impacts associated with construction of the proposed project. Potential impacts associated with project operation are addressed qualitatively. Impacts are evaluated for their significance based on the South Coast Air Quality Management District's (SCAQMD) air quality thresholds of significance.

4.3.2 Methodology

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, dust emissions, and combustion pollutants from on-site construction equipment, as well as from worker vehicles, delivery trucks, and off-site haul trucks transporting sludge during a portion of the construction period. To estimate air pollutant emissions generated during construction of the proposed project, the California Emissions Estimator Model (CalEEMod), Version 2011.1.1 was used. Model assumptions were based on input from the project engineers and typical construction activity for a pipeline installation project; default CalEEMod assumptions were applied when project specifics were unavailable. Emissions estimates were then compared against SCAQMD's emission-based thresholds for criteria pollutants to determine project impacts. Emission calculations and model outputs can be found in *Appendix B*.

4.3.2.1 Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include: ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter less than or equal to 10 microns in size (PM₁₀), particulate matter less than or equal to 2.5 microns in size (PM_{2.5}), and lead (Pb). These pollutants are discussed below.¹ In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone (O₃). Ozone is a strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process

¹ The following descriptions of health effects for each of the criteria air pollutants associated with project construction are based on the EPA Six Common Air Pollutants (EPA 2012e) and the CARB Glossary of Air Pollutant Terms (CARB 2012a) published information.

involving the sun's energy and ozone precursors, such as hydrocarbons and oxides of nitrogen (NO_x). These precursors are mainly NO_x and volatile organic compounds (VOCs, also referred to as reactive organic compounds or gases [ROC or ROG]). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation and ideal conditions occur during summer and early fall, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Ozone exists in the upper atmosphere ozone layer (stratospheric ozone) as well as at the Earth's surface in the troposphere (ozone). Ozone in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide (NO_2). Nitrogen dioxide is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3 . Oxides of nitrogen are formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections.

Carbon Monoxide (CO). Carbon monoxide is a colorless and odorless gas formed by the incomplete combustion of hydrocarbon, or fossil, fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide (SO₂). Sulfur dioxide is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. Main sources of SO₂ are coal and oil used in power plants and industries; as such, the highest levels of SO₂ are generally found near large industrial complexes. In recent years, SO₂ concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO₂ and limits on the sulfur content of fuels. SO₂ is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. SO₂ can also yellow plant leaves and erode iron and steel.

Particulate Matter (PM_{2.5}, PM₁₀). Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. PM_{2.5} and PM₁₀ represent fractions of particulate matter. Fine particulate matter, or PM_{2.5}, is roughly 1/28 the diameter of a human hair. PM_{2.5} results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, PM_{2.5} can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOC. Inhalable particulate matter, or PM₁₀, is about 1/7 the thickness of a human hair. Major sources of PM₁₀ include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning, industrial sources, windblown dust from open lands; and atmospheric chemical and photochemical reactions.

PM_{2.5} and PM₁₀ pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM_{2.5} and PM₁₀ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates, can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases, such as chlorides or ammonium, into the lungs, also causing injury. Whereas PM₁₀ tends to collect in the upper portion of the respiratory system, PM_{2.5} is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM₁₀ and PM_{2.5}. Other groups considered sensitive are smokers and people who cannot breathe well through their noses, as well as exercising athletes because many breathe through their mouths.

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans. A toxic substance released into the air is considered a toxic air contaminant (TAC). Examples include certain aromatic and chlorinated hydrocarbons, certain metals, asbestos, and diesel particulate matter. TACs are generated by a number of sources, including industrial processes, such as petroleum refining and chemical manufacturing; commercial operations such as dry cleaners, gas stations, and emergency generators; transportation activities, particularly diesel-powered motor vehicles; and area sources such as landfills. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC.

4.3.3 Existing Conditions

4.3.3.1 Regional Climate and Topography

The proposed project is located within the South Coast Air Basin (SCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, and is within the jurisdictional boundaries of the SCAQMD. Air quality in the project area is not only affected by various emission sources (e.g., mobile, industry), but it is also affected by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall. The SCAB's combination of topography, low mean mixing height, abundant sunshine, and emissions from one of the largest urban areas in the United States, have historically resulted in some of the worst air pollution in the nation.

Although the SCAB has a semi-arid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The dominant daily wind pattern is an onshore 8–12 miles per hour (mph) daytime breeze and an offshore 3–5 mph nighttime breeze. The typical wind flow pattern fluctuates only with occasional winter storms, or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst case conditions, as this is the period of higher temperatures and more sunlight, which results in O₃ formation.

The project is located within Orange County, which is characterized by relatively low rainfall, with warm summers and mild winters. The City of Aliso Viejo, which is adjacent to the project site, experiences average temperatures range from a high of 80°F in August and September to a

low of 45°F in December and January. Annual precipitation averages about 14 inches, falling mostly from December through March (www.City-Data.com 2012).

During spring and early summer, air pollution produced during any one day is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. The vertical dispersion of air pollutants in the SCAB is limited by temperature inversions in the atmosphere close to the earth's surface. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino counties. In the winter, the greatest pollution problems are CO, particulate matter, and NO₂ because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

4.3.3.2 Regulatory Setting

Regulatory oversight for air quality in the South Coast Air Basin is maintained at the regional level by the SCAQMD, the California Air Resources Board (CARB) at the state level, and the U.S. Environmental Protection Agency (EPA) Region IX office at the federal level. Applicable laws, regulations, and standards of these three agencies are described as follows.

Federal

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, which include National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O₃ protection, and enforcement provisions. NAAQS are established for “criteria pollutants” under the CAA, which are O₃, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation; these NAAQS may not be exceeded more than once a year, except annual standards, which may never be exceeded. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan that demonstrates how those areas will attain the standards within mandated time frames.

State

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts (AQMDs) and air pollution control districts (APCDs) at the regional and county levels. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal CAA, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered in “attainment” if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The NAAQS and CAAQS are presented in *Table 4.3-1, Ambient Air Quality Standards*.

**Table 4.3-1
Ambient Air Quality Standards**

Pollutant	Average Time	California Standards ¹	National Standards ²	
		Concentration ³	Primary ^{3,4}	Secondary ^{3,5}
O ₃	1 hour	0.09 ppm (180 µg/m ³)	—	Same as Primary Standard
	8 hours	0.070 ppm (137 µg/m ³)	0.075 ppm (147 µg/m ³)	
CO	1 hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	None
	8 hours	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	
NO ₂	1 hour	0.18 ppm (339 µg/m ³)	0.100 ppm (188 µg/m ³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	
SO ₂	1 hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	—
	3 hours	—	—	0.5 ppm (1300 µg/m ³)
	24 hours	0.04 ppm (105 µg/m ³)	0.14 ppm (for certain areas) ⁶	—
	Annual Arithmetic Mean	—	0.030 ppm (for certain areas) ⁶	—
PM ₁₀	24 hours	50 µg/m ³	150 µg/m ³	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m ³	—	
PM _{2.5}	24 hours	No Separate State Standard	35 µg/m ³	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m ³	15.0 µg/m ³	

**Table 4.3-1
Ambient Air Quality Standards**

Pollutant	Average Time	California Standards ¹	National Standards ²	
		Concentration ³	Primary ^{3,4}	Secondary ^{3,5}
Lead ⁷	30-day Average	1.5 µg/m ³	—	—
	Calendar Quarter	—	1.5 µg/m ³ (for certain areas)	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m ³	
Hydrogen sulfide	1-hour	0.03 ppm	—	—
Vinyl chloride ⁷	24-hour	0.01 ppm	—	—
Sulfates	24-hour	25 µg/m ³	—	—
Visibility reducing particles	8-hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2012b

ppm = parts per million by volume µg/m³ = micrograms per cubic meter mg/m³ = milligrams per cubic meter

¹ California standards for O₃, CO, SO₂ (1-hour and 24-hour), NO₂, suspended particulate matter (PM₁₀, PM_{2.5}), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

² National standards (other than O₃, NO₂, SO₂, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For NO₂ and SO₂, the standard is attained when the 3-year average of the 98th and 99th percentile, respectively, of the daily maximum 1-hour average at each monitor within an area does not exceed the standard (effective April 12, 2010). For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms per cubic meter (µg/m³) is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

³ Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr.

Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm (parts per million) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

⁴ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

⁵ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

⁶ On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

⁷ CARB has identified lead and vinyl chloride as TAC with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Local

While CARB is responsible for the regulation of mobile emission sources within the state, local AQMDs and APCDs are responsible for enforcing standards and regulating stationary sources. The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the proposed project is located. The SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's Air Quality Management Plans (AQMPs) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The SCAQMD Governing Board adopted the 2003 AQMP on August 1, 2003. The 2003 AQMP updates the attainment demonstration for the federal standards for O₃ and PM₁₀, replaces the 1997 attainment demonstration for the federal CO standard, provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal NO₂ standard that the SCAB has met since 1992. On March 10, 2009, the U.S. EPA issued a final rule partially approving and partially disapproving the 2003 AQMP. On February 2, 2011, the U.S. Court of Appeals for the Ninth Circuit ruled that U.S. EPA's partial approval was arbitrary and capricious. The Court further ruled that U.S. EPA should have ordered California to submit a revised attainment plan for the South Coast Air Basin after it disapproved the 2003 AQMP and that EPA should have required transportation control measures.

The SCAQMD Governing Board adopted the 2007 AQMP on June 1, 2007. The 2007 AQMP includes the same updates as the 2003 AQMP and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. As part of the 2007 AQMP, the SCAQMD requested that the EPA "bump up" the O₃ nonattainment status from severe to extreme to allow additional time for the SCAB to achieve attainment with the federal standard. The additional time would provide for implementation of state and federal measures that apply to sources over which the SCAQMD does not have control. The 2007 AQMP had been approved by CARB; however, on November 22, 2010, the U.S. EPA issued a proposed rule to approve in part and disapprove in part the portions related to attainment of the Federal PM_{2.5} standard. The EPA, however, approved the redesignation of the SCAB to an extreme O₃ nonattainment area, effective as of June 4, 2010. Subsequently, on December 15, 2011, the EPA released a final rule approving the air quality plan for the SCAB demonstrating attainment with the 1997 8-hour O₃ standard by June 15, 2024. Final action will become effective 60 days after publication in the Federal Register.

SCAQMD released the Draft 2012 AQMP public review in July 2012, which was subsequently revised in September 2012. The purpose of the Draft 2012 AQMP is to set forth a comprehensive and integrated program that will lead the SCAB into compliance with the federal 24-hour PM_{2.5} air quality standard and to provide an update of the SCAB's projections in meeting the federal 8-hour ozone standards. The 2012 AQMP is a regional and multi-agency effort (AQMD, CARB, Southern California Association of Governments and U.S. EPA). State and federal planning requirements include developing control strategies, attainment demonstrations, reasonable further progress, and maintenance plans. The 2012 AQMP incorporates the latest scientific and technical information and planning assumptions, including the 2012 Regional Transportation Plan, updated emission inventory methodologies for various source categories, and the Southern California Association of Governments latest growth forecasts. As the 2012 AQMP is has not been finalized, the 2007 AQMP is the current applicable air quality plan.

4.3.3.3 Local Ambient Air Quality

SCAB Attainment Designation

An area is designated in attainment when it is in compliance with the NAAQS and/or CAAQS. These standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

The criteria pollutants of primary concern that are considered in this air quality assessment include O₃, NO₂, CO, PM₁₀, and PM_{2.5}. Although there are no ambient standards for VOCs or NO_x, they are important as precursors to O₃. The attainment classifications in the SCAB for these criteria pollutants are outlined in *Table 4.3-2, SCAB Attainment Classification*.

Table 4.3-2
SCAB Attainment Classification

Pollutant	Averaging Time	Designation/Classification
<i>National^a</i>		
O ₃	8 hour	Nonattainment/extreme
NO ₂	Annual arithmetic mean	Attainment/maintenance
CO	1 hour, 8 hour	Attainment/maintenance
SO ₂	1 hour	Unclassifiable
PM ₁₀	24 hour	Nonattainment/serious
PM _{2.5}	24 hour, annual arithmetic mean	Nonattainment
Lead	Calendar quarter	Attainment
<i>State^b</i>		
O ₃	1 hour, 8 hour	Nonattainment ¹
NO ₂	1 hour, annual arithmetic mean	Nonattainment
CO	1 hour, 8 hour	Attainment
SO ₂	1 hour, 24 hour	Attainment

**Table 4.3-2
SCAB Attainment Classification**

Pollutant	Averaging Time	Designation/Classification
PM ₁₀	24 hour, annual arithmetic mean	Nonattainment
PM _{2.5}	Annual arithmetic mean	Nonattainment
Lead ³	30 day average	Attainment ²
Sulfates (SO ₄)	24 hour	Attainment
Hydrogen sulfide (H ₂ S)	1 hour	Unclassified
Vinyl chloride ³	24 hour	Unclassified
Visibility-reducing particles	8 hour (10:00 a.m.–6:00 p.m.)	Unclassified

Source: ^a EPA 2012d; ^b CARB 2012c.

¹ CARB has not issued area classification based on the new state 8-hour standard. The previous classification for the 1-hour O₃ standard was extreme.

² CARB adopted a nonattainment designation for lead for the Los Angeles County portion of the SCAB.

³ CARB has identified lead and vinyl chloride as TAC with no threshold level of exposure for adverse health effects determined.

Air Quality Monitoring Data

The SCAQMD maintains ambient air quality monitoring stations throughout the SCAB. The closest ambient air quality monitoring station to the project site is the Mission Viejo station, located at 26081 Via Pera in Mission Viejo, which measures O₃, CO, PM₁₀, and PM_{2.5}. For NO₂ and SO₂, values from the Costa Mesa monitoring station located at 2850 Mesa Verde Drive East in Costa Mesa were used in this analysis. The most recent background ambient air quality data from 2008 to 2010 are presented in *Table 4.3-3, Ambient Air Quality Data*. The number of days exceeding the AAQS is shown in *Table 4.3-4, Frequency of Air Quality Standard Violations*.

**Table 4.3-3
Ambient Air Quality Data
(parts per million (ppm) unless otherwise indicated)**

Pollutant	Averaging Time	2009	2010	2011	Most Stringent Ambient Air Quality Standard	Monitoring Station
O ₃	8-hour	0.095	0.083	0.083	0.070	Mission Viejo
	1-hour	0.121	0.117	0.094	0.09	
NO ₂	Annual	0.013	0.011	^b	0.030	Costa Mesa
	1-hour	0.065	0.070	0.061	0.18	
CO	8-hour	1.00	0.90	1.03	9.0	Mission Viejo
	1-hour ^a	2	1	1	20	
SO ₂	Annual	0.001	0.000	^b	0.030	Costa Mesa
	24-hour	0.004	0.002	0.002	0.040	
PM ₁₀	Annual	23.2 µg/m ³	^b	18.8 µg/m ³	20 µg/m ³	Mission Viejo
	24-hour	55 µg/m ³	34 µg/m ³	47 µg/m ³	50 µg/m ³	

Table 4.3-3
Ambient Air Quality Data
(parts per million (ppm) unless otherwise indicated)

Pollutant	Averaging Time	2009	2010	2011	Most Stringent Ambient Air Quality Standard	Monitoring Station
PM _{2.5}	Annual	9.5 µg/m ³	^b	^b	12 µg/m ³	Mission Viejo
	24-hour	39.2 µg/m ³	19.9 µg/m ³	33.4 µg/m ³	35 µg/m ³	

Source: CARB 2012d

^a Data were taken from EPA AirData (EPA 2012a)

^b Insufficient data available to determine the value.

Notes:

Mission Viejo Station: 26081 Via Pera, Mission Viejo, CA 92691

Costa Mesa Station: 2850 Mesa Verde Drive East, Costa Mesa, CA 92626

µg/m³ = micrograms per cubic meter

Table 4.3-4
Frequency of Air Quality Standard Violations

Monitoring Site	Year	Number of Days Exceeding Standard					
		State 1-Hour O ₃	State 8-Hour O ₃	National 8-Hour O ₃	State 24-Hour PM ₁₀ ^a	National 24-Hour PM ₁₀ ^a	National 24-Hour PM _{2.5} ^a
Mission Viejo	2009	7	14	10	6.1 (1)	0	3.5 (1)
	2010	2	2	2	^b	0	0
	2011	0	5	2	0	0	0

Source: CARB 2012d

^a Measurements of PM₁₀ and PM_{2.5} are usually collected every 6 days and 3 days, respectively. Number of days exceeding the standards is mathematical estimates of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

^b Insufficient data available to determine the value.

As the tables above demonstrate, air quality within the project region is in compliance with both CAAQS and NAAQS for NO₂, CO, and SO₂. Federal and state 8-hour O₃ standards were, however, exceeded during each of the 3 years reported. State 1-hour O₃ standards were exceeded in 2009 and 2010, but not in 2011. The PM₁₀ levels monitored at the Mission Viejo air monitoring station exceeded the state 24-hour standard in 2009. PM_{2.5} levels exceeded the federal 24-hour standard in 2009.

4.3.3.4 Applicable Plans and Policies

Emissions that would result from construction of the proposed project are subject to the rules and regulations of the SCAQMD. The SCAQMD rules applicable to the proposed project may include the following:

Rule 401 (Visible Emissions): This rule establishes the limit for visible emissions from stationary sources. This rule prohibits visible emissions dark or darker than Ringlemann No.1 for periods greater than 3 minutes in any hour.

Rule 403 (Fugitive Dust): This rule requires fugitive dust sources to implement Best Available Control Measures for all sources and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM₁₀ emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.

Rule 431.2 (Sulfur Content of Liquid Fuels): The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of both reducing the formation of SO_x and particulates during combustion and to enable the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary source applications in the District. The rule also affects diesel fuel supplied for mobile source applications.

4.3.4 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA guidelines, will determine the significance of air quality impacts. Impacts to air quality would be significant if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people.

In addition, Appendix G of the CEQA Guidelines indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the proposed project would have a significant impact on air quality. The significance thresholds in the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993), as revised in March 2011, sets forth quantitative emission significance thresholds below

which a project would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in *Table 4.3-5, SCAQMD Air Quality Significance Thresholds*, are exceeded. Only those thresholds related to potentially significant construction impacts are identified in *Table 4.3-5* as the proposed project would not generate substantial criteria pollutant emissions or related impacts associated with operation of the proposed sludge export main replacement project.

**Table 4.3-5
SCAQMD Air Quality Significance Thresholds**

Pollutant	Construction
<i>Criteria Pollutants Mass Daily Thresholds</i>	
VOC	75 pounds/day
NO _x	100 pounds/day
CO	550 pounds/day
SO _x	150 pounds/day
PM ₁₀	150 pounds/day
PM _{2.5}	55 pounds/day

Source: SCAQMD 1993

A project would result in a substantial contribution to an existing air quality violation of the NAAQS or CAAQS for O₃ (see *Table 4.3-2*), which is a nonattainment pollutant, if the project's construction emissions would exceed the SCAQMD VOC or NO_x thresholds shown in *Table 4.3-5*. These emission-based thresholds for O₃ precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O₃ impacts to occur) because O₃ itself is not emitted directly (see the previous discussion of O₃ and its sources), and the effects of an individual project's emissions of O₃ precursors (VOC and NO_x) on O₃ levels in ambient air cannot be determined through air quality models or other quantitative methods.

4.3.5 Impacts

Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

In 2007, the SCAQMD adopted a final AQMP for attainment of the NAAQS for O₃ and PM_{2.5} within the SCAB. As the 2012 AQMP is still in draft form, the 2007 AQMP is the current applicable air quality plan. The 2007 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development. The proposed project is located within the AWCWP, which is zoned by the County's Zoning Code as Open Space (OS), and designated Open Space Reserve (OSR) in the County's General Plan

Recreation Element. The project would not conflict with or propose to change existing land uses or applicable policies as designated in the Orange County General Plan for the unincorporated portions of the County; thus, the project would not conflict with the applicable air quality plan. The proposed project involves the replacement of approximately 16,600 feet of the force main along the lower portion of the export sludge handling system and would neither increase population nor would it require additional employment; ongoing operations and maintenance of the facilities would be performed by existing staff. Accordingly, the proposed project would result in a **less-than-significant** impact.

Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction Emissions

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, dust emissions, and combustion pollutants from on-site construction equipment, as well as from personal vehicles, vendor/delivery trucks, and off-site trucks hauling sludge during a portion of the construction period. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles. Fugitive dust emissions would primarily result from trenching activities. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

Emissions from the construction phase of the project were estimated through the use of CalEEMod. Construction contractors would generally install between 80 feet to 150 feet of pipeline in one day. For this analysis, it was assumed that 100 feet of pipeline per day would be installed. Therefore, construction of the proposed 16,600 foot export sludge force main would take approximately 166 days. For the purposes of emission estimates, it was assumed that construction activity would occur over 7.5 months, starting in approximately April 2014 and ending in November 2014. One month of mobilization prior to pipeline construction and one month of demobilization after pipeline construction would occur for an overall construction schedule from March 2014 to December 2014; however, the mobilization/demobilization activity was not included in emissions modeling because it would not involve equipment operation or truck travel.

To install the pipeline, the contractor would dig a trench approximately 3 feet wide and 4 feet deep with an excavator. The pipeline would be installed in a linear sequence and each trench would be open for approximately 100 feet (a maximum of 200 feet). The pipe bedding and pipe would then be placed into the trench. Following pipe installation, backfill would be deposited into the trench and compacted. This process would proceed along the length of the pipeline alignment, with

excavation, pipe installation and backfill progressing along the alignment and would continue until the pipeline is completely installed. After the connections at the ends of the pipeline are made, the pipeline would be placed into service. One delivery truck round-trip per day was conservatively assumed to represent delivery of materials to the site during the trenching phase.

Transport of sludge would not be required during the 7.5 months of pipeline installation except during a 3-week period when sludge would be transported from the CTP to the Regional Treatment Plant (RTP) using 18-wheeler tanker trucks. This is represented in CalEEMod as a haul truck operation phase assuming 6 heavy-duty truck round-trips per day and a one-way distance of approximately 5 miles between the CTP and RTP. This trucking operation phase would occur during construction of a 1,200-foot portion of the pipeline and would also include installation of the connection at the end of the pipeline. Since trucking operations would occur during summer vacation when school is not in session, it was assumed that this haul truck phase would occur in July 2013.

Construction phasing is anticipated as follows:

- Trenching/Pipe Installation—7.5 months
- Sludge Haul Truck Operation—3 weeks.

Haul truck trips would occur simultaneously with the trenching phase, which is a continuous activity from start to finish of the project. It is anticipated that trenching would involve the use of one excavator and one tractor/loader/backhoe for 8 hours per day, 5 days per week (22 days per month). No additional pieces of heavy equipment would be required during the haul truck operation. As pipeline installation would occur concurrently with the haul truck operations, this overlapping of activity would result a maximum daily, or worst-case, scenario. *Table 4.3-6, Estimated Daily Maximum Construction Emissions*, shows the estimated maximum unmitigated daily construction emissions associated with the construction of the proposed project.

Table 4.3-6
Estimated Daily Maximum Construction Emissions (pounds/day unmitigated)

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2013 Estimated Emissions	1.88	13.22	11.16	0.02	2.12	0.82
<i>Threshold</i>	75	100	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for complete results.

The PM₁₀ and PM_{2.5} estimates reflect control of fugitive dust required by Rule 403.

As shown in *Table 4.3-6*, daily construction emissions would not exceed the thresholds for VOC, NO_x, CO, SO_x, PM₁₀, or PM_{2.5}. As such, the proposed project would result in a **less-than-significant** impact during construction.

As described in *Section 3.0, Project Description*, the project would integrate design features and construction measures that would be employed to reduce air pollutant emissions. Fugitive dust suppression techniques, such as frequent light sprays of water and covering of soil piles would be performed by the construction contractor during construction activities. Ground cover would be replaced as quickly as possible and vehicle speeds would be restricted on any unpaved surface at the construction site. In addition, the project must adhere to SCAQMD Rules during construction-related activities: 401 (Visible Emissions), 403 (Fugitive Dust Control), and 431.2 (Low Sulfur Fuel). These measures would reduce potential project-generated fugitive dust emissions and combustion pollutants.

Operation Emissions

Once the new force main is installed, it is anticipated to carry an average of 89,000 gallons per day of sludge from the CTP to the RTP. The existing 4-inch force mains would be capped and abandoned in place. The new 6-inch force main would be flushed quarterly to remove blockages and ensure optimal flow. No ground disturbing activities would be required for annual maintenance. In the event that repair of the pipelines would be required, construction activity described above may occur. However, repair activity would likely result in fewer emissions compared to the analyzed construction scenario that assumes simultaneous pipeline construction and haul truck trips. These potential repair activities would be temporary and would not be a source of long-term operational emissions. As the project would not result in a new land use that would involve increased operational activities, air quality impacts associated with operational air pollutant emissions would be **less than significant**.

Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The SCAB is a nonattainment area for O₃, NO₂, PM₁₀, and PM_{2.5} under the NAAQS and/or CAAQS. The poor air quality in the SCAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (e.g., VOC and NO_x for O₃.) potentially contribute to poor air quality. As indicated in *Table 4.3-6*, the construction emissions from the proposed project would not exceed SCAQMD significance thresholds. The proposed project is not anticipated to generate substantial operational emissions. Furthermore, the project would not conflict with the SCAQMD 2007 AQMP, which addresses the cumulative emissions in the SCAB. Accordingly, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Thus, this impact would be **less than significant**.

Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

The SCAQMD recommends the evaluation of localized NO₂, CO, PM₁₀, and PM_{2.5} impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the project site. Urban development, including residences, associated with the communities of Aliso Viejo, Laguna Niguel, Laguna Hills, Laguna Woods, and Laguna Beach surround the AWCWP where the proposed project is located. The Aliso Creek Golf Course, neighborhood parks, and Wood Canyon Elementary School are located near the AWCWP, but are not located within a distance that would be impacted by emissions generated on site during equipment operation and trenching activity. There are various trails and access roads within the AWCWP that are publicly accessible. The existing multi-use trail located to the west of the creek is the closest trail to the proposed alignment, which is located approximately 400 feet at a minimum from proposed project construction. Recreational users of the AWCWP, including pedestrians and bicyclists, along sanctioned trails and access ways would not be affected by project construction due to the anticipated distance between construction activity and park users. In addition, operation of equipment would occur for a very short duration (i.e., 1 to 2 days) in any one area as approximately 100 feet of pipeline would be constructed each day. Furthermore, diesel equipment would also be subject to the Airborne Toxic Control Measures for in-use mobile construction equipment promulgated by CARB, which would minimize diesel particulate matter emissions.

Construction activities would not generate substantial emissions of toxic air contaminants, specifically diesel exhaust particulate matter, and impacts to sensitive receptors in the vicinity of project construction would be less than significant. Operation of the proposed replacement force main would not result in direct emissions (e.g., those from a point source such as stationary boilers or engines). Thus, it would not result in exposure to sensitive receptors in the vicinity of the project, and impacts would be **less than significant**.

Would the proposed project create objectionable odors affecting a substantial number of people?

Odors are a form of air pollution that is most obvious to the general public. Odors can present significant problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern. Construction and operation of the proposed force main would not create objectionable odors affecting a substantial number of people.

Construction Odors

Potential sources that may emit odors during construction activities include diesel equipment and gasoline fumes. Odors from these sources would be localized and generally confined to the project site. The proposed pipelines would be installed in a linear fashion, with approximately 100 feet of pipeline completed per day; therefore, construction activity would not occur in one

location for an extended period of time and not likely to exposure a substantial number of people. The proposed project would utilize typical construction techniques in compliance with SCAQMD rules. Additionally, the odors would be temporary. As such, proposed project construction would not cause an odor nuisance, and odor impacts would be **less than significant**.

Operational Odors

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed project entails construction of a new 6-inch export sludge force main that would replace the existing 4-inch force mains and would serve the existing CTP; therefore, it would not result in the creation of a land use that is commonly associated with odors. There has not been a history of odor problems associated with the current force mains. In addition, the new pipeline would be installed underground and would be on a consistently rising grade, thereby avoiding the need for combination sewage air-vacuum valves at high points or blow-offs at low points. Therefore, the proposed pipeline would not produce a source of odor. Accordingly, project operations would result in a **less-than-significant** odor impact.

4.3.6 Mitigation Measures

Implementation of the proposed project would not result in significant impacts that would require mitigation. The project must adhere to SCAQMD Rules during construction-related activities, which would assist in minimizing less-than-significant air pollutant emissions generated during construction.

4.3.7 Level of Significance after Mitigation

No mitigation would be required and potential air quality impacts associated with project implementation would be less than significant.

4.4 BIOLOGICAL RESOURCES

4.4.1 Introduction

This section evaluates the potential impacts of the proposed project on local and regional biological resources. The analysis summarizes available biological background data and a biological technical study of the project site area.

4.4.2 Methodology

Information in this section was obtained from the Biological Technical Report (BTR) for the CTP Export Sludge Force Main Project (Dudek 2012a) included as *Appendix C* of this EIR. The BTR analyzed a biological resources study area which encompasses 394 acres of land within the AWCWP and was determined using a 500-foot buffer on all sides of the proposed alignment (see *Figure 4.4-1, Biological Resources Study Area*).

Methods used to determine which special-status biological resources are present or potentially present in the study area were identified through a literature search and focused survey reports. Between May 2011 and June 2012, Dudek and other biologists conducted vegetation mapping, special-status plant surveys, and focused surveys for the state- and federally listed endangered least Bell's vireo (*Vireo bellii pusillus*), the state- and federally listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*), the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*), and the federally listed endangered arroyo toad (*Anaxyrus californicus*). A habitat assessment for the state Species of Special Concern (SSC) western pond turtle (*Emys marmorata*) was conducted by Dudek Biologist Brock Ortega and independent Herpetologist Robert Goodman in October, 2011. A focused survey and habitat assessment for the federally listed endangered and state SSC southern steelhead (*Oncorhynchus mykiss irideus*) was conducted by ECORP Consulting fisheries biologists in September 2012. See *Appendix C* for more details regarding special-status species survey methods.

Vegetation communities in the study area were mapped using the List of California Vegetation Alliances and Associations (CDFG 2010). The mapping was done in the field directly onto an aerial photographic base. The maximum scale of the map was 200-scale (1 inch = 200 feet) base. Dudek biologists collected data across a diverse set of communities and land covers on site by recording species composition and structural integrity across differentiated stands of vegetation (i.e., polygons).

4.4.3 Existing Conditions

4.4.3.1 General Biological Resources

Vegetation Communities

Twenty-one vegetation communities and land covers (including disturbed forms) were mapped in the study area based on general physiognomy and species composition, including 17 native or naturalized vegetation types and 4 non-native land covers. These vegetation communities and land cover types are described below, their acreages are presented in *Table 4.4-1*, and their spatial distributions are presented in *Figure 4.4-2, Biological Resources Map*.

**Table 4.4-1
Vegetation Communities and Land Cover Types in Study Area**

Vegetation Community/Land Cover	Acreage
<i>Native Uplands</i>	
California Sagebrush Scrub	80.51
Disturbed California Sagebrush Scrub	1.36
Coyote Brush Scrub	22.40
Menzies' Goldenbush Scrub	7.04
California Annual Grassland	131.27
Coast Live Oak–Toyon	2.13
<i>Subtotal</i>	244.71
<i>Riparian and Wetland Communities</i>	
Southern Willow Scrub	35.10
Disturbed Southern Willow Scrub	0.39
Southern Cottonwood–Willow Riparian Forest	54.63
Arundo-Dominated Riparian	0.53
Mulefat Scrub	15.49
White Alder–Mulefat Scrub	1.58
Herbaceous Wetlands	1.12
Yerba Mansa Meadow	0.10
Coastal and Valley Freshwater Marsh	1.86
Open Water	3.66
Open Channel	1.81
<i>Subtotal</i>	116.27
<i>Non-Native Land Covers</i>	
Developed Land	16.40
Disturbed Habitat	6.06
Ruderal	8.13
Ornamental	2.13
<i>Subtotal</i>	32.72
TOTAL	393.70

California Sagebrush Scrub

California sagebrush scrub is considered a coastal scrub vegetation alliance (CDFG 2003). It is a native plant community characterized by a variety of soft, low, aromatic, drought-deciduous shrubs, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), California bush sunflower (*Encelia californica*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on steep, south-facing slopes and at times, though rarely, occurs on flooded low-gradient deposits along streams in which are scattered willows (*Salix* spp.) and mulefat (*Baccharis salicifolia*), depending on the site conditions. Soils on which this alliance occurs are described as alluvial or colluvial-derived and shallow (Sawyer and Keeler-Wolf 1995). California sagebrush scrub rarely occurs as a continuous vegetation community but rather occurs in a patchy or mosaic distribution pattern throughout its range. Shrub cover is rarely 100% (O’Leary 1990a and 1990b; Beyers and Wirtz II 1995).

Within the project area, California sagebrush scrub was mapped in areas supporting a minimum of 50% cover of native shrubs and subshrubs including California sagebrush, California encelia (*Encelia californica*), giant wild rye (*Leymus condensatus*), golden yarrow (*Eriophyllum confertiflorum*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), deerweed (*Lotus scoparius*), toyon, and hollyleaf redberry (*Rhamnus ilicifolia*). Non-native and exotic species comprised roughly 10% to 15% of the total area of this community including, but not limited to, black mustard (*Brassica nigra*), and bristly ox-tongue (*Picris echioides*). Bare ground in some cases comprised up to 20% cover.

Disturbed California sagebrush is similar in species composition to native California sagebrush but it supports anywhere from 20% to 50% cover of non-native annual grasses and other non-native species.

California sagebrush scrub has a rank of G5S5 in the Vegetation Classification and Mapping Program’s List of Vegetation Alliances and Associations (California Department of Fish and Game (CDFG) (2010)), meaning it is globally secure and secure in the state. However, because this alliance is the obligate habitat type for the federally listed threatened California gnatcatcher, it is considered a special-status vegetation community.

Coyote Brush Scrub

Coyote brush scrub alliance communities include coyote brush as the sole or dominant shrub in the canopy. Coyote brush scrub has a continuous or intermittent shrub canopy less than 2 meters (7 feet) in height with a variable ground layer (Sawyer and Keeler-Wolf 1995).

Species associated with the coyote brush scrub alliance typically include black sage, California buckwheat, California blackberry (*Rubus ursinus*), California coffeeberry (*Rhamnus californica*), California figwort (*Scrophularia* sp.), California sagebrush, creeping ryegrass (*Leymus triticoides*), poison oak (*Toxicodendron diversilobum*), seaside woolly sunflower (*Eriophyllum stoechadifolium*), salal (*Gaultheria shallon*), sword fern (*Polystichum munitum*), tufted hairgrass (*Deschampsia cespitosa*), yellow bush lupine (*Lupinus arboreus*), yellow sand-verbena (*Abronia latifolia*), wax myrtle (*Myrica californica*), and white sage (Sawyer and Keeler-Wolf 1995).

The coyote brush scrub alliance often occurs in stabilized dunes of coastal bars, river mouths, spits along coastline, coastal bluffs, open slopes, and terraces (Sawyer and Keeler-Wolf 1995).

Within the study area, the coyote brush scrub alliance forms an open to intermittent shrub layer. The herbaceous layer is open to intermittent and typically has established stands of non-native grasses and herbs. Trees are occasionally emergent. The on-site alliance is dominated by coyote brush and contains California sagebrush, laurel sumac, and purple sage. California buckwheat, chaparral bushmallow (*Malacothamnus fasciculatus*), saw-toothed goldenbush (*Hazardia squarrosa*), blue elderberry (*Sambucus mexicana*), and mulefat are occasionally present. The herbaceous layer includes foxtail chess (*Bromus madritensis* ssp. *madritensis*), ripgut brome (*Bromus diandrus*), black mustard, Maltese star-thistle (*Centaurea melitensis*), fennel (*Foeniculum vulgare*), purple needlegrass (*Nassella pulchra*), and giant wild rye.

Coyote brush scrub alliance has a rank of G5S5 in CDFG (2010), meaning it is globally secure and secure in the state. However, because this alliance is considered a sub-association of California sagebrush scrub, which is the obligate habitat type for the federally listed threatened California gnatcatcher, it is considered a special-status vegetation community.

Menzies' Goldenbush Scrub

Menzies' goldenbush scrub (Gray and Bramlett 1992) is a plant association which is dominated by coastal goldenbush (*Isocoma menziesii* var. *menziesii*). It is not a plant community identified in Holland (1986) and would typically be included in the California sage scrub community for mapping purposes. It has been separated from California sage scrub in this report because it supports nearly monotypic patches of coastal goldenbush and appears most commonly along road edges and on manufactured slopes, although there are areas where it occurs on the upper floodplain terraces of Aliso Creek. In these instances, it intergrades with mulefat scrub and southern willow scrub understory species such as western ragweed (*Ambrosia psilostachya*).

The *Isocoma menziesii* var. *menziesii* (Menzies' goldenbush scrub) alliance has a rank of G4?S4? in CDFG (2010), meaning that it is apparently secure both globally and within the state but that more data is needed to confirm. Because this alliance is considered a sub-association of California sagebrush scrub, which is the obligate habitat type for the federally listed threatened California gnatcatcher, it is considered a special-status vegetation community.

California Annual Grassland

California annual grassland is characterized by a mixture of weedy, introduced annuals, primarily grasses. It may occur where disturbance by maintenance (mowing, scraping, discing, spraying, etc.), repetitive fire, agriculture, or other mechanical disruptions have altered soils and removed native seed sources from areas formerly supporting native vegetation. Holland (1986) states that California annual grasslands have a sparse to dense cover of annual grasses that are typically 0.2–0.5 meter (0.7–1.6 feet) tall and can be up to 1 meter (3 feet) tall. Wildflowers are often associated with California annual grasslands, especially in years with favorable precipitation (Holland 1986).

According to Holland (1986) and the List of Terrestrial Natural Communities (CDFG 2003), grasses that occur in California annual (non-native) grasslands include oats (*Avena* spp.), bromes (*Bromus* spp.), fescue (*Vulpia* spp.), and Italian ryegrass (*Lolium perenne* ssp. *multiflorum*). Forbs that occur with these grasses include California poppy (*Eschscholzia californica*), filaree (*Erodium* spp.), goldfields (*Lasthenia* spp.), phacelia (*Phacelia* spp.), gilias (*Gilia* spp.), and baby blue-eyes (*Nemophila menziesii*).

California annual (non-native) grassland also includes land that is used as pasture for grazing purposes. Grasses such as barley (*Hordeum* spp.) and wild oats (*Avena* sp.) may grow in these areas. This land has very few native species.

In his description of California annual (non-native) grassland, Holland (1986) states that this habitat type typically occurs on fine-textured clay soils. Sites are often moist or waterlogged during the winter rainy season and very dry during the summer and fall months. Adjacent areas with moister, better-drained soils often support oak woodland. According to Sawyer and Keeler-Wolf (1995), California annual (non-native) grasslands occur in uplands of all topographic orientation.

On site, the California annual (non-native) grassland alliance forms a continuous herbaceous layer. The shrub layer is sparse while trees are generally absent. The on-site alliance is dominated by non-native annual grasses and contains bromes, black mustard, fennel, and wild oats.

The California Annual (Non-Native) Grassland alliance has a rank of G4S4 in CDFG (2010), meaning that it is apparently secure both globally and within the state.

Coast Live Oak–Toyon Woodland

This community, although not described by Holland (1986) or Gray and Bramlett (1992), is a distinct vegetation community within the study area and as such was mapped separately. Coast live oak–toyon woodland is a community equally represented by both coast live oak (*Quercus agrifolia*) and toyon with a strong non-native grassland understory component. The coast live oaks

within this community are young and range in height from about 8 to 10 feet. Within the study area, this plant association is found in only one area and is comprised of coast live oak, toyon, bromes, wild oat, blessed milkthistle (*Silybum marianum*), and other non-native forbs. The coast live oaks and toyon occur on a fairly steep slope in a patchy mosaic of ruderal vegetation and non-native grasses.

The *Quercus agrifolia* (coast live oak woodland) alliance has a rank of G5S4 in CDFG (2010), meaning it is globally secure and apparently secure in the state. At the association level, *Quercus agrifolia*–*Heteromeles arbutifolia* does not have a global or state ranking and is not considered sensitive.

Southern Willow Scrub

Southern willow scrub is often described as a dense, broad-leaved, winter-deciduous riparian thicket dominated by several species of willow (Holland 1986). Most stands are too dense to allow much understory development (Holland 1986). Species associated with the southern willow scrub alliance include scattered emergent Fremont cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*) (Holland 1986).

Southern willow scrub is found along stream channels on loose, sandy, or fine gravelly alluvium deposits. This habitat is considered seral due to repeated disturbance/flooding and is therefore unable to develop into the taller southern cottonwood–willow riparian forest (Holland 1986).

Within the project area, southern willow scrub was mapped in areas supporting a minimum of 50% cover of native shrubs and subshrubs and is primarily associated with Sulphur Creek, Aliso Creek, and tributaries to Aliso Creek within the AWCWP. This habitat forms a closed to moderately open canopy with a depauperate understory supporting a poorly developed herbaceous layer intermixed with bare ground and leaf litter. Southern willow scrub is found along the length of Aliso Creek and is dominated by arroyo willow (*Salix lasiolepis*) and sandbar willow (*Salix exigua*), with scattered individuals of young black willow (*Salix gooddingii*) and western sycamore. This community occurs in a matrix with mulefat scrub and freshwater marsh. In some areas, Fremont's cottonwood (*Populus fremontii*) and white alder (*Alnus rhombifolia*) are present in small patches; however, it appears that some of these areas may have been planted. White alder is not known from the Aliso drainage (Roberts, pers. comm. 2000). Where present, understory species include mugwort (*Artemisia douglasiana*), cocklebur (*Xanthium* spp.), and western ragweed, as well as freshwater marsh species such as California bulrush (*Scirpus californicus*) and broadleaf cattail (*Typha latifolia*). This vegetation community type also includes areas of freshwater marsh and open channel that were too small to map as separate types.

Disturbed southern willow scrub is similar in species composition to native southern willow scrub, but it supports anywhere from 20% to 50% cover of giant reed (*Arundo donax*) and other non-native species.

Southern willow scrub does not fit into a specific alliance in CDFG (2010), but the willow species that comprise the southern willow scrub (narrowleaf willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), and arroyo willow) have alliances in CDFG. Narrowleaf willow alliance has a rank of G5S4, meaning it is globally secure and apparently secure in the state. Goodding's willow has a rank of G4S3, meaning it is apparently secure globally and is vulnerable to extirpation or extinction in the state. Arroyo willow has a rank of G4S4, meaning that it is apparently secure both globally and within the state. Because southern willow scrub is a wetland waters of the United States/State of California, it is considered a special-status vegetation community.

Southern Cottonwood–Willow Riparian Forest

Southern cottonwood–willow riparian forest is a tall, open, broad-leaved winter deciduous riparian forest dominated by Fremont's cottonwood and several different species of willow (Holland 1986). It occurs in frequently overflowed lands along rivers and streams.

Within the study area, southern cottonwood–willow riparian forest occurs along the lower sections of Aliso Creek within the main flow channel. Species present within this community include Fremont's cottonwood, arroyo willow, red willow, narrow-leaved willow, Goodding's black willow, western sycamore, and mulefat.

The *Populus fremontii* (southern cottonwood–willow riparian forest) alliance has a rank of G3S3.2 in CDFG (2010), meaning it is globally vulnerable and vulnerable in the state. This alliance is considered a special-status vegetation community per CDFG (2010).

Arundo-Dominated Riparian

Arundo-dominated riparian is comprised of monotypic or nearly monotypic stands of giant reed, a fairly widespread, noxious weed in Southern California (Sawyer and Keeler Wolf 1995). Typically it occurs on moist soils and in streambeds and may be related directly to soil disturbance or introduction of propagules by grading or flooding. Mapped occurrences may include surrounding native trees.

In the project area, Arundo-dominated riparian occurs in dense stands within the main reach of Aliso Creek.

Although the Arundo-dominated riparian alliance is recognized by the List of California Vegetation Alliances (CDFG 2010), it is not ranked because the community is considered semi-natural non-native. However, this alliance is considered a wetland waters of the United States/State of California, and as such it is considered a special-status vegetation community.

Mulefat Scrub

Mulefat scrub is a relatively low (2 to 3 meters), dense, shrubby riparian scrub alliance that occurs in riparian vegetation, edges of catch basins, and in canyons. It is dominated by mulefat, and may contain a small number of arroyo willow, upland shrubs, and facultative wetland herbs. Mulefat scrub is a seral alliance that occurs mainly along major drainages and floodplains where the riparian vegetation is open or disturbed. Frequent flooding and/or scouring apparently maintain this alliance in an early successional state (Holland 1986).

Within the study area, mulefat scrub is found in a matrix with southern willow scrub, extending into dryer areas on upper floodplain terraces where it also intergrades with Menzies' goldenbush scrub.

The *Baccharis salicifolia* alliance has a rank of G5S4 in CDFG (2010), meaning it is globally secure and apparently secure in the state. However, because this community is considered a riparian community under the potential jurisdiction of the CDFG, it is considered a special-status vegetation community.

White Alder–Mulefat Scrub

White alder–mulefat scrub association, although not recognized by Gray and Bramlett (1992), is a distinct vegetation community within the study area. It occurs as a sliver of woody vegetation adjacent to the main dirt access road and at the toe of an annual grassland–coastal sage scrub slope. It appears that this area may have been planted as a potential wind break because white alder is not known from the Aliso drainage (Roberts, pers. comm. 2000). This community is supported by an understory comprised of non-native grasses and forbs including bromes, black mustard, and yellow-star thistle.

The White Alder Grove alliance has a rank of G4S4 in CDFG (2010), meaning that it is apparently secure both globally and within the state. At the association level, *Alnus rhombifolia*–*Baccharis salicifolia* does not have a ranking and is not considered sensitive. However, because this association is considered a riparian community under the potential jurisdiction of the CDFG, it is considered a special-status vegetation community.

Herbaceous Wetlands

This community is a seasonal wetland vegetation type that primarily supports annual species, such as western ragweed, curly dock (*Rumex crispus*), bristly ox-tongue (*Picris echioides*), questionable rush (*Juncus dubius*), and cocklebur. Within the study area, herbaceous wetlands occur along the floodplain edges of Aliso Creek in low-lying swales. Herbaceous wetlands do not include species such as cattails, bulrushes, and rushes that constitute freshwater marsh. As a seasonal community in Orange County (County), herbaceous wetlands may only occur during wetter than average years.

Herbaceous wetlands do not fit into a specific alliance in CDFG (2010), but one of the species that comprises this community on site (western ragweed) has an alliance in CDFG. Western ragweed meadows provisional alliance has a rank of G4S4, meaning that it is apparently secure both globally and within the state. However, because this alliance is considered a wetland waters of the United States/State of California, it is considered a special-status vegetation community.

Yerba Mansa Meadow

Yerba mansa meadow refers to one location within the project area that is dominated by an almost pure stand of yerba mansa (*Anemopsis californica*) with some less than 15% cover of salt heliotrope (*Heliotropium curassavicum*).

The *Anemopsis californica* (yerba mansa meadow) alliance has a rank of G3S2? in CDFG (2010), meaning it is globally vulnerable and imperiled in the state. Because this alliance is considered a wetland waters of the United States/State of California and it is an imperiled resource, it is considered a special-status vegetation community.

Coastal and Valley Freshwater Marsh

Coastal and valley freshwater marsh is an association of fresh-brackish water marsh dominated by perennial, emergent monocots to 4–5 meters tall, often forming completely closed canopies. Coastal and valley freshwater marshes are found in sites that are quiet (lacking significant current) and permanently flooded by fresh water (Holland 1986). Dominant species typically include tall, emergent monocots, such as southern cattail (*Typha domingensis*) and bulrush, as well as some low-lying herbaceous species, such as curly dock, marsh fleabane (*Pluchea odorata*), and a variety of hydrophytic grasses and herbs. Fresh-brackish water marsh communities typically occur in drainages, seeps, and other perennially moist low places where the water table is close to or at the ground surface (Holland 1986).

Within the study area, coastal and valley freshwater marsh is found in pockets within and intermixed with southern willow and mulefat scrub in the channel bottom of Aliso Creek. Species found in coastal and valley freshwater marsh within the study area include predominantly broadleaf cattail, tall flatsedge (*Cyperus eragrostis*), and chairmaker's bulrush (*Schoenoplectus americanus*).

Coastal and valley freshwater marsh does not fit into a specific alliance in CDFG (2010), but the species that comprise this community on site (broadleaf cattail and chairmaker's bulrush) have alliances in CDFG. Broadleaf cattail alliance has a rank of G5S5, meaning it is globally secure and secure in the state. Chairmaker's bulrush has a rank of G5S3, meaning it is secure globally and is vulnerable to extirpation or extinction in the state. Because this alliance is considered a wetland waters of the United States/State of California, it is considered a special-status vegetation community.

Open Water

Open water consists of unvegetated standing waters and is regulated by CDFG pursuant to Section 1602 of the California Fish and Game Code, the U.S. Army Corps of Engineers (ACOE) pursuant to Section 404 of the federal Clean Water Act (CWA), and the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA and the state Porter-Cologne Act.

Within the study area, open water refers to ponded areas within Aliso Creek that, for the most part, lack wetlands vegetation and are often fringed by cattails (*Typha* sp.).

Open water is not a vegetation community; therefore, it is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). However, it is considered a non-wetland waters of the United States/State of California and as such is considered a special-status resource.

Open Channel

Open channel in the study area includes both natural channel and concrete-lined, developed channel. Natural open channel is characterized by intermittent stream channels that are barren or sparsely vegetated and are regulated by CDFG pursuant to Section 1602 of the California Fish and Game Code, the ACOE pursuant to Section 404 of the federal CWA, and the RWQCB pursuant to Section 401 of the CWA and the state Porter-Cologne Act. They are not wetlands due to the lack of hydrophytic vegetation. Open channel is similar to unvegetated stream channel except that the width of the stream channel for areas mapped as open channel is greater than 10 feet. Concrete-lined, developed channels are not typically regulated by CDFG or ACOE and have very little, if any, biological value.

In the study area, natural open channel consists of dry, sparsely vegetated, sandy-bottomed channels associated with Aliso Creek. The developed open channel on site refers to an east-to-west trending, concrete-lined, unvegetated tributary to Aliso Creek in the more central portion of the study area.

Open channel is not a vegetation community; therefore, it is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). However, it is considered a non-wetland waters of the United States/State of California and as such is considered a special-status resource.

Developed

Developed land refers to areas supporting man-made structures including homes, yards, roadways, sidewalks, and other highly modified lands supporting structures associated with dwellings or other permanent structures. Within the study area, developed land refers to existing roads, parking lots, buildings, and other permanent structures. Vegetation in these areas, if present at all, is typically associated with development landscaping.

Developed land is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). This community is not considered a special-status vegetation community.

Disturbed Land

Disturbed land includes areas that experience or have experienced high levels of human disturbance and as a result are generally lacking vegetation. Areas mapped as disturbed land may include unpaved roads, trails, and graded areas. Vegetation in these areas, if present at all, is usually sparse and dominated by non-native weedy herbaceous species.

Within the study area, disturbed land includes trails and bare, open areas with less than 20% vegetative cover.

Disturbed land is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). This community is not considered a special-status vegetation community.

Ruderal

Vegetation in ruderal areas is comprised of weedy herbaceous species, such as tocalote (*Centaurea melitensis*), wild oat, black mustard, sow thistle (*Sonchus asper*), and prickly lettuce (*Lactuca serriola*). Ruderal areas are generally the result of disturbance, such as prior grading or fire. Ruderal areas occur across a wide range of elevations, topographic orientations, and soil types.

Within the study area, ruderal land is comprised of more than 20% cover of fennel, blessed milkthistle, Italian plumeless thistle (*Carduus pycnocephalus*), and maltese star-thistle. Ruderal differs from disturbed land in that it supports more than 20% cover of weedy and non-native vegetation.

Ruderal is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). This community is not considered a special-status vegetation community.

Ornamental

Areas mapped as ornamental include planted areas where ornamental landscaping has been installed as part of a recreational park, development, or roadway landscaping.

Ornamental is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). Since it is dominated by non-native ornamental plantings, ornamental land has limited value and is not considered a special-status vegetation community.

Floral Diversity

A total of 161 species of vascular plants were observed during the rare plant surveys and vegetation mapping effort. Of the 161 species observed, 94 (58%) are plant species native to California and 67 (42%) are non-native plant species. A list of all plant species observed in the study area during surveys is presented in *Appendix A* of the BTR (Dudek 2012a).

General Wildlife

A total of 104 wildlife species were observed during focused surveys for special-status species, including 7 reptiles, 3 amphibians, 67 birds, 10 mammals, 12 invertebrates, 4 fish, and 1 crustacean. A full list of wildlife species observed in the study area during the surveys is provided in *Appendix B* of the BTR (Dudek 2012a).

Birds

A total of 67 bird species were observed in the study area during general and focused wildlife surveys for the coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. A variety of birds were observed in the study area, including both common and special-status species. Some of the more common species observed include mourning dove (*Zenaida macroura*), mallard (*Anas platyrhynchos*), California quail (*Callipepla californica*), black phoebe (*Sayornis nigricans*), and western scrub-jay (*Aphelocoma californica*). Special-status wildlife species observed within the study area are described below.

Reptiles and Amphibians

Seven reptile and three amphibian species were detected in the study area during the focused wildlife surveys. Observed amphibians included western toad (*Anaxyrus boreas*), Baja California treefrog (*Pseudacris hypochondriaca*), and the non-native bullfrog (*Rana catesbeiana*). Observed reptiles included western pond turtle, pond slider (*Trachemys scripta*), southern alligator lizard (*Gerrhonotus multicarinatus*), western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), western rattlesnake (*Crotalus oreganus*), and gophersnake (*Pituophis catenifer*).

Fish

Four non-native fish species were detected in Aliso Creek during focused southern steelhead surveys: common carp (*Cyprinus carpio*), red shiner (*Cyprinella lutrensis*), western mosquitofish (*Gambusia affinis*), and largemouth bass (*Micropterus salmoides*). No native fish species were observed. All four species were detected on both the downstream and upstream side of the Aliso Creek Wildlife Habitat Enhancement Project (ACWHEP) structure. No suitable habitat is present in the study area for Tidweater goby (*Eucyclogobius newberryi*) and none were observed during the focused southern steelhead surveys; therefore, this species is not discussed further in this EIR.

Mammals

A total of 10 mammal species were observed within the study area. Species observed during the focused surveys included California ground squirrel (*Spermophilus beecheyi*), generally observed on grassy slopes and along dirt and paved roads in the study area; woodrat (*Neotoma* sp.), observed in coastal scrub areas; bobcat (*Lynx rufus*), observed on the dirt road leading down to the CTP on the east side of Aliso Creek (utility access road); and mountain lion (*Felis concolor*) scat which also was observed on the utility access road. Abundant mule deer (*Odocoileus hemionus*) and coyote (*Canis latrans*) tracks were also observed on sand bars, benches, and margins of the main channel during focused surveys.

Invertebrates

A total of 12 invertebrate species were observed during the focused wildlife surveys. Species observed are primarily common butterflies and included tiger swallowtail (*Papilio rutulus*), checkered white (*Pontia protodice*), California buckeye (*Junonia coenia*), and mourning cloak (*Nymphalis antiopa*).

Crustaceans

One non-native crustacean species was observed during focused surveys: red swamp crayfish (*Procambarus clarkia*).

4.4.3.2 Special-Status Biological Resources

Endangered, rare, or threatened species, as defined in CEQA Guideline 15380(b) (14 CCR 15000 et seq.), are referred to as “special-status species” in this report and include (1) endangered or threatened species recognized in the context of the California Endangered Species Act (CESA) and the federal Endangered Species Act (FESA); (2) plant species with a California Rare Plant Rank (CRPR) (CDFG 2012; CNPS 2012) (Lists 1 through 4); (3) California Species of Special Concern (SSC) and Watch List (WL) species, as designated by the CDFG (2011); (4) mammals and birds that are Fully Protected (FP) species, as described in Fish and Game Code, Sections

4700 and 3511; (5) Birds of Conservation Concern (BCC), as designated by the U.S. Fish and Wildlife Service (USFWS) (2008); and (6) plant and wildlife species that are “covered” under the Central-Coastal Subregion NCCP/HCP (County of Orange 1996).

Special-Status Plants

Special-status plant surveys were conducted to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guideline 15380 (14 CCR 15000 et seq.). No special-status plants were identified in the study area during 2011 and 2012 rare plant surveys. A list of all special-status plant species known to occur in the vicinity of the study area (the surrounding eight topographic quadrangles) and plant species covered under the Central-Coastal Subregion NCCP/HCP, with their habitat requirements, potential to occur in the study area, and survey observations, is provided in *Appendix C* of the BTR (Dudek 2012a). This appendix provides evaluations for each of these special-status species’ occurrence in the study area vicinity and their potential to occur in the study area based on known range, habitat associations, preferred soil substrate, life form, elevation, and blooming period. *Appendix C* also includes other special-status plant species with ranges that overlap the study area but that are either not expected to occur or have a low potential to occur. Consistent with the negative findings of the plant surveys, there are no special-status plant species with a moderate or high potential to occur within the project study area. Special-status plants, therefore, are not further analyzed in this EIR because no direct, indirect, or cumulative impacts are expected based on the negative surveys and the evaluation that no special-status plant have moderate or high potential to occur in the study area.

Special-Status Wildlife

For the purposes of the analysis presented in this subsection, special-status species are defined as wildlife that:

- Have been designated as either rare, threatened, or endangered by CDFG or the USFWS and are protected under either CESA (California Fish and Game Code, Section 2050 et seq.) or FESA (16 U.S.C. 1531 et seq.); or meet the CEQA definition for endangered, rare, or threatened (14 CCR 15380(b),(d));
- Are candidate species being considered or proposed for listing under these same acts;
- Are fully protected by the California Fish and Game Code Sections 3511, 4700, 5050, or 5515;
- Are of expressed concern to resource/regulatory agencies or local jurisdictions. This includes those wildlife that are considered a state Species of Special Concern; are on CDFG Watch List; are designated as a federal Bird of Conservation Concern; or considered a state Special Animal; or
- Are listed as Covered Species in the Central-Coastal Subregion NCCP/HCP (County of Orange 1996).

A list of all special-status wildlife species known to occur in the vicinity of the study area (the surrounding eight topographic quadrangles) and wildlife species covered under the Central-Coastal Subregion NCCP/HCP, with their habitat requirements, potential to occur in the study area, and survey observations, is provided in *Appendices D* and *E* of the BTR (Dudek 2012a). *Appendix D* includes special-status wildlife species that have low potential or are not expected to occur in the study area. *Appendix E* includes special-status wildlife species that were observed or have at least moderate to high potential to occur in the study area.

The coastal California gnatcatcher, least Bell's vireo, and seven other special-status wildlife species were observed in the study area during the focused surveys: Cooper's hawk (*Accipiter cooperii*), a CDFG WL species; Nuttall's woodpecker (*Picoides nuttallii*), a USFWS BCC; western pond turtle, a CDFG SSC; yellow-breasted chat (*Icteria virens*), a CDFG SSC; yellow warbler (*Setophaga [Dendroica] petechia*), a CDFG SSC; and white-tailed kite (*Elanus leucurus*), a CDFG FP species (*Figure 4.4-2, Biological Resources Map*).

Notably, the non-native brown-headed cowbird (*Molothrus ater*) was observed in Aliso Creek. Brown-headed cowbirds can have adverse effects on native passerine populations through nest parasitism, including special-status species such as least Bell's vireo (USFWS 1998) and coastal California gnatcatcher (Patten and Campbell 1998).

Coastal California Gnatcatcher

Four pairs of California gnatcatchers and two un-capped individuals were observed in the study area by Dudek during 2011 focused surveys (*Appendix F* of the BTR; Dudek 2012a). RECON (2009) had previously observed one other gnatcatcher pair with a juvenile along the east side of the creek during 2009 focused surveys. A pair was not observed in this area during 2011 surveys performed by Dudek. A single, un-capped gnatcatcher was identified by Dudek Biologist Brock A. Ortega during focused surveys for least Bell's vireo and southwestern willow flycatcher in June 2011 and was later confirmed by Dudek Biologists Tricia L. Wotipka and Jeffrey D. Priest on August 9, 2011, during focused California gnatcatcher surveys. Another single, un-capped California gnatcatcher was observed on the east side of Aliso Creek in suitable habitat just south of the park ranger station. This individual was later confirmed to be present on the east and west side of Aliso Creek by Dudek Biologists Dr. Anita M. Hayworth, Tricia L. Wotipka, and Kevin M. Shaw during a subsequent gnatcatcher survey on August 17, 2011. The distribution of observed California gnatcatcher use areas is depicted in *Figure 4.4-2*.

Least Bell's Vireo and Southwestern Willow Flycatcher

Seven pairs of least Bell's vireo were observed in the main stem of Aliso Creek during the 2011 focused surveys (*Appendix G* of the BTR; Dudek 2012a). The upstream section of Aliso Creek from the ACWHEP structure to Alicia Parkway supported the highest concentration of least Bell's vireo

with five documented pairs. Two pairs of least Bell's vireo were mapped in Aliso Creek from the ACWHEP structure downstream to the CTP. These two pairs, however, were only documented on one occasion (May 21) and were not detected during the remaining surveys. No southwestern willow flycatchers were observed during the 2011 focused survey effort.

Arroyo Toad

No arroyo toads were observed during the 2012 focused survey effort.

Southern Steelhead

The focused survey for southern steelhead did not result in any observations or evidence of presence of southern steelhead, suitable steelhead spawning habitat, or any other native fishes within the approximately 3.6-mile study area. Stream habitat is dominated by pools, runs, and glides, with very little riffle habitat. Substrates throughout most of the reach consist of fines and sand with only a few isolated small pockets of coarse gravel and cobble occurring within and adjacent to the creek; however, these larger substrates were heavily embedded with fines and sand. Additionally, a dense riparian corridor occurs along much of the reach and as a result, coarse particulate organic matter (CPOM) is relatively abundant throughout the reach.

Based on the survey, spawning habitat for southern steelhead is not present within the study area. Suitable spawning habitat generally consists of riffle or riffle-like habitats with well aerated clean substrates consisting of large gravel to small cobble. Additionally, a concrete dam/road crossing with an elevated culvert is located about 1.65 miles upstream from the CTP and is a barrier to upstream migration for all fish species. The steelhead study concluded that southern steelhead presence in the study area is highly unlikely for several reasons: (1) lack of suitable spawning and juvenile rearing habitat; (2) sparse benthic macroinvertebrate community; (3) generally low flows, marginal water quality, and abundant CPOM; and (4) abundance of non-native fish species (common carp, red shiner, western mosquitofish, and largemouth bass).

Special-Status Vegetation Communities

During the 2011 vegetation mapping, 14 vegetation communities (including disturbed forms) were mapped that are considered special-status pursuant to local, state, and federal guidelines and policies: California sagebrush scrub (including disturbed form), coyote brush scrub, Menzies' goldenbush scrub, coast live oak–toyon, southern willow scrub (including disturbed form), southern cottonwood–willow riparian forest, Arundo-dominated riparian, mulefat scrub, white alder–mulefat scrub, herbaceous wetlands, yerba mansa meadow, coastal and valley freshwater marsh, open water, and open channel.

4.4.3.3 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for dispersal or migration of animals, as well as dispersal of plants (e.g., via wildlife vectors). Wildlife corridors contribute to population viability in several ways: (1) they assure continual exchange of genes between populations which helps maintain genetic diversity; (2) they provide access to adjacent habitat areas representing additional territory for foraging and mating; (3) they allow for a greater carrying capacity; and (4) they provide routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes. Habitat linkages are patches of native habitat that function to join two larger patches of habitat. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage is a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat “islands” that function as stepping stones for dispersal and movement (especially for birds and flying insects).

Aliso Creek is identified in the Central-Coastal Subregion NCCP/HCP as part of a linkage system from the Sycamore Hills to the San Joaquin Hills via Laguna Canyon. Riparian corridors are typically used by wildlife as movement corridors, and this drainage links inland areas of Orange County with the Pacific Ocean, less than 2 miles west of the CTP. Abundant mule deer and coyote prints were observed on sand bars, benches, and margins of the main channel during focused surveys, and bobcat and mountain lion were also detected in the study area, indicating that Aliso Creek is functioning as a wildlife use and movement area.

4.4.3.4 Regional Resource Planning Context

Orange County Central-Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan

The majority of the study area is within the designated Central-Coastal Subregion NCCP/HCP reserve system. Infrastructure projects are an allowed use within these reserves provided they are consistent with policies regarding the siting, construction, and operation of such infrastructure.

Impacts to coastal sage scrub (mapped as California sagebrush scrub, coyote brush scrub, and Menzies' goldenbush scrub in the study area) or take of species covered by the Central-Coastal Subregion NCCP/HCP within designated reserve areas are authorized by the USFWS Section 10 (a)(1)(B) permit and CDFG Management Authorization (MA) as set forth in the Implementation Agreement (IA) for this document. Procedures do, however, vary for participating and non-participating landowners. Section 5.9 of the Central-Coastal Subregion NCCP/HCP contains policies regarding infrastructure which are intended to guide the siting, construction, and

operation of permitted infrastructure. Certain public infrastructure necessary for public health and safety or economic reasons will be permitted within the subregional reserve system. Sewer lines are included on this list.

SOCWA is not listed as a participating landowner in the Central-Coastal Subregion NCCP/HCP. However, non-participating landowners have the option of addressing unavoidable impacts/take within reserves by ~~either~~ providing acceptable mitigation through separate permits or authorizations under FESA/CESA ~~or paying a mitigation fee to the NCCP nonprofit corporation.~~ Selection of the mitigation fee option to address impacts to coastal sage scrub species will be covered under the terms of the USFWS Section 10(a)(1) (B) permit and CDFG Management Authorization (MA) granted to the local government with jurisdiction over the proposed activity. No additional approvals pursuant to FESA, CESA, and the Natural Community Conservation Planning Act (NCCP Act) will be required.

Impacts in non-reserve open space areas and existing use areas are not authorized for non-participating landowners. For existing use areas, the use of the mitigation fee option is not available to non-participating landowners unless located with a signatory local government jurisdiction and specifically authorized by the CDFG and USFWS. Any activity which would require take in such areas shall require the approval of the applicable regulatory agencies pursuant to FESA and CESA.

It should be noted that coordination is still required with Section 404 and 401 of the CWA and Sections 1600–1603 of the California Fish and Game Code regarding potential impacts to wetlands or waters of the United States.

4.4.4 Applicable Plans and Policies

4.4.4.1 Federal

Endangered Species Act

FESA (16 U.S.C. 1531 et seq.), enacted in 1973, is administered by the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (formerly National Marine Fisheries Service). The purpose of FESA is to conserve and recover endangered and threatened species, and the ecosystems upon which they depend. FESA requires all federal agencies to protect listed species and preserve their habitats. Section 4 of FESA sets forth a process for listing species as endangered or threatened, for designating critical habitat for listed species, and for preparing recovery plans for listed species. Section 7 requires federal agencies to consult with the USFWS or NOAA Fisheries to ensure their actions do not jeopardize listed species. Section 9 prohibits the “take” of a listed species. Section 10 allows non-federal entities that prepare a

habitat conservation plan (HCP) to obtain an incidental take permit allowing development projects to proceed. Section 11 sets forth enforcement and penalty provisions.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act prohibits the taking, killing, or possessing of migratory birds that migrate across state and national boundaries (16 U.S.C. 703 et seq.).

Clean Water Act

The CWA (33 U.S.C. 1251 et seq.) is the cornerstone of water quality protection in the United States. This statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are geared at restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so they can adequately support fish, shellfish, and wildlife, as well as recreation in and on the water (EPA 2008). Section 404 of the CWA establishes a permitting program to regulate the discharge of dredged or filled material into waters of the United States. The definition of waters of the United States includes wetlands adjacent to national waters. This permitting program is administered by ACOE and enforced by the U.S. Environmental Protection Agency.

4.4.4.2 State

California Endangered Species Act

CESA (Fish and Game Code, Section 2050 et seq.), administered by the CDFG, establishes a state policy to conserve, protect, enhance, and restore endangered and threatened species and their habitat. CESA establishes a state listing process, prohibits unauthorized "take," and provides for incidental take permits. CESA emphasizes early consultation to avoid potential impacts to endangered and threatened species, and to develop appropriate mitigation planning to offset impacts to listed species populations and their essential habitats.

The NCCP Act was added to the CESA in 1991. These provisions provide for voluntary cooperation among CDFG, landowners, and other interested parties to develop natural community conservation plans (NCCPs), which provide for early coordination of efforts to protect listed species or species that are not yet listed. The primary purpose of the NCCP Act is to preserve species and their habitats, while allowing reasonable and appropriate development to occur on affected lands.

Native Plant Protection Act

The Native Plant Protection Act, administered by the CDFG, establishes a state policy to preserve, protect, and enhance endangered or rare native plants in the State of California and preserve vegetative biodiversity supporting sensitive ecosystems. Many species and subspecies of native plants are endangered due to habitat destruction, modification, severe curtailment, disease, or commercial exploitation or by other means. Early consultation is recommended to avoid potential impacts to native plant species and to develop appropriate mitigation planning to offset impacts to listed species populations and their essential habitats (California Fish and Game Code, Section 1900 et seq.).

4.4.4.3 Local

Orange County Central-Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan

The California legislature enacted the NCCP Act in 1991, recognizing the need for broad-based planning to provide effective protection and conservation of the state's wildlife while continuing to allow appropriate development and growth. Under this approach, the focus changed from the preservation of individual species to the conservation of natural communities (and their constituent species). In accordance with this Act, the Central-Coastal Subregion NCCP/HCP allocated an approximately 208,000-acre area that includes the central portion of the County, including lands from the coastline inland to Riverside County.

The proposed project study area is located in the coastal subarea of the Central-Coastal Subregion NCCP/HCP and is one of the County's existing public open space areas which contributes to the subregional habitat reserve. Aliso Creek is one of the dominant physiographic features in the coastal subarea and is specifically called out in discussions regarding reserve design, and special linkages and management areas. The majority of the project area is within designated reserve, with the portions at the eastern end being classified as "existing use" and "non-reserve open space."

4.4.5 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of biological resource impacts. Impacts to biological resources would be significant if the proposed project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- 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
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions, but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significance.

4.4.6 Impacts

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Special-Status Plant Species

No special-status plant species were detected in the study area during focused rare plant surveys. Additionally, there are no special-status plants species with a moderate or high potential to occur within the study area. Therefore, there would be **no impacts** (direct or indirect) to special-status plants.

Special-Status Wildlife Species

Special-Status Birds

California gnatcatchers were observed in the study area during focused surveys, as shown in *Figures 4.4-3a, b, and c*. Construction activities conducted during the California gnatcatcher's breeding season (generally mid-February through August) could disrupt breeding activity, both through direct temporary impacts to habitat and indirect effects from construction such as noise. Nesting least Bell's vireos were observed in Aliso Creek during focused surveys, as shown in *Figures 4.4-3a, b, and c*. Construction activities conducted during the breeding season of this species (generally April through August) could also disrupt breeding activity through direct temporary impacts to habitat and indirect impacts. Other special-status birds that may nest in the study area include Cooper's hawk, white-tailed kite, northern harrier, Nuttall's woodpecker, yellow-breasted chat, yellow warbler, and southwestern willow flycatcher. Construction during their nesting seasons also could both directly and indirectly disrupt breeding activity. Temporary, direct and indirect impacts to nesting special-status birds would be a **significant impact**. As a result, mitigation measure BIO-1 is recommended, refer to *Section 4.4.7*.

Western Pond Turtle

Western pond turtle was observed at two locations within Aliso Creek (see *Figures 4.4-3a and b*). Construction activities could result in direct impacts to individual pond turtles, including direct mortality and injury. Construction activities could also interfere with movement by reproductive females and neonates moving between wetland and upland nest sites, temporarily disrupting breeding activity and potential recruitment of new individuals. Temporary, direct impacts to western pond turtle would be a **significant impact**. Mitigation measures BIO-2 and BIO-3 are recommended in *Section 4.4.7*.

Special-Status Amphibians and Reptiles

Several special-status reptile species have at least moderate potential to occur in the study area, including orange-throated whiptail (*Aspidoscelis hyperythra*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), rosy boa (*Charina trivirgata*), red diamond rattlesnake (*Crotalus ruber*), coast (San Diego) horned lizard (*Phrynosoma coronatum (blainvillei)* population), Coronado island skink (*Plestiodon skiltonianus interparietalis*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), and two-striped garter snake (*Thamnophis hammondi*). No special-status amphibians are expected to occur in the study area. Construction activities have the potential to directly impact a small number of individuals of these species, including mortality and injury of individuals in burrows or other refugia that are too sluggish to escape impacts. However, because the vast majority of suitable upland and riparian habitats in the study area and adjacent vicinity would not be affected by the project, direct impacts to a few individuals of

these species would have small impacts on the local populations. Therefore, impacts to special-status reptiles are considered minimal and impacts would be **less than significant**.

Special-Status Mammals

The following terrestrial mammals have moderate potential to occur within the study area: Dulzura (California) pocket mouse (*Chaetodipus californicus femoralis*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), and San Diego desert woodrat (*Neotoma lepida intermedia*). Construction activities have the potential to directly impact a small number of individuals of these species, including mortality and injury of individuals in burrows or woodrat middens. Also, any individuals that are flushed from burrows or middens by construction activities would be highly vulnerable to stress and predation. However, because the vast majority of suitable habitats for mammals in the study area and adjacent vicinity would not be affected by the project, direct impacts to a few individuals of these species would have small impacts on the local populations.

Several bats also may forage in the study area at night, but would be unaffected by the project. However, wintering (i.e., non-breeding) western red bats may roost in the study area in southern cottonwood–willow riparian forest and could be affected by construction. However, only 0.18 acre of the 54.63 acres of southern cottonwood–willow riparian forest would be temporarily impacted; therefore, the chance of a western red bat roost being directly impacted is exceedingly low, and the vast majority of suitable tree habitat would remain if a roost was disturbed. Western red bat individuals would be expected to relocate to other suitable habitat. Therefore, impacts to special-status mammals are considered minimal and impacts would be **less than significant**.

Would the project 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?

Construction of the proposed project would include vegetation removal within the construction easement for trenching and placement of the 6-inch force main. This would result in temporary, direct impact to 15 acres of sensitive vegetation communities and non-natural land covers, including 8.36 acres of natural upland communities and 2.94 acres of riparian and wetland communities, as shown on *Table 4.4-2*.

**Table 4.4-2
Temporary Direct Impacts to Vegetation Communities**

Vegetation Community/Land Cover	Temporary Impacts (Acres)
<i>Natural Uplands</i>	
California Sagebrush Scrub	2.34
Coyote Brush Scrub	0.91

**Table 4.4-2
Temporary Direct Impacts to Vegetation Communities**

Vegetation Community/Land Cover	Temporary Impacts (Acres)
Menzies' Goldenbush Scrub	0.10
California Annual Grassland	5.01
<i>Subtotal</i>	8.36
<i>Riparian and Wetland Communities</i>	
Southern Willow Scrub	0.49
Southern Cottonwood–Willow Riparian Forest	0.18
Arundo-Dominated Riparian	0.15
Mulefat Scrub	1.53
White Alder–Mulefat Scrub	0.58
Open Channel	0.01
<i>Subtotal</i>	2.94
<i>Non-Natural Land Covers</i>	
Developed Land	0.28
Disturbed Habitat	2.13
Ruderal	1.27
Ornamental	0.02
<i>Subtotal</i>	3.70
TOTAL	15.00

Direct, temporary impacts to 11.3 acres of sensitive natural vegetation communities are considered a **significant impact**. Therefore, mitigation measure BIO-4 is recommended in *Section 4.4.7* to reduce impacts.

In addition, clearing or trampling of vegetation outside the proposed impact area could occur during construction of the proposed project. Damage to vegetation communities could result in temporary, indirect impacts including ecosystem modification, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion. In addition to direct disturbance, other indirect, **potentially significant**, impacts could result from fugitive dust, hydrologic alterations, and chemical pollutants. Mitigation measure BIO-5 is recommended in *Section 4.4.7* to reduce impacts.

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Direct Impacts

Direct impacts to jurisdictional waters would occur as a result of vegetation removal activities during construction. Temporary, direct impacts to jurisdictional waters are quantified on *Table 4.4-3* and are presented on *Figures 4.4-3a, b, and c*.

Table 4.4-3
Impacts—Jurisdictional Waters and Wetlands

Vegetation Community/Land Cover	Impacts (Acres)
<i>Riparian and Wetland Communities</i>	
Southern Willow Scrub	0.49
Southern Cottonwood–Willow Riparian Forest	0.18
Arundo-Dominated Riparian	0.15
Mulefat Scrub	1.53
White Alder–Mulefat Scrub	0.58
Open Channel	0.01
TOTAL	2.94

Direct, temporary impacts to 2.94 acres of jurisdictional waters or wetlands would be considered a **significant impact**. Therefore, mitigation measure BIO-6 is recommended to reduce significant impacts, refer to *Section 4.4.7*.

Additional vegetation clearing outside the proposed impact area could occur, resulting in a potentially **significant impact**. These potential impacts could damage resources within these areas and alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion. Mitigation measure BIO-5 in *Section 4.4.7* is recommended to reduce these significant impacts.

No direct, permanent impacts to jurisdictional waters would result from the long-term operation of the proposed project.

Indirect Impacts

Potential indirect impacts to wetlands/jurisdictional waters related to the proposed project would primarily result from vegetation removal activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from vegetation removal, including sedimentation and erosion; increased human activity, and the introduction of chemical pollutants (including herbicides). However, based on the temporary and minimally invasive nature of the proposed project construction methods, and the absence of ground disturbing activities from project operation, indirect impacts would be **less than significant**.

Would the project 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 proposed project is located adjacent to Aliso Creek, which serves as a riparian corridor that links upland hills with the coastal region. Several medium- and large-sized mammals were detected in the study area, including coyote, bobcat, mule deer, and mountain lion. Temporary loss of habitat in the construction easement may somewhat reduce use and movement by these species due to loss of cover and refuge habitat; however, habitat would be restored after construction, and the temporary impact to habitat would be limited to less than 3% of the study area.

Once constructed, the proposed pipeline would be located almost entirely underground, except for a relatively short approximately 170-foot segment which would be located on the ground surface, enclosed in a box. Operation of the proposed project would not interfere with wildlife movement and habitat connectivity, and impacts would be **less than significant**.

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Local policies protecting biological resources are listed in the Resources Element of the Orange County General Plan (2011) and in the AWCWP Resources Management Plan (LSA 2009). These policies, and the proposed project's consistency with these policies, are presented in *Table 4.1-1, Project Consistency with Applicable Land Use Plans and Policies*. As stated in *Section 4.1*, the proposed project would be consistent with all local policies, including those related to biological resources. Therefore, impacts would be **less than significant**.

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The majority of the project alignment is located within the designated Central-Coastal Subregion NCCP/HCP reserve, with portions at the eastern end being classified as "existing use" and "non-reserve open space." Infrastructure projects are an allowed use within these reserves, including the "replacement, rehabilitation and upgrading of existing facilities that does not result in permanent loss of existing natural vegetation" (County of Orange 1996).

Although SOCWA is not listed as a participating landowner in the Central-Coastal Subregion NCCP/HCP, as an infrastructure project in the reserve, the proposed project is a covered activity and in conformance with the Central-Coastal Subregion NCCP/HCP (Meade 1996). The project would have minor temporary direct and indirect impacts on the reserve, as described for specific biological resources in the preceding sections, but would not have a long-term adverse impact on

the reserve. Coverage under the NCCP/HCP would be granted through the County of Orange or by SOCWA seeking permits of their own. Therefore, impacts related to conformance with adopted HCPs, NCCPs or other approved local, region, or state habitat conservation plans would be **less than significant**.

4.4.7 Mitigation Measures

The following mitigation measures are recommended to reduce identified impacts to biological resources.

BIO-1 The following avoidance measures shall be implemented prior to construction to prevent inadvertent direct and indirect impacts to special-status birds:

- Pre-construction nest-breeding bird surveys shall be conducted by an appropriately qualified biologist beginning 30 days prior to initiation of project activities, and recurring weekly, within 1 week prior to vegetation clearing—if construction occurs during the nesting season (February 1 through September 15) of species known or with potential to nest in the study area. Surveys shall be conducted to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). The last survey shall be conducted no more than 10 days prior to the initiation of project activities.
- Locations of nesting birds shall be mapped and If a protected native bird is found, appropriate no-work buffers shall be established, including 500/300-foot buffers for listed species such as California gnatcatcher and least Bell’s vireo, 500 feet for special-status raptors, and 50-foot buffers for non-listed passerine species until August 31. Alternatively, the qualified biologist could continue the surveys in order to locate any nests. If an active nest is located, project activities within 300 feet of the nest (within 500 feet for raptor nests), or as determined by the qualified biologist, must be postponed until the nest is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Flagging, stakes, and/or construction fencing may be appropriate to demarcate the inside boundary of the buffer of 300 feet (or 500 feet) between the project activities and the nest. The qualified biologist shall provide SOCWA the results of the protective measures to document compliance with applicable State and Federal laws pertaining to the protection of native birds.

- SOCWA and its biologist shall coordinate the procedures for minimizing harm to or harassment of wildlife encountered during construction with the SOCWA contractor and other key construction personnel prior to clearing, grubbing, or grading.
- SOCWA’s biologist and contractor shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas during the non-breeding season immediately prior to brush-clearing and earth-moving activities.

BIO-2

To prevent inadvertent impacts to western pond turtle, pre-construction surveys and exclusionary fencing shall be implemented. Starting in mid-March prior to scheduled construction, a qualified turtle biologist, specializing in pond turtle “nesting” behavior, shall survey the project footprint and adjacent areas within the study area in order to assess the areas for possible nesting sites and to map the limits of those potential habitats. Potential nesting areas shall be excluded with fencing material that is regularly monitored for integrity (i.e., no damage, breaches or gaps). This shall be accomplished through one of two alternative methods:

- Exclude the entire Aliso Creek riparian zone from the pipeline modification study area. This shall consist of a single line of exclusion fencing (i.e., several segments of silt fence attached to one another), uninterrupted from the upstream portion of the study area to the downstream portion and deflected back from the creek a sufficient distance to prevent end-runs. This shall prevent turtles from moving into the project zone. The fence shall be maintained with no breaks and/or openings throughout the project duration. The fence shall be placed before the nesting season begins (i.e., before March 1), even if the pipeline construction does not begin until summer and/or fall. The fencing material shall be at least 24 inches tall, with 6 inches keyed into the soil (buried) and 18 inches above ground.

-OR-

- Exclude only those areas deemed by the turtle biologist as possible nesting areas. This shall include completely surrounding those areas with an exclusion fence. The size of the exclusion areas shall depend on available nesting habitat (could be small and/or large, and could be many). The exclusion fence(s) shall be maintained at all times with no breaks and installed as directed above.

BIO-3 A biological monitor with turtle experience shall be onsite during all construction activities. The monitor shall periodically survey the modification zone and exclusion fence to make sure that there are no openings and that no turtles have entered the study area. If a turtle is observed, it shall be captured, processed, its reproductive status determined (palpating for eggs), and either relocated back to Aliso Creek out of harm's way or redirected to an area that is unencumbered by silt fencing. The monitor palpating ensure that female turtles attempting to return to same area to nest later that day or over the next few days are relocated out of the construction area.

BIO-4 Temporary, direct impacts to 11.3 acres of special-status vegetation communities shall be mitigated through on-site restoration at a 2:1 ratio (for California sagebrush scrub, coyote brush scrub, and Menzies' goldenbrush scrub) and a 1:1 ratio (for other vegetation communities) to restore impacted special-status vegetation communities to pre-construction conditions. A revegetation plan shall be developed, and all revegetation efforts shall be consistent with the management plan developed for the Central-Coastal Subregion NCCP/HCP for this particular reserve area. The revegetation plan shall include a monitoring program, clearly defined success criteria, and contingency measures, and shall be submitted to OC Parks prior to commencement of grading or trenching activities.

BIO-5 To prevent inadvertent disturbance to special-status vegetation communities, including riparian communities, outside the limits of the construction easement, vegetation removal shall be monitored by a biologist and standard best management practices (BMPs) (see measures listed in *Table 3-1* related to the minimization of fugitive dust, the containment of accidental spills of hazardous materials, and water quality protection) shall be implemented. A biologist shall be contracted to perform biological monitoring during all clearing activities.

The following duties shall be carried out by the biological monitor:

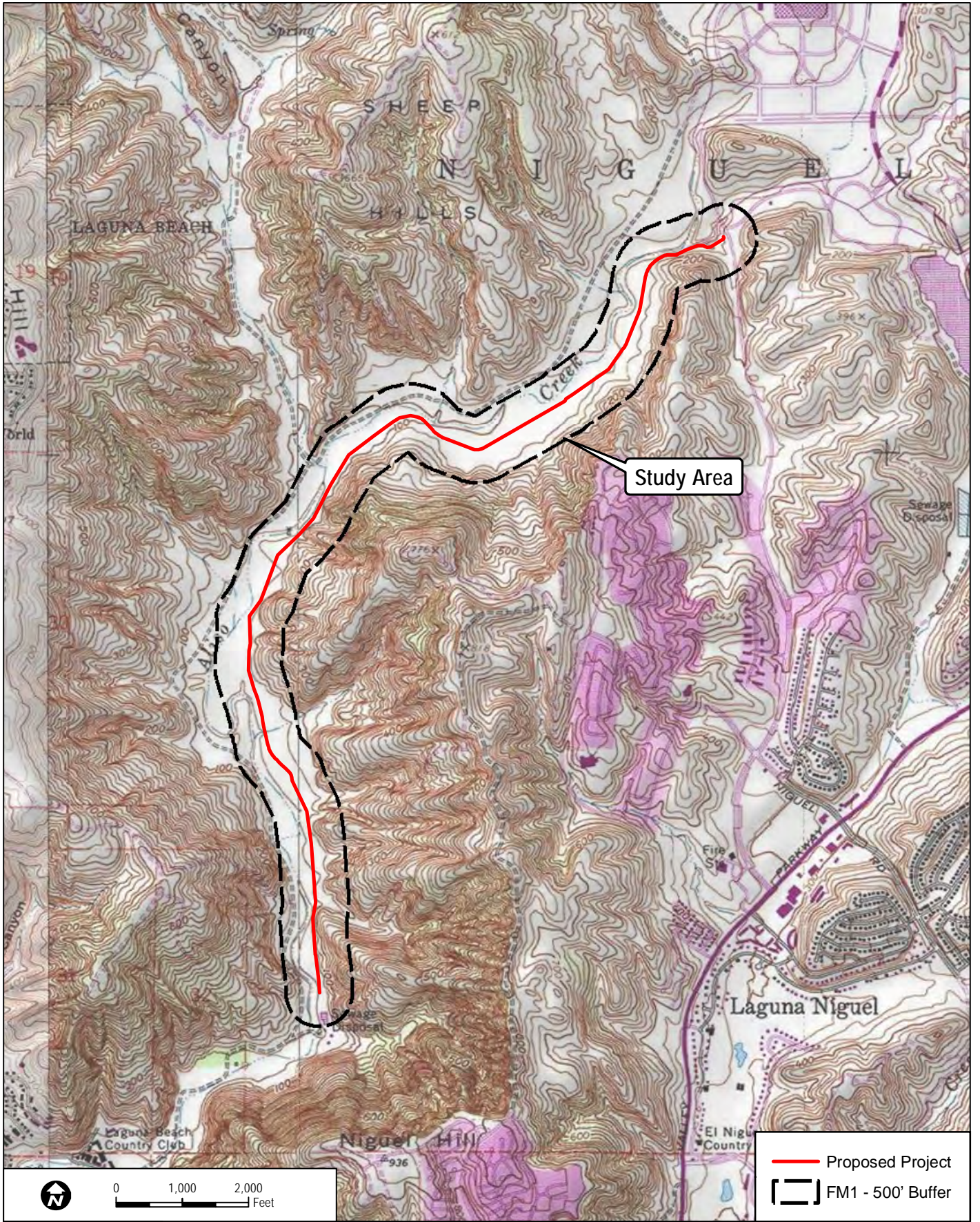
- Review and/or designate the vegetation removal area in the field with the contractor in accordance with the final plan;
- Be present during initial vegetation clearing, grubbing, and grading; and
- Record any advertent impacts to vegetation communities outside the designated construction easement in daily monitoring reports.

BIO-6 To reduce temporary impacts to 2.94 acres of jurisdictional waters / wetlands, the following shall be required of SOCWA:

- Prior to construction, the following agency permits shall be obtained, or verification that they are not required shall be obtained:
- SOCWA shall obtain a CWA, Section 401/404 permit issued by the California RWQCB and the ACOE for all project-related disturbances of water of the United States and/or associated wetlands.
- A Section 1602 Streambed Alteration Agreement shall be obtained from CDFG for all project-related disturbances of any streambed. These permits will specify the mitigation requirements for impacts to jurisdictional waters/wetlands.
- For temporary impacts resulting from the proposed project, restoration in place is typically required at a 1:1 ratio, but may be as high as 2:1. The permits will also likely stipulate standard construction best management practices that will be required by SOCWA to ensure that adjacent preserved wetlands will not be impacted by the project.
- As part of the permit conditions, SOCWA will be required to enter into a minimum 5-year maintenance and monitoring agreement in which the restoration areas are monitored by a qualified biologist to ensure they are meeting success criteria and performance standards. These criteria and standards will be established and defined during the permit process period. The plan shall be prepared and submitted to the regulatory agencies for approval.

4.4.8 Level of Significance after Mitigation

The mitigation provided in *Section 4.4.7* would reduce all direct and indirect impacts to biological resources to a level below significance.



Study Area

- Proposed Project
- FM1 - 500' Buffer

DUDEK

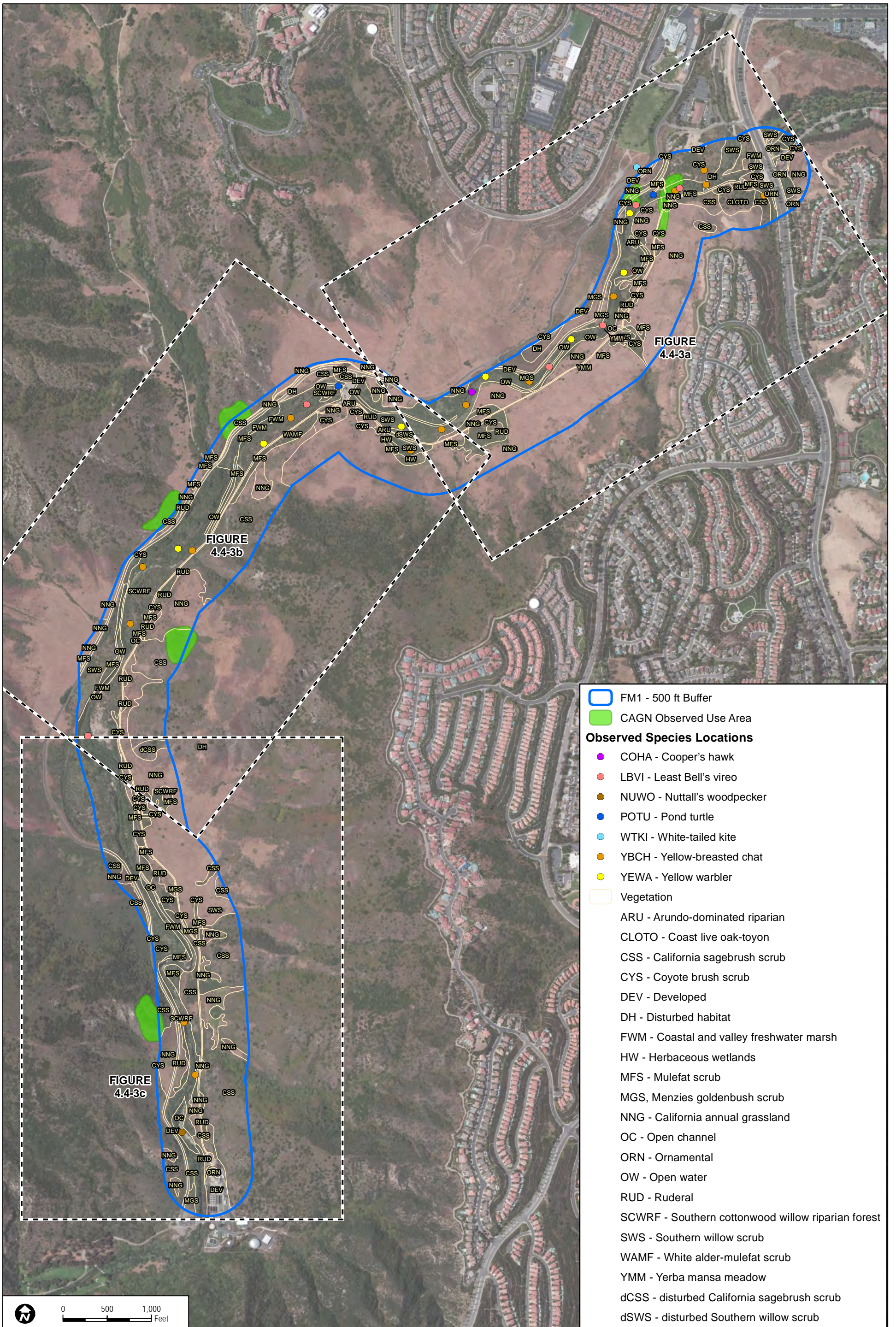
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SOURCE: USGS 7.5-Minute Series San Juan Capistrano Quadrangle.

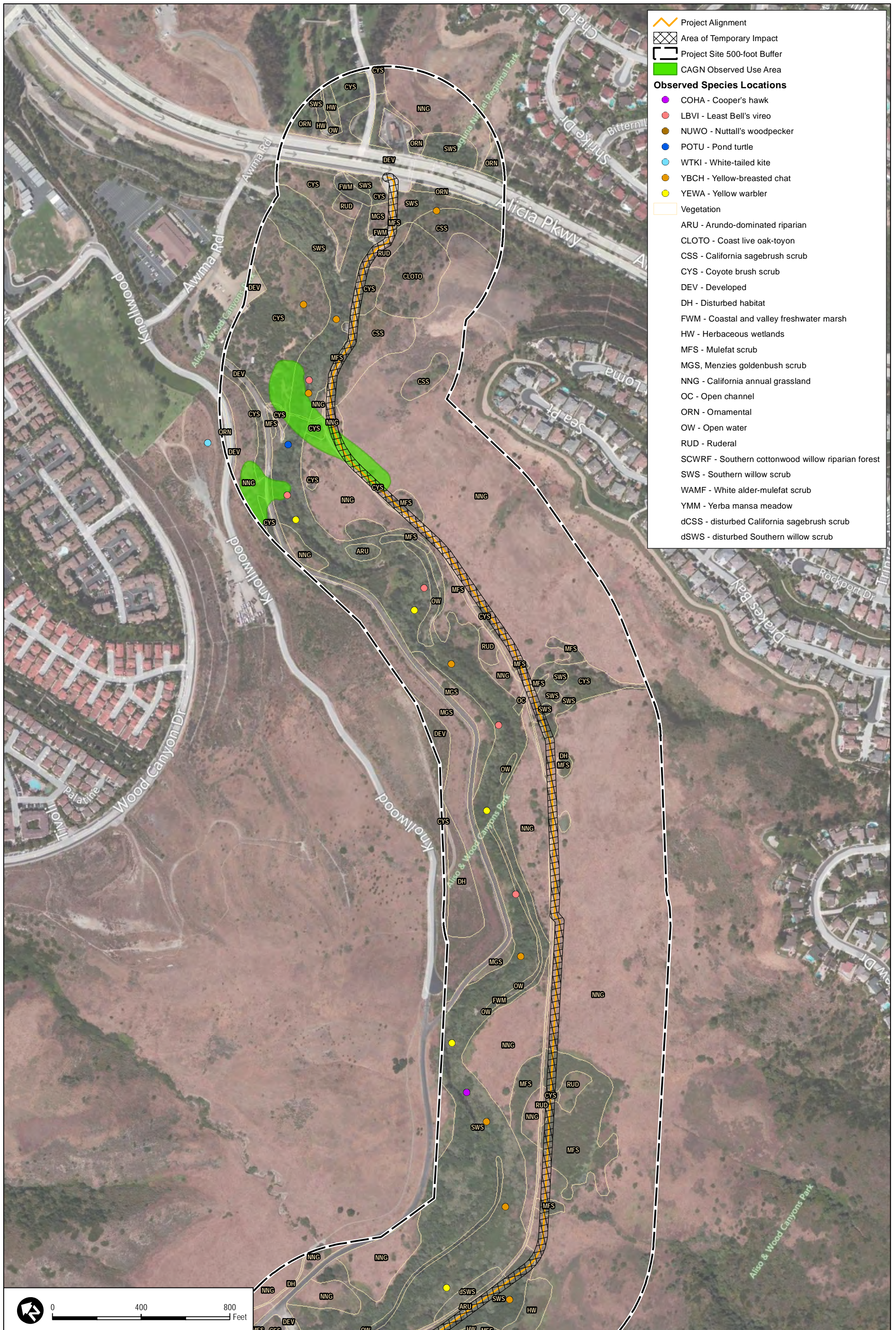
**FIGURE 4.4-1
Biological Resources Study Area**

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

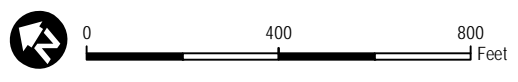
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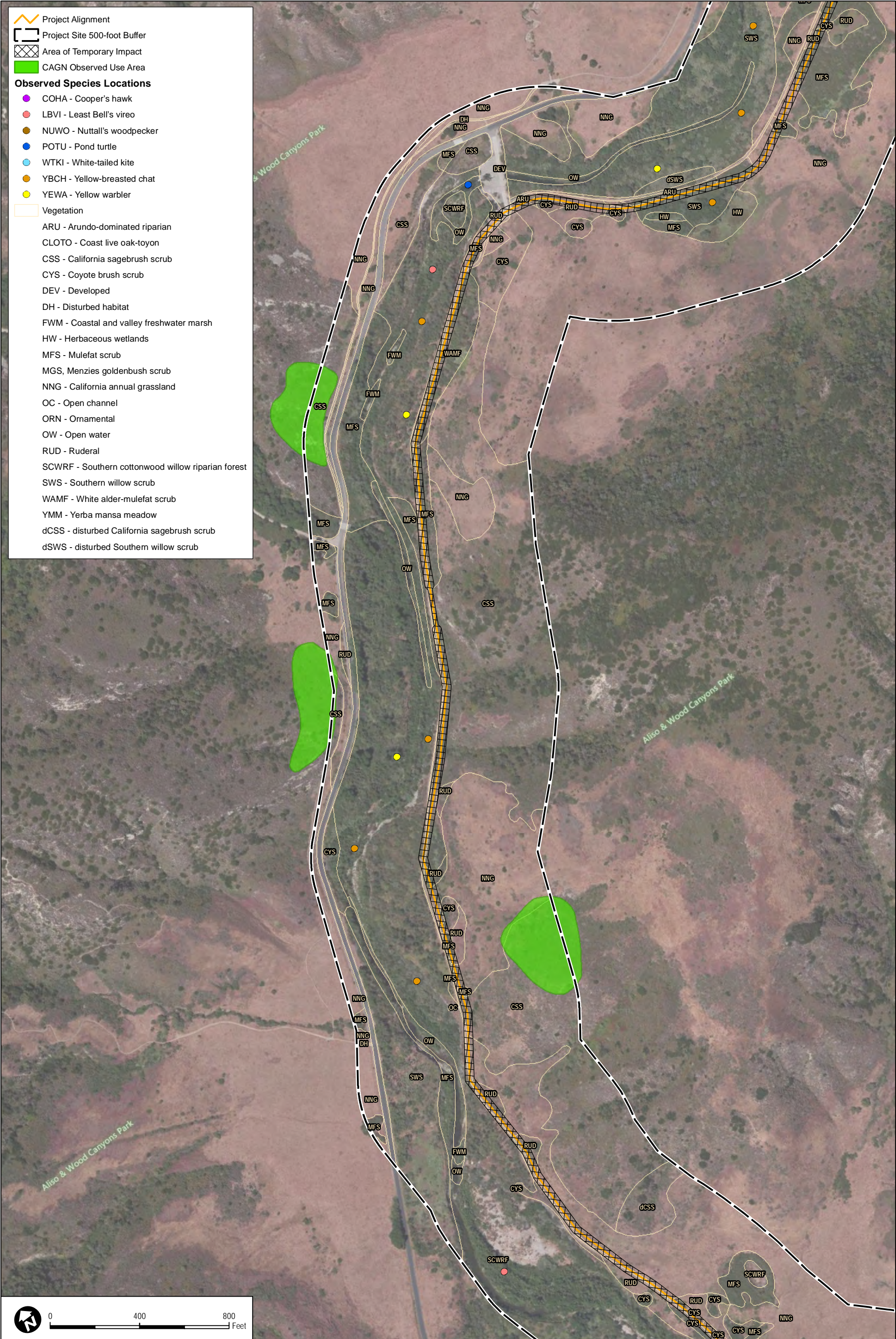
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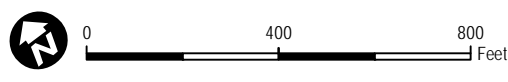
- Project Alignment
 - Area of Temporary Impact
 - Project Site 500-foot Buffer
 - CAGN Observed Use Area
- Observed Species Locations**
- COHA - Cooper's hawk
 - LBVI - Least Bell's vireo
 - NUWO - Nuttall's woodpecker
 - POTU - Pond turtle
 - WTKI - White-tailed kite
 - YBCH - Yellow-breasted chat
 - YEWA - Yellow warbler
- Vegetation**
- ARU - Arundo-dominated riparian
 - CLOTO - Coast live oak-toyon
 - CSS - California sagebrush scrub
 - CYS - Coyote brush scrub
 - DEV - Developed
 - DH - Disturbed habitat
 - FWM - Coastal and valley freshwater marsh
 - HW - Herbaceous wetlands
 - MFS - Mulefat scrub
 - MGS, Menzies goldenbush scrub
 - NNG - California annual grassland
 - OC - Open channel
 - ORN - Ornamental
 - OW - Open water
 - RUD - Ruderal
 - SCWRF - Southern cottonwood willow riparian forest
 - SWS - Southern willow scrub
 - WAMF - White alder-mulefat scrub
 - YMM - Yerba mansa meadow
 - dCSS - disturbed California sagebrush scrub
 - dSWS - disturbed Southern willow scrub



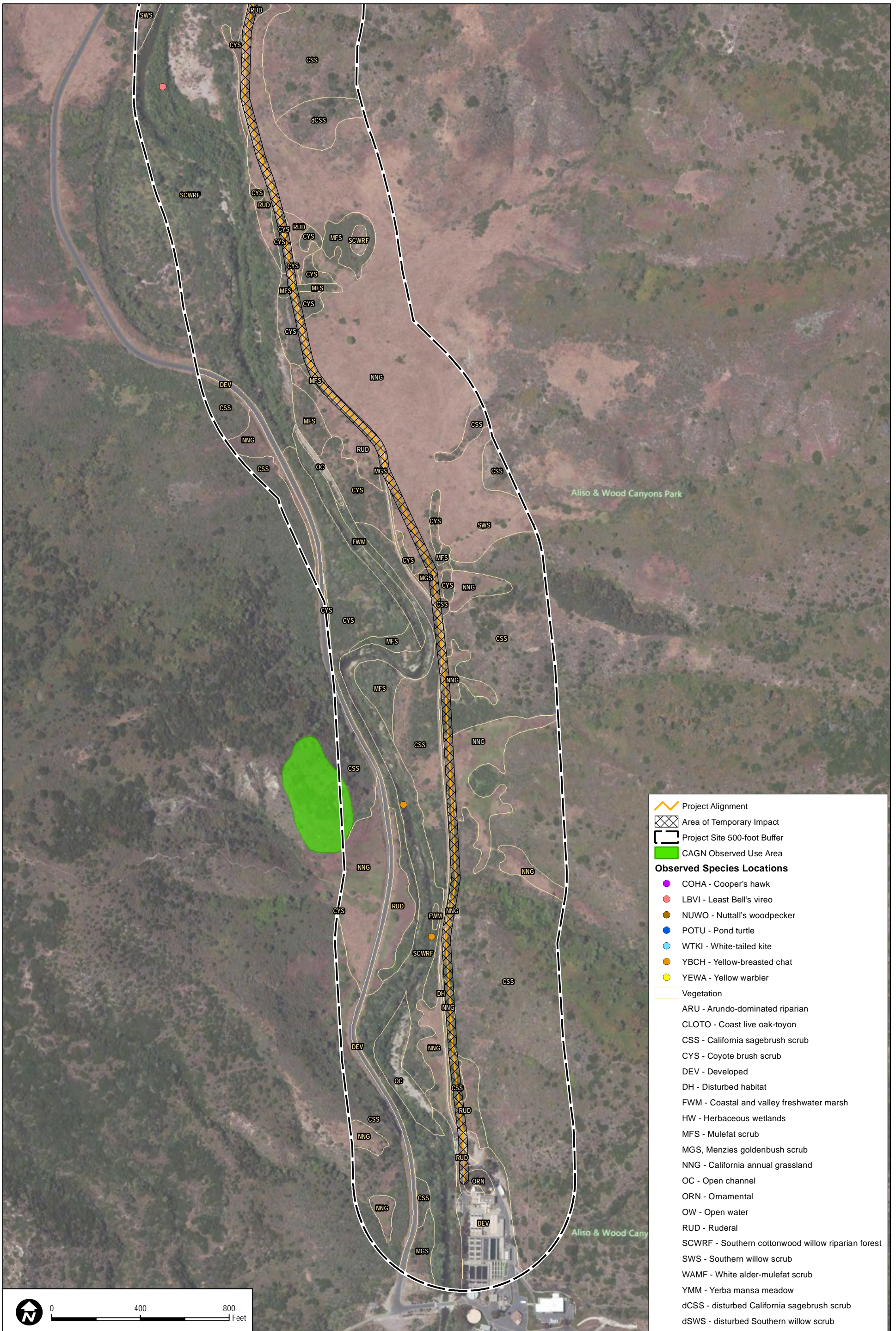
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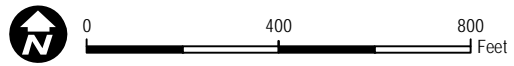
— Project Alignment
 Area of Temporary Impact
 Project Site 500-foot Buffer
 CAGN Observed Use Area

Observed Species Locations

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4.5 CULTURAL RESOURCES

4.5.1 Introduction

The purpose of this section is to estimate and evaluate the potential impacts to cultural resources associated with construction and operation of the proposed project.

4.5.2 Methodology

Archaeologist Ken Victorino completed an intensive pedestrian survey of the project area in July 2011. The pedestrian survey confirmed the mapped locations of known archaeological sites, verified boundaries, and documented any significant changes to the condition of the sites. No previously unrecorded archaeological sites were identified. Because of the presence of known archaeological sites, Extended Phase I Archaeological Investigations were conducted (Dudek 2012b). Six geoprobes were excavated along the proposed alignment within and adjacent to CA-ORA-581 and two geoprobes were excavated along the proposed alignment within and adjacent to CA-ORA-582. Investigations were conducted on October 15, 2012, and were monitored by Native American observer Alfred Cruz, Juaneño Band of Mission Indians. The results of these investigations are included in the Extended Phase I Archaeological Investigations Report, *Appendix D* to this EIR.

Additional information is incorporated from the Orange County General Plan (2011) and the AWCWP Resource Management Plan (RMP) (LSA 2009).

4.5.3 Existing Conditions

4.5.3.1 Cultural History

Numerous previous cultural resource management studies (see ARMC 1995, 1992, 1986; RMW 2000, 1988) discuss the prehistoric and ethnohistoric cultural context of the AWCWP area. A summary of this cultural context is provided below.

Prehistory

Regional syntheses for the Southern California coastal area follow chronological sequences presented by Wallace (1978 and 1955) and Warren (1968). Wallace defined four cultural horizons (Early Man, Millingstone, Intermediate, and Late Prehistoric) based on limited stratigraphic data, while Warren defined six traditions (San Dieguito, Encinitas, Campbell, Chumash, Yuman, and Shoshonean) based on more data and absolute radiocarbon dates. All of the horizons/traditions are briefly discussed below.

Early Man Horizon/San Dieguito Tradition

The key cultural feature of this period is the emphasis on large terrestrial mammal hunting, resulting in the nearly complete absence in archaeological deposits of milling stones used for hard seed processing. Artifacts generally associated with this period include flake knives, leaf-shaped projectile points, crude scrapers and choppers used for plant processing, hammerstones, and atlatl spurs. Social organization was characterized by smaller groups of nomadic hunters.

Millingstone Horizon/Encinitas Tradition (6,000–1,000 BC)

This period marks a shift from a nomadic hunting way of life to that of groups of hunter-gatherers who depended upon relatively consistent subsistence settlement activities dependent upon the seasonal availability of food resources. This shift is thought to be caused by an environmental change toward a drier, warmer climate resulting in the introduction of millingstone implements, including the mano and metate used for processing hard seeds (Kowta 1969). The warmer climate resulted in less foraging vegetation for large terrestrial animals, leading to the reduction of some species' range and availability.

Subsistence practices emphasized the gathering and processing of plant foods, specifically agave/yucca and seeds, while large game hunting became of secondary importance. Wallace proposed that a warming trend dried up interior lakes and forced the inhabitants towards moderate coastal areas (1978). He speculates that people from the Great Basin brought seed gathering subsistence to the coastal areas.

Manos and metates are abundantly identified in archaeological sites dating to this period, while large projectile points associated with the previous Early Man Horizon/San Dieguito Tradition are scarce. Artifact assemblages from this period include apparently ornamental (rather than having a particular subsistence application) cog stones, and crude core and flake tools (Wallace 1978). Sites are typically situated on bluffs above the shoreline and the size and depth of some coastal sites suggests a tendency towards sedentism during this period.

Intermediate Horizon/Campbell Tradition (1,000 BC–AD 600)

A return to subsistence practices emphasizing hunting characterizes this period. Cooler, wetter temperatures have been identified that resulted in increased terrestrial mammal populations. Projectile points identified in archaeological sites from this period were still primarily large, leaf-shaped points, though smaller points used to hunt smaller terrestrial mammals were introduced. Mortars and pestles, used for processing acorns and other pulpy plant foods, are important during this period, reflecting an emphasis on the acorn as a food source. The cooler climate resulted in the spread of oak woodland and savannah habitats, making acorn collection a relatively efficient form of supplementing the animal meat diet with this source of protein.

Late Prehistoric Horizon/Shoshonean Tradition (AD 600–1769)

This period of prehistory was characterized by a generally drier climate, punctuated by periods of intense drought. An increased number of large, permanent villages occupied during this period indicates that hunter/gatherer populations increased in spite of the less favorable climate. Resulting important cultural/social changes during this period included the development of trade networks and distinctive mortuary customs. Important technological developments during this period included the introduction on a broad scale of the bow and arrow, with the production of small arrowheads used to hunt small terrestrial mammals and birds. Fishing, though of secondary importance in earlier periods, increased in importance with the introduction of circular shell fishhooks and canoes used to exploit deep ocean habitats.

Ethnohistory

The first contact between Native Americans and the Spanish occurred in 1769 when Gaspar de Portola's expedition landed within what is now Orange County. Native American groups received their names from the association with the missions. The Gabrielino are associated with the Mission San Gabriel Arcángel in Los Angeles County, the Juaneño (*Acjachemem*) are associated with the Mission at San Juan Capistrano (formally founded in November 1776 and consecrated in September 1806, after nine years of construction), and the Luiseño are associated with the Mission at San Luis Rey de Francia in northern San Diego County. The Juaneño and Luiseño are considered to be ethnologically and linguistically the same, divided only by mission associations (Bean and Shipek 1978).

The Juaneño territory extends from south Orange County, along Aliso Creek, into northern coastal San Diego County, along Las Pulgas Canyon (Bean and Shipek 1978). The proposed project area is within the Juaneño territory.

4.5.3.2 Literature Review

An archaeological literature and records search was conducted at the California Historical Resources Information System at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, in May, 2011 to identify all recorded archaeological sites within 0.5 mile of the project area. The search identified all known archaeological sites, historic resources, and previous cultural resource surveys within this 0.5 mile distance. The SCCIC records indicate that a total of 44 previous cultural resource surveys have been performed and 26 archaeological sites have been identified within 0.5 mile of the proposed export sludge force main alignment. Of the previous studies, 13 studies evaluated all or portions of the proposed alignment (see ARMC 1986, 1992, 1995; RMW 1988, 2000; SRS 1976, 1977a, 1977b, 1978). Two prehistoric archaeological sites, CA-ORA-581 and CA-ORA-582, are recorded within the proposed force main alignment. A third site, CA-ORA-423, is located in the proposed alignment vicinity. The prehistoric archaeological sites are summarized below.

CA-ORA-581

The site was recorded by N. Leonard in 1975 as a “light scatter of shell and chipped waste” that measured 150 feet by 200 feet. (The site, as depicted by the SCCIC on the U.S. Geological Survey (USGS) San Juan Capistrano quadrangle (quad) map, measures approximately 400 feet by 300 feet.) Approximately 150 to 200 pieces of shell, mostly mussel, were noted along with 5 quartz and fine-grained volcanic flakes, and a quartz projectile point base. The 1975 Archaeological Site Survey Record indicates that an existing sewer line is located to the southeast. The not-to-scale sketch map accompanying the survey record shows a roughly oval-shaped site immediately south of Aliso Creek.

Scientific Resource Surveys Inc. (SRS) excavated six backhoe trenches at the site in 1978 to address potential impacts as a result of the development of the Moulton Niguel Water District (MNWD) effluent transmission main (ETM). Soil from the backhoe trenches was “spot screened” through 0.25-inch mesh. The six backhoe trenches were excavated east of the mapped site boundary and were negative for prehistoric cultural material (i.e., no prehistoric cultural material was recovered). The backhoe trench excavations determined CA-ORA-581 would not be impacted by the development of the ETM.

There appears to be some confusion/discrepancy regarding the location, size, and shape of CA-ORA-581 and the site boundaries depicted by the SCCIC on the USGS San Juan Capistrano quad map may be problematic. As mentioned above, the site, as depicted by the SCCIC on the USGS San Juan Capistrano quad map, measures approximately 400 feet by 300 feet, but the original 1975 Archaeological Site Survey Record indicates the site was 150 feet by 200 feet. The site survey record indicates that an existing sewer line is located to the southeast. The not-to-scale sketch map accompanying the site survey record shows a roughly oval-shaped site immediately south of Aliso Creek. The site survey record does not provide the site boundaries on a USGS quad map, so it appears that the site boundaries were approximated by SCCIC staff, and the site boundaries may be mis-mapped or exaggerated. A site map in the SRS report shows CA-ORA-581 as a roughly triangular-shaped site approximately 150 feet south of Aliso Creek. This site map indicates that CA-ORA-581 is approximately 295 feet by 150 feet and shows an existing pipeline immediately to the east. A Primary Record for CA-ORA-19 from 2000 includes a location map that shows a site boundary for CA-ORA-581 on the USGS San Juan Capistrano quad map. This location map shows CA-ORA-581 as an irregularly-shaped site that measures approximately 300 feet by 300 feet approximately 300 feet south of Aliso Creek.

CA-ORA-582

The site was recorded by N. Leonard in 1975 as a rock shelter. No cultural remains were noted within the rock shelter itself, but midden, consisting of quartz flakes and mussel shell, was noted in

a 25-foot by 50-foot area in front of the overhang. (The site, as depicted by the SCCIC on the USGS San Juan Capistrano quad map, measures approximately 300 feet by 200 feet.) The opening of the rock shelter was 6 feet high and 10 feet wide; the shelter itself was 12 feet deep/long.

SRS excavated 19 test units at the site in 1978 to address potential impacts as a result of the development of the ETM. Soil from the test units was screened through 1/8-inch mesh. Test units excavated on the slope in front of the rock shelter encountered articulated human remains; upon discovery of the articulated human remains, excavation of these units was terminated. However, the test units that did not encounter articulated human remains were excavated until sterile soil was encountered. The excavation of the test units and three backhoe trenches defined a site boundary that measured 65.5 feet by 59 feet.

At least one mano and one pestle, two projectile points, three *Olivella biplicata* (purple olive) shell wall disc beads, one unidentified clam shell disc bead, and two stone disc beads were recovered during the test unit excavations. These artifacts are diagnostic of a late horizon occupation (SRS 1978). A radiocarbon date indicates occupation of the rock shelter was around approximately 1800.

SRS (1978) recommended the ETM be “jacked” under the site to avoid impacts to the archaeological deposit. Review of as-built drawings prepared by Boyle Engineering Corp. in 1978 for the Aliso Creek Effluent Transmission Main (Reach E) indicate that 2 feet of fill soil was placed on top of the existing dirt road to protect the archaeological deposit from impacts from vehicular traffic and that approximately 160 linear feet of the ETM through the site was installed in steel casing approximately 5 feet below the original ground surface. The ETM was installed using jack and bore construction, not open trenching, to avoid impacts to the archaeological deposit during pipeline installation.

There appears to be some confusion/discrepancy regarding the size and shape of CA-ORA-582 and the site boundaries depicted by the SCCIC on the USGS San Juan Capistrano quad map may be problematic. As mentioned above, the site, as depicted by the SCCIC on the USGS San Juan Capistrano quad map, measures approximately 300 feet by 200 feet, but the original 1975 Archaeological Site Survey Record indicates the site was only 25 feet by 50 feet. The site survey record does not provide the site boundaries on a USGS quad map, so it appears that the site boundaries were approximated by SCCIC staff and the site boundaries may be mis-mapped or exaggerated. A site map in the SRS report (Figure 4 in SRS 1978) shows CA-ORA-582 as a roughly triangular-shaped site measuring approximately 65.5 feet by 59 feet. Based on the most recent investigation at CA-ORA-582 that defined a site boundary based on test unit and backhoe trench excavations (SRS 1978), it would appear that the boundary depicted by the SCCIC on the USGS San Juan Capistrano quad map is exaggerated.

CA-ORA-423

CA-ORA-423 was originally recorded by Cooley and Butler in 1973 as a “flat alluvial deposit” at the junction of Aliso and Sulphur Creeks, covering roughly 2 to 3 acres. The creeks had appeared to “cut through” the site deposit. Site depth, as observed within the creek bank exposures, was between 2 to 7 feet. Cultural material identified in the Aliso Creek bank included two ground stone artifacts and fresh water mussel shells. Shells and chipped stone artifacts were also observed. The site was revisited in 1976 (SRS 1976) and characterized as being located on the triangle of land formed by the confluence of Aliso and Sulphur creeks, and bounded on the east by Alicia Parkway. The site area recorded extended no farther than the north side of Sulphur Creek and was consistent with the Cooley and Butler characterization prepared in 1973. CA-ORA-423 was tested by RMW in 1986 (RMW 2000). Based on excavations at the northern end of the site, it was described as “a large, relatively undisturbed village” with a wide range of cultural material including chipped stone tools, ground stone tools, and faunal remains. Three burials that were eroding from the creek bank were salvaged and reburied in 1994 (Langenwalter 1994, as cited in RMW 2000). The most recent excavations by Hurd and Langenwalter in 1998 and 1999 have not yet been documented (RMW 2000). All investigations suggest that alluviation of Aliso and Sulphur creeks may have buried portions of the prehistoric site deposit.

The proposed SOCWA Export Sludge Force Main pipeline corridor would be placed within an existing dirt road on the southern banks of Aliso Creek and Sulphur Creek. The dirt road has been cut into a relatively steep, north-facing slope heading into the creeks below. Based on cut slopes existing on the south side of the road bed, the natural north-facing slope was graded when the road was constructed, removing approximately 2 to 4 feet of soils. In the absence of the road bed, the natural topography of the proposed pipeline corridor would have been over 20 percent. Prehistoric residential occupation sites such as CA-ORA-423 are not identified on this steep topography, as the sloping landform is not conducive to long-term habitation. Prehistoric residential camps are identified on fairly level ground surfaces, such as the terrace on the north side of Aliso Creek and Sulphur Creek. Therefore, the proposed pipeline corridor on the south side of Aliso Creek and Sulphur Creek is considered to have a relatively low potential for prehistoric occupation.

Additional existing disturbance within the dirt road corridor is associated with two existing force mains located on the north and south sides of the proposed export sludge force main pipeline (see DEIR Figure 3-3).

4.5.3.3 Native American Consultation

A search of the Native American Heritage Commission's (NAHC) Sacred Land File was requested on May 2, 2011, and was conducted on May 6, 2011, by Dave Singleton, NAHC Program Analyst, to determine the presence of any Native American cultural resources within the proposed project area (see *Appendix B* of the Extended Phase I Archaeological Investigations Report (Dudek 2012b)).

The NAHC indicated that known Native American cultural resources are located within the proposed project area. The NAHC identified eight Native American contacts within Orange County who would potentially have specific knowledge as to whether or not other cultural resources are located within the proposed project area. Letters were sent on October 11, 2012, to the eight Native Americans identified by the NAHC who might have knowledge of previously undocumented Native American cultural resources within the proposed project area (see *Appendix B* of the Extended Phase I Archaeological Investigations Report (Dudek 2012b)).

Alfred Cruz, Juaneño Band of Mission Indians, attended meetings on May 24, 2011, and July 23, 2012, with Brian Peck (SOCWA director of engineering), Ken Victorino (Dudek senior archaeologist), and Dr. Patricia Martz (California Cultural Resource Preservation Alliance) to discuss the status of archaeological investigations for the proposed project. Mr. Cruz also reviewed the methodology for the Extended Phase I Archaeological Investigations; participated in a field visit on September 11, 2012, with Mr. Peck, Mr. Victorino, and Dr. Martz to discuss the Extended Phase I methodology; and acted as the Native American observer during the Extended Phase I geoprobe excavations on October 15, 2012. Mr. Cruz considers that monitoring along the entire length of the proposed alignment is necessary.

4.5.3.4 Field Investigations

Phase I Survey

The proposed export sludge force main alignment east of Aliso Creek generally follows the existing dirt utility access road. The utility access road was characterized by good ground surface visibility (50% to 90%). In areas where the alignment deviated from the utility access road, ground surface visibility, limited by matted annual grasses, was poor (less than 10%). Rodent burrows and bare spots throughout this area, however, allowed examination of the ground surface and subsurface soils in areas with poor ground surface visibility. The utility access road was cut into the ground surface between 2 feet and 6 feet in the southern portion of the proposed alignment. The resulting cut banks/slopes along the eastern shoulder of the utility access road were carefully examined for the presence of archaeological materials, features such as hearths, or discolored soils associated with prehistoric occupation.

Manholes were observed on both sides of the existing dirt road extending along the entire length of the utility access road, indicating that the entire length of the road has been previously impacted by ground disturbing activities associated with construction of a below-ground pipeline.

No previously unrecorded archaeological sites or isolated artifacts were identified during the present intensive survey.

CA-ORA-581

None of the shell or flakes recorded by Leonard in 1975 were relocated during the Phase I survey of the proposed force main alignment and the existing dirt road in July 2011. As noted previously, there appears to be some confusion/discrepancy regarding the location of CA-ORA-581. Based on the most recent sketch map of the CA-ORA-581 (the sketch map contained in the Primary Record for CA-ORA-19 from 2000) the site appears to be west of the proposed force main alignment and existing utility access road that were surveyed.

CA-ORA-582

CA-ORA-582 was revisited during the Phase I survey conducted in July 2011. The rock shelter was relocated and is approximately 36 feet from the eastern edge of the utility access road. Measurements were taken of the rock shelter and found to be similar to the measurements recorded in 1975. Six pieces of shell, consisting of *Mytilus californianus* (California mussel), Veneridae (unidentified Venus clam), and *Balanus* spp. (barnacle), and one piece of metavolcanic chipped stone, were scattered over 49 feet along the eastern edge of the existing dirt road. Two other pieces of shell were observed on the slope between the rock shelter and the eastern edge of the existing dirt road.

CA-ORA-423

The proposed pipeline corridor was intensively examined for the presence of prehistoric remains in July, 2011. The proposed pipeline corridor within the vicinity of the recorded CA-ORA-423 site boundary on the southern Aliso Creek and Sulphur Creek banks was characterized by very good (50 to 90 percent) ground surface visibility within the existing dirt road. In order to determine the presence of potential buried cultural deposits below the dirt road, creek bank exposures adjacent and north of the proposed pipeline corridor were systematically examined along the pipeline corridor south of the Aliso Creek/Sulphur Creek confluence eastward to Alicia Parkway. No evidence of any prehistoric cultural material including shellfish, chipped stone tools, ground stone fragments, or animal bone was observed within any of the dirt road surfaces, or in the Aliso Creek or Sulphur Creek southern creek bank.

The following substantial evidence indicates that no prehistoric resources, including any associated with CA-ORA-423, are located within the proposed pipeline corridor south of Aliso Creek and Sulphur Creek:

1. The proposed pipeline corridor is located within a relatively steep landform oriented toward the creeks. Prehistoric sites reflecting residential occupation are not identified within this type of landform, as Native Californian populations required relatively level surfaces to establish their shelters.
2. The existing dirt road within the proposed pipeline corridor has been substantially graded, between approximately 2 to 4 feet.
3. The intensive archaeological surface survey of the proposed pipeline corridor and adjacent southern Aliso Creek/Sulphur Creek banks were characterized by favorable ground surface visibility, and the results were negative.

Extended Phase I Geoprobe Excavations

Methodology

Detailed descriptions of the near-surface deposits and soil profiles were obtained from six continuous core geoprobe (direct push) borings excavated within CA-ORA-581 and two geoprobes excavated within CA-ORA-582. The geoprobe samples consisted of 2-inch diameter sleeved soil cores that were drilled to recover continuous records of soils up to 11 feet deep. Due to the presence of CA-ORA-581 and CA-ORA-582 within the vicinity of the proposed export sludge force main alignment, the spacing of geoprobes was sufficiently close to evaluate the presence of cultural materials. Spacing of the geoprobes in CA-ORA-581 was approximately 49 feet. The borings were advanced in depth until the maximum depth of proposed project disturbance was reached. After boring was complete, the boring holes were backfilled with excavated soil.

Soils columns recovered in the geoprobes were analyzed to determine whether any of the soils were intact, or if they exhibited characteristics associated with previous land use disturbances. This included a stratigraphic assessment of artificial fill and/or disturbed soil versus natural intact soil. The artificial fill and diagnostic soil horizons within the intact deposits were measured and described based on the characteristics and nomenclature set forth by Soil Survey Division Staff (1993) and Schoenberger et al. (2002). No laboratory testing of the soil samples was conducted as part of this investigation. The soil descriptions of the geoprobe samples are provided in *Appendix C* and geoprobe excavation forms are provided in *Appendix D* of the Extended Phase I Investigations Report (Dudek 2012b).

Geoprobe Results

Based on the soil profiles exposed during the investigations, the natural soils (where not disturbed by historic land modification) generally consist of a surface A horizon (topsoil) underlain by Holocene (less than 12,000 years old) alluvium forming the creek terrace deposits. Both the A horizon topsoil and the underlying Holocene alluvial deposits may have the potential to contain cultural deposits. The Miocene bedrock deposits are of sufficient geologic age (5 to 23 million years old) and composition such that they are not considered to have the potential for containing cultural deposits and, therefore, should be considered archaeologically sterile.

General descriptions of the soil horizon types encountered along the proposed export sludge force main excavated within the CA-ORA-581 and CA-ORA-582 site boundaries include the following soils (discussed stratigraphically from the existing ground surface downward):

Artificial Fill (Afu, Afu2)

The artificial fill is a mixture of reworked local soils and bedrock. Due to the variable composition of the man-made deposits, the artificial fill ranges from dark, organic-rich A horizon soil mixed with individual pieces of bedrock to broken, reworked bedrock mixed with minor amounts of soil. These deposits were observed in areas adjacent to the existing effluent pipeline (GP 2 through GP 6 at CA-ORA-581) and the existing dirt road (GP 1 at CA-ORA-582). The artificial fill observed in GP 2 through GP 6 at CA-ORA-581 suggests these five locations are within the trench excavated during construction of the existing ETM with GP 3 through GP 6 being completely disturbed and consisting of trench backfill to a depth of 7 feet below ground surface (bgs). The artificial fill observed in GP 1 at CA-ORA-582 confirms that at least 2 feet of fill was placed on top of the existing dirt road during construction of the ETM. While the artificial fill could contain prehistoric cultural material, the cultural material would be disturbed and not in its original depositional context.

Topsoil A Horizon (Ap, A, A2, AC)

The topsoil A horizon consists of dark brown to black, fine sandy loam to sandy clay loam, with varying quantities of decomposed organics. A horizon soils were present at the surface or immediately beneath the Afu/Afu2 disturbed soils in GP 1 and GP 2 at CA-ORA-581, and GP 1 and GP2 at CA-ORA-582. The A horizon soil is considered undisturbed material along the proposed export sludge force main alignment with potential for containing intact archaeological deposits.

Bedrock (R horizon)

Slightly weathered but otherwise relatively unaltered Miocene marine sediments were observed beneath the alluvial deposits in GP 1 at CA-ORA-581. The sedimentary bedrock deposits are sufficiently old enough to predate human occupation in the region and are considered archaeologically sterile.

Cultural Materials

No cultural materials were recovered from within any of the six geoprobes excavated at CA-ORA-581 or the two geoprobes excavated at CA-ORA-582. The results of the geoprobe excavations at CA-ORA-581 are consistent with previous backhoe trench excavations at the site that were negative for cultural material (SRS 1978).

4.5.4 Applicable Plans and Policies

The following is a summary of the regulatory framework related to cultural resources.

4.5.4.1 Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA), enacted in 1966, established the NRHP, authorized funding for state programs with participation by local governments, created the Advisory Council on Historic Preservation, and established a review process for protecting cultural resources. The NHPA provides the legal framework for most state and local preservation laws. The National Register is the nation's official list of cultural resources worthy of preservation. It is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archaeological resources.

The NHPA was amended in 1980 to create the Certified Local Government (CLG) program, administered through the California State Office of Historic Preservation (OHP). This program allows for direct local government participation and integration in a comprehensive statewide historic preservation planning process. Cities and counties with CLG status may compete for preservation funds allocated by the Congress and awarded to each state.

4.5.4.2 State

California Register of Historic Resources

The California Register of Historic Resources (CRHR) was established in 1992, through amendments to the Public Resources Code, as an authoritative guide to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected from substantial adverse change. The California Register includes resources that are formally determined eligible for, or listed in, the National Register, State Historical Landmarks numbered 770 or higher, Points of Historical Interest recommended for listing by the State Historical Resources Commission (SHRC), resources nominated for listing and determined eligible in accordance with criteria and procedures adopted by the SHRC, and resources and districts designated as city or county landmarks when the designation criteria are consistent with California Register criteria.

State Office of Historic Preservation

The OHP implements preservation laws regarding historic resources and is responsible for the California Historic Resource Information System (CHRIS), which uses the National Criteria for listing resources significant at the national, state, and local level.

Native American Heritage Commission

Section 5097.9 et seq. of the California Public Resource Code (PRC) and Section 7050 et seq. of the Health and Safety Code empower the NAHC to regulate Native American concerns toward the excavation and disposition of Native American cultural resources. Among its duties, the NAHC is authorized to resolve disputes relating to the treatment and disposition of Native American human remains and items associated with burials. Upon notification of the discovery of human remains by a county coroner, the NAHC notifies the Native American group or individual most likely descended from the deceased.

Senate Bill 18

Implementation of Senate Bill 18 (SB 18), which went into effect January 1, 2005, set forth new requirements for local governments (city and county) to consult with Native American tribes to aid in the protection of traditional tribal cultural places through local land use planning. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early stage of planning, for the purpose of protecting, or mitigating impacts to, cultural places. The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005. Because the proposed project would require an amendment to the General Plan, it is required to conduct consultations per SB 18.

California Health and Safety Code Section 7050.5

Upon discovery of human remains outside of a dedicated cemetery, this regulation requires that further excavation or disturbance of land cease until a county coroner has investigated the find and determined the likely source of the remains. This section of the code also requires a county coroner to contact the NAHC within 24 hours if the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the remains to be those of a Native American.

California Public Resources Code Section 5097.98 (b)

PRC Section 5097.98 states: “Upon the discovery of Native American remains, this portion of the code requires that the landowner ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section, with the most likely descendants regarding their recommendations. This avoidance, if applicable, must take into account the possibility of multiple human remains. The landowner shall confer with the descendants and discuss all reasonable options regarding the descendants’ preferences for treatment” (California PRC, Section 5097.98).

4.5.4.3 Regional and Local**Orange County General Plan*****Resources Element***

The Resources Element sets forth a comprehensive strategy for the development, management, preservation, and conservation of resources that are necessary to meet Orange County’s (the County) existing and future demands. As the County urbanizes, it is experiencing an increasing demand for land and other resources; the Resources Element provides a clear statement of County policy so to ensure an adequate supply of all necessary resources will be available to meet the County’s growth needs.

The Resources Element contains Sensitivity Maps showing the general locations of sensitive archaeological and historical cultural resources. The proposed project is located in the Aliso Creek Prehistoric Archaeology Sensitivity Area.

Goals, objectives and policies related to Cultural Resources are listed in *Table 4.1-1* in *Chapter 4.1, Land Use*.

Aliso and Wood Canyons Wilderness Park Resource Management Plan

The AWCWP RMP (LSA 2009) is discussed in detail in *Chapter 4.1, Land Use*. Additionally, goals and objectives related to cultural resources are listed in *Table 4.1-1*.

4.5.5 Thresholds of Significance

The following significance criteria, defined in Appendix G of the CEQA Guidelines, will determine the significance of paleontological resources impacts. Impacts to paleontological resources would be significant if the proposed project would result in:

- A substantial adverse change in the significance of a historical resource that is either listed or eligible for listing in the National Register of Historic Places, the California Register of Historical Resources, or a local register of historic resources
- A substantial adverse change in the significance of a unique archaeological resource
- Disturbance of any human remains, including those interred outside of formal cemeteries.

The quality of information from archaeological site deposits is related to the intactness or integrity of the soil in which the materials are found. Therefore, integrity is a critical factor in establishing the significance of archaeological deposits. Assuming an archaeological deposit is found to have intact soil integrity, the following factors are used to determine qualitatively the relative significance of deposits. The CEQA Guidelines Section 15064.5.a3 criteria states:

Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

- A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- B. Is associated with the lives of persons important in our past;
- C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work on an important creative individual, or possesses high artistic values; or
- D. Has yielded, or may be likely to yield, information important in prehistory or history.

Criterion "D" is most often used to evaluate the significance of prehistoric cultural remains. The ability of an archaeological site deposit to yield information important in prehistory is framed in terms of the data available to address research questions about the past. The goal of collecting

information from one archaeological site is to be able to contribute to our understanding of regional cultural adaptations that may have changed through time due to environmental and/or social pressures. Therefore, the remains that are recovered from a particular archaeological site are compared to the existing information available from neighboring sites to determine if they can help explain patterns of behavior over a larger area.

4.5.6 Impacts

Would the project cause a substantial adverse change in the significance of a historical resource that is either listed or eligible for listing in the National Register of Historic Places, the California Register of Historical Resources, or a local register of historic resources?

The proposed project is located within the AWCWP, a wilderness park that surrounds the confluences of Aliso and Wood creeks. The proposed alignment runs along the eastern bank of Aliso Creek and southern bank of Sulphur Creek near Alicia Parkway in undeveloped, natural open space. The proposed alignment generally follows an existing dirt utility access road. No historic-period structures are located within or adjacent to the proposed alignment. Therefore, **no impacts** to an historic-period ~~historical~~ resource would occur.

Would the project cause a substantial adverse change in the significance of a unique archaeological resource?

The proposed alignment was selected in part because its alignment is largely within previously disturbed soils, thereby avoiding impacts to potentially intact cultural resources. However, ~~two~~ three known archaeological sites are located within or adjacent to the impact area of the proposed alignment. Construction of the proposed alignment ~~will~~ would involve excavation of a 3-foot wide by 4-foot deep trench. The Extended Phase I Archaeological Investigations did not identify any prehistoric cultural material during the excavation of six geoprobes along the proposed alignment within and adjacent to recorded archaeological site CA-ORA-581. As such, construction of the proposed pipeline would occur outside of the recorded CA-ORA-581 site boundary, and impacts to this site would be avoided. However, the potential for inadvertent disturbances of cultural materials associated with CA-ORA-581 exists and would be considered a **significant impact**.

Trenching within the boundary of CA-ORA-582 would result in a significant impact related to the disturbance of an archaeological resource. As a result, the proposed project has been designed to include avoidance of the site by constructing the proposed pipeline in an above-ground encasement on top of the existing ground surface for approximately 170 feet (refer to *Figure 3-2b*), thereby avoiding impacts to the CA-ORA-582 archaeological deposit. In addition, the geoprobe excavations identified two locations where no cultural material exists where the proposed pipeline can come above ground and return below ground without impacting the

archaeological deposit. The project design would avoid significant impacts to the archaeological sites; however, since the specific site boundary of archaeological deposit CA-ORA-582 is unknown, there is a potential for cultural material to be discovered during trenching operations. Disturbance of cultural materials associated with CA-ORA-582 would be **significant**. Also, due to the fact that the project area has been extensively surveyed for previous projects and the proposed project, additional archaeological sites are unexpected along the proposed alignment. However, any disturbance to an archaeological site would be considered a **significant impact**. Mitigation measures CUL-1, CUL-2 and CUL -3 are recommended in *Section 4.5.7* to reduce potential impacts.

The proposed SOCWA Export Sludge Force Main pipeline would be excavated within the existing dirt road above the southern Aliso Creek and Sulphur Creek bank as shown in DEIR Figure 3-2c . All construction activity would occur within the previously disturbed dirt road and between the two existing force mains. No storage of equipment and/or materials would occur in areas outside of the dirt road. Therefore, the proposed SOCWA export sludge force main pipeline would be installed in a previously disturbed trench, in an area where no prehistoric archaeological resources were identified. The location is considered to have a very remote potential for unknown, buried archaeological resources, as the original steep embankment heading down to the Aliso Creek/Sulphur Creek is not a landform where prehistoric occupation is anticipated. Therefore, impacts to archaeological resources would be **less than significant**. Although impacts would be less than significant, mitigation measures CUL-1, CUL-2 and CUL-3 are recommended in *Section 4.5.7*.

Would the project disturb any human remains, including those interred outside of formal cemeteries?

The proposed project is located in the Aliso Creek Prehistoric Archaeology Sensitivity Area designated by the Orange County General Plan (2011). Due to the presence of water features and the geographical context, the area has likely been occupied for thousands of years. The presence of compacted fill overlying the utility access road where the proposed pipeline would be constructed and the negative results of surveys conducted for the proposed project indicate that trenching associated with construction of the proposed project would likely not uncover the presence of human remains. However, in the case that human remains are disturbed, a **significant impact** would result. Mitigation measures CUL-2 and CUL-3 are recommended to reduce potential impacts.

4.5.7 Mitigation Measures

Implementation of the following mitigation measures would reduce potential impacts to cultural resources:

CUL-1 A pre-construction workshop shall be conducted by a qualified archaeologist and a local Native American representative. Attendees will include SOCWA representatives, an archaeologist, local Native American representative(s), construction supervisors, and equipment operators to ensure that all parties understand the cultural resources monitoring program and their respective roles and responsibilities. All construction personnel who will work within the CA-ORA-582 site boundary, and 100-foot buffer around the boundary, shall be required to attend the workshop. The names of all personnel who attended shall be recorded.

The workshop will review the following: types of archaeological materials that may be uncovered; examples of common archaeological artifacts and other cultural materials to examine; describe why monitoring is required; describe what makes an archaeological resource significant; identify monitoring procedures; identify what would temporarily halt construction and for how long; describe a reasonable worst-case resource discovery scenario (i.e., discovery of intact human remains or an unknown, intact, substantial midden deposit); and describe reporting requirements and the responsibilities of the construction supervisor and crew. The workshop shall make attendees aware of prohibited activities and educate construction workers about the inappropriateness of unauthorized collecting of artifacts that can result in impacts on cultural resources.

CUL-2 All ground disturbances within the defined CA-ORA-582 site boundary, and within a 100-foot buffer around-extending from the CA-ORA-582 and CA-ORA-423 site boundaries, shall be monitored by a qualified archaeologist and a local Native American representative.

A construction monitoring treatment plan will be developed by a qualified archaeologist and implemented to ensure that unexpected features or artifact concentrations are adequately recorded, evaluated, and, if significant, mitigated. The plan will describe the following:

- a. procedures for notifying SOCWA and other involved or interested parties in case of an unexpected discovery
- b. procedures that would be used to record, evaluate, and mitigate an unexpected discovery with a minimum of delay

- c. procedures that would be followed in case of discovery of disturbed, as well as intact, human burials and burial-associated artifacts
- d. specifications that all ground disturbances within the recorded CA-ORA-582 site boundary and a 100-foot buffer around the boundary will be monitored by a qualified archaeologist and a Native American representative. The monitors shall have the authority to temporarily halt or redirect construction in the vicinity of any potentially significant discovery to allow for adequate recordation, evaluation, and mitigation.

CUL-3 In the event that cultural materials are encountered during construction of the proposed pipeline, trenching shall be temporarily redirected and/or suspended until a qualified archaeologist and local Native American representative are retained to evaluate the find, including mapping and collecting any diagnostic (time-sensitive) artifacts.

4.5.8 Level of Significance after Mitigation

The mitigation provided would reduce impacts to cultural resources to a level below significance.

4.6 ENERGY

4.6.1 Introduction and Methodology

The purpose of this section is to estimate and evaluate the energy demand associated with construction and operation of the proposed project. The information and analysis in this section have been compiled from the SOCWA CTP Sludge Export Replacement Project Greenhouse Gas Projections (Carollo Engineers 2012). Additional information was incorporated from the California Energy Commission (CEC), Southern California Edison (SCE), Southern California Gas Company (SCG), and the California Public Utilities Commission (CPUC).

4.6.2 Existing Conditions

4.6.2.1 Environmental Setting

California

Electricity

In 2010, Californians consumed about 272,300 gigawatt hours (GWh) of electricity (CEC 2012a), of which about 70% came from generation facilities in the state or facilities owned by California utilities. The remaining approximately 30% is imported from the American Southwest and Pacific Northwest (CEC 2012b).

The CEC's Preliminary California Energy Demand Forecast estimates that by 2022, California's electricity consumption will reach between 313,493 and 332,514 GWh (CEC 2011). Such an increase represents an annual average growth rate of between 1.18% in the projected low-demand case and 1.68% in the projected high-demand scenario. *Table 4.6-1* depicts the projected total statewide electricity consumption and the electricity consumption average annual growth rates for the high, mid, and low scenarios.

**Table 4.6-1
California Projected Electricity Demand**

Year	Updated Forecast – High	Updated Forecast – Mid	Updated Forecast – Low
<i>Consumption (GWh)</i>			
1990	227,586	227,586	227,586
2000	260,408	260,408	260,408
2010	272,342	272,342	272,342
2015	296,821	292,286	286,100
2020	321,268	310,462	305,932
2022	332,514	318,396	313,493

**Table 4.6-1
California Projected Electricity Demand**

Year	Updated Forecast – High	Updated Forecast – Mid	Updated Forecast – Low
<i>Average Annual Growth Rates</i>			
1990–2000	1.36%	1.36%	1.36%
2000–2010	0.45%	0.45%	0.45%
2011–2015	1.74%	1.42%	0.99%
2011–2020	1.67%	1.32%	1.17%
2011–2022	1.68%	1.31%	1.18%

Source: CEC 2011

Natural Gas

The natural gas consumption in California for 2010, excluding fuel for electricity generation, amounted to approximately 12,700 million therms (MM therms) (CEC 2012a). Of the total amount of natural gas consumed in the state, approximately 87% is imported through pipelines from the Southwest, Rocky Mountains, and Canada (CEC 2012c). California by itself represents nearly 10% of the total natural gas consumption of the entire United States (EIA 2012). Excluding fuel to be used for electricity generation, the amount of natural gas consumed in the state is expected to increase to 13,773 million therms in a low-demand projection or to 14,175 million therms under a high-demand scenario (CEC 2012a). *Table 4.6-2* details the projected increase in natural gas consumption in California along with the expected average annual growth rates.

**Table 4.6-2
California End-User Natural Gas Forecast Demand**

Year	Updated Forecast – High	Updated Forecast – Mid	Updated Forecast – Low
<i>Consumption (MM Therms)</i>			
1990	12,893	12,893	12,893
2000	13,914	13,914	13,914
2010	12,665	12,665	12,665
2015	13,372	13,338	12,891
2020	13,832	13,789	13,552
2022	14,175	13,992	13,773
<i>Average Annual Growth Rates</i>			
1990–2000	0.76%	0.76%	0.76%
2000–2010	-0.94%	-0.94%	-0.94%
2010–2015	1.09%	1.04%	0.36%
2010–2020	0.89%	0.85%	0.68%
2010–2022	0.94%	0.83%	0.70%

Source: CEC 2012a

Transportation Fuel

Although different transportation fuels are used in California, including forms of natural gas, various biofuels, and electricity, petroleum fuels still make up as much as 96% of the state's transportation needs (CEC 2012d). In 2009, California used approximately 657.2 million barrels of petroleum, accounting for 9.6% of all petroleum consumption in the United States. Petroleum use in California includes motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel for transportation purposes. Californians presently consume roughly 41.2 million gallons of gasoline and diesel each day (EIA 2012). *Table 4.6-3* below displays the projected gasoline and diesel fuel consumption in California.

**Table 4.6-3
Estimated Transportation Fuel Consumption for California (millions of gallons)**

	2010	2015	2020	2025	2030
Gasoline	16,311	18,411	20,325	22,189	24,248
Diesel	3,268	3,638	4,012	4,370	4,793
Total	19,579	22,049	24,337	26,559	29,041

Source: Caltrans 2008a

Orange County

Electricity

SCE is one of the nation's largest electric utility companies, serving more than 13 million people in a 50,000-square-mile area of central, coastal, and Southern California, including the majority of Orange County (SCE 2010a). Power generation and power use are not linked geographically. Electricity generated is fed into the statewide grid and is generally available to any users statewide.

The San Onofre Nuclear Generation Station in San Clemente and the Big Creek Hydroelectric System located in the Central Sierra Nevada Mountains are the two major power generation facilities that SCE owns and operates. The San Onofre Nuclear Generating Station, of which SCE owns 78.21%, typically generates approximately 2.2 GWh of electricity. The Big Creek Hydroelectric System generates approximately 1,000 megawatts (MW) of electricity through the use of 6 major reservoirs and 27 dams. Together these two facilities typically account for 30% of SCE's total electricity delivered. The remainder of the electricity delivered by SCE comes from contracts that the company secures from other electrical power plants. The electricity supplied by SCE is composed of approximately 42% natural gas, 14% nuclear, 12% from unspecified sources, 11% from large hydroelectric, and 7% from coal. The remaining 14% was provided from various renewable energy sources, with geothermal and wind being the primary sources of generation (SCE 2010b)

In the SCE service area, the total electricity consumption for 2010 amounted to 97,366 GWh (CEC 2011). The projected SCE service area electricity demand estimates that electricity consumption will grow between 1.16% and 1.52% each year through 2022 (CEC 2012a). *Table 4.6-4* describes the projected increase in electricity consumption for the SCE service area and the average annual growth rate.

Table 4.6-4
SCE Service Area Projected Electricity Demand

Year	Updated Forecast – High	Updated Forecast – Mid	Updated Forecast – Low
<i>Consumption (GWh)</i>			
1990	81,671	81,671	81,671
2000	95,601	95,601	95,601
2010	97,366	97,366	97,366
2015	105,688	104,177	101,746
2020	113,672	110,442	108,793
2022	117,548	113,228	111,440
<i>Average Annual Growth Rates</i>			
1990–2000	1.59%	1.59%	1.59%
2000–2010	0.18%	0.18%	0.18%
2011–2015	1.51%	1.26%	0.91%
2011–2020	1.49%	1.21%	1.15%
2011–2022	1.52%	1.22%	1.16%

Source: CEC 2011

Natural Gas

SCG provides natural gas to Orange County as well as to over 500 communities throughout central and Southern California. SCG is the nation’s largest natural gas distribution utility and provides service to approximately 20.5 million consumers through 5.7 million meters of pipelines. It is estimated that in 2010 total natural gas consumption for the SCG service area totaled 7,435 million therms. The amount of natural gas consumed in the SCG service area is expected to grow between 0.57% and 0.64% through the year 2022, depending on weather patterns, population growth, and economic activity (CEC 2011). *Table 4.6-5* below describes the projected increase in natural gas consumption and the average annual growth rate for the SCG service area.

Table 4.6-5
SCG Service Area Projected Natural Gas Demand

Year	Updated Forecast – High	Updated Forecast – Mid	Updated Forecast – Low
<i>Consumption (MM Therms)</i>			
1990	6,806	6,806	6,806
2000	7,920	7,920	7,920
2010	7,435	7,435	7,435
2015	7,693	7,745	7,504
2020	7,789	7,931	7,863
2022	7,955	8,022	7,971
<i>Average Annual Growth Rates</i>			
1990–2000	1.53%	1.53%	1.53%
2000–2010	-0.63%	-0.63%	-0.63%
2010–2015	0.68%	0.82%	0.19%
2010–2020	0.47%	0.65%	0.56%
2010–2022	0.57%	0.64%	0.58%

Source: CEC 2011

Transportation Fuel

The use of transportation fuel in Orange County is primarily due to the use of personal vehicles. It is estimated that in 2010 approximately 1,295 million gallons of gasoline and 188 million gallons of diesel fuel were consumed in Orange County (Caltrans 2008a). This level of consumption is projected to grow through 2030 according to the California Department of Transportation (Caltrans). *Table 4.6-6* below shows the estimated consumption of gasoline and diesel fuel in Orange County from 2010 to 2030.

Table 4.6-6
Estimated Transportation Fuel Consumption for Orange County (millions of gallons)

	2010	2015	2020	2025	2030
Gasoline	1,295	1,462	1,614	1,762	1,925
Diesel	188	209	231	251	276
Total	1,483	1,671	1,845	2,013	2,201

Source: Caltrans 2008a

South Orange County Wastewater Authority

Electricity is consumed at SOCWA's treatment plants to treat wastewater. At the RTP, approximately two-thirds of the RTP's electrical power needs are supplied by a cogeneration facility that transforms gas from the wastewater process into energy. The cogeneration facility consists of three engines equipped with a heat recovery system and 400-kilowatt generators. The

cogeneration system utilized approximately 75% digester gas and 25% natural gas as fuel during normal operation. Waste heat is circulated to provide hot water to heat the anaerobic digesters (SOCWA 2011). The co-generation system at the RTP currently uses gas generated from the CTP export sludge which has been pumped to the RTP.

Approximately 194,329 kilowatt-hours (kWh) of electricity is consumed annually for operation of the CTP and associated pumping stations. An additional 271 gallons of diesel fuel is required annually for the transport of materials, solids, and/or chemicals (Carollo Engineers 2012). The cogeneration facility produces 1,484,562 kWh annually, which more than offsets the purchased electricity.

4.6.2.2 Applicable Plans and Policies

Several federal, state, and utility-specific plans and policies regulate the supply of energy. The following is a summary of the regulatory framework that has been established for the production of energy.

Federal

The Federal Energy Regulatory Commission (FERC) regulates the transmission and sale of electricity and interstate commerce, licensing of hydroelectric projects, and oversight of related environmental matters.

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic Safety Administration (NHTSA) is responsible for establishing additional vehicle standards. In 2010, fuel economy standards were set at 27.5 miles per gallon for new passenger cars and 23.5 miles per gallon for new light trucks. Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy (CAFE) standards for motor vehicles, the EISA includes other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441).

This federal legislation requires ever-increasing levels of renewable fuels—an RFS—to replace petroleum. The Environmental Protection Agency (EPA) is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act (EPAAct) of 2005, and established the first renewable fuel volume mandate in the United States. As required under EPAAct, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA of 2007, the RFS program was expanded in several key ways which lay the foundation for achieving significant reductions of greenhouse gas (GHG) emissions from the use of renewable fuels, for reducing imported petroleum, and encouraging the development and expansion of our nation’s renewable fuels sector. The updated program is referred to as RFS2 and includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required the EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer greenhouse gases than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs.”

State

California Public Utilities Commission

The CPUC sets forth specific rules that relate to the design, installation, and management of California’s public utilities, including electric, natural gas, water and transportation, and telecommunications. CPUC Decisions 77187 and 78500 state that utilities must be underground if the developable lots are less than 3 acres in size. CPUC Decision 81620 states that lots over 3 acres (large lot subdivisions) are not required to have underground utilities. A formal waiver from the CPUC is required for an exemption from complying with these decisions.

CPUC Decision 95-08-038 governs the planning and construction of new transmission facilities, distribution facilities, and substations. The decision requires permits for the construction of certain power line facilities or substations if the voltages would exceed 50 kilovolts (kV) or the substation would require the acquisition of land or an increase in voltage rating above 50 kV. Distribution lines and substations with voltages less than 50 kV do not need to comply with the decision; however, the utility must obtain any applicable local permits required for the construction and operation of these projects.

California Energy Commission

The CEC is the state’s primary energy policy and planning agency. Responsibilities of the CEC include, but are not limited to, forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 MW or larger, promoting energy efficiency, supporting renewable energy by providing market support, and planning for and directing state response to energy emergencies. The CEC also regulates energy resources by encouraging and coordinating research into energy supply and demand problems to reduce the rate of growth of energy consumption (Warren-Alquist Energy Resources Conservation and Development Act Government Code Section 25000 et seq.).

Senate Bill 1389 requires the CEC to conduct “assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices.” The CEC reports the results of these assessments and forecasts every 2 years to the governor, the legislature, and the California public in the Integrated Energy Policy Report. In the alternative years, the CEC prepares the Integrated Energy Policy Report Update to discuss the status of energy issues identified in the previous Integrated Energy Policy Report and to identify energy issues that may have emerged since that report was completed. The Preliminary California Energy Demand Forecast 2012–2022 describes the CEC staff’s preliminary forecasts for 2012–2022 electricity consumption, peak, and natural gas demand for each of five major planning areas and for the state as a whole. This forecast supports the analysis and recommendations of the Integrated Energy Policy Report 2011 (CEC 2012a).

Long-Term Procurement Plan

Under Assembly Bill (AB) 57 (PU Code 454.5), passed in 2002 after the energy crisis, the investor-owned utilities resumed electricity procurement. Every 2 years, the CPUC holds a Long-Term Procurement Plan proceeding to review and adopt the investor-owned utility’s 10-year procurement plans. The Long-Term Procurement Plan reviews and approves plans for the utilities to purchase energy, establishes policies and utility cost recovery for energy purchases, ensures that the utilities maintain a set amount of energy above what they estimate they will need to serve their customers (called a reserve margin), and implements a long-term energy planning process.

The Long-Term Procurement Plan proceeding evaluates the utilities’ need for new fossil-fired resources and establishes rules for rate recovery of procurement transactions. It also serves as the “umbrella” proceeding to consider, in an integrated fashion, all of the CPUC’s Energy Action Plan loading order resource policies and programs. The forecasts given in the Long-Term Procurement Plan are required to be reconciled with the estimates provided by the CEC. The peak and total electricity demand for the SCE service area forecasted in SCE’s 2010 Long-Term Procurement Plan (SCE 2011) is shown below in *Table 4.6-7*.

Table 4.6-7
SCE’s Long-Term Procurement Plan Electricity Forecast

Year	SCE Forecast Electricity Demand (GWh)
2012	N/A
2013	N/A
2014	N/A
2015	77,686
2016	78,938
2017	80,085
2018	83,965
2019	85,907
2020	85,907
2021	87,987

Source: SCE 2011

Note: The total load for the SCE service area for the years 2012 through 2014 were retained as confidential information and not provided to the public.

Resource Adequacy

The CPUC adopted a Resource Adequacy (RA) policy framework established in the Public Utilities Code Section 380 in 2004 to ensure the reliability of electric service in California. The RA program provides sufficient resources to the California Independent System Operator (CAISO) to ensure the safe and reliable operation of the grid in real time and to provide appropriate incentives for the siting and construction of new resources needed for reliability in the future (CPUC 2011).

The CPUC established RA obligations applicable to all load-serving entities (LSEs) within the CPUC’s jurisdiction that are constituted by investor owned utilities (including SCE), energy service providers, and community choice aggregators. The Commission’s RA policy framework requires that LSEs procure capacity so that capacity is available to the CAISO when and where needed. Each LSE is required to file with the CPUC demonstrating that they have procured sufficient capacity resources including reserves needed to serve its aggregate system load on a monthly basis. Each LSE’s system requirement is 100% of its total forecast load plus a 15%

reserve, for a total of 115%. In addition, each LSE is required to file with the CPUC demonstrating procurement of sufficient Local RA resources to meet their RA obligations in transmission-constrained local areas (CPUC 2005).

Assembly Bill 1493

Adopted in 2002 by the state legislature, AB 1493 required that the California Air Resources Board (CARB) develop and adopt, no later than January 1, 2005, regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles.

The first California request to implement GHG standards for passenger vehicles, known as a waiver request, was made in December 2005 and was denied by the EPA in March 2008. That decision was based on a finding that California’s request to reduce GHG emissions from passenger vehicles did not meet the Clean Air Act (CAA) requirement of showing that the waiver was needed to meet “compelling and extraordinary conditions.”

The EPA granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport-utility vehicles on June 30, 2009. On September 24, 2009, CARB adopted amendments to the “Pavley” regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. These amendments are part of California’s commitment to a nationwide program that aims to reduce new passenger vehicle GHGs from 2012 through 2016. CARB’s September 2009 amendments will allow for California’s enforcement of the Pavley regulations while providing vehicle manufacturers with new compliance flexibility. The amendments also prepare California to harmonize its rules with the federal rules for passenger vehicles.

It is expected that the Pavley regulations will reduce GHG emissions from California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists’ costs.

CARB has adopted a new approach to passenger vehicles—cars and light trucks—by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. The new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California.

Senate Bill X1-2—California Renewable Energy Resources Act

On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08 requiring that “[a]ll retail sellers of electricity shall serve 33% of their load with renewable energy by 2020.” The following year, Executive Order S-21-09 directed CARB, under its AB 32 authority, to enact regulations to achieve the goal of 33% renewables by 2020.

In the ongoing effort to codify the ambitious 33% by 2020 goal, Senate Bill (SB) X1-2 was signed by Governor Edmund G. Brown Jr., in April 2011. In his signing comments, Governor Brown noted that “This bill will bring many important benefits to California, including stimulating investment in green technologies in the state, creating tens of thousands of new jobs, improving local air quality, promoting energy independence, and reducing greenhouse gas emissions.”

This new Renewables Portfolio Standard (RPS) preempts CARB’s 33% Renewable Electricity Standard and applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new RPS goals of 20% of retail sales from renewables by the end of 2013, 25% by the end of 2016, and the 33% requirement being met by the end of 2020.

State of California, Flex Your Power Campaign

The state’s intent to reduce energy consumption is also reflected in the established Flex Your Power Campaign. Flex Your Power aims to partner Californians across the state to maximize energy conservation and efficiency. The goal is to get local governments and elected officials to implement innovative energy conservation and efficiency measures in facilities throughout communities. Flex Your Power distributes information packets with the latest initiatives (from targeted rebate programs to community assistance planning) and an initial Local Area Workplan to educate the community on how to get their local government involved and encourage their government to take advantage of these programs.

Flex Your Power collaborates with local businesses and community groups to get local business leaders and building owners to sign an Energy Conservation Declaration Action, thereby committing to follow measures that will help “achieve collectively an overall 20 percent reduction in energy use as compared to the same period last summer.” Some of the activities outlined in the declaration include setting building temperatures no cooler than 78° Fahrenheit during the months of May through October, reducing lighting levels by 25%, closing blinds and shades where windows contribute to indoor temperature increases, and turning off and unplugging all appliances in commercial and residential buildings. Businesses can also benchmark buildings using the Energy Star rating system, which calculates energy use in a building or a group of buildings, providing a tool with which to measure the impact of energy efficiency improvements. This can provide a way to compare energy use in buildings of similar size, shape, location, and operating characteristics. The results (a number on a scale of 1 to 100) determine which buildings will benefit most from energy efficiency upgrades. By increasing energy efficiency in buildings, local governments can save energy immediately.

CEQA Guidelines, Appendix F

Appendix F of the CEQA Guidelines contains energy conservation measures that promote the efficient use of energy for projects. In order to ensure that energy impacts are considered in

project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. The analysis in this section considers the expected energy use of the proposed project, as well as measures that will help to reduce energy consumption at both a project and program level.

The goal outlined in Appendix F of the CEQA Guidelines is to conserve energy through the wise and efficient use of energy. The means of achieving this goal include the following:

- Decreasing the overall per capita energy consumption
- Decreasing reliance on natural gas and oil
- Increasing reliance on renewable energy sources.

4.6.3 Thresholds of Significance

The following significance criteria, included in Appendix F of the CEQA guidelines (14 CCR 15000 et seq.), will determine the significance of energy impacts. Impacts to energy would be significant if the proposed project would:

- Increase the demand of energy to exceed the available supply that would cause the need for the construction of new or expanded facilities; or
- Result in a wasteful, inefficient, or unnecessary use of energy.

4.6.4 Impacts

Would the project increase the demand of energy to exceed the available supply that would cause the need for the construction of new or expanded facilities?

Construction Impacts

Construction of the pipeline would occur over approximately 7.5 months and would not include the use of substantial amounts of electricity or natural gas. During this construction period, heavy-duty construction equipment would be used that could include an excavator and a tractor/loader/backhoe. This equipment would consume diesel fuel during this construction period. In addition, during an overlapping 3-week period, a haul-trucking operation would transport sludge from the CTP to the RTP using 18-wheeler tanker trucks. On average, it would require 6 heavy-heavy duty truck round-trips traveling approximately 10 miles round-trip from the CTP to the RTP. These trucks would also consume diesel fuel during this 3-week period.

The construction of the pipeline and the haul-trucking operation would not use large amounts of construction or heavy-duty equipment and would occur over a limited time frame. Also, the

project would integrate design features and construction measures that would reduce the amount of fuel consumed during construction. These include minimizing equipment and haul-truck idling time, as well as limiting the amount of equipment in use during construction. Therefore, construction of the pipeline would not substantially increase the demand for energy that would exceed the available supply and require the construction of new or expanded facilities. Impacts would be **less than significant**.

Operational Impacts

The proposed project involves replacement of an existing force main and does not create a new use that would increase the amount of electricity or transportation fuel. Once the new force main is installed, it is anticipated to carry an average of 89,000 gallons per day of sludge from the CTP to the RTP. Maintenance activities associated with the new pipeline are not expected to increase compared to the existing force main. Any maintenance or repair would not involve energy intensive ground disturbing activities and would be temporary in nature. Therefore, the proposed project would not increase the demand for energy that would exceed the available supply and any impacts would be **less than significant**.

Would the project result in a wasteful, inefficient, or unnecessary use of energy?

Construction Impacts

As mentioned above, the construction of the pipeline would occur over a relatively short time period of 7.5 months and is estimated to only require two pieces of heavy-duty construction equipment. The haul operation that would occur during construction of the pipeline would be necessary to continue the transportation of sludge to the RTP and would occur for 3 weeks. Furthermore, project design features, including reducing the idling time of equipment and the amount of equipment operating at any one time, would further reduce the consumption of transportation fuel. Due to the small amount of construction equipment, the limited construction time frame, and the described project design features, the construction of the pipeline would not result in wasteful, inefficient, or unnecessary use of energy. Impacts would be **less than significant**.

Operational Impacts

Operation of the pipeline would be necessary to continue the flow of wastewater from the CTP to the RTP. The operation of the replacement pipeline does not create a new use that would increase the total consumption or wasteful consumption of energy compared to the operation of the existing pipeline. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary use of energy, and impacts would be **less than significant**.

4.6.5 Mitigation Measures

Implementation of the proposed project would not result in significant impacts that would require mitigation.

4.6.6 Level of Significance after Mitigation

No mitigation would be required and potential energy impacts associated with project implementation would be less than significant.

4.7 GEOLOGY AND SOILS

4.7.1 Introduction & Methodology

This section describes the existing geologic and soil conditions present on the project site, analyzes the potential impacts on soils and geology associated with construction and operation of the CTP Export Sludge Force Main Project (proposed project), and recommends mitigation measures where necessary to reduce or avoid significant impacts.

This analysis of potential impacts on existing geologic conditions is based on the following technical reports, included in Appendix E:

- Preliminary Geotechnical Evaluation for the Coastal Treatment Plant Export Sludge System for SOCWA (Ninyo and Moore 2011)
- Preliminary Geotechnical Evaluation, Rehabilitation of the East Aliso Creek Emergency Sewer (REACES), Moulton Niguel Water District (MNWD), Laguna Niguel, California (Ninyo and Moore 2003)
- Lower Aliso Creek Erosion Assessment (Tetra Tech 2012).

Additional information is incorporated from the AWCWP Regional Management Plan (RMP) (LSA 2009).

4.7.2 Existing Conditions

4.7.2.1 Environmental Setting

Geology and Subsurface Conditions

Geologic Setting

The AWCWP is located on the western flank of the Peninsular Ranges geomorphic province. This region is characterized by a series of northwesterly trending mountain ranges separated by northwesterly trending valleys and echelon faulting from the San Andreas Fault. These ranges are essentially a series of fault-bounded blocks that dip gently to the west and have a steep eastern escarpment. The Peninsular Ranges extend from the tip of Baja California to the Transverse Range north of the Los Angeles Basin. The width of the province varies from 30 to 225 miles, with a maximum land bound width of 65 miles (Sharp 1976, cited in LSA 2006).

Specifically, the AWCWP is located in the southern portion of the San Joaquin Hills. The San Joaquin Hills are a coastal extension of the Santa Ana Mountains, the westernmost range of the Peninsular Ranges Geomorphic Province (Barrie et al. 1992, cited in LSA 2006), though the San

Joaquin Hills are considered part of the Los Angeles Basin (Norris and Webb 1976:213, cited in LSA 2006). Both the Santa Ana Mountains and the San Joaquin Hills are detached from the main body of the Peninsular Ranges (Hinds 1952:197, cited in LSA 2006). Six bedrock formations are found within the AWCWP (from oldest to youngest): Sespe/Vaqueros Undifferentiated Formation (including areas mapped as pure Vaqueros and/or pure Sespe), the San Onofre Breccia, the Topanga Formation, the Monterey Formation, the Capistrano Formation, and the Niguel Formation. In a general sense, the older formations are located farthest from the coast. Surficial units include (from oldest to youngest) marine terrace deposits, landslides, colluvium, and alluvium.

Site Description

The proposed 6-inch pipeline would extend from Alicia Parkway down gradient along the east side of Aliso Creek to the existing CTP. The pipeline would be generally located along the floodplain of Aliso Canyon and would be bordered by moderate to steep slopes which rise to the east and west of the creek channel. The creek has incised below the valley bottom to depths of approximately 4 feet to 25 feet. Elevations along the creek bottom range from approximately 120 feet above mean sea level (amsl) at the north end (Alicia Parkway) to approximately 32 feet amsl at the south end (CTP). Some of the creek channel embankments are near vertical. At some locations, channel slumping has occurred and riprap has been placed to control erosion. Several north-south trending drainage gulleys are present incising the canyon slopes; these gulleys are either interrupted by a graded dirt road that parallels the east side of the creek and/or drain to the creek. Small, concrete lined drainage swales are also present crossing the dirt road.

Geologic Units

In general, the proposed pipeline alignment is underlain by variable thickness of Quaternary-age alluvium and slope wash deposits over bedrock materials of the Miocene-age Topanga and Monterey Formations (*Figure 4.7-1*). The Monterey Formation is present north of approximately Station 199+50 (see *Figure 3-2* for location of stations along proposed pipeline alignment, and *Section 3.5* for an explanation on station numbering), and where exposed, consists of white to gray, weakly to moderately indurated siltstones, and gray, weakly to moderately cemented sandstone. The Topanga Formation is present south of approximately Station 84+20, and where exposed, consists of yellowish and orange brown, weakly to strongly cemented sandstone, and some reddish brown and gray, weakly to moderately indurated siltstone.

Shallow slope creep and/or debris flows were observed along the hillsides east of the proposed alignment. These materials typically consist of topsoil, colluvium, or weak, highly weathered bedrock materials that become saturated and are gravity-driven along relatively short distances of the slopes. These materials do not directly impact the existing pipelines, but may have an impact on the surface drainage in the area.

Slope wash deposits were typically observed in the limited exposures along the bank of the creek as well as road cuts adjacent to the access road. Alluvium consisting of stream terrace and older stream deposits were observed within the near vertical slopes along the creek channel. Some recent slumping of the steep creek channel slopes were observed within the slope wash and alluvial deposits.

Groundwater

No groundwater seepage or active springs was observed near the base of the canyon slopes or in accessible areas of the creek channel slopes. An artificial pond was observed south of approximately Station 43+87. Groundwater levels along the proposed alignment are expected to be relatively close to the adjacent creek bottom, which ranges in elevation from approximately 120 feet amsl near Alicia Parkway to approximately 32 feet amsl near the CTP. Groundwater levels are influenced by seasonal variations in precipitation and runoff.

Geologic Hazards

Landslides

Landslides may occur when severe weather events weaken certain soils, generally where the majority of the soil materials are fine-grained (silt and clay) and cohesive. Earth flows typically are initiated by periods of prolonged rainfall and sometimes do not initiate until well after a storm or the rainy season has passed. They are characteristically slow moving, in the millimeters or centimeters per day, and may continue to move for a period of days to weeks after initiating (California Geological Survey 2007a).

Relatively large landslide complexes have been mapped along the proposed alignment and were evident during field reconnaissance between approximately Station 50+12 and Station 76+01, and between Station 84+20 and Station 119+50. No outcrop exposures or failure planes of the landslide masses were observed along accessible areas of the creek channel, nor were ground cracks, scarps, seeps, or other signs of recent landslide movement observed (Ninyo and Moore 2011). The landslide complexes are relatively ancient and consist of a variety of translational and/or block type failures within the bedrock materials. The landslide complexes are covered with an unknown thickness of slope wash and/or alluvium. Shallow rupture surfaces and fracture planes may be present at relatively shallow depths, particularly where smaller landslides are mapped within large landslide features (*Figure 4.7-2*).

Faulting and Seismicity

Based on the commonly accepted definition provided by the Department of Conservation's (DOC) California Geological Survey, an "active fault" is a fault that has had surface

displacement within Holocene time (about the last 11,000 years), and a “potentially active fault” is a fault considered to have had surface displacement during Quaternary time (about the last 1,600,000 years). These definitions are used in delineating earthquake fault zones as mandated by the Alquist–Priolo Geologic Hazards Zones Act (California Public Resources Code, Sections 2621–2630). The intent of this act is to prohibit the location of structures on the traces of active faults, thereby mitigating potential damage due to fault surface rupture (California Geological Survey 2007b).

The Peninsular Ranges Geomorphic Province is dominated by northwest-trending, right-lateral, strike-slip fault systems. The site is considered to be in a seismically active area, as is the majority of Southern California. There are, however, no known active fault traces crossing the proposed alignment. A short segment of a verified, inactive fault, the Shady Canyon Fault, traverses upper Wood Canyon in an east–west trend.

Seismic hazards at the site are a consequence of ground shaking caused by events on nearby or distant, active faults. The closest active fault is the Newport–Inglewood fault located approximately 3 miles southwest of the project site. *Table 4.7-1* lists selected known active faults in close proximity to the site, the maximum moment magnitude (M_{max}) as published by the DOC Division of Mines and Geology, and the type of fault, as defined in Table 16-4 of the Uniform Building Code. These faults are also shown on *Figure 4.7-3*.

Table 4.7-1
Principal Active Faults

Fault	Approximate Fault to Site Distance (miles)	M_{max}^1	Fault Type ²
Newport–Inglewood	3	6.9	B
Palos Verdes	18	7.1	B
Whittier–Elsinore (Glen Ivy)	21	6.8	B
Cucamonga	42	7.0	A
San Andreas—1857 Rupture	56	7.8	A

¹ DOC 1998, as cited in Ninyo and Moore 2000.

² International Conference of Building Officials (1997), DOC 1998, as cited in Ninyo and Moore 2000.

Based on statewide seismic hazard assessments estimating peak horizontal ground acceleration, the peak horizontal ground acceleration (PGA) with a 10% probability of exceedance in 50 years is approximately 0.34 local acceleration due to gravity (g) at the south end of the proposed alignment, and 0.30 g at the north end of the proposed alignment.

Liquefaction

Liquefaction occurs when strong seismic activity creates excess pore pressures in cohesionless soils. Research and historical data indicate that loose granular soils or soils of low plasticity below a near surface groundwater table are most susceptible to liquefaction. Liquefaction is characterized by a loss of shear strength in the affected soil layers, thereby causing the soil to flow as a viscous liquid. This effect may be manifested at the ground surface by settlement and/or sand boils. In order for the potential effects of liquefaction to be manifested at the ground surface, the soils generally have to be granular or of low plasticity, loose to medium density, saturated relatively near the ground surface, and must be subjected to a sufficient magnitude and duration of ground shaking. Increased soil mobility can lead to lateral spreading, consolidation and settlement of loose sediments, ground oscillation, flow failure, loss of bearing strength, ground fissuring, and other damaging formations (USGS 2006). Liquefaction is generally known to occur in saturated or near-saturated cohesionless soils at depths shallower than about 50 feet.

It is anticipated that the majority of the bedrock and alluvial deposits below groundwater at the project site are relatively dense and/or contain a high proportion of silt and clay and, therefore, are considered to have a low liquefaction potential. However, beds of relatively loose, saturated, granular soils and low-plasticity fine-grained soils are expected at depths of less than 50 feet. The liquefaction potential in these materials is considered moderate.

Expansive Soils

Expansive soils are those that experience cyclical shrinking and swelling each year during the annual cycle of wetting and drying. Expansive soils owe their characteristics to the presence of swelling clay minerals. As they get wet, the clay minerals absorb water molecules and expand; conversely, as they dry they shrink. This expansion and contraction results in deep cracks within the soil column and can pose hazards to foundations and other structures embedded in the soil.

Slope Stability

Erosion hazards are generally associated with hillside areas that have become exposed to ecological forces such as water or wind. When sloped areas are exposed to too much water or wind, erosion or loss of topsoil may occur. The active stream channel of Aliso Creek along the proposed alignment is susceptible to damage by stream bank erosion and channel slumping. The erosion potential is relatively minor during the dry months, but may be relatively severe during the wet months and especially during large flood events. Riprap, consisting of granitic rock boulders up to approximately 2 to 3 feet in thickness, has been placed along steeper portions of the creek channel where the channel slopes are within approximately 20 feet of the existing pipelines. Additional riprap may be present in other areas which are currently obscured by vegetation. The actual thicknesses of the riprap layers are unknown.

An analysis was prepared to evaluate the stability of the Aliso Creek corridor. The creek bank is particularly steep along certain portions of the proposed alignment. Between Stations 145+50 and 162+90, the creek bank is particularly unstable, and failure would likely occur in the event that the water table was elevated above the current creek level or if seismic ground shaking were to occur.

Along the proposed alignment from approximately Station 154+50 to 162+90, as well as from approximately Stations 11+12 to 15+00, Stations 50+00 to 55+00, approximately Stations 60+20 to 61+40, approximately Stations 75+00 to 87+00, and approximately Stations 98+00 to 99+60, the creek bank is also relatively steep. There is partial riprap protection along these portions, and while these areas have slopes that may become marginally stable due to changes in groundwater or seismic shaking, the creek bank is relatively stable if further undermining does not occur.

The remaining portions of the creek bank along the proposed alignment are characterized by moderately to relatively steep channel slopes and are generally safe against mass instability provided that future severe undermining of the creek bank does not occur (Ninyo and Moore 2003).

4.7.2.2 Applicable Plans and Policies

Federal Regulations

There are no applicable federal laws or regulations.

State Regulations

California Building Code

California law provides a minimum standard for building design through the California Building Code (CBC). The CBC is based on the Uniform Building Code (UBC), with amendments for California conditions. Chapter 23 of the CBC contains specific requirements for seismic safety. Chapter 29 of the CBC regulates excavation, foundations, and retaining walls. Chapter 33 of the CBC contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Chapter 70 of the CBC regulates grading activities, including drainage and erosion control. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching, as specified in California Occupational Safety and Health Administration (Cal/OSHA) regulations (Title 8 of the California Code of Regulations (CCR)) and in Section A33 of the CBC.

Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act’s main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Local agencies must regulate most development projects within the zones (DOC 2007b).

Seismic Hazards Mapping Act

The California Geological Survey, formerly the Division of Mines and Geology, provides guidance with regard to seismic hazards. Under the Seismic Hazards Mapping Act of 1990, seismic hazard zones are to be identified and mapped to assist local governments in land use planning. The intent of this publication is to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. In addition, the California Geological Survey’s Special Publications 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations.

Local Plans and Policies

There are no applicable local plans or policies.

4.7.3 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of geology and soils impacts. Impacts to geology and soils would be significant if the proposed project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
 - Strong seismic ground shaking
 - Seismic-related ground failure, including liquefaction
 - Landslides.

- Result in substantial soil erosion or the loss of topsoil
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water.

4.7.4 Impacts

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

- i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

The proposed project is not within an Alquist–Priolo Special Studies Zone, and fault rupture is not anticipated because there are no known active faults that cross or project into the project site. A shorter segment of a verified, inactive fault, the Shady Canyon Fault, traverses upper Wood Canyon in an east–west trend, but is outside of the proposed project alignment. Therefore, impacts related to rupture of a known earthquake fault would be **less than significant**.

- ii) Strong seismic ground shaking?*

The site is considered to be within a seismically active region, as is all of Southern California. Fault movement from regional faults, including the Newport–Inglewood, San Andreas, or Elsinore Faults, could cause secondary seismic effects such as ground shaking at the project site. The Newport–Inglewood Fault, the nearest of the faults, is located approximately 3 miles from the project site. However, since the proposed project does not include any new structures that would expose people or buildings to potential loss, injury, or death, impacts related to strong seismic ground shaking would be **less than significant**.

- iii) Seismic-related ground failure, including liquefaction?*

Subsurface soils along the alignment generally consist of alluvium comprised of relatively clayey soils with a low potential for soil liquefaction. Some potentially liquefiable sandy alluvial layers are, however, anticipated at some locations. However, the proposed project does not include any new structures that would expose people or buildings to potential loss, injury, or death; therefore, impacts would be **less than significant**.

iv) Landslides?

The proposed alignment would be located adjacent to several large landslide areas; however, no evidence of recent landslide movement has been observed. In general, minor grading for the pipeline construction would not impact the stability of the large landslides, but trenching for new pipeline could expose rupture zones, fractured materials, or other unstable conditions. However, the proposed project does not include any components that would expose people or structures to potential loss, injury, or death; therefore, impacts would be **less than significant**.

Would the project result in substantial soil erosion or the loss of topsoil?

The proposed project would be constructed within a 30-foot right-of-way (ROW) along the dirt access road. During construction, best management practices (BMPs) would be implemented to limit soil erosion and the potential for impacts to the water quality of Aliso Creek (see *Section 3.5.3, Project Design Features and Construction Measures*, for a list of BMPs). Once constructed, any areas disturbed by trenching, staging, or other construction activities would be re-seeded with native vegetation to control erosion. Therefore, the proposed project would not result in substantial erosion or the loss of topsoil, and impacts would be **less than significant**.

Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

The proposed alignment would be located adjacent to several large landslide areas and would be subject to risk of damage if the landslides were reactivated. No evidence of ground cracks, scarps, seepage, or other signs of recent landslide movement has been observed. The basal rupture surfaces of the large mapped landslides are anticipated to be relatively deep below the creek bottom. Trenching for the new pipelines generally would not extend to more than 4 feet below ground surface (bgs); however, shallower rupture surfaces and fracture zones may be present, in which case trenching for the proposed pipeline could expose rupture zones, fractured materials, or other unstable conditions, resulting in a potentially **significant impact**. Mitigation measure GEO-1 is recommended in *Section 4.7.5* to reduce potential impacts.

The creek embankment is particularly steep and unstable along certain portions of the proposed alignment. At other locations, the creek bank is relatively stable, but is likely to become unstable if future undermining were to occur from flood events or seismic-related ground failure. The potential for fluvial erosion, geotechnical erosion, and erosion risk associated with bend migration was analyzed to assess the stability of the proposed pipeline to be impacted by bank erosion. Approximately 3,300 feet of the proposed alignment was determined to have a high erosion risk, and approximately 1,250 feet of the proposed alignment was determined to have a moderate erosion risk (Tetra Tech 2012).

While the proposed project would be located on a geologic unit that is unstable, or has the potential to become unstable, implementation of the proposed project would not impact the stability of the creek bank or result in collapse. Rather, the potential for collapse would occur independently of the proposed project. Impacts would be **less than significant**.

The proposed project would not result in lateral spreading, subsidence, or liquefaction.

Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Soil materials on the project site could potentially be expansive, meaning they could swell and shrink cyclically from moisture saturation. However, expansive soils would not impact the integrity of the proposed pipeline, and impacts would be **less than significant**.

Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?

No septic tanks or alternative wastewater disposal systems would be associated with the proposed project; therefore, impacts would be **less than significant**.

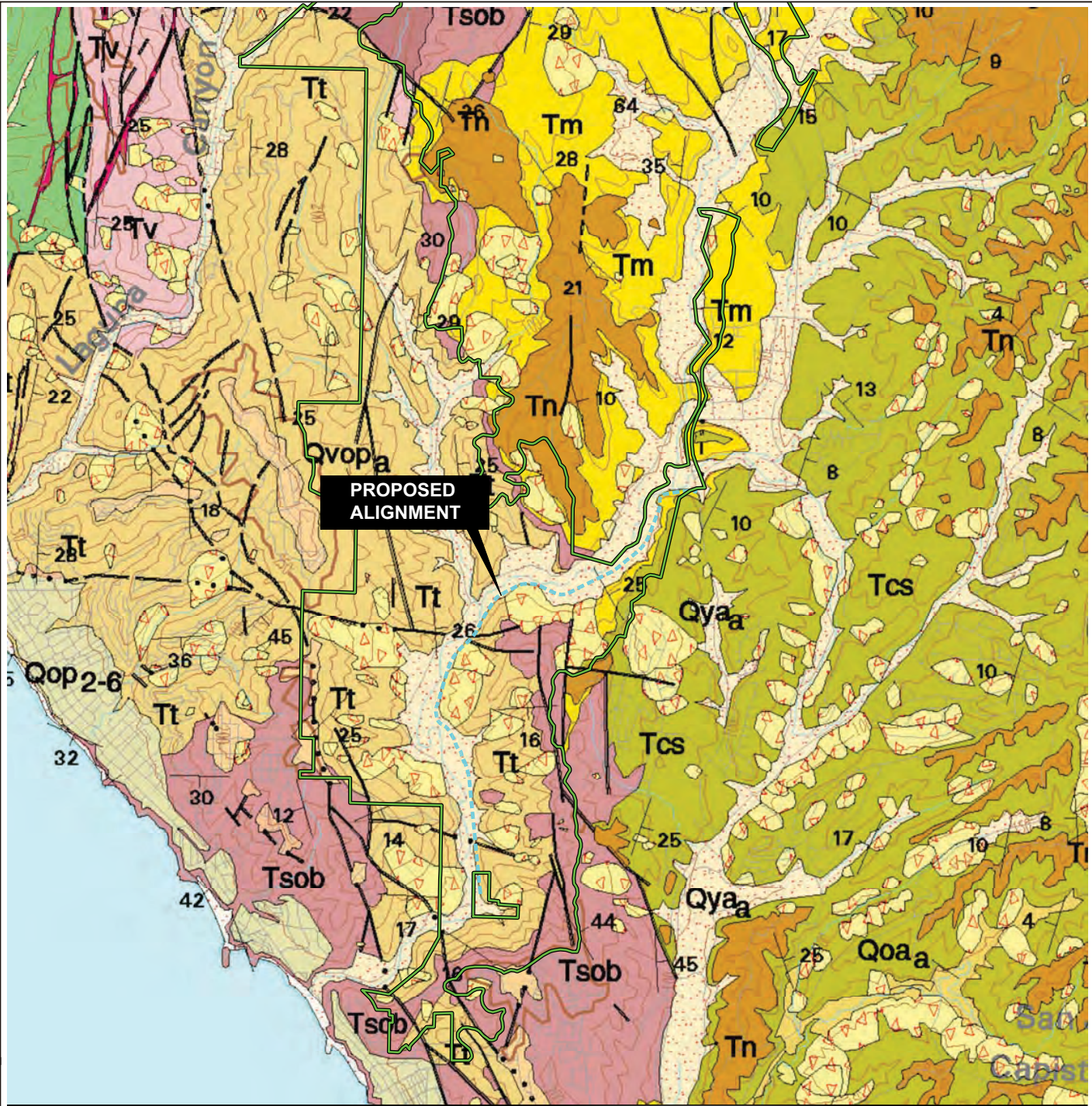
4.7.5 Mitigation Measures

The following mitigation measures would reduce identified impacts to geotechnical resources.

GEO-1 Prior to construction, SOCWA shall conduct a design-level geotechnical investigation to evaluate the potential for unstable geologic conditions that may affect the approved project. If subsurface exploration presents the possibility for unstable conditions, the force main design shall be modified to limit excavations and fills, and to implement suitable drainage provisions. Excavations in areas near mapped landslides shall be less than 5 feet. Alternatives to trench excavations could also be employed to avoid landslide deposits. The geotechnical investigation shall be prepared by a certified geologist prior to construction of the proposed pipeline.

4.7.6 Level of Significance after Mitigation

The mitigation provided would reduce impacts to geology and soils to **less than significant**.



REFERENCE: USGS, D.M. MORTON GEOLOGIC MAP OF THE SANTA ANA 30x60 QUADRANGLE; SOUTHERN CALIFORNIA, DATED 2004.



ALISO AND WOOD CANYONS WILDERNESS PARK













SCALE IN FEET

0 4,000 8,000

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND

	Tsob	SAN ONOFRE BRECCIA		Qoa	OLD AXIAL CHANNEL DEPOSITS
	Tn	NIGUEL FORMATION		Qop	OLD PARELIC DEPOSITS
	Tcs	CAPISTRANO FORMATION		Qvop	VERY OLD PARELIC DEPOSITS
	Tm	MONTEREY FORMATION (MIOCENE)		Qya	YOUNG AXIAL CHANNEL DEPOSITS
	Tt	TOPANGA FORMATION			LANDSLIDE DEPOSITS

DUDEK

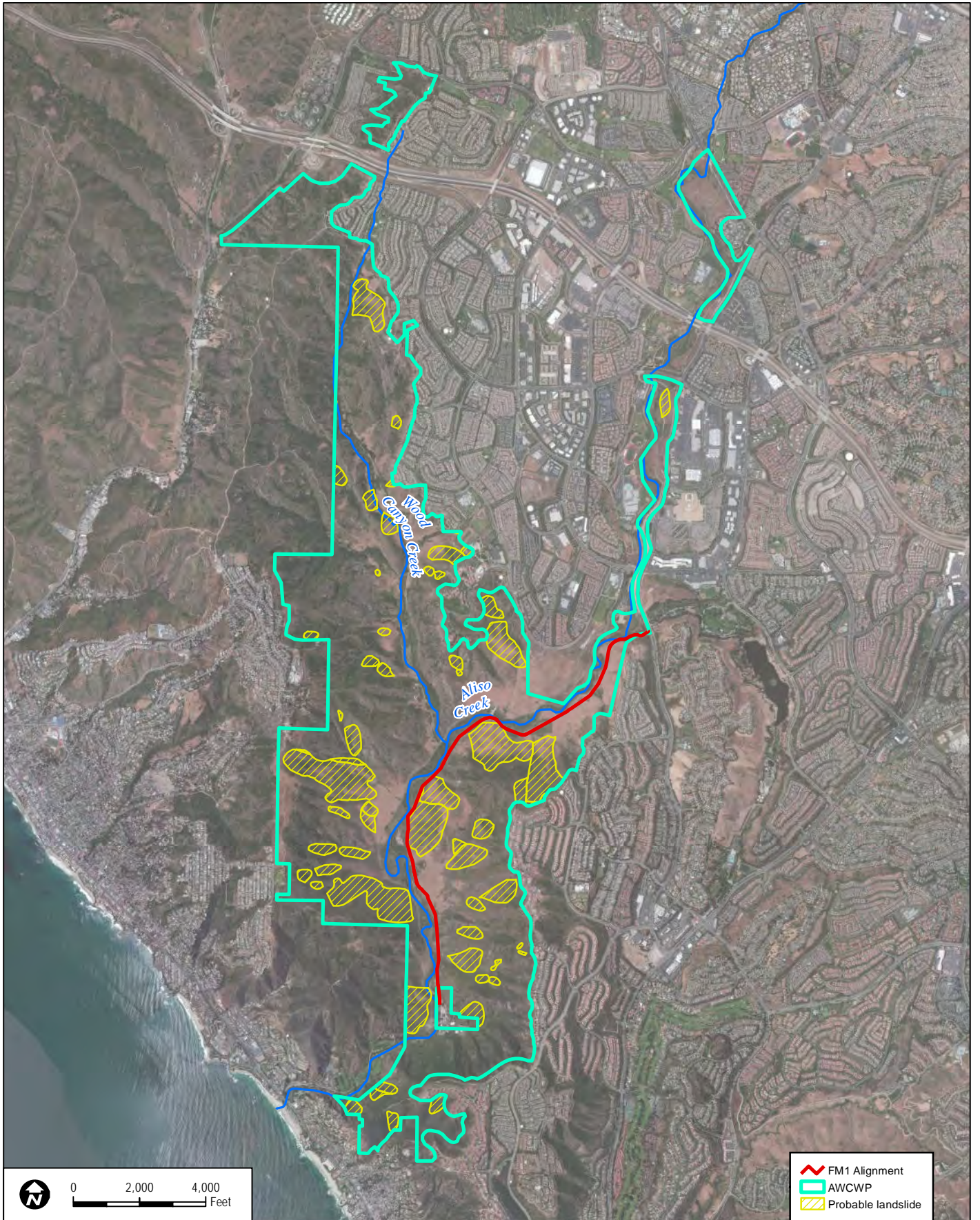
SOURCE: NINYO & MOORE 2011



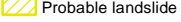
**FIGURE 4.7-1
Geologic Formations**

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COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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 FM1 Alignment
 AWCWP
 Probable landslide

DUDEK

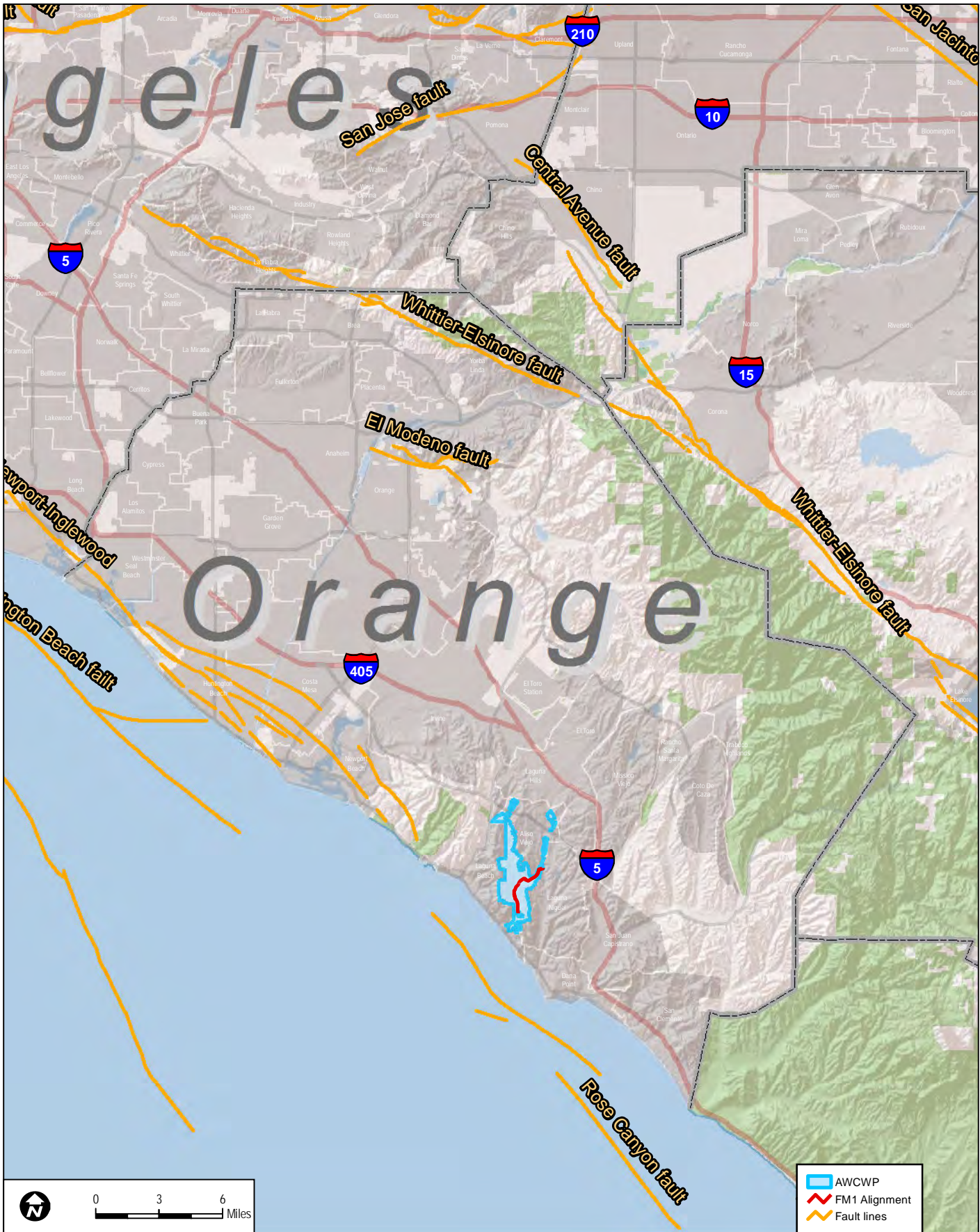
SOURCE: ESRI 2012, OC Public Works 2008, CA Geologic Survey 2011

**Figure 4.7-2
Landslides**

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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DUDEK

SOURCE: ESRI 2012, OC Public Works 2008, CA Geologic Survey 2011

**Figure 4.7-3
Faults**

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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4.8 GREENHOUSE GAS EMISSIONS

4.8.1 Introduction

The purpose of this chapter is to estimate and evaluate short-term (construction) impacts related to greenhouse gas (GHG) emissions and climate change that would potentially occur as a result of proposed project implementation. Long-term (operational) impacts are also addressed. Climate change refers to any substantial change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer).

4.8.2 Methodology

Construction of the proposed project would generate GHG emissions associated with use of construction equipment and motor vehicles; including worker vehicles, delivery trucks, and off-site haul trucks transporting sludge during a portion of the construction period. GHG emissions resulting from project implementation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2011.1.1 (available online at www.caleemod.com). Model assumptions were based on input from the project engineers and typical construction activity for a pipeline installation project; default CalEEMod assumptions were applied when project specifics were unavailable. Emission calculations and model outputs can be found in *Appendix B*.

Neither the State of California nor the SCAQMD has adopted emission-based thresholds for GHG emissions under CEQA. The Governor’s Office of Planning and Research’s Technical Advisory titled CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review states that “public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact” (OPR 2008). Furthermore, Section 15064.4(a) of the CEQA Guidelines as amended in 2009, states that lead agencies should “make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project” (14 CCR 15000 et. seq.). Section 15064.4(a) further notes that an agency may identify emissions by either selecting a “model or methodology” to quantify the emissions or by relying on “qualitative analysis or other performance based standards.” Section 15064.4(b) provides that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment:

- The extent a project may increase or reduce GHG emissions as compared to the environmental setting.

- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

4.8.3 Existing Conditions

4.8.3.1 The Greenhouse Gas Effect and Greenhouse Gases

Gases that trap heat in the atmosphere are often called GHGs. The greenhouse effect traps heat in the troposphere through a three-fold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit this long-wave radiation into space and toward the Earth. This “trapping” of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. Principal GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), O₃, and water vapor (H₂O). Some GHGs, such as CO₂, CH₄, and N₂O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results mostly from off-gassing associated with agricultural practices and landfills. Man-made GHGs, which have a much greater heat-absorption potential than CO₂, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃), which are associated with certain industrial products and processes (CAT 2006).

The greenhouse effect is a natural process that contributes to regulating the earth’s temperature. Without it, the temperature of the Earth would be about 0°F (–18°C) instead of its present 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect (National Climatic Data Center 2008).

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP). The GWP varies between GHGs; for example, the GWP of CH₄ is 21, and the GWP of N₂O is 310. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO₂. Thus, GHG gas emissions are typically measured in terms of pounds or tons of “CO₂ equivalent” (CO₂E).¹

¹ The CO₂ equivalent for a gas is derived by multiplying the mass of the gas by the associated GWP, such that MT CO₂E = (metric tons of a GHG) x (GWP of the GHG). For example, the GWP for CH₄ is 21. This means that emissions of 1 metric ton of methane is equivalent to emissions of 21 metric tons of CO₂.

4.8.3.2 Contributions to Greenhouse Gas Emissions

In 2010, the United States produced 6,822 million metric tons of CO₂E (MMT CO₂E) (EPA 2012c). The primary GHG emitted by human activities in the United States was CO₂, representing approximately 84% of total GHG emissions. The largest source of CO₂, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 94% of the CO₂ emissions and 78% of overall GHG emissions.

According to the 2009 GHG inventory data compiled by CARB for the California Greenhouse Gas Inventory for 2000–2009, California emitted 457 MT CO₂E of GHGs, including emission resulting from out-of-state electrical generation (CARB 2011). The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. These primary contributors to California’s GHG emissions and their relative contributions in 2009 are presented in *Table 4.8-1*.

**Table 4.8-1
GHG Sources in California**

Source Category	Annual GHG Emissions (MMT CO ₂ E)	% of Total
Agriculture	32.13	7.03%
Commercial and residential	42.95	9.40%
Electricity generation	103.58a	22.68%
Forestry (excluding sinks)	0.19	0.04%
Industrial uses	81.36	17.81%
Recycling and waste	7.32	1.60%
Transportation	172.92	37.86%
High-GWP substances	16.32	3.57%
Totals	456.77	100.00%

Source: CARB 2011.

Notes:

^a Includes emissions associated with imported electricity, which account for 48.05 MMTCO₂E annually.

4.8.3.3 Potential Effects of Human Activity on Climate Change

Globally, climate change has the potential to impact numerous environmental resources though uncertain impacts related to future air temperatures and precipitation patterns. In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2°C per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or

above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place, including substantial ice loss in the Arctic (IPCC 2007).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. Climate change is already affecting California: Average temperatures have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010). These climate-driven changes affect resources critical to the health and prosperity of California. Climate change modeling using emission rates from the year 2000 shows that further warming would occur, which would induce further changes in the global climate system during the current century. Changes to the global climate system and ecosystems and to California would include, but would not be limited to, the following:

- The loss of sea ice and mountain snowpack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (IPCC 2007)
- A rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps and the Greenland and Antarctic ice sheets (IPCC 2007)
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns; and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and intensity of tropical cyclones (IPCC 2007)
- A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% over the next 100 years (CAT 2006)
- An increase in the number of days conducive to O₃ formation by 25% to 85% (depending on the future temperature scenario) in high-O₃ areas of Los Angeles and the San Joaquin Valley by the end of the twenty-first century (CAT 2006)
- A high potential for erosion of California's coastlines and seawater intrusion into the Delta and levee systems due to the rise in sea level (CAT 2006).

4.8.3.4 Applicable Plans and Policies

This section provides a brief discussion of key federal and state regulatory efforts.

Federal Activities

Massachusetts v. EPA. On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The court held that the EPA Administrator must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The Administrator further found the combined emissions of GHGs—CO₂, CH₄, N₂O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the cause or contribute finding.

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

EPA and NHTSA Joint Final Rule for Vehicle Standards. On April 1, 2010, the EPA and the Department of Transportation's NHTSA announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles, model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. The EPA finalized the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA finalized Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (EPA and NHTSA 2010).

The EPA's GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile in model year 2016, equivalent to 35.5 mpg, if the automotive industry were to meet this CO₂ level entirely through fuel economy improvements. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined

average of 34.1 mpg. In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (EPA and NHTSA 2012). The first phase of the CAFE standards is for model year 2017 to 2021, and the second phase is for model years 2022 to 2025. Although the second phase standards are not final, they are projected to require, on an average industry fleet wide basis, a range from 48.7 to 49.7 mpg in model year 2025.

State of California

Executive Order S-3-05. Executive Order S-3-05, signed by former governor Schwarzenegger in June 2005, established California's GHG emissions reduction targets, which includes the following goals: GHG emissions should be reduced to year 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050. The Secretary of CalEPA is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Representatives from several state agencies comprise the Climate Action Team (CAT). The CAT is responsible for implementing global warming emissions reduction programs. The CAT fulfilled its report requirements through the March 2006 CAT report to former governor Schwarzenegger and the legislature. A second biennial report, released in April 2010, expands on the policy oriented in the 2006 assessment. The report provides new information and scientific findings regarding the development of new climate and sea-level projections using new information and tools that have recently become available and evaluates climate change within the context of broader soil changes, such as land use changes and demographics. The 2010 report also identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. The aspects of climate change that were discussed that need future research include vehicle and fuel technologies, land use and smart growth, electricity and natural gas, energy efficiency, renewable energy and reduced carbon energy sources, low GHG technologies for other sectors, carbon sequestration, terrestrial sequestration, geologic sequestration, economic impacts and considerations, social science, and environmental justice.

AB 32. In furtherance of the goals established in Executive Order S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006, which former governor Schwarzenegger signed on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified

requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any adopted rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. The original three adopted early action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” consist of the following:

1. A low-carbon fuel standard to reduce the “carbon intensity” of California fuels
2. Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants
3. Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early action regulations, which were also considered “discrete early action GHG reduction measures,” consist of the following:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology
2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification
3. Reduction of PFCs from the semiconductor industry
4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products)
5. Requirement that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency
6. Restriction on the use of SF₆ from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million MTCO₂E (CARB 2007). In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources that fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO₂ in excess of specified thresholds.

On December 11, 2008, CARB approved the Climate Change Scoping Plan (Scoping Plan) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations will occur over the next 2 years, becoming effective by January 1, 2012.

The key elements of the Scoping Plan (CARB 2008) include the following:

- Expanding and strengthening existing energy-efficiency programs as well as building and appliance standards
- Achieving a statewide renewables energy mix of 33%
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

Executive Order S-1-07. Issued on January 18, 2007, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO₂-equivalent gram per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to replace 20% of the fuel used in motor vehicles with alternative fuels by 2020.

SB 97. In August 2007, the legislature enacted SB 97 (Dutton), which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of GHG emissions. On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less-than-significant level.

On April 13, 2009, OPR submitted to the Natural Resources Agency its proposed amendments to the CEQA Guidelines relating to GHG emissions. The Natural Resources Agency adopted CEQA Guidelines amendments on December 30, 2009, and on February 16, 2010, the Office of Administrative Law completed its review and filed the amendments with the Secretary of State. The amendments became effective on March 18, 2010.

Executive Order S-14-08. Signed on November 17, 2008, this Executive Order focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. The governor's order requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the order directs state agencies to take appropriate actions to facilitate reaching this target.

SB XI 2. On April 12, 2011, Governor Jerry Brown signed SB XI 2 in the First Extraordinary Session, which would expand the RPS by establishing a goal of 20% of the total electricity sold to retail customers in California per year, by December 31, 2013, 25% by December 31, 2016, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current and that meets other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB XI 2 adds local publicly owned electric utilities to the RPS. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets, and the governing boards would be responsible for ensuring compliance with these targets. The California Public Utilities Commission (CPUC) will be responsible for enforcement of the RPS for retail sellers, while the California Energy Commission (CEC) and CARB will enforce the requirements for local publicly owned electric utilities.

Executive Order B-16-12. Governor Brown issued Executive Order S-16-12 on March 23, 2012. The Executive Order requires that state entities under the governor’s direction and control support and facilitate the rapid commercialization of zero-emission vehicles. It orders CARB, the CEC, the CPUC, and other relevant agencies work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish goals and benchmarks to for 2015, 2020, and 2025. On a statewide basis, the Executive Order establishes a target reduction of greenhouse gas emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

4.8.3.5 Existing GHG Emissions

The GHG emissions associated with pumping of sludge from the CTP to the RTP and sludge processing (e.g., anaerobic digestion, dewatering) and combustion of digester gas in a cogeneration facility at the RTP were estimated in a technical memorandum by Carollo Engineers (Carollo Engineers 2012). The Carollo report estimated GHG emissions for several sludge transport and processing alternatives being considered by SOCWA. The GHG emissions associated with the existing operation would be comparable to those estimated for the two force main alternatives (FM1 and FM2) in Carollo’s report. The relevant GHG sources and emissions from this report are shown in *Table 4.8-2, Existing GHG Emissions for Sludge Transport and Processing*. While some of the reported GHG emissions would be biogenic, CEQA does not distinguish between anthropogenic and biogenic GHG emissions² (CNRA 2009b). Thus, both anthropogenic and biogenic GHG emissions are shown in *Table 4.8-2*; unless otherwise noted, the GHG sources are considered anthropogenic.

**Table 4.8-2
Existing GHG Emissions for Sludge Transport and Processing**

Source	MT CO ₂ E/year
Purchased Electricity	77
Digester Gas Combustion (CO ₂ – Biogenic)	1,216
Digester Gas Combustion (CH ₄ and N ₂ O)	6
Chemicals Handling	3
Avoided Purchased Electricity	-592
Total	710

Source: Carollo Engineers 2012.

Notes: Avoided Purchased Electricity results from the cogeneration facility.

MT CO₂E – metric tons carbon dioxide equivalent

² Biogenic GHG emissions are emissions that are naturally occurring, including those that occur as the result of combustion or decomposition of biological materials (e.g., biofuels). These types of emissions have historically been deemed carbon neutral. Anthropogenic GHG are those caused by human activities, including CH₄ and N₂O produced by combustion of biofuels.

4.8.4 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA guidelines, will determine the significance of GHG impacts. Impacts to GHGs would be significant if the proposed project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

4.8.5 Impacts

Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the California Natural Resource Agency, which noted in its Public Notice for the proposed CEQA amendments that the evidence before it indicates that in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009a). Similarly, the Final Statement of Reasons for Regulatory Action for amendments to the CEQA Guidelines confirms that an EIR or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009b).

While the proposed project would result in emissions of GHGs during construction, there are currently no established thresholds for assessing whether the GHG emissions of a project in the SCAB, such as the proposed sludge export force main replacement project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. Estimated project-generated GHG emissions and their impact on global climate are addressed below.

Construction GHG Emissions

Construction of the proposed project would result in GHG emissions that are primarily associated with use of off-road construction equipment and on-road construction vehicles (i.e., haul trucks and vendor trucks), worker vehicles, and haul trucks transporting sludge during a

portion of the construction period. CalEEMod was used to calculate the annual GHG emissions, expressed in units of carbon dioxide equivalent (CO₂E), based on the construction scenario described in *Chapter 4.3, Air Quality*.

Table 4.8-3, Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for 2013. The model scenario assumes that trenching for pipe installation would occur 5 days a week over 7.5 months (from approximately April 2014 to November 2014). Pipeline installation would consist of excavation and trenching, placement of the pipe bedding and pipe, and backfilling then compacting of the trench. It is estimated that approximately 100 feet a day of pipeline would be installed. It is assumed that trenching would require operation of one excavator and one tractor/loader/backhoe for 8 hours per day, 5 days per week (22 days per month).

During a 3-week period, sludge would be transported from the CTP to the RTP using 18-wheeler tanker trucks. On average, it would require 6 heavy-heavy duty truck round-trips traveling approximately 5 miles one way from the CTP to the RTP. The haul truck operation phase would overlap with the trenching pipeline installation phase and would not involve the use of additional heavy equipment. The trenching phase and haul truck operation phase details are described in *Chapter 4.3, Air Quality*.

Estimates presented in *Table 4.8-3* include emissions from on-site (off-road equipment) and off-site (on-road haul trucks, delivery trucks, and worker vehicles) sources during construction.

**Table 4.8-3
Estimated Annual Construction Greenhouse Gas Emissions**

	MT CO ₂	MT CH ₄	MT N ₂ O	MT CO ₂ E
2013 Estimated Emissions	118	0.01	0.00	118

Source: See Appendix AQ for complete results.

MT CO₂ – metric tons carbon dioxide

MT N₂O – metric tons nitrogen dioxide

MT CH₄ – metric tons methane

MT CO₂E – metric tons carbon dioxide equivalent

As shown in *Table 4.8-3*, the estimated total GHG emissions during construction would be 118 metric tons CO₂E in 2013. Additional details regarding these calculations are found in Appendix B. Construction-related GHG emissions would occur over 7.5 months and would not represent a long-term source of GHG emissions. Furthermore, the project would integrate design features and construction measures that would be employed to reduce GHG emissions from construction equipment. Minimizing equipment and haul truck idling time, as well as additional strategies described in *Chapter 3.0, Project Description*, would reduce project-generated GHG emissions.

As the project would not cause a cumulatively considerable contribution, it would result in a cumulative impact in terms of climate change that is **less than significant**.

Operational GHG Emissions

As discussed in *Chapter 4.3, Air Quality*, the proposed project would not involve a change in long-term operational activities. The project involves the replacement of an existing force main and does not create a new use or increase capacity. Once the new force main is installed, it is anticipated to carry an average of 89,000 gallons per day of sludge from the CTP to the RTP. The existing 4-inch force mains would be capped and abandoned in place. The new 6-inch force main will be flushed quarterly to remove blockages and ensure optimal flow. No ground disturbing activities would be required for annual maintenance. Operational GHG emissions associated with transport from the CTP to the RTP and processing at the RTP under the proposed project would not increase relative to the existing GHG emissions as shown in *Table 4.8-1*. Potential maintenance or repair of pipelines would be temporary and would not result in a substantial source of GHG operational emissions. Accordingly, the proposed project would not generate an increase in operational GHG emissions that would have a significant impact on the environment; therefore, impacts would be **less than significant**.

Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The Climate Change Scoping Plan, approved by CARB on December 12, 2008, provides an outline for actions to reduce California's GHG emissions. The Scoping Plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. There are several federal and state regulatory measures aimed at the identification and reduction of GHG emissions; most of these measures focus on area source emissions (e.g., energy usage) and changes to the vehicle fleet (hybrid, electric, and more fuel-efficient vehicles). While federal and state legislation will ultimately reduce GHG emissions associated with the project, no specific plan, policy, or regulation would be directly applicable to the project.

At this time, neither the County of Orange, local jurisdictions, nor the SCAQMD has adopted a GHG reduction plan, as specified in California Code of Regulations, Title 14, Section 15183.5(b), which would apply to the GHG emissions associated with the proposed project. Accordingly, no mandatory GHG regulations or finalized agency guidelines would apply to implementation of this project, and no conflict would occur. Therefore, this impact would be **less than significant**.

4.8.6 Mitigation Measures

Because impacts related to GHG emissions are found to be less than significant, no mitigation measures are necessary.

4.8.7 Level of Significance after Mitigation

Since mitigation is not necessary, impacts would be **less than significant**.

4.9 HAZARDS AND HAZARDOUS MATERIALS

4.9.1 Introduction & Methodology

The purpose of this section is to estimate and evaluate the potential hazards and hazardous materials impacts associated with construction and operation of the proposed project.

As part of the analysis, an environmental data resources (EDR) search was conducted which consisted of a computerized database search of regulatory agency records and available historical aerial photographs. The results of the EDR search are included in *Appendix F*.

4.9.2 Existing Conditions

4.9.2.1 Environmental Setting

Site History

Aerial photographs from 1938, 1946, 1952, 1968, 1977, 1989, 1994, and 2002 were reviewed and are included in *Appendix F*. Aliso Creek was present in all the photographs, including the oldest from 1938. Fenced land, likely a corral, is visible in the northern portion of the proposed project site in the 1938 through 1968 aerial photographs. Agricultural land is visible north of the proposed project site in the 1938 aerial photograph, but is no longer visible in the 1946 aerial photograph. Dirt roads extend along the western border of the proposed project site in the 1952 aerial photograph.

The SOCWA CTP is visible southeast of the proposed project site in the 1968 aerial photograph. Disturbed land is visible northeast and southeast of the proposed project site in the 1968 aerial photograph and is replaced by a housing development in the 1977 aerial photograph. The housing development southeast of the site has expanded in the 1989 aerial photograph.

Current Site Use

As previously indicated in *Section 2.1.1*, the proposed project is located in AWCWP, a regional park that is primarily used for recreational purposes. Over 30 miles of trails accommodate hiking, mountain biking, and equestrian uses as well as passive recreational activities like birding, photography, and nature viewing. Various restoration and habitat enhancement projects have been recently conducted or are currently ongoing within the park. For example, removal of the non-native *Arundo donax* plant (*Arundo donax*) is being undertaken by Orange County Parks (OC Parks). Additionally, the Aliso Creek Wetlands Habitat Enhancement Project (ACWHEP) structure was built along Aliso Creek to restore native habitats in the park.

A variety of utility lines also pass through the project area. An electrical transmission line crosses the park from Moulton Peak to a point just west of the West Ridge Trail. A water tank is located at each of these locations as well. Four pipelines currently are located below ground on the east side of Aliso Creek: the effluent transmission main (ETM), the Moulton Niguel Water District (MNWD) sewer line and the two force mains. These pipelines are located below a graded dirt utility access road. SOCWA staff uses the dirt access road to observe aboveground conditions relative to the force main alignment and to service the air-vacuum release valves for the ETM.

Government Records Search

The EDR area study report listed no sites within the American Society for Testing and Materials (ASTM)-standard search radius of the proposed project alignment. The EDR report identified 31 sites located in Aliso Viejo, Laguna Beach, Laguna Hills, Laguna Niguel, and Long Beach; 5 of the sites were identified within 1 mile of the proposed alignment. These sites are discussed below:

1. The site located at 27987 Aliso Creek Road is located approximately 0.4 miles northwest of the proposed alignment and was listed in the National Pollutant Discharge Elimination System (NPDES) database. The NPDES permit listing was associated with construction. The NPDES permit was terminated in September 2010. Since the site was not listed in a database that would indicate that an unauthorized release has occurred, it does not appear that this site has impacted the environmental conditions of the proposed project site.
2. Aliso Niguel High School is located approximately 0.6 miles north of the subject property and was listed in the Facility Index System (FINDS) database. The site was listed in the FINDS database due to being an educational facility. The National Center for Education Statistics collects and analyzes data related to education and reports information to FINDS. Based on this database listing, it does not appear that this site has impacted the environmental conditions of the proposed project site.
3. The site located at 31401 Mar Vista Avenue is located approximately 1 mile south of the subject property. The site was listed in the Spills, Leaks, Investigations, and Cleanup (SLIC) database. The listing indicated that a release was identified in September 2005, and the case status is listed as open. No additional information was available regarding the reported release. Based on the distance from the subject property, it does not appear that the site has impacted the environmental conditions of the proposed project site.
4. Aliso School, located approximately 1 mile west–southwest of the subject property was listed in the FINDS database. The site was listed in the FINDS database due to being an educational facility. Based on this database listing, it does not appear that this site has impacted the environmental conditions of the proposed project site.

5. Walmart Store Number 2206, at 27470 Alicia Parkway, is located approximately 0.9 miles north–northeast of the subject property. The site was listed in the Resource Conservation and Recovery Act Small Quantity Generator (RCRA-SQG) database. Since this listing is associated with information on sites which generate, transport, store, treat, and/or dispose of hazardous waste and no releases have been reported at the site, it does not appear that this site has impacted the environmental conditions of the proposed project site.

In addition, the SOCWA CTP, which is located at the terminus of the proposed project alignment, is a permitted underground storage tank (UST) facility and maintains NPDES permit Number CA0107611. However, the UST at the CTP has been removed and replaced with an aboveground tank.

4.9.2.2 Regulatory Framework

Hazardous materials and wastes are identified and defined by federal and state regulations for the purpose of protecting public health and the environment. Hazardous materials contain certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous wastes are defined in the Code of Federal Regulations (CFR) Title 40, Volume 25, Parts 260–265 and in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 1, Section 66261. Over the years, the laws and regulations have evolved to deal with different aspects of the handling, treatment, storage, and disposal of hazardous substances.

Federal Regulations

Federal Toxic Substances Control Act (1976)

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 established a program administered by the U.S. Environmental Protection Agency (EPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The Resource Conservation and Recovery Act was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the “cradle-to-grave” system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act (EPA 2012b).

Comprehensive Environmental Response, Compensation, and Liability Act (1980)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as “Superfund,” was enacted by Congress on December 11, 1980. This law

provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan. The National Contingency Plan (NCP) provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List, which is a list of contaminated sites warranting further investigation by the EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986 (EPA 2010c).

State Regulations

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) implements and enforces a statewide hazardous materials program established by Senate Bill 1802 to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs for hazardous materials:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control, and Countermeasure Plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment Programs
- California Uniform Fire Code, Hazardous Materials Management Plans, and Hazardous Material Inventory Statements.

California Hazardous Waste Control Law

The California Hazardous Waste Control Law is administered by the CalEPA to regulate hazardous wastes. While the Hazardous Waste Control Law is generally more stringent than the Resource Conservation and Recovery Act, until the EPA approves the California hazardous waste control program (which is charged with regulating the generation, treatment, storage, and disposal of hazardous waste), both the state and federal laws apply in California. The Hazardous Waste Control Law lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes;

prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

CCR, Title 22, Chapter 11, Article 2, Section 66261.10 provides the following definition for hazardous waste:

[A] waste that exhibits the characteristic may: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed or otherwise managed.

According to CCR Title 22, substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous waste. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, contaminated, or that is being stored prior to proper disposal.

Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability or death. For example, toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline). Ignitable substances (e.g., gasoline, hexane, and natural gas) are hazardous because of their flammable properties. Corrosive substances (e.g., strong acids and bases such as sulfuric (battery) acid or lye) are chemically active and can damage other materials or cause severe burns upon contact. Reactive substances (e.g., explosives, pressurized canisters, and pure sodium metal, which react violently with water) may cause explosions or generate gases or fumes.

Other types of hazardous materials include radioactive and biohazardous materials. Radioactive materials and wastes contain radioisotopes, which are atoms with unstable nuclei that emit ionizing radiation to increase their stability. Radioactive waste mixed with chemical hazardous waste is referred to as “mixed wastes.” Biohazardous materials and wastes include anything derived from living organisms. They may be contaminated with disease-causing agents, such as bacteria or viruses (22 CCR 66250 et seq.).

California Accidental Release Prevention Program

Similar to the Federal Risk Management Program, the California Accidental Release Prevention Program includes additional state requirements as well as an additional list of regulated substances and thresholds. The regulations of the program are contained in CCR Title 19,

Division 2, Chapter 4.5. The intent of California Accidental Release Prevention Program is to provide first responders with basic information necessary to prevent or mitigate damage to public health, safety, and the environment from the release or threatened release of hazardous materials.

California Department of Toxic Substances Control and California Highway Patrol

The California Department of Toxic Substances administers the transportation of hazardous materials throughout the state. Regulations applicable to the transportation of hazardous waste include Title 22, Division 4.5, Chapter 13 and Chapter 29 of the CCR, and Division 20, Chapter 6.5, Articles 6.5, 6.6, and 13 of the California Health and Safety Code. The Department of Toxic Substances requires that drivers transporting hazardous wastes obtain a certificate of driver training that shows the driver has met the minimum requirements concerning the transport of hazardous materials, including proper labeling and marking procedures, loading/handling processes, incident reporting and emergency procedures, and appropriate driving and parking rules. The California Highway Patrol also requires shippers and carriers to complete hazardous materials employee training before transporting hazardous materials.

California Health and Safety Code

In California, the handling and storage of hazardous materials is regulated by Division 20, Chapter 6.95 of the California Health and Safety Code. Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a hazardous materials business plan (HMBP). HMBPs contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state.

Chapter 6.95 of the California Health and Safety Code establishes minimum statewide standards for HMBPs. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material (including hazardous waste) or an extremely hazardous material in discloseable quantities greater than or equal to the following:

- 500 pounds of a solid substance
- 55 gallons of a liquid
- 200 cubic feet of compressed gas
- A hazardous compressed gas in any amount (highly toxic with a Threshold Limit Value of 10 parts per million or less)
- Extremely hazardous substances in threshold planning quantities.

In addition, in the event that a facility stores quantities of specific acutely hazardous materials above the thresholds set forth by California code, facilities are also required to prepare a Risk

Management Plan and California Accidental Release Plan. The Risk Management Plan and California Accidental Release Plan provide information on the potential impact zone of a worst-case release and require plans and programs designed to minimize the probability of a release and mitigate potential impacts.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the work place. Cal/OSHA standards are generally more stringent than federal regulations. Employers are required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

Safe Drinking Water and Toxic Enforcement Act 1986

Pursuant to the Safe Drinking Water and Toxic Enforcement Act of 1986, California Health Screening Levels were developed by the Office of Environmental Health Hazard Assessment (OEHHA) and identifies the concentration of hazardous chemicals in soil or soil gas that the CalEPA considers to cause cancer or reproductive toxicity. The thresholds of concern are an excess lifetime cancer risk of one in a million and a hazard quotient of 1.0 for non-cancer health effects. The California Health Screening Levels are used to screen sites for potential human health concerns where hazardous chemicals have been released into soils (CalEPA 2010).

Emergency Services Act

Under the Emergency Services Act, the State of California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an integral part of the plan, which is administered by the Governor's Office of Emergency Services. The Office of Emergency Services coordinates the responses of other agencies, including the EPA, California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices (Governor's Office of Emergency Services 2006).

The Emergency Planning Community Right to Know Act

The Emergency Planning Community Right to Known Act requires facilities to disclose quantities and type of toxic chemicals stored to the State and Local Emergency Planning Committee. In order to avoid multiple reports to various agencies, the California Health and Safety Code requires notification of chemical inventory to the administering agency, which is the

Department of Toxic Substances. Notification of chemical inventory shall be accomplished through completion of the Hazardous Materials Business Plan and inventory (EPA 2010c).

Regional and Local

Certified Unified Program Agency

The Certified Unified Program Agency (CUPA) is the local administrative agency that coordinates the regulation of hazardous materials and hazardous wastes in Orange County (County). The Environmental Health Division was designated as the CUPA for the County by the State Secretary for Environmental Protection on January 1, 1997. The CUPA administers six programs: Hazardous Waste (HW), Underground Storage Tank (UST), Aboveground Petroleum Storage Tank (APST), Hazardous Materials Disclosure (HMD), Business Emergency Plan (BEP), and the California Accidental Release Prevention (CalARP). County and City Fire Agencies within Orange County have joined in partnership with the CUPA as Participating Agencies and generally administer the HMD and BEP elements (County of Orange 2011).

Orange County General Plan

Safety Element

The Safety Element (updated 2011) of the Orange County General Plan identifies potential risks to the community from the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence, and other geologic hazards; flooding; and wildland and urban fires. The Safety Element comprehensively inventories hazards which could potentially impact persons and property in the unincorporated areas of the County.

Major portions of the AWCWP have been designated as high fire classification areas in the Orange County General Plan. Areas most susceptible to fire have three common characteristics: 1) 30% slopes or greater, 2) medium to heavy fuel loading, predominantly coastal sage scrub, and 3) frequent critical fire hazard weather conditions. Both sides of lower Aliso Canyon meet these three criteria.

Aliso and Wood Canyons Wilderness Park Resource Management Plan

Fire Management

A fire management plan is currently being finalized as part of the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) planning process. The purpose of this plan is to address the role of fire in the Nature Reserve of Orange County (NROC) (see *Figure 2-2*) and to provide for appropriate short- and long-term fire management policies that are

sensitive to species conservation while providing for effective fire protection of urban development adjoining the NROC. The RMP suggests that following adoption of the fire management plan for the entire Central-Coastal Subregion NCCP/HCP reserve system that a specific fire management plan should be prepared for AWCWP in coordination with appropriate agencies such as California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and county and city fire departments. The plan should address all aspects of wildfire planning, including prevention, pre-suppression, and suppression.

4.9.3 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of hazards and hazardous materials impacts. Impacts to hazards and hazardous materials would be significant if the proposed project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.9.4 Impacts

Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Routine chemicals and other hazardous materials such as oil and fuel would be required for equipment operation during the construction of the new 6-inch export sludge force main. BMPs to contain accidental spills of hazardous materials shall be implemented (as described in *Table 3-1, Summary of Project Design Features and Construction Measures*) during project construction to reduce the potential for impacts related to the transport, use, or disposal of hazardous materials.

Operation of the Export Sludge Handling System, including the new 6-inch force main, would result in the continued use of sodium hypochlorite in the existing odor scrubber at the CTP. In addition, ferric chloride would be added to the sludge at the CTP. The use of all hazardous materials would be conducted in accordance with state and federal regulations for use, storage, and disposal of such products; therefore, impacts related to the transport, use, or disposal of hazardous materials would be **less than significant**.

Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

As introduced in *Section 3.3*, the existing dual 4-inch force mains have experienced a number of problems, including variability in sludge concentration, pumping pressure, and intermittent operational scenarios leading to internal deposition, and concern over interior and exterior corrosion. Recently, in the winter of 2010-2011, the pipelines have experienced failures near Alicia Parkway due to their age and deteriorating integrity. Discharge to the creek was avoided during these recent failures; however, the existing pipeline's age and condition have the potential to result in discharge of sludge to the creek or its tributaries in the event of continued pipeline failures.

The proposed project would replace the existing corroded pipelines with a new, corrosion-resistant high density polyethylene (HDPE) single pipeline. As a result, the proposed project would result in beneficial impacts in relation to existing conditions and the potential for reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

A number of schools are located within 0.25 mile of the AWCWP, including Don Juan Avila Middle School, Aliso Niguel High School, Wood Canyon Elementary School, Canyon Vista Elementary

School, Oak Grove Elementary School, Top of the World Elementary School, and Soka University. As discussed above, sodium hypochlorite and ferric chloride would be used during the treatment process at the CTP, which is located more than 0.25 mile from schools. The use of any hazardous materials would be conducted in accordance with state and federal regulations for use, storage, and disposal of such products; therefore, impacts would be less than significant.

During construction of the replacement force main, trucks would potentially be required to transport sludge between the CTP and RTP for approximately 3 weeks while the Export Sludge Handling System is inoperable. The truck route would pass immediately adjacent to Wood Canyon Elementary School; however, construction would be timed such that these truck trips would occur during summer vacation or other times when school is not in session. Impacts would be **less than significant**.

Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?

The potential exists for unknown hazardous contamination to be revealed during project construction. If such materials are discovered, work would be stopped and appropriate state regulations regarding remediation would be followed. As described above in *Section 4.9.2*, due to the nature of the historic activities within the project area, the probability of contaminated soils being present on site is considered low. Therefore, this impact is considered **less than significant**.

For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The project site is not located within 2 miles of a public airport or public use airport. The El Toro Marine Corps Air Station (MCAS) is located approximately 4 miles north of the AWCWP and on July 2, 1999, the MCAS was closed for military use. John Wayne Airport is located approximately 6 miles northwest of the AWCWP. An Airport Environs Land Use Plan (ALUC 2008) exists for John Wayne Airport, and the project site is located outside of the airport influence area for this airport. Overall, the proposed project would not result in a safety hazard for people residing or working in the project area.

For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The proposed project is not located within the vicinity of a private airstrip. The closest private airstrip to the proposed project is the McConville Airstrip in Lake Elsinore, approximately 37

miles east of the AWCWP. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project area.

Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The County has an established Emergency Response Map that outlines appropriate emergency access routes into and within the AWCWP. The Emergency Response Map identifies the location of call boxes within the park and the most direct routes to those call boxes, including AWMA Road and Wood Canyon Trail.

During construction of the proposed project, AWMA Road may experience increased traffic with construction vehicles. Additionally, trucks may operate along AWMA Road for approximately 3 weeks during construction to transport sludge from the CTP to the RTP while the export sludge handling system is inoperable. These activities have the potential to result in short-term impacts related to emergency access and response, and impacts would be **significant**. In order to minimize the potential for construction to interfere with emergency response and to reduce this potential impact to a level below significant, mitigation is provided (see *Section 4.9.5, Mitigation Measures*, Mitigation Measure HAZ-1).

Once construction is completed, the utility pipeline would be located entirely belowground and would not interfere with emergency access; impacts would be **less than significant**.

Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Major portions of the AWCWP have been designated as high fire classification by the Orange County General Plan (2005). Areas most susceptible to fire have three common characteristics: 1) 30% slopes or greater; 2) medium to heavy fuel loading, predominantly coastal sage scrub; and 3) frequent critical fire hazard weather conditions.

The proposed project does involves the construction of the replacement pipeline only, no other structures are proposed, nor would the project result in increased use of the AWCWP such that it would expose people to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts would be **less than significant**.

4.9.5 Mitigation Measures

Implementation of the following measure would ensure that significant impacts related to hazardous materials are avoided:

HAZ-1 Prior to construction, SOCWA shall develop a Traffic Management Plan to identify alternative routes which will enable emergency access in the case of an emergency situation. Traffic congestion and road blockages shall be minimized to the maximum extent possible. The Plan shall be submitted to the Orange County Fire Authority for review and approval prior to commencement of construction.

4.9.6 Level of Significance after Mitigation

The mitigation measure listed in *Section 4.9.5* would reduce potential hazards and hazardous materials impacts to **less than significant**.

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4.10 HYDROLOGY AND WATER QUALITY

4.10.1 Introduction & Methodology

The purpose of this section is to estimate and evaluate the potential hydrology and water quality impacts associated with construction and operation of the proposed project.

The information and analysis in this section have been compiled based on a review of the Potential Hydrology Impacts Analysis for the CTP Export Sludge Force Main Project, Aliso Creek, SOCWA included as *Appendix G* to this EIR. Additional information was incorporated from the AWCWP Regional Management Plan (RMP) Existing Conditions Report (LSA 2006); the Aliso Creek Watershed Management Plan; the Orange County Drainage Area Management Plan (DAMP) (2003); and the U.S. Army Corps of Engineers (ACOE) Aliso Creek Mainstem Ecosystem Restoration Study Hydrology and Hydraulics Appendix (2009).

4.10.2 Existing Conditions

4.10.2.1 Environmental Setting

Regional Setting

Surface Waters

The AWCWP includes the confluence of two main creeks and the canyon slopes surrounding these two creeks: Aliso Creek and Wood Creek. Aliso Creek is the main tributary of the Aliso Creek Watershed, which encompasses a drainage area of approximately 35 square miles and includes portions of the cities of Aliso Viejo, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, and Mission Viejo (*Figure 4.10-1 Aliso Creek Watershed*). The watershed extends from the foothills of the Santa Ana Mountains to the Pacific Ocean south of Laguna Beach, and includes the tributaries of Wood Creek, Sulphur Creek, Aliso Hills Channel, Dairy Fork, Munger Creek, and English Canyon. Residential developments within the watershed include portions of Lake Forest, Laguna Beach, Foothill Ranch, Portola Hills, Mission Viejo, Laguna Hills, Aliso Viejo, and Laguna Niguel.

The Aliso Creek Watershed, like other watersheds in the County, has been significantly affected by development. Specific watershed concerns include channelization, poor surface water quality from discharge of nonpoint sources, loss of habitat in the floodplain, loss of riparian habitat, paving of the floodplain, decline of water supply and flows, biodiversity loss, invasive plant and animal species, surface erosion, and overuse of existing resources (LSA 2006).

Surface Water Quality

The 2010 Clean Water Act (CWA) 303(d) List of Water Quality Limited Segments classifies Aliso Creek, the mouth of Aliso Creek, and the Pacific Shoreline at Aliso Creek as impaired water bodies. The pollutant/stressors and potential sources for these impaired waterbodies are identified in *Table 4.10-1*.

Table 4.10-1
Clean Water Act 303(d) List of Water Quality Limited Segments

Location	Pollutant/ Stressor	Potential Source	Expected TMDL ¹ Completion	Estimated Size Affected
Aliso Creek	Phosphorus	Urban Runoff/Storm Sewers, Natural Sources, Unknown Nonpoint Source	2019	19 miles
	Selenium	Urban Runoff/Storm Sewers, Unknown Nonpoint Source	2021	19 miles
	Total Nitrogen as N	Urban Runoff/Storm Sewers, Natural Sources, Unknown Nonpoint Source	2019	19 miles
	Toxicity	Source Unknown, Unknown Nonpoint Source, Unknown Point Source	2019	19 miles
	Indicator Bacteria	Urban Runoff/Storm Sewers, Nonpoint Source, Point Source, Unknown Point Source	2005 ²	19 miles
Aliso Creek (mouth)	Indicator Bacteria	Nonpoint Source, Point Source	2019	0.29 acres
Pacific Shoreline, at Aliso Creek Mouth (* and Aliso Beach—Middle)	Enterococcus*	Unknown Nonpoint Source, Unknown Point Source, Urban Runoff/Storm Sewers	2021	0.03 miles
	Fecal Coliform	Unknown Nonpoint Source, Unknown Point Source, Urban Runoff/Storm Sewers	2021	0.03 miles
	Total Coliform*	Unknown Nonpoint Source, Unknown Point Source, Urban Runoff/Storm Sewers	2021	0.03 miles

Source: State Water Resources Control Board, October 25, 2006 (RWQCB 2006).

¹ TMDL = Total maximum daily load

² Regional Boards will update this decision when new data and information become available and are assessed.

Urban runoff/storm sewers are a potential source for phosphorus, selenium, total nitrogen as N, indicator bacteria, enterococcus, fecal coliform and total coliform in Aliso Creek and at the Pacific Shoreline at the mouth of Aliso Creek. Nonpoint/point sources are not only potential contributors to the aforementioned pollutants, but also to toxicity within Aliso Creek and indicator bacteria at the mouth of Aliso Creek.

Groundwater

The Aliso Creek groundwater basin has limited water-bearing formations and has historically been an unreliable source of groundwater. Three aquifers exist: a shallow alluvial aquifer in the upper basin above Interstate 5 (I-5), a deeper aquifer in the upper basin, and a shallow alluvial aquifer in the lower basin downstream of I-5. The two alluvial aquifers are separated by a shale formation in the vicinity of I-5. The lower aquifer is very shallow and almost reaches the surface in many locations, likely because of the restricted canyon outlet to the ocean. Water quality is poor in the lower alluvial aquifer, with total dissolved solids of 1,350–2,400 milligrams per liter (mg/l). In general, the shallow aquifers comply with groundwater standards for chloride, fluoride, sodium, manganese, and boron standards. However, there are exceedances of the sulfate, total dissolved solids, iron, and turbidity standards, and the overall mineral content is high.

Many wells in the watershed are not in service. The wells typically have low yields and some exhibit artesian conditions. The Los Alisos Water District operates two groundwater wells in the watershed utilizing the deeper aquifer in the upper watershed. The district has not used the shallow aquifer layers due to their small volumes and high nitrate concentrations (Ninyo and Moore 2009).

Site Specific Hydrology

Surface Waters

Aliso Creek

Aliso Creek flows approximately 19 miles from its headwaters in the Cleveland National Forest south past the confluence with Wood Creek and into the ocean at Aliso Beach Park in the City of Laguna Beach. The AWCWP portion of Aliso Creek encompasses the section south of Aliso Creek Road within Aliso Canyon. Aliso Creek, once an intermittent stream before the region became heavily urbanized, now flows year-round through the eastern and southern sections of the AWCWP, augmented in recent years by significant increases in upstream urban runoff.

Significant urbanization of the watershed in the 1960s and 1970s led to degradation of the creek channel. In the 1970s and 1980s, a number of vertical concrete drop structures were constructed to stop rapidly advancing headcuts through the central watershed and to protect transportation infrastructure. The drop structures remain in the portion of the creek adjacent to the project site and continue to contribute to environmental problems, including excessively high water temperatures and barrier to movement by aquatic species (ACOE 2002).

The very northern portion of Aliso Creek in the AWCWP includes a soft bottom and engineered compacted fill banks with revetment on the side slopes. Approximately 320 feet downstream of the drop structure at the AWMA Road crossing, the creek turns into a natural channel which extends all the way down to the Pacific Ocean (Tetra Tech 2009).

The Aliso Creek Wildlife Habitat Enhancement Project (ACWHEP) was built to provide habitat along the creek banks by diverting water into the floodplain to support growth of riparian vegetation. The 20-foot ACWHEP drop structure is the largest drop structure along Aliso Creek. Irrigation lines have been broken due to downstream erosion, and thus the structure is not functioning as intended; however, the structure is providing stability to the upstream channel (Tetra Tech 2009).

The upper reaches of the creek within the park showed consistent degradation (from 3 to 13 feet) from 1967 to 1994, much of which occurred in the flood of 1980. However, since 1994, the channel has actually aggraded slightly due to the impoundment caused by ACWHEP. From 2003 to 2006 there was slight erosion; however, since 1994 there has been a trend of minimal change indicating that the channel is likely in an equilibrium stage with smaller responses due to significant events (Tetra Tech 2009).

The lower reaches of the creek between the ACWHEP structure and the CTP appear to have degraded between 3 and 6.5 feet from 1994 to 1998 over a channel length of 6,500 feet downstream of the ACWHEP structure. Severe storms in 1998 caused severe undercutting at the toe of the structure. Between 1998 and 2003, no pattern of significant degradation or aggradation was observed. However, from 2003 to 2006, channel degradation ranging between 3 to 6 feet was renewed in this reach likely as a result of the 2005 storms (Tetra Tech 2009).

The dynamic nature of Aliso Creek is primarily reflected in the lower channel by severe downcutting and lateral migration of the streambed. These systematic changes are a result of Aliso Creek moving towards an equilibrium grade and length to convey current levels of flows and sediment to the Pacific Ocean. Due to the effects of urbanization, both the flow and sediment discharge have been impacted (Tetra Tech 2009).

The stream profile of Aliso Creek is flattening in response to the current hydrologic and sediment regime in the watershed. In Aliso Creek, the mostly developed watershed is contributing higher discharges and less sediment, which erode the bed and banks. This erosion has necessitated bank protection and invert stabilization using riprap, sheet piles, and concrete, segmenting the stream and preventing it from achieving equilibrium over its entire length (Tetra Tech 2009).

Average annual floods appear to have very little effect on the overall channel erosion in Aliso Creek when compared to the erosion from peak flows during major flood events. Although the stream has been historically dynamic, the peak and average annual flows have increased concurrently with development. The higher peak flows are probably a direct result of development. Drop structures have curbed impacts of higher flows to the lateral and vertical channel profiles (Tetra Tech 2009).

Wood Creek

The AWCWP also includes the Wood Creek watershed which extends northwesterly from its confluence with Aliso Canyon and includes Mathis Canyon and its tributaries. Wood Creek is approximately 3 miles long from its headwaters at a detention basin to its confluence with Aliso Creek at an elevation of approximately 90 feet. This creek is less affected by development than its neighbor Aliso Creek, but still has many of the same concerns. River geomorphology conditions within the AWCWP have been degrading for several decades. Degradation within the AWCWP is caused by several factors including past cattle grazing, current goat grazing and dry farming, urbanization of the upper watershed, improper fuel zone management, natural and artificial fluctuations of the water levels in the channel, and human activities such as impeding the channel at trail, spillway, and road crossings.

Groundwater

In general, no groundwater seepage or active springs have been observed near the base of the canyon slopes or in accessible areas of the creek channel slopes. Substantial water flows have been observed from the drainage tributary along the Aliso Creek Trail, on the west side of Aliso Creek south of the drop structure of the creek crossing. Groundwater is generally expected to be near the elevation of the adjacent stream level. Groundwater levels along the proposed alignment can vary with seasonal storms, changes in topography, runoff, and other environmental changes.

In October 2000, a subsurface evaluation consisting of the excavation, logging, and sampling of 19 small-diameter borings was performed. Borings were drilled to a depth ranging from approximately 20.5 feet to 51.5 feet. Groundwater was encountered in 13 of the 19 borings; the depth to groundwater varied widely, ranging from approximately 6 feet deep to greater than 51.5 feet. In general, groundwater in the approximate southern half of the proposed project site ranged from approximately 18.5 feet to greater than 51.5 feet below ground surface (bgs). Groundwater in the approximate northern half of the proposed project site generally ranged from 6 feet to 30 feet bgs (Ninyo and Moore 2000). In January 2009, high groundwater was encountered at Boring 3 (B-3) near station 60 at 6.5 feet bgs. Groundwater was also encountered in borings B-1 near Station 0 and B-2 near Station 10 at 20 feet and 25 feet bgs, respectively, during the January 2009 investigation (Ninyo and Moore 2009).

4.10.2.2 Applicable Plans and Policies

Several local, state, and federal regulations govern discharges associated with construction and post-construction stormwater runoff to protect the water quality of receiving waters. The following is a summary of the regulatory framework that has been established to protect water resources.

Federal

Federal Clean Water Act

Increasing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act (CWA). The CWA establishes basic guidelines for regulating discharges of pollutants into the waters of the United States. The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

Section 303(d)

Section 303(d) requires that states assess the quality of their waters every 2 years and publish a list of those waters not meeting the water quality standards established for them. Such waters are then identified as being an “impaired water body.” Water quality standards are found in the Basin Plan and include beneficial uses, water quality objectives necessary to protect these uses, and the anti-degradation policy. For water bodies placed on the 303(d) List of Water Quality Limited Segments, states are required to develop total maximum daily loads (TMDLs) for the pollutant(s) that are causing impairment of the water quality standards. Once a water body is placed on the 303(d) List of Water Quality Limited Segments, it remains on the list until a TMDL is adopted and the water quality standards are attained, or there is sufficient data to demonstrate that water quality standards have been met and delisting from the 303(d) list should take place.

Section 401

Section 401 of the CWA requires an applicant for a federal permit, such as the construction or operation of a facility that may result in the discharge of a pollutant, to obtain certification of those activities from the state in which the discharge originates. This process is known as the Water Quality Certification for the project. For projects in San Diego, the San Diego Regional Water Quality Control Board (RWQCB) issues Section 401 permits.

Section 402—National Pollution Discharge Elimination System

The National Pollution Discharge Elimination System (NPDES) permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States. In the State of California, the Environmental Protection Agency (EPA) has authorized the State Water Resource Control Board (SWRCB) permitting authority to implement the NPDES program. In general, the SWRCB issues two baseline general permits: one for industrial discharges and one for construction activities. In 1990, the EPA promulgated rules establishing Phase I of the NPDES stormwater program for

categories of stormwater discharge including “medium” and “large” Municipal Separate Storm Sewer Systems (MS4s), which generally serve populations of 100,000 or greater. The Phase II Rule that became final on December 9, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than 1 acre and “small” MS4s. For projects disturbing 1 or more acres of land, the applicant must file a Notice of Intent (NOI) for coverage under the General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) and prepare a stormwater pollution prevention plan (SWPPP) that specifies best management practices (BMPs) to prevent pollutants from contacting stormwater and procedures to control erosion and sedimentation.

Section 404

Section 404 of the CWA established a permitting program to regulate the discharge of dredged or filled material into waters of the United States. The definition of waters of the United States includes wetlands adjacent to national waters. This permitting program is administered by the ACOE and enforced by the EPA.

State

California Water Code

The California Water Code governs the use, discharge to, and management of water resources throughout the state.

Porter–Cologne Water Quality Control Act

The Porter–Cologne Act, also known as Division 7 of the California Water Code, is the basic water quality control law for California. The goal of the Porter–Cologne Act was to create a regulatory program to protect water quality and beneficial uses of the state’s waters. As such, the state and regional boards were established to implement and enforce the CWA and state-adopted water quality control plans.

State Water Resource Control Board

The SWRCB is responsible for issuing stormwater permits in accordance with the NPDES program. For projects disturbing 1 or more acres of land, the applicant must file an NOI for coverage under the General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) and prepare a SWPPP that specifies BMPs to prevent pollutants from contacting stormwater and procedures to control erosion and sedimentation.

Local

Regional Water Quality Control Board

The AWCWP falls within the jurisdiction of the Region 9 RWQCB, San Diego. Each RWQCB is responsible for water quality control planning within their region, often in the form of a basin plan. The RWQCB is also responsible for implementing the provisions of the General Permit, including reviewing SWPPPs and monitoring reports, conducting compliance inspections, and taking enforcement actions.

San Diego Basin Plan

A major purpose of the Basin Plan is to define beneficial uses of surface and groundwater. Beneficial uses are defined as “the uses of water necessary for the survival or well-being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social and environmental goals of mankind.” These uses include but are not limited to drinking, recreation (contact and non-contact), industrial and agricultural supply, and the support of aquatic species (RWQCB 1994). Water quality objectives seek to protect the most sensitive of the beneficial uses designated for a specific water body. The San Diego Basin encompasses approximately 3,900 square miles, including most of San Diego County and portions of southwestern Riverside and Orange Counties.

The proposed project site is within in the San Juan Hydrologic Unit (HU) (901.00), which is one of the eleven hydrologic units established for the San Diego Basin (Region 9). The San Juan HU is divided into five hydrologic areas (HA) and the proposed project site is within the Laguna HA (901.10). The Laguna HA is divided into four hydrologic subareas (HSA) and the proposed project site is within the Aliso HSA (907.13).

Waste Discharge Requirements for Discharges of Extracted Groundwater to Surface Waters Except for San Diego Bay (NPDES Order No. R9-2008-0002)

The General Waste Discharge Requirements (WDR) sets forth requirements for discharges from ground water extraction activities to surface waters within the San Diego Region, except for San Diego Bay, that do not cause, have the reasonable potential to cause, or contribute to an instream excursion above any applicable state or federal water quality objectives/criteria or cause acute or chronic toxicity in the receiving water. To obtain coverage under the WDR, a discharger must submit an NOI to the San Diego RWQCB.

SOCWA Sewer System Management Plan

The South Coast Water District (SCWD) is responsible for the management, operation, maintenance, and capacity assurance of the sanitary sewer collection system in its service area, which includes inspecting, cleaning, repairing, and monitoring the sewer lines, force mains, and lift stations. The sewer collection system removes four million gallons per day of wastewater from homes and businesses and conveys it to treatment plants operated by SOCWA.

In July 2009, SOCWA submitted the Sewer System Management Plan (SSMP) to the SWRCB. The SSMP describes SOCWA's activities in managing its wastewater collection system in order to further eliminate preventable sewer spills, minimize those spills that may occur, and protect both public health and the environment. In accordance with the SSMP Overflow Emergency Response Plan, SOCWA has developed and implemented a ~~Sanitary Sewer Overflow Prevention Plan and Response Plan (SSOPP/SSORP)~~ Spill Response Plan (SRP) which to “ensure the protection of the environment and the public's health and safety, to comply with its NPDES permit and California Water Code requirements.” The SRP identifies proper notification procedures of the primary responders and regulatory agencies, procedures to address emergency operations (including notification of OC Parks Ranger Dispatch (562) 594-7232 in case of an emergency), and reasonable steps to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States.

Orange County Drainage Area Management Plan

The Drainage Area Management Plan (DAMP) (2003) is the County's primary policy, planning, and implementation document for municipal NPDES Stormwater Permit compliance. The DAMP includes specific water pollutant controls, including BMPs for erosion control, sediment control, wind erosion control, tracking control, non-stormwater control, and waste management and materials pollution control.

Aliso Creek Watershed Management Plan

The Aliso Creek Watershed Management Plan (WMP) is a collection of recommendations that have been developed with the advice and participation of community representatives; federal, state, and local agency representatives; private citizens; and local citizen interest groups. The WMP identifies water and land-related problems in the Aliso Creek watershed, including creek instability, water quality, loss of fish and wildlife habitat and loss of terrestrial/riparian habitat, and flooding damage. Solutions are provided as a combination of restoration programs and education and awareness programs.

4.10.3 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of hydrology and water quality impacts. Impacts to hydrology and water quality would be significant if the proposed project would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of a course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Otherwise substantially degrade water quality
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- Place within a 100-year flood hazard area structures that would impeded or redirect flood flows
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam
- Result in inundation by seiche, tsunami, or mudflow.

4.10.4 Impacts

Would the project violate any water quality standards or waste discharge requirements?

Runoff of sediments and other pollutants into Aliso Creek has the potential to produce short-term impacts to water quality during construction of the proposed project. Sediment runoff would be possible from trenching operations, erosion, and poor stockpile management. Oil and gas leakage would be of concern during vehicle and equipment operation. However, SOCWA will be

required to prepare and implement a SWPPP in order to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity, as described in *Chapter 1, Introduction*. The project SWPPP will incorporate and implement construction BMPs (listed in *Table 3-1, Summary of Project Design Features and Construction Measures*) to ensure that potential impacts to water quality remain **less than significant**.

Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The proposed project does not propose the construction of impervious surfaces that would prevent water from infiltrating into the groundwater system and reduce groundwater recharge. Potential impacts to groundwater would be limited to groundwater dewatering that may be required during installation of the pipeline. The depth of trench excavation is expected to be approximately 5 feet to 9 feet bgs; based on the fluvial environment and soil types of the proposed pipeline alignment, it is possible that groundwater may be encountered and that groundwater dewatering may be necessary, resulting in a potentially **significant impact** related to the depletion of groundwater. In the event that groundwater is encountered and is proposed to be discharged to surface waters (i.e., Aliso Creek), mitigation measure HYD-1 shall be incorporated (see *Section 4.10.5*).

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of a course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?

Grading/trenching is anticipated to include relatively shallow cuts and fills and would occur within the previously disturbed construction easement. Drainage tributaries from the canyon slopes crossing the proposed alignment may undermine the proposed pipeline and impact the stability of the creek embankments; as such, erosion protection and drainage improvements may be required where these tributaries cross the proposed force main alignment. However, the proposed project would adhere to all requirements in the Orange County DAMP and would preserve the existing drainage patterns while preventing the development of substantially erosive features. Therefore, the proposed project would not result in alteration to the course of a stream or river in a manner that would result in substantial erosion or siltation on or off site, and impacts would be **less than significant**.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?

As discussed above, the proposed project would follow the Orange County DAMP guidelines and would not alter existing drainage patterns. Additionally, the proposed project involves only minimal grading within a previously disturbed construction easement and would not result in additional impervious surfaces that would increase surface runoff in a manner that would result in flooding on or off site. Therefore, impacts would be **less than significant**.

Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The project site does not discharge runoff into an existing or planned stormwater drainage system. The proposed project does not propose the development of impervious surfaces which would contribute to a permanent source of increased runoff. During construction, incorporation of BMPs listed in *Table 3-1, Summary of Project Design Features and Construction Measures* would be incorporated and would reduce sources of polluted runoff. Overall, impacts would be **less than significant**.

Would the project otherwise substantially degrade water quality?

During construction, the potential for siltation or polluted runoff to degrade water quality would be reduced through incorporation of BMPs listed in *Table 3-1, Summary of Project Design Features and Construction Measures*. Once constructed, the proposed pipeline would be located belowground (except for a short 170-foot segment to be located aboveground) and the disturbed areas would be revegetated to reduce the potential for erosion.

Once operational, the proposed pipeline would transport sludge between the CTP and RTP. The potential exists for the force main to rupture or burst, which could result in sludge discharging into Aliso Creek. However, the purpose of the proposed project is to replace the two existing 4-inch force mains which have deteriorated significantly over the years; these pipelines have experienced ruptures and spills recently and pose a substantial risk for future sludge discharges. The proposed project would replace the existing corroded pipelines with a corrosion-resistant high density polyethylene (HDPE) single pipeline, which would reduce the potential for failure and result in beneficial impacts to water quality compared to existing conditions. In addition, the new force main would be inspected and maintained in accordance with SOCWA's SSMP, and in the case of a rupture or spill, the procedures outlined in the SSOPP/SSORP would be followed. Compliance with the SSMP and the SSOPP/SSORP would reduce potential impacts to water quality to **less than significant**.

Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project includes the replacement of two 4-inch force mains with a single 6-inch force main pipeline and does not involve the construction of housing; therefore, there would be **no impacts** related to the placement of housing within a 100-year flood hazard area.

Would the project place within a 100-year flood hazard area structures that would impeded or redirect flood flows?

The proposed project includes the replacement of two 4-inch force mains with a single 6-inch force main pipeline. The pipeline would be located belowground (except for a short 170-foot aboveground segment) and would not impede or restrict flood flows. Temporary storage and stockpiling areas during construction will be located outside of the 100-year floodplain (see *Figure 4.10-2*). Therefore, impacts would be **less than significant**.

Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The export sludge force main would be located belowground (except for a short 170-foot aboveground segment); no people or structures would be exposed to a significant risk of loss, injury, or death involving flooding. Therefore, impacts would be **less than significant**.

Would the project result in inundation by seiche, tsunami, or mudflow?

The southern terminus of the proposed pipeline is located within a couple of miles of the Pacific Ocean. However, the topography separating the proposed project site from the ocean is steep and would limit the possibility that the project site could be impacted by a seiche or tsunami.

The topography of the area surrounding the project site is steep, and there is a potential for mudflows to occur in heavy rain following disturbances, such as wildfires, to upland hill slopes. However, the proposed project does not propose any alterations to slope areas or the existing terrain such that it would result in mudflows, and the pipeline would be located belowground (except for a short 170-foot aboveground segment); therefore, impacts would be **less than significant**.

4.10.5 Mitigation Measures

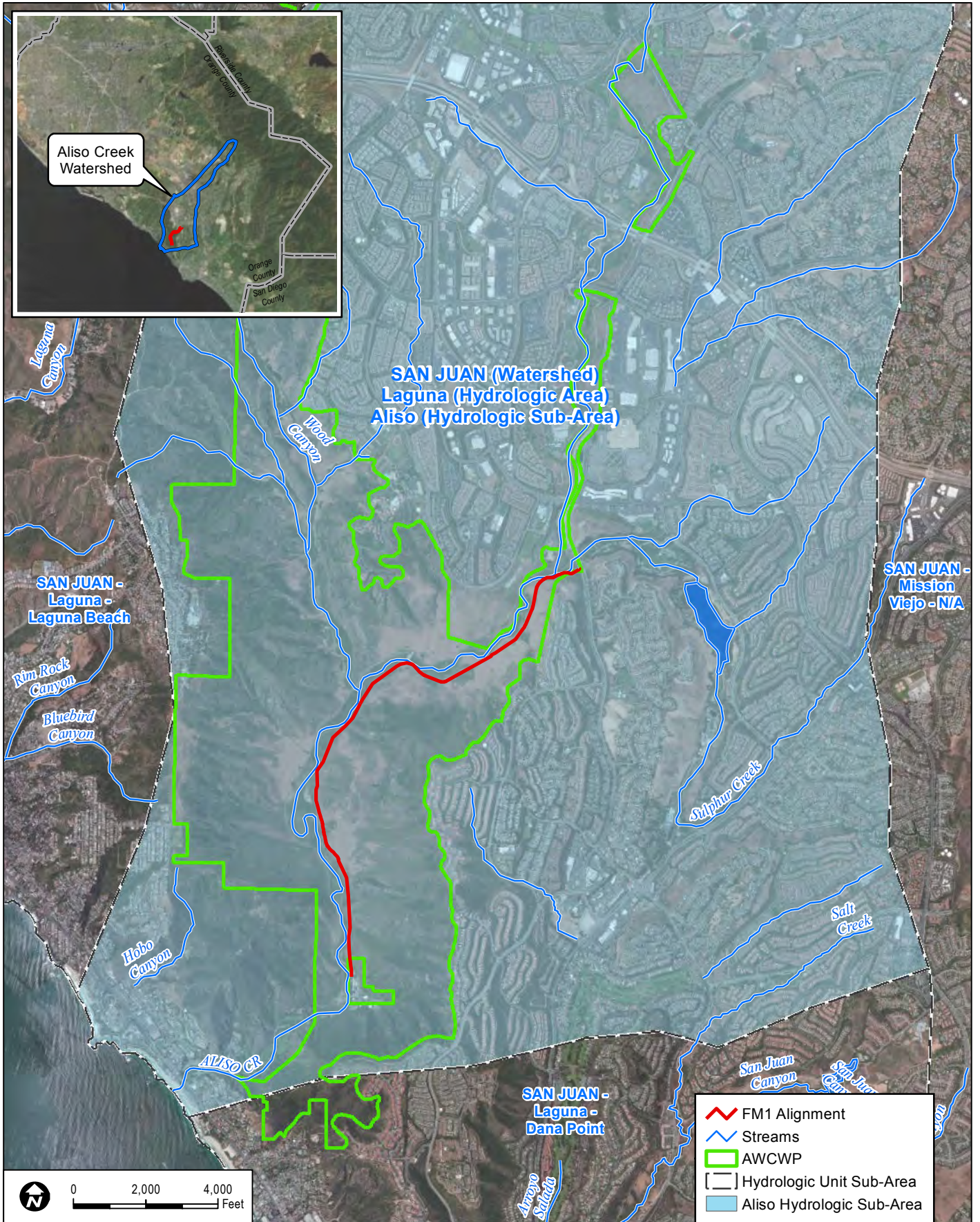
Incorporation of the following mitigation measures would reduce potential impacts to hydrology and water quality:

HYD-1a If groundwater is encountered during grading/trenching and is proposed to be discharged to surface waters, SOCWA shall obtain a General Waste Discharge Requirements for Discharges of Extracted Groundwater to Surface Waters within the San Diego Region Except for San Diego Bay (RWQCB Order No. R9-2008-0002) and shall comply with all requirements of the waste discharge requirements.

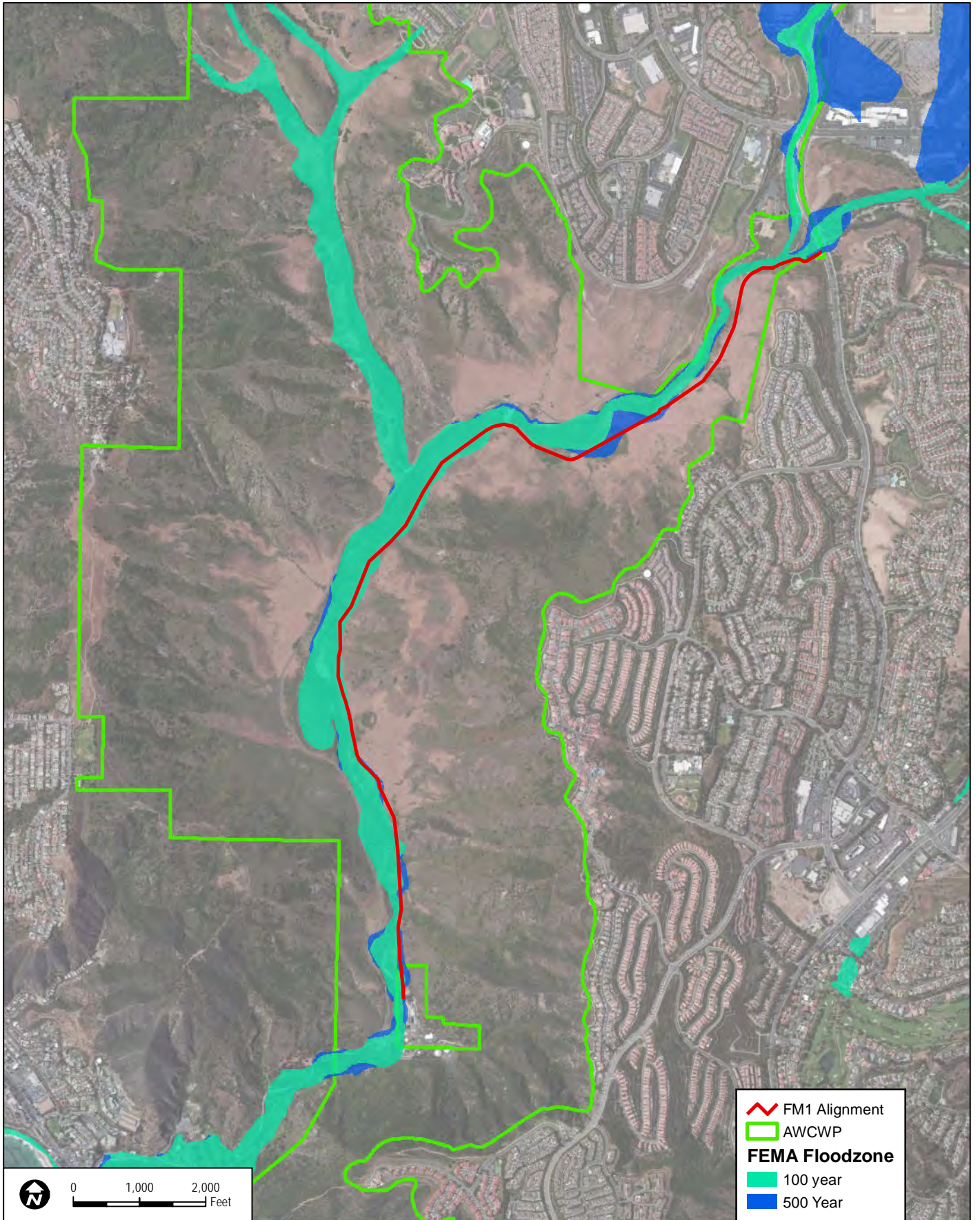
HYD-1b As an alternative to obtaining a waste discharge requirements permit, groundwater could be discharged to the sanitary sewer or to an upland area where it does not enter back into the stream or other surface waters, or can be used for dust control.





4.10.6 Level of Significance after Mitigation

The mitigation recommended in *Section 4.10.5* would reduce impacts to **less than significant**.



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 FM1 Alignment
 AWCWP
FEMA Floodzone
 100 year
 500 Year

DUDEK

SOURCE:ESRI 2012, OC Public Works 2008, FEMA 2012

**Figure 4.10-2
Floodplain**

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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4.11 NOISE

4.11.1 Introduction

This section provides a discussion of the existing noise environment, at and adjacent to the proposed project site, based upon data published in the Noise Element (Orange County General Plan 2011) and field observations. This section also summarizes potential noise impacts that would occur primarily during construction; once construction of the proposed export sludge force main is complete, noise emissions would not be produced from the buried pipeline. Also, equipment operations at the existing SOCWA CTP and RTP sites would not be materially altered once the existing pair of 4-inch force mains is replaced with the proposed 6-inch force main.

Noise is generally defined as loud, unexpected, or undesired sound, typically associated with human activity that interferes with or disrupts normal activities. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The definition of noise as unwanted sound implies that it has an adverse effect on people and their environment.

Sound is measured in terms of intensity, which describes the sound's loudness and is measured in decibels (dB); in terms of frequency or pitch, measured in cycles per second or hertz (Hz); and, in terms of duration of sound. Sound is composed of various frequencies; however, the human ear does not respond equally to all frequencies, being less sensitive to very low and high frequencies than to medium frequencies that correspond with human speech. Sound-level meters adjust for the weight the human ear gives to certain frequencies, applying a correction to each frequency range to approximate the human ear's sensitivity within each range. This is called "A-weighting" and is commonly used in measurements of community environmental noise. The A-weighted sound level, abbreviated dB(A), is determined to be the most appropriate unit of measure for community noise.

The unit of measure for the cumulative effect of community noise is the community noise equivalent level (CNEL), which is the average noise level for a 24-hour period. The CNEL is often used to describe the relationship of a continuous noise source, such as traffic, to the desirable ambient noise level (normal and existing noise level). The CNEL is adjusted to reflect the greater sensitivity to noise during evening and night hours with a 5 dB(A) penalty assigned to noise between 7:00 p.m. and 10:00 p.m., and a 10 dB(A) penalty assigned to noise between 10:00 p.m. and 7:00 a.m. Due to fluctuations in community noise over time, a single measurement called the Equivalent Sound Level (Leq) is often used to describe the time-varying character of community noise. The Leq is the energy-averaged A-weighted sound level during a measured time interval, and it is equal to the level of a continuous, steady sound containing the same total acoustical energy over the averaging time period as the actual time-varying sound. Leq values should always refer to the time period over which the average applies, noted by parenthesis Leq (15) or subscript Leq₁₅ as the averaging period can vary depending upon the applicable ordinance or standard being applied.

To respond to the human ear's sensitivity to sound, the range of audible sounds exist on a logarithmic scale that takes into account the large differences in audible sound intensities. On this scale, for example, a 10 dB(A) increase is normally perceived as a doubling of sound. A sound level of 0 dB is approximately the threshold of human hearing for a young adult with normal hearing function. Normal speech has a sound level of approximately 60 dB at 5 feet from the speaker. Sound levels above about 120 dB begin to be felt inside the human ear as discomfort and eventually as pain at slightly higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB.

There are three conceptual components to noise: the source, the transmission path, and the receiver. Noise can be reduced at its source; by lengthening or interrupting the transmission path through diversion, absorption, or dissipation; or by protecting the receiver through noise insulation. The most efficient and effective means of abating noise is to reduce noise at its source. The source noise can be controlled through regulation such as following restrictions outlined in noise ordinances, muffling techniques, or sound proofing. The transmission path can be interrupted through the creation of a buffer between the source and the receiver, such as a noise wall, earth embankment, or a building. The receiver can be protected from noise impacts through insulation, building orientation, or shielded areas.

Noise sources can be classified in two forms: (1) point sources, such as stationary equipment (e.g., pumps), and (2) line sources, such as a roadway with a large number of pass-by sources (e.g., motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB(A) for each doubling of distance from the source to the receptor. For example, a 60 dB(A) noise level measured at 50 feet from a point source would be 54 dB(A) at 100 feet from the source and 48 dB(A) at 200 feet from the source. This attenuation rate does not account for any ground absorption effect, and is therefore sometimes referred to as the "hard site" attenuation rate. Where loose soil or vegetation exists as the ground surface between the sound source and receivers, an additional attenuation rate of 1.5 dB(A) applies (thus resulting in a total attenuation rate of 7.5 dB(A) per doubling of distance for point sources surrounded by soft site conditions). Sound generated by a line source typically attenuates at a rate of 3 dB(A) and 4.5 dB(A) per doubling of distance from the source to the receptor for hard and soft sites, respectively.

Sound levels can also be attenuated by man-made or natural barriers. Intervening noise barriers, such as a solid wall or berm, typically reduce noise levels by 5 to 10 dB(A). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The exterior-to-interior noise attenuation provided by typical California building structures ranges from 15 to 25 dB(A) for windows open and closed, respectively. Acoustically designed enclosures and buildings can provide up to approximately 50 dB(A) of noise reduction, depending on the noise abatement treatments.

Vibration tolerance typically depends on the type of structures that are affected. Structural response to vibration is typically evaluated in terms of peak particle velocity. Peak particle velocity is often used since it is related to the stresses that are experienced by the buildings. Various general standards are contained in the International Standards Organization's standards 3945, 4866, and 7626-1. Limits set by these standards indicate a low probability of structural damage occurring to common structures at a peak particle velocity of 2.0 inches per second. Older (and non-reinforced masonry) structures would have a limit of 0.75 to 1.0 inches per second. The Federal Transit Administration (FTA) identifies a vibration damage threshold criterion of 0.20 inches per second for non-engineered timber and masonry buildings (i.e., fragile buildings), or 0.12 inches per second for buildings extremely susceptible to vibration (i.e., fragile historic buildings) (FTA 2006).

4.11.2 Methodology

This section discusses impacts related to noise and noise generation that would occur as a result of project implementation. This section quantifies construction and operational noise generation and the resulting noise levels at vicinity noise-sensitive receptors that are generally representative of the open space and residential uses surrounding the project. Assumptions regarding construction activities, construction equipment, and duration of construction activities are based on information provided in the Preliminary Design Report (Dudek 2012c) and coordination with the engineering team. The operational noise-impact assessment is based on our review of the plan profile drawings (see *Figures 3-2a, 3-2b, and 3-2c*) and preliminary equipment information provided by the design engineers. Construction equipment noise levels were evaluated based on manufacturer's data and published sound-level data for the anticipated types of equipment. The criteria established in the Orange County General Plan Noise Element and Orange County Noise Ordinance are used to determine the significance of the potential noise impacts.

4.11.3 Existing Conditions

4.11.3.1 Environmental Setting

The alignment for the force main replacement is located entirely within the Aliso Creek canyon. This canyon, and the confluence with the Woods Creek canyon, may be characterized as primarily undeveloped open land bordered by intermediate elevation ridgelines. However, toward the northern end of Aliso Creek canyon, urban developments, including Soka University, and residential neighborhoods exist within 1,000 feet of the pipeline alignment, and the pipeline alignment terminates at Alicia Parkway.

Transportation facilities are generally the most important source of noise with respect to the average noise levels present within a community. The 2005 Noise Element of the Orange County General Plan provides noise contour maps which address the most substantial transportation

noise sources in Orange County (County). Because 60 dB(A) CNEL is considered an acceptable exterior noise exposure level for all land uses, the outside edge of the 60 dB(A) CNEL contour is the lowest CNEL value provided in the noise maps.

With respect to Aliso Creek canyon, the outer boundary for the 60 dB(A) contour for the John Wayne Airport is approximately 6 miles northwest of the pipeline alignment. The 60 dB(A) CNEL contour for the closest railroad is approximately 2 miles to the east, or northeast. The closest mapped 60 dB(A) CNEL contour for a major arterial roadway is approximately 2 miles to the north (State Route 73).

Because of the relatively isolated character of the Aliso Creek canyon and low incidence of noise sources within the canyon, the existing average noise level for the majority of the pipeline corridor would be estimated to be between 40 and 45 dB(A) CNEL. Within 400 feet of the CTP, average noise levels could range up to approximately 60 dB(A) CNEL, resulting from plant operations. Average noise levels within the pipeline alignment could also range up to 60 dB(A) within 500 feet of Alicia Parkway, based upon the County Noise Element (Figure VIII-3, Page VIII-13). The intervening ridge along the east side of Aliso Creek canyon shields the canyon from the transmission of noise along most of Alicia Parkway and along Pacific Island Drive.

4.11.3.2 Applicable Plans and Policies

The following is a summary of the regulatory framework that has been established to protect federal, state, and local sensitive receptors from excessive noise generation. The primary regulatory documents that establish noise standards in the County are the Orange County General Plan's Noise Element and the Orange County Noise Control Ordinance. Relevant standards from both documents are discussed below.

Orange County General Plan Noise Element

The Noise Element's goal is to "protect the health, safety, and general welfare of County residents by reducing noise levels and establishing compatible land uses in noise-impacted areas" (County of Orange 2011).

The following table, *Table 4.11-1*, was derived from the objectives and policies from the General Plan Noise Element, from state requirements and standards, and from other policies from the Board of Supervisors that relate to noise environments. The table conveys the compatibility of, and standards for, the integration of land use planning and either calculated or measured noise environments.

**Table 4.11-1
Compatibility Matrix for Land Use and Community Noise Equivalent Levels (CNEL)**

	65+ decibels CNEL	60 to 65 decibels CNEL
<i>Type of Use</i>		
Residential	3a, b, e	2a, e
Commercial	2c	2c
Employment	2c	2c
Open Space		
<i>Local</i>	2c	2c
<i>Community</i>	2c	2c
<i>Regional</i>	2c	2c
Education Facilities		
<i>Schools (K through 12)</i>	2c, d, e	2c, d, e
<i>Preschool, college, other</i>	2c, d, e	2c, d, e
Place of Worship	2c, d, e	2c, d, e
Hospitals		
<i>General</i>	2a, c, d, e	2a, c, d, e
<i>Convalescent</i>	2a, c, d, e	2a, c, d, e
Group Quarters	1a, b, c, e	2a, c, e
Hotel/Motels	2a, c	2a, c
Accessory Uses		
<i>Executive Apartments</i>	1a, b, e	2a, e
<i>Caretakers</i>	1a, b, c, e	2a, c, e

Explanation and Definitions

Action required to ensure compatibility between land use and noise from external sources:

1 = Allowed if interior and exterior community noise levels can be mitigated.

2 = Allowed if interior levels can be mitigated.

3 = New residential uses are prohibited in areas within the 65-decibel CNEL contour from any airport or air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "infill" development within an established neighborhood.

Standards required for compatibility of land use and noise:

a = Interior Standard: CNEL of less than 45 decibels (habitable rooms only).

b = Exterior Standard: CNEL of less than 65 decibels in outdoor living areas.

c = Interior Standard: Leq (h) = 45 to 65 decibels interior noise level, depending on interior use.

d = Exterior Standard: Leq (h) of less than 65 decibels in outdoor living areas.

e = Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

Key Definitions

Habitable Room—Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking, or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

Interior—Spaces that are covered and largely enclosed by walls.

Leq (h)—The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be Leq (12) where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 a.m. to 7:00 p.m.). Typically, time period "h" is defined to match the hours of operation of a given type of use.

Outdoor Living Area—Outdoor living area is a term used by the County to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Source: County of Orange 2011.

Orange County Noise Control Ordinance

The County Noise Ordinance establishes the maximum permissible noise level that may intrude into a neighbor's property and specifies noise level standards for various land use categories affected by stationary noise sources (County of Orange 1973).

Section 4-6-5 Exterior Noise Standards

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

**Table 4.11-2
Noise Standards**

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m. to 10:00 p.m.
1	50 dB(A)	10:00 p.m. to 7:00 a.m.

"Noise Zone 1" includes the entire territory of Orange County, including incorporated and unincorporated territory.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:

1. The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or
2. The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or
3. The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or
4. The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or
5. The noise standard plus twenty (20) dB(A) for any period of time.

- (c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. (Ord. No. 2700, Section 1, 9-19-73; Ord. No. 2715, Section 1, 11-13-73; Ord. No. 2870, Section 1, 10-1-75)

Section 4-6-7 Special Provisions

The following activities shall be exempted from the provisions of this article:

- (e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday.

4.11.4 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of noise impacts. Impacts associated with noise would be significant if the proposed project would:

- Expose persons to, or generate noise levels in excess of, standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Expose persons to, or generate, excessive ground-borne vibration or ground-borne noise levels
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- For a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels
- For a project located within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

4.11.5 Impacts

Would the project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The proposed project consists of the replacement of approximately 16,600 feet of existing force main comprising the lower portion of the current export sludge handling system. The pipeline portion proposed to be replaced currently consists of a pair of buried 4-inch ductile iron pipes; these would be replaced with a single 6-inch diameter high density polyethylene (HDPE) pipe. Following completion of the construction for the replacement pipeline, the proposed project would have no operational noise emissions along the force main alignment. Operational noise at the SOCWA CTP and RTP would not be materially altered under the proposed pipeline replacement, as the replacement involves substitution of system components that support existing operations functionality. Preventive maintenance is expected to decrease given lower potential for line blockage with the larger diameter and lower potential for line failures associated with the aging ductile iron pipe. Therefore, the proposed project would not generate noise levels in excess of standards established in the local general plan or noise ordinance; impacts would be **less than significant**. The project would create short-term noise resulting from construction activities, discussed below.

Would the project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Construction/installation of the replacement force main would involve conventional cut and cover techniques using excavator, backhoe, or trenching machines. Excavation using these techniques would result in generation of minimal ground-borne vibration; no blasting, driven piles, or high impact techniques are proposed. Some bedrock may be encountered during the pipeline excavation, but would be broken up using ripping techniques.

A separation distance of at least 2,000 feet exists between the pipeline corridor and the closest existing residences for the southerly 2/3 of the pipeline alignment, ensuring that minor levels of vibration from pipeline construction would dissipate before reaching residences. Along the northern 1/3 of the pipeline alignment, residences are within approximately 400 feet of the pipeline alignment, but natural barriers to propagation of ground-borne vibration are located between the pipeline and adjacent residences; the creek channel is located between the pipeline and Soka University; a natural ridge separates the pipeline from proximate residences to the east. Therefore, distance and natural barriers would reduce the exposure of persons to excessive ground-borne vibration or noise levels during construction of the proposed project, and impacts would be **less than significant**.

Once constructed, the export sludge force main would be located underground and would not create any groundborne vibration or noise. Therefore, long-term, operational impacts would be **less than significant**.

Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

As discussed earlier, the proposed project, once complete, would not result in increased ambient noise levels. The pipelines would be located below ground, except for an approximately 170-foot-segment, and would not emit any noise. On a quarterly basis, as is currently performed on the existing pipelines, the new pipelines would be flushed to remove or prevent blockages; however, this operation would not involve uncovering the pipelines or any other activity along the pipeline corridor itself. As such, routine maintenance would not generate noise from the pipeline components, and impacts would be **less than significant**.

Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction Impacts

Construction equipment would include standard equipment such as excavators, backhoes, loaders, water trucks, portable generators and air compressors, and miscellaneous trucks. The maximum noise level ranges for various pieces of construction equipment at a distance of 50 feet are depicted in *Table 4.11-3*. The maximum noise levels at 50 feet for typical equipment would range up to 88 dB for the type of equipment normally used for this type of project. Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance. When the sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, an excess ground attenuation value of 1.5 dB per doubling distance can be assumed (Caltrans 2009).

**Table 4.11-3
Noise Emissions from Construction Equipment**

Equipment Type	“Typical” Equipment dB(A) at 50 feet
Air Compressor	81
Backhoe	85
Concrete Pump	82
Concrete Vibrator	76
Crane	88
Dozer	87
Generator	78
Grader	84
Paver	88
Pneumatic Tools	85
Water Pump	76
Power Hand Saw	78

**Table 4.11-3
Noise Emissions from Construction Equipment**

Equipment Type	"Typical" Equipment dB(A) at 50 feet
Shovel	82
Trucks	88

Source: FTA 2006

The most intense noise generation from pipeline construction would result from the simultaneous operation of the maximum anticipated number of construction vehicles or equipment. The design engineers have indicated that up to two backhoes and one excavator may be operated simultaneously in close proximity during pipeline excavation or installation. A combination of excavator and two backhoes working together would generate a maximum noise level of approximately 90 dB(A) at a distance of 50 feet.

For the southerly 2/3 of the pipeline alignment, residences are not located closer than 2,000 feet from the pipeline alignment and an intervening ridge also separates the pipeline corridor from the residences. At a distance of 2,000 feet, which is the shortest distance between construction activity and the nearest residence along the southerly 2/3 of the pipeline alignment, the maximum noise level from short-term construction would be attenuated from 90 dB(A) to approximately 52 dB(A) due to the presence of soft site conditions. The elevated ridge separating the pipeline from the area of the residences would be anticipated to act as a barrier resulting in a further attenuation of at least 5 dB(A); the closest residences along the southerly 2/3 of the alignment would therefore experience maximum construction noise levels of approximately 47 dB(A).

For the northerly 1/3 of the pipeline alignment, the distance between the construction corridor and residences averages approximately 1,000 feet, except for the terminal 1,200-foot portion of the alignment as it approaches Alicia Parkway. Within this final 1,200-foot section, residences are as close as 400 feet on the northwest and southeast sides of the construction corridor. A ridge continues to separate the construction corridor from the residences along the east and south side of the pipeline alignment for this northerly 1/3 segment. At a distance of 1,000 feet, which is the average distance between construction activity and the nearest residence along most of the northerly 1/3 of the alignment, the maximum noise level from short-term construction would be attenuated from 90 dB(A) to approximately 59 dB(A) due to the presence of soft site conditions. The elevated ridge separating the construction activity from the area of the residences would be anticipated to act as a barrier resulting in a further attenuation of at least 5 dB(A); residences along the northern 2/3 of the alignment, except for the terminal 1,200-foot section, would, therefore, experience maximum construction noise levels of approximately 54 dB(A).

For the northernmost section of the alignment within 1,200 feet of Alicia Parkway, residences are located as close as 400 feet from the construction corridor. At 400 feet, the maximum noise level from short-term construction would be attenuated from 90 dB(A) to approximately 67.5 dB(A) due to the presence of soft site conditions. The elevated ridge to the south and east of the proposed alignment separates the pipeline from the area of the residences and would be anticipated to act as a barrier resulting in a further attenuation of at least 5 dB(A); residences along the terminal 1,200-foot section and south and east of the alignment would, therefore, experience maximum construction noise levels of approximately 62.5 dB(A). Portions of the Soka University campus, also situated approximately 400 feet from the pipeline corridor, would be anticipated to experience maximum construction noise levels of 67.5 dB(A). These daytime construction noise levels would not be anticipated to cause interior noise levels within proximate residences or classroom spaces to exceed 45 dB(A).

With respect to construction-related noise exposure for recreational users of AWCWP (i.e., trail users, cyclists, birdwatchers), the trails along the west side of the creek are at no point closer than 400 feet from the proposed construction corridor. At 400 feet, the maximum noise level from short-term construction would be attenuated from 90 dB(A) to approximately 67.5 dB(A) due to the presence of soft site conditions. At 800 feet, this maximum construction noise would be attenuated further to 60.0 dB(A). Considering a trail running parallel to the construction corridor, and given a point-in-time pipeline construction length of 50 feet, the total trail distance at any one point during construction where maximum construction noise exposure would be in the range of 60.0 to 67.5 dB(A) would be 1,650 feet (800 feet “before” the construction site, the 50 feet of construction, and 800 feet “after” the construction site). Using a walking speed of 3 miles per hour (mph), it would take approximately 7 minutes for an average walker to cover this distance. Consequently, the vast majority of the AWCWP (beyond 800 feet of pipeline construction activity) would be exposed to short-term construction noise below 60 dB(A), which is within the acceptable range for recreation and open space uses. Walkers and cyclists using trails within 800 feet of a pipeline segment under construction could be exposed to construction noise levels between 60 and 67.5 dB(A) for a period of approximately 7 minutes or less as they traverse a trail adjacent to the construction area. It is assumed park visitors would want to traverse areas adjacent to construction as quickly as possible, and seek access to the ample remaining areas of the park where lower noise levels would be conducive to planned recreational uses of their visit.

The Orange County Noise Control Ordinance specifically exempts construction noise if construction is performed in accordance with specified restrictions; namely no construction may take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday. The project construction specifications include this restricted construction schedule. Therefore, given that construction activities would be carried out in accordance with restrictions contained in the Orange County Noise Control Ordinance, short-term construction noise impacts are deemed **less than significant**.

Temporary Sludge Trucking Noise Impacts (During Construction)

For approximately 3 weeks during construction, sludge would be transported via truck from the CTP to the RTP. Approximately six round trips per day, Monday through Friday, would occur. These truck trips would follow the AWMA Road north, to Wood Canyon Drive, to Aliso Creek Road, to La Paz Road. The frequency of truck trips would average slightly less than one per hour. At one truck trip per hour, neither the hourly Leq value nor the CNEL value would be affected for properties along the temporary truck route. Practically speaking, the passage of a single truck traveling 25 mph would result in a noise level which exceeds 60 dB(A) at any point along the road for no more than 1 minute. This exposure results from the following: truck maximum noise generation is 88 dB(A) at 50 feet, attenuated to 58 dB(A) at 800 feet; for a fixed point adjacent to the road, noise in excess of 60 dB(A) would exist for the time it takes the truck to travel 1,600 feet (noise greater than 60 dB(A) extends ahead and behind the truck location 800 feet in each direction, the elevated noise envelop therefore measures 1,600 feet). Thus, 1 minute of noise elevated above 60 dB(A) for each hour of daytime trucking would not result in an appreciable change in the noise environment for park users, in addition to not appearing in an hourly Leq value or CNEL value. Trucking would occur when Wood Canyon Elementary (which is along the truck route) is not in session; therefore, no sensitive receptors would be affected. Therefore, temporary trucking of the sludge materials during construction would be considered a **less-than-significant** impact.

For a project located within an airport land use plan or where such a plan has not been adopted within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project site is not located within two miles of a public airport or public use airport. John Wayne Airport is located approximately six miles northwest of the project alignment. An Airport Environs Land Use Plan (ALUC 2008) exists for John Wayne Airport; however, the project site is outside of the airport influence area for this airport. The project site is also located well outside of the mapped boundary for the 60 dB(A) CNEL contour associated with the airport. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels; impacts are less than significant.

For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project is not located within the vicinity of a private airstrip and therefore, would not expose people residing or working in the project area to excessive noise levels; impacts would be **less than significant**.

4.11.6 Mitigation Measures

Significant noise impacts from project implementation have not been identified. Therefore, mitigation measures are neither required nor recommended.

4.11.7 Level of Significance after Mitigation

Noise impacts of the project would be **less than significant**.

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4.12 PALEONTOLOGICAL RESOURCES

4.12.1 Introduction

The purpose of this section is to evaluate the potential impacts to paleontological resources associated with construction and operation of the proposed project. Paleontological resources (i.e., fossils) are the remains and/or traces of prehistoric plant and animal life. Although typically it is assumed that fossils must be older than approximately 10,000 years (i.e., the generally accepted end of the last glacial interval of the Pleistocene Epoch), organic remains of early Holocene age can also be considered to represent fossils because they are part of the record of past life. Fossil remains such as bones, teeth, shells, leaves, wood, burrows, and trackways are found in the geologic deposits (rock formations) within which they were originally buried. For the purposes of this analysis, paleontological resources can be thought of as including not only the actual fossil remains, but also the collecting localities and the geologic formations containing those localities.

4.12.2 Methodology

This section is based on the Paleontological Resource Assessment prepared by the San Diego Natural History Museum (SDNHM), Department of Paleo Services (2012; refer to *Appendix H*). SDNHM conducted a review of relevant paleontological reports and museum paleontological site records. In addition, a field survey was conducted to verify the previously mapped geology. Additional information is incorporated from the AWCWP Resource Management Plan (RMP) (LSA 2009).

4.12.3 Existing Conditions

4.12.3.1 Environmental Setting

Stratigraphic Rock Units

Six sedimentary rock units are located within the project area (*Figure 4.7-1*). These units include, from oldest to youngest, the Topanga Formation, San Onofre Breccia, Monterey Formation, siltstone facies of the Capistrano Formation, Niguel Formation and later Quaternary alluvial deposits; fossils have been recovered from strata in each of these rock units. These rock units are discussed in more detail below.

Topanga Formation

The Topanga Formation consists of marine sandstone, siltstone, and shale units that were deposited during the middle Miocene. The formation is divided into three members, which include the lower Bommer Member, the middle Los Trancos Member, and the upper Paulerino

Member. In the northern portion of the Santa Ana Mountains in Riverside County, the Topanga Formation overlies the undifferentiated Sespe and Vaqueros formations by a slight erosional unconformity, and underlies the lower member of the Monterey Formation.

Paleontology

Marine benthic foraminiferans (minute protozoans) have been recovered from the Topanga Formation that, when coupled with the presence of the marine snail *Turritella temblorensis*, allows assignment of the formation to the Middle Miocene. In addition to foraminiferan microfossils, strata of the Topanga Formation have yielded substantial plant, marine invertebrate, and marine vertebrate macrofossils, including sea birds, pinnipeds, sea cows, and cetaceans.

Regional Distribution

Undifferentiated deposits of the Topanga Formation crop out in southern Orange County extending from the southern region of the City of Laguna Beach to the Shady Canyon Fault northeast of the City of Laguna Beach. Differentiated deposits of the formation are exposed north of the City of Laguna Beach to south of Newport Bay. The southern three quarters of the differentiated exposure consists of the lower Bommer Member of the Topanga Formation, which crops out in the San Joaquin Hills. North of the Bommer Member outcrops are patches of the Los Trancos Member. Small areas of the Paulerino Member crop out north of the Los Trancos Member exposures.

Distribution within the Project Area

Undifferentiated deposits of the Topanga Formation occur within the project area on both sides of Aliso Creek for the entire length of the project alignment. Outcrops of the Topanga Formation were encountered during the field survey adjacent to the paved road along the west side of Aliso Creek. Exposures of this rock unit were also observed on the east side of the creek, but were separated from the dirt access road by vegetation. Numerous landslide deposits occur within outcrops of the Topanga Formation along the sides of the creek valley as well.

Resource Sensitivity

The Topanga Formation has yielded scientifically notable collections of invertebrate, vertebrate, and plant fossils, and it is assigned a high paleontological resource sensitivity in this report.

San Onofre Breccia

The San Onofre Breccia consists of alluvial fan and nearshore marine deposits from the Middle Miocene (14 to 16 million years old). Lithologies that are encountered in the formation include gray to red-brown, poorly sorted, and cross-bedded to tuffaceous sandstones; sandy mudstones; and poorly sorted, pebble to boulder breccias, which are conglomerates with angular clasts (Morton and Miller 2006). Typical outcrops of the San Onofre Breccia are well-cemented and form steep slopes.

Paleontology

Poorly preserved fossil remains of nearshore foraminiferans and bivalve mollusks have been recovered from the San Onofre Breccia, as well as sparse terrestrial reptile and mammal fossils. Fossils recovered from the San Onofre Breccia were collected from the sandstone and mudstone units of the formation, rather than the more widespread brecciated conglomeratic portion.

Regional Distribution

The San Onofre Breccia crops out in a thin band along the coast in the City of Dana Point, and again along the coast of the City of Laguna Beach. More extensive exposures of the formation crop out west of the City of Laguna Niguel. An additional band of San Onofre Breccia is exposed extending north from Emerald Bay to the City of Newport Beach.

Distribution within the Project Area

The project area contains a small area of the San Onofre Breccia on both sides of Aliso Creek, from the turnout at the western extent of Aliso Canyon Road west to the creek overcrossing. Outcrops of San Onofre Breccia were encountered and examined during the field survey southwest of manhole 19 on the east side of the creek and at approximately the same level on the other side of the creek. The exposures on either side of the creek were slightly offset.

Resource Sensitivity

Although the San Onofre Breccia has yielded only sparse fossil remains, the fact that vertebrate fossils have been recovered from this rock unit indicates the likely potential for additional discoveries. Based on these existing conditions, the formation is assigned a moderate paleontological resource sensitivity.

Monterey Formation

In the Santa Barbara and Ventura areas of California, sedimentary rocks of the Miocene-age Monterey Formation serve as important hydrocarbon reservoirs. The formation is lithologically complex, consisting of diatomaceous shale and mudstone, chert, phosphatic shale, siliceous mudstone, limestone, and sandstone. The Monterey Formation generally is divided into a lower calcareous unit dominated by coccolithophores (minute marine phytoplankton), a middle phosphatic unit, and an upper siliceous unit dominated by diatoms. The depositional environment of the Monterey Formation is thought to have been a deep marine basin associated with an active continental margin. Microfossils, particularly foraminiferans and diatoms, have played a key role in the correlation and interpretation of the geological history of the Monterey Formation.

Paleontology

Numerous microfossils have been recovered from rocks of the Monterey Formation, as well as marine mollusks and scientifically important marine mammals including pinnipeds, sea cows, desmostylians, baleen whales, and dolphins.

Regional Distribution

The Monterey Formation crops out in two general areas in southern Orange County, north of the City of Dana Point and the Capistrano Bight. One area is west of Interstate 5 (I-5), and contacts the interstate for a short distance near the northern extremity of its exposure in the City of Laguna Hills. A second area of exposure is located east of I-5.

Distribution within the Project Area

The Monterey Formation is exposed on both sides of Aliso Creek in the northern portion of the project alignment. An exposure of yellowish sandstone was observed near the north end of the east side of the creek during the field survey. The outcrop was on the side of a steep hill and was not examined closely, but rather observed from a distance. The exposure appeared to be the result of slumping. According to published geologic maps, the Monterey Formation contacts the Topanga Formation on the west side of Aliso Creek, and it is underlying the siltstone facies of the Capistrano Formation on the east side of the creek. However, the contacts between these units were not observed during the field survey on account of thick vegetation within the creek valley.

Resource Sensitivity

Because scientifically significant marine vertebrate and invertebrate fossils have been collected from the Monterey Formation, the unit is assigned a high resource sensitivity.

Capistrano Formation

The Capistrano Formation is a marine sedimentary rock unit of the Upper Miocene (approximately 5 to 7 million years ago). This formation consists of gray, massive siltstones and mudstones that may have been deposited on the deeper flanks of a prehistoric continental shelf or slope. Three members of the Capistrano Formation are recognized, which are, from oldest to youngest, the Oso Sand Member, siltstone facies, and turbidite facies.

Paleontology

Exposures of the Capistrano Formation in Orange County are known to contain fossil foraminiferans and an abundant diversity of marine vertebrate fossils, including bony and cartilaginous fishes, toothed and baleen whales, fur seals, walruses, sea cows, and sea birds. In particular, baleen whale fossils were recovered from exposures of the Oso Sand Member in Aliso Creek in an area south of El Toro Road and east of I-5 in the City of Lake Forest, California in 2006.

Regional Distribution

The Capistrano Formation crops out in southern Orange County as a thick band extending from the southern county line to just north of the El Toro Marine Corps Air Station. The turbidite facies of the Capistrano Formation are exposed in only a small area at the southwest corner of Orange County. The siltstone facies of the Capistrano Formation extend from the San Diego/Orange County border to Mission Viejo, and the Oso Sand Member extends from Mission Viejo to north of the El Toro Marine Air Corps Station.

Distribution within the Project Area

The rocks that make up the siltstone facies of the Capistrano Formation overlie the Monterey Formation on the east side of Aliso Creek according to published geologic maps. However, the unit was not observed during the field survey, at least not in situ. The lithology of the creek bed and, in particular, the deposits upon which the dirt service road along the east side of the creek appear to consist of reworked material from the Capistrano Formation that crops out at the top of the hills north of the project area. The project area only comes close to the siltstone facies of the Capistrano Formation, and this unit is not exposed west of Aliso Creek. No units of the Capistrano Formation come into contact with the proposed project.

Resource Sensitivity

Given the abundant marine vertebrate fossils recovered from this rock unit in Orange County, the Capistrano Formation is assigned a high resource sensitivity.

Younger Alluvium

The floors and floodplains of modern drainages are underlain by poorly consolidated alluvial sediments of Holocene age (i.e., younger than 10,000 years old). Lithologies of these deposits generally consist of poorly consolidated clays, silts, sands, and gravels.

Paleontology

Fossils are generally unknown from the younger alluvial deposits in modern drainages of Orange County on account of the young age of the sediments.

Regional Distribution

Younger alluvium occurs on the floors of river beds, canyons, and other modern drainages across Orange County. The majority of metropolitan Orange County is built upon the younger alluvium deposits.

Distribution within the Project Area

Deposits of younger alluvium occur on the creek bed and floodplains on both sides of Aliso Creek. Some of the material in the northern portion of the project area appears to have been reworked from the Capistrano Formation based on color and lithology.

Resource Sensitivity

Based on its post-Pleistocene age, younger alluvium is assigned a low paleontological resource sensitivity.

Field Survey Results

A survey was conducted on both sides of Aliso Creek to confirm the observations in published reports and geologic maps. Observation of natural exposures was generally hindered by thick vegetation along the length of the creek valley, and the majority of exposures were high in the hills above the flood plain on either side of the creek. However, natural exposures were encountered and examined close to the access roads in several places.

An exposure was observed on the steep side of a hill on the east side of the creek. Although the outcrop was only observed at a distance, the rock appeared to consist of massive, yellowish sandstone (see *Figure 4.12-1*, Photo A). According to the geologic map, this unit should be the Monterey Formation, which agrees with what was observed in the field.

The walls of the creek bed dropped off vertically by 20 to 30 feet along its most of its length thereby limiting access to the creek bed. The rocks that comprised the drop-off in the northern part of the project area, as well as the deposit upon which the access roads were built, was a light greenish gray, clayey, matrix-supported sandstone with numerous pebble and cobble sized clasts (see *Figure 4.12-1*, Photo B). These are likely younger alluvial deposits consisting of material reworked from the Capistrano Formation. No fossils were recovered or observed from the alluvium.

At the creek crossover still in the northern portion of the project alignment, the rocks underlying the dirt service road on the east side of the creek changed to a tan color and contained less clay than what was observed to the north.

South of manhole number 19, the hills to the east steepened, and an exposure of the San Onofre Breccia cropped out near the service road. The rocks were covered with a resistant crust, but once the crust was breached the rocks were found to be quite friable. In general, the rocks of this outcrop consisted of friable, poorly sorted, matrix-supported, medium- to coarse-grained, very pale orange to grayish orange sandstone with oblong, gravel/pebble sized, subrounded to subangular clasts (see *Figure 4.12-1*, Photo C). A similar outcrop was observed at roughly the same position on the west side of the creek, although the outcrops were slightly offset.

Further south and west, light greenish gray rocks of the Topanga Formation were observed cropping out on either side of the creek. One such outcrop occurred close to the paved service road on the west side of the creek allowing a closer examination of the lithology (see *Figure 4.12-1*, Photo D). The unit consisted of fine-grained, very well-indurated, pale greenish yellow to light greenish gray sandstone. Further southward on the east side of the creek, the exposures of the Topanga Formation exhibited slight iron staining, but this was not observed on the outcrops on the west side of the creek. No fossils were discovered in the Topanga Formation during the field survey.

Record Search Results

The results of a record search of the paleontological collections at the Natural History Museum of Los Angeles County (LACM) did not identify any paleontological collecting localities within 0.5 mile of the proposed alignment. However, there are several LACM localities nearby in the same rock units that underlie the project area. More specifically, significant vertebrate fossils (*Bison* sp.) were collected in the vicinity of the CTP from strata of the younger Quaternary alluvium on the northwest side of the Sulphur Creek Reservoir to the east of the project area. Exposures of the Monterey Formation were exposed during construction of the Chet Holifield Federal Building north of the project area, as well as at the confluence of Aliso Creek and Sulphur Creek (fossil sea lions, dolphins, and other marine vertebrates) and the Topanga Formation in the hills above the access road on the west side of the creek (fossil marine mammal known as *Desmostylus* sp.). In all of these instances, the fossils that were recovered represent significant paleontological discoveries. The proposed alignment comes into contact with each of these fossiliferous units.

4.12.3.2 Applicable Plans and Policies

The following is a summary of the regulatory framework related to paleontological resources.

Federal

There are no applicable federal laws or regulations.

State

There are no applicable state laws or regulations.

Regional and Local

Orange County General Plan

Resources Element

The Resources Element sets forth a comprehensive strategy for the development, management, preservation, and conservation of resources that are necessary to meet Orange County's (the County) existing and future demands. As the County urbanizes, it is experiencing an increasing demand for land and other resources; the Resources Element provides a clear statement of County policy so to ensure an adequate supply of all necessary resources will be available to meet the County's growth needs.

Goals, objectives and policies related to Cultural Resources are listed in *Table 4.1-1* in *Chapter 4.1, Land Use*.

Aliso and Wood Canyons Wilderness Park Resource Management Plan

The AWCWP Resource Management Plan (RMP) was officially adopted by the Orange County Board of Supervisors August 4, 2009, in accordance with the requirements of the Central-Coastal Subregion NCCP/HCP. The RMP aims to guide Orange County Parks (OC Parks), the governing jurisdiction, on future policy, land use, and resource management decisions for the park; it contains a comprehensive, long-term management plan for the AWCWP. The RMP includes a description of paleontological resources in the AWCWP, goals related to the preservation of paleontological resources, and recommendations regarding the documentation and management of paleontological resources.

The AWCWP RMP is discussed in greater detail in *Section 4.1, Land Use*. Additionally, goals and objectives related to paleontological resources are listed in *Table 4.1-1*.

4.12.4 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of paleontological resources impacts. Impacts to paleontological resources would be significant if the proposed project would:

- Result in disturbance or destruction of a unique paleontological resource or site or unique geologic feature.

4.12.5 Impacts

For the assessment of potential impacts to paleontological resources, the affected geologic formations are classified based on the relative abundance of vertebrate fossils and significant non-vertebrate fossils using a scale from zero to high depending upon the resource sensitivity of the impacted geologic formations. The specific criteria applied for each sensitivity category are summarized below.

High Sensitivity

High sensitivity is assigned to geologic formations known to contain paleontological localities with rare, well-preserved, critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history (phylogeny) of animal and plant groups. Generally speaking, highly sensitive formations produce vertebrate fossil remains or are considered to have the potential to produce such remains.

Moderate Sensitivity

Moderate sensitivity is assigned to geologic formations known to contain paleontological localities with poorly preserved, common elsewhere, or stratigraphically unimportant fossil material. The moderate sensitivity category is also applied to geologic formations that are judged to have a strong, but unproven potential for producing important fossil remains.

Low Sensitivity

Low sensitivity is assigned to geologic formations that, based on their relatively youthful age and/or high-energy depositional history, are judged unlikely to produce important fossil remains. Typically, low sensitivity formations produce poorly preserved invertebrate fossil remains in low abundance. Due to the young age and coarse-grained nature of younger alluvium, these surficial sedimentary deposits are generally considered to have little potential to yield scientifically significant fossils. However, on occasion deeper excavations into sedimentary deposits mapped as younger alluvium penetrate into alluvial deposits of Pleistocene age and do yield fossils. For this reason sedimentary deposits mapped as younger alluvium are generally assigned a low paleontological resource sensitivity.

Zero Sensitivity

Zero sensitivity is assigned to geologic formations that are entirely igneous in origin (i.e., plutonic and/or volcanic), and therefore have no potential for producing fossil remains. Volcanic ash deposits can represent an exception to this general rule and preserve fossils as either body fossils or natural casts. Artificial fill materials are also assigned a paleontological resource sensitivity of zero.

Would the project result in disturbance or destruction of a unique paleontological resource or site or unique geologic feature?

Impacts to paleontological resources have the potential to occur when earthwork activities associated with the proposed project (such as access road clearing or trenching for pipeline construction) cut into the geologic deposits (formations) within which fossils are buried. As indicated in *Section 4.5.6*, the proposed alignment was selected in part because its alignment is largely within previously disturbed soils, thereby avoiding impacts.

Deposits of younger alluvium underlie the majority of the area traversed by the proposed project; however, some portions are underlain by surface or subsurface exposures of the Topanga Formation, Monterey Formation, and the San Onofre Breccia. As summarized in *Table 4.12-1*, the younger alluvium and San Onofre Breccia are categorized as having low and moderate sensitivity, respectively. In contrast, the Topanga and Monterey formations have a high sensitivity rating.

Geologic deposits that have a high likelihood of being impacted include the younger alluvium deposits, which occupy much of the floodplain of Aliso Creek, and the Topanga Formation, the Monterey Formation, and San Onofre Breccia, which cross the creek and are contacted by the dirt access road on the east side of the creek. The locations of exposure of the siltstone facies of the Capistrano Formation (not observed during the field survey) away from the creek along the hills surrounding the floodplain decrease the likelihood of impact to this formation from implementation of the proposed project.

**Table 4.12-1
Paleontological Resource Sensitivity and Impact Likelihood of Geologic Units**

Geologic Unit	Resource Sensitivity	Likelihood to be Impacted
Younger Quaternary Alluvium	Low	High
Capistrano Formation	High	Low
Monterey Formation	High	High
San Onofre Breccia	Moderate	High
Topanga Formation	High	High

According to the paleontology collection records housed at the LACM from previously recorded sites in Orange County, it has been determined that the Topanga Formation has a high paleontological resource sensitivity. One such locality is located above the access road at the westernmost extent of Aliso Creek and approximately 1 mile north of the sewage disposal junction with Aliso Creek. Exposures of the Topanga Formation approach the access roads on either side of the creek, particularly near manhole number 10 on the east side of the creek, and it is likely that excavation in those areas would impact the geological units. Due to the likelihood for sensitive geologic units to be impacted by construction associated with the proposed project, impacts would be **significant**. Mitigation measure PAL-1 is recommended to reduce potentially significant impacts.

4.12.6 Mitigation Measures

Implementation of the following measure would ensure that significant impacts to paleontological resources are reduced:

PAL-1 SOCWA shall retain an Orange County-certified paleontologist to monitor all ground-disturbing activities associated with construction of the proposed project. Prior to construction, the paleontologist shall prepare a Paleontological Monitoring and Discovery Plan that indicates the treatments recommended for the area of the proposed disturbance, the methods of fossil and data recovery, the level of monitoring, the types of field personnel, the post-field treatment of recovered paleontological resources, the designated specimen repository, and the format of the final mitigation report.

In the event that paleontological resources are discovered during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by the qualified paleontologist. The paleontologist shall notify the appropriate agencies to determine procedures that should be followed before construction is allowed to resume at the location of the find. If the project applicant determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the proposed project on the qualities that make the resource important. The plan shall be submitted to the County for review and approval prior to implementation.

4.12.7 Level of Significance after Mitigation

The mitigation provided would reduce impacts to paleontological resources to **less than significant**.

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PHOTO A: Monterey Formation exposure on east side of Aliso Creek



PHOTO B: Capistrano Formation in walls of Aliso Creek bed



PHOTO C: San Onofre Breccia Formation outcrop on east side of Aliso Creek



PHOTO D: Topanga Formation outcrop on west side of Aliso Creek

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4.13 RECREATION

4.13.1 Introduction

This section provides a summary of existing recreational opportunities within the project area and evaluates whether the proposed project would have a significant impact on recreation.

4.13.2 Methodology

The information and analysis in this section have been compiled based on site visits and a review of applicable land use documents, including the Orange County General Plan (2005) and the AWCWP Resource Management Plan (RMP) (LSA 2009).

4.13.3 Existing Conditions

4.13.3.1 Environmental Setting

Orange County (County) has over 27,000 acres of regional parks, beaches, harbors, and historic sites; in all, there are 25 existing regional parks. The County's network of regional riding and hiking trails link the harbors, beaches, parks, and other open spaces and recreation lands. The countywide regional trail network has 348 miles of existing and proposed trails.

The AWCWP encompasses approximately 3,873 acres of open space within the County and is operated by Orange County Parks (OC Parks). The park currently accommodates hiking, mountain biking, equestrian uses, and passive recreational activities, such as birding, photography, and nature viewing, throughout a 30-mile trail network. There were approximately 150,119 visitors to the park in 2011 (Noval, pers comm. 2012). Park rangers conduct free 1/2-hour nature walks through the AWCWP at 12 noon on the second and fourth Saturday of every month. Interpretive displays are located at the Old Corral, Dripping Cave, and Pecten Reef Trail to provide insight into the cultural and geological history of the park.

Public Access and Entries to the Aliso and Wood Canyons Wilderness Park

The AWCWP headquarters and main entry are located at the northeastern boundary of the park at Alicia Parkway. A number of less formal park entries exist, including entries at Moulton Meadows Park, Plane Wreck, and Top of the World in the City of Laguna Beach, at Seaview Park and points along the Aliso Summit Trail in the City of Laguna Niguel, and from Canyon View Park and Crimson Canyon Drive in Aliso Viejo. A new trailhead also exists off Alicia Parkway just south of the AWMA Road Access Bridge.

The Aliso and Wood Canyons Wilderness Park Trail System

Visitors enjoy the rugged topography, steep hillsides, and deep canyons accessed through the park's 30-mile network of trails (*Figure 4.13-1*). The Wood Canyon Trail acts as the spine of the trail system with a combination of improved and unimproved trails creating the overall network. Currently, there are 2 miles of hiker-only trails, 28 miles of multi-use trails, and 3.5 miles of paved bikeway.

All trails within the park fall into one of four trail classifications: authorized, restored, utility access, and unauthorized. They represent the County's current policies regarding public access and recreational use as well as physical characteristics identified in the field. The four trail classifications can be described as follows:

- **Authorized Trails:** The AWCWP's existing practice is to allow pedestrian, equestrian, and bicycle access to most trails. A few trails are designated for pedestrian use only. This category includes trails maintained by OC Parks.
- **Restored Trails (trails restored to natural condition):** This category includes trails and roads that have been closed by the park rangers due to safety concerns and/or to protect park resources. Many of these trails have been revegetated with native species and have signs posted to prevent unwanted access.
- **Utility Access Roads:** Multiple utility access roads are located in the park; these roads are not maintained by park staff. The SOCWA service road and easement provide access to the CTP and pipelines located in lower Aliso Canyon. There is also a SOCWA maintenance/utility trail along the east side of the creek that is used by hikers. The Moulton Niguel Water District manages the service roads around the water tanks on Moulton Peak.
- **Unauthorized Trails:** Uncontrolled access and increased recreational use has resulted in the development of visitor-created trails that are potentially damaging to site resources. This category includes these visitor-created or unauthorized trails.

Aliso and Wood Canyons Confluence

This area forms the heart of the park; it extends east–west from the main park entrance to Moulton Meadows. The main park entrance provides the primary access to this area. A trailhead/staging area is also located at the confluence between the two canyons. The trailhead provides a horse watering trough, portable restroom, picnic table, and information kiosk. A gate prevents park visitors from continuing on the AWMA Road to the CTP during business hours (i.e., Monday through Friday).

Aliso Canyon Trail (Lower Aliso Creek Trail)

Originating from the main park entrance at Alicia Parkway, Aliso Canyon Trail parallels Aliso Creek and the paved AWMA Road. The trail provides the only means of accessing Wood and Mathis Canyons from the eastern portions of the park and the main entrance. The trail has an “open” feel and affords views of vast expanses of grassland, coastal sage scrub, and the riparian habitat along Aliso Creek south of the trail. Aliso Canyon Trail comes to an end at the junction with Meadows and Wood Canyon Trails.

Discovery Trail

Also originating from the main park entrance at Alicia Parkway, the 0.25-mile Discovery Trail is located immediately adjacent to the Orange Coast Watershed and Environmental Center and the park ranger station. From the trail, visitors can view evidence of past human habitation, including sheep/cattle grazing on the slope and part of a corral that dates back to the late 1800s. The 1940s International Harvester or “Windrower” was used to collect barley, oats, and rye, and is a connection to past agricultural work in the area. The trail passes through primarily riparian habitat with many native plants in close proximity to the trail. The Discovery Trail is a combined loop and provides access to a scenic overlook of Aliso Creek.

Aliso Summit Trail

The Aliso Summit Trail follows the eastern ridge of Aliso Canyon in Laguna Niguel and borders residential communities. The northern 0.5-mile portion is accessed in the Hillcrest Estates neighborhood via Lilly Shapell Park on Drakes Bay Road. The trail breaks at the northern intersection of Highland Avenue and Ridgeview Drive. The second leg picks up again where Ridgeview Drive loops back to Highland Avenue. The trail provides expansive views of Aliso and Wood Canyons and the Pacific Ocean along its entire route. Aliso Summit Trail connects with Seaview Park at Talavera Drive and continues to the Aliso Peak Trail overlooking Laguna Beach and the ocean.

AWMA Road

The AWMA Road originates at the main park entrance and parallels the west side of Aliso Creek through Aliso Canyon to the CTP. The road provides access to the CTP located in lower Aliso Canyon above the Aliso Creek Golf Course. This private road is intended for CTP personnel and official County vehicular use only. An agreement between the County and SOCWA provides for public access from the park’s main entry to Wood Canyon during weekends and holidays only.

Coastal Treatment Plant Easement

Along the east side of Aliso Creek, an at-grade dirt maintenance road runs through Aliso Canyon from Alicia Parkway to the CTP. The dirt road provides utility access to the treatment plant pipelines along the east side of Aliso Creek and is presently closed to the public. Several unauthorized trails come down the hillside from the Aliso Summit Trail and connect to this maintenance road. This dirt maintenance road is used by hikers, bikers and other recreational users.

Aswut Trail

The Aswut Trail (native Juaneño language trail name) is accessed via Moulton Meadows Park at Del Mar and Balboa Avenues in Laguna Beach. This paved, dual-track trail follows a level grade north toward Meadows Trail at an elevation of approximately 800 feet. Views abound on either side of the trail: to the west lies the city of Laguna Beach and the Pacific Ocean and on the east sprawls the lower half of the AWCWP, dense development east of the park, and the barely discernible San Gabriel and San Bernardino Mountain ranges. Past the juncture with Meadows Trail, Aswut trail terminates at a locked gate within a private residential community at Alta Laguna Boulevard.

The Meadows Trail

Accessed by Moulton Meadows Park (in the City of Laguna Beach) and Aswut Trail, the Meadows Trail provides direct access to Wood Canyon from Laguna Beach. The trail descends at a steep incline down the hill through grassland and scattered coastal sage scrub habitat with unobstructed views. At the floor of Aliso Canyon the trail veers north through an open meadow toward the beginning of the Wood Canyon Trail.

Lower Aliso Canyon

This area forms the southern boundary of the park from the Aliso and Wood Canyons confluence to the Aliso Creek Golf Course. Several trails are open to the public, including the Valido, Aliso Peak, and Toovet Trails connecting to the Aliso Summit Trail. These trails are accessed via West Street from Laguna Beach.

Valido Trail

Valido Trail (hikers only) is accessed by West Street from South Coast Highway in Laguna Beach. Users climb stairs, sandstone outcroppings, and check dams to the headland overlook located at the top of Aliso Peak Trail. At 683 feet in elevation, there are significant views of the coastline, Aliso Beach Park, and lower Aliso Canyon. Valido Trail connects with Toovet Trail where an additional overlook is available at its terminus.

Aliso Peak Trail

The Aliso Peak Trail (hikers only) connects with the Valido Trail and Seaview Park in Laguna Niguel. Seaview Park is accessed by Talavera Drive. A steep and sometimes slippery hike up the bluff to Aliso Peak reveals a solitary bench positioned to take in views of the Pacific Ocean, Aliso Beach Park, City of Laguna Beach, and Aliso Creek Golf Course.

Toovet Trail

The Toovet Trail (native Juaneño language trail name; hikers only) is accessed by either the Valido or Aliso Peak trails but does not make a through connection to Laguna Beach. A short hike through coastal sage scrub concludes at a bluff overlook to the Pacific Ocean and Laguna Beach.

4.13.3.2 Applicable Plans and Policies

Orange County General Plan

Recreation Element

The Recreation Element contains the official policies pertaining to the acquisition, development, operation, maintenance, and financing of the County's varied recreation facilities, which include regional recreation facilities, local parks, and riding and hiking trails. The Recreation Element serves to guide and direct local government decision-making regarding recreation issues and facilitates the coordination of local, regional, state, and federal efforts. Goals, objectives, and policies related to Regional Riding and Hiking Trails are listed in *Table 4.1-1* in *Section 4.1, Land Use and Planning*.

Orange County's regional recreation facilities encompass regional harbors, beaches, parks, and historic sites. They comprise approximately 27,000 existing gross acres with an estimated 24,000 additional gross acres proposed. Much of this proposed acreage consists of proposed additions to existing facilities.

Regional parks are areas that offer recreational or scenic attractions that are of countywide significance and generally not available in local parks, and spaciousness which the typical small neighborhood park does not provide. Regional parks are of sufficient size to offer facilities for family and group picnicking, camping, nature study, and diversified play area for all age groups. Regional parks are further classified into urban regional parks, natural regional parks, Orange County's Central Park, wilderness regional parks, and county wilderness areas. The AWCWP is designated as a wilderness regional park.

Regional recreation facilities may also contain wilderness zones within them consisting of land which retains its primeval character and influence with limited permanent improvements and without human habitation. These areas are protected and managed so as to preserve their natural conditions. In addition, entire regional parks may be designated as wilderness parks.

Aliso and Wood Canyons Wilderness Park Resource Management Plan

The AWCWP RMP was officially adopted by the Orange County Board of Supervisors on August 4, 2009, in accordance with the requirements of the Central-Coastal Subregion NCCP/HCP. The RMP aims to guide OC Parks, the governing jurisdiction, on future policy, land use, and resource management decisions for the park; it contains a comprehensive, long-term management plan for the AWCWP. The fundamental objective for the RMP is to identify the best way to manage, protect and enhance the natural resource values of the AWCWP while balancing the needs of the local community for safe recreational and educational opportunities. The major plan objectives are to enhance wildlife habitats, develop vegetation management practices, and provide recreational opportunities and public access that have minimal impacts on resources.

The RMP aims to balance appropriate public access and recreation with natural and cultural resource protection. In striving to meet this goal, the RMP recommends formalizing a number of existing, but unauthorized, trails and closing and actively restoring to native habitat a number of other unauthorized trails.

4.13.4 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of recreation impacts. Impacts to recreation would be significant if the proposed project would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

In addition, SOCWA, as lead agency, has added the following significance criterion:

- Would the project substantially affect park users or other recreational use of the Aliso and Wood Canyons Wilderness Park?

4.13.5 Impacts

Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed project involves the replacement of two parallel 4-inch pipelines with a single 6-inch pipeline to transport sludge from the CTP to the RTP for solids processing. The proposed project does not include the construction of recreational facilities, nor does it involve the construction of new housing or the introduction of new jobs to the area that could increase the use of existing neighborhood and regional parks or other recreational facilities.

The proposed project would be located within the AWCWP, an existing regional park. However, the proposed pipeline alignment is along the east side of Aliso Creek, which is not open to public access. The replacement of the force main would not result in any permanent physical alteration to park facilities that would increase the use of the park and result in a substantial physical deterioration of the facility. Therefore, impacts would be less than significant.

Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

As discussed above, the proposed project does not include the construction of recreational facilities, nor does it involve the construction of new housing or the introduction of new jobs to the area that would necessitate the construction or expansion of recreational facilities; therefore, impacts would be less than significant.

Would the project substantially affect park users or other recreational use of the Aliso and Wood Canyons Wilderness Park?

Impacts to trail users along the east side would be temporary during the construction period. \During the construction period, the east side of Aliso Creek would be closed to the public and trail users would be temporarily required to use west side trails. Once construction is complete, east side trail use would be reopened, and impacts are considered **less than significant**.

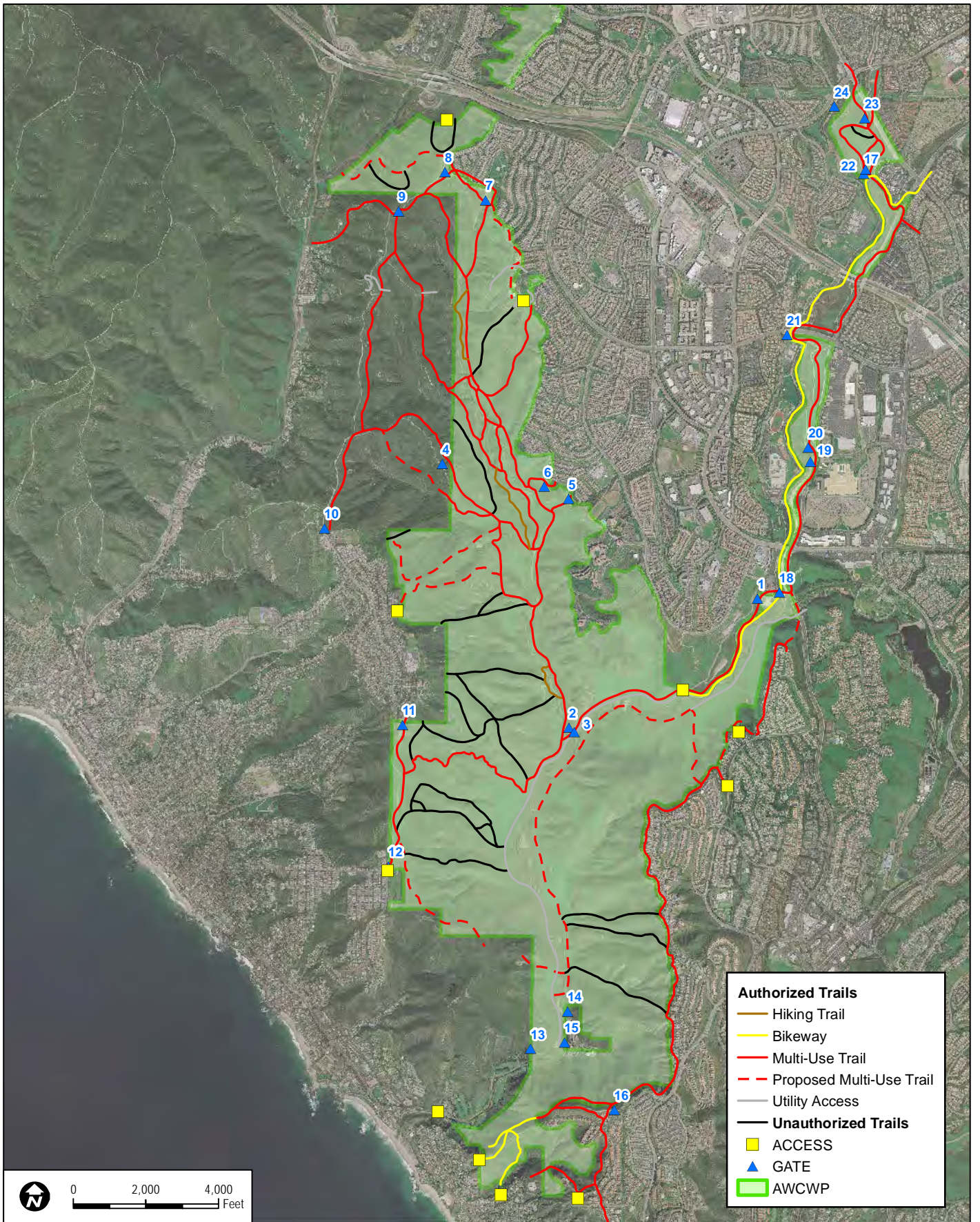
Similarly, along the west side of the creek, trucking of sludge would occur for approximately 3 weeks during construction. Under existing conditions, intermittent truck usage occurs and with the proposed project, trucking would increase during the 3-week period. Operation of trucks would be intermittent and the trails would otherwise remain open (with a temporary inconvenience as trucks share the roadway). The operation of trucks along AWMA Road could interfere with park users, including cyclists and trail users; however, trucking activity would be temporary, and therefore, impacts to recreational use of the AWCWP would be **less than significant**.

4.13.6 Mitigation Measures

No significant impacts to recreation would occur; therefore, no mitigation is required.

4.13.7 Level of Significance after Mitigation

Since no mitigation is required, impacts would be **less than significant**.



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CHAPTER 5.0 CUMULATIVE EFFECTS

5.1 INTRODUCTION/PURPOSE

In many cases, the impact of a single project may not be significant, but when combined with other projects, the “cumulative” impact may be significant. Section 15355 of the CEQA Guidelines defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” CEQA Guidelines Section 15130(b) states that “the discussion [of cumulative impacts] need not provide as great detail as is provided for the effects attributable to the project alone.” Section 15130(b) further states that a cumulative impacts “discussion should be guided by standards of practicality and reasonableness.”

Cumulative impacts can result from the combined effect of past, present, and future projects located in proximity to the project under review. Therefore, it is important for a cumulative impacts analysis to be viewed over time and in conjunction with other related past, present, and reasonably foreseeable future developments whose impacts might compound or interrelate with those of the project under review.

CEQA Guidelines Section 15130(b)(1)(A) requires an EIR to use either a “list of past, present, and probable future projects” or growth projections based on adopted plans. The cumulative list method has been utilized in this analysis for most topics, as discussed below. Air quality, greenhouse gas (GHG) emissions, and noise cumulative impacts have been evaluated using the summary of projections method. Consistent with CEQA, this discussion is guided by the standards of practicality and reasonableness.

5.2 LIST OF RELATED PROJECTS

The locations of the cumulative projects planned in various applicable jurisdictions are depicted in *Figure 5-1, Cumulative Projects Map*. A brief description of each cumulative project is presented in *Table 5-1, Cumulative Projects*; the ID numbers in the list correspond to the locations shown in *Figure 5-1*.

**Table 5-1
Cumulative Projects**

ID#	Project Title	Status	Project Description	Location
City of Laguna Niguel				
1	Aliso Village Shopping Center Remodel	Planning Approved 6/2012	Demolition of 2,174 square feet and storefront remodel.	23800 Aliso Creek Rd
2	Shepherd of the Hills Assisted Living Facility	Planning Submitted	Senior independent living, assisted living, memory care, and church facilities	Crown Valley Parkway and Niguel Rd., SE corner

**Table 5-1
Cumulative Projects**

ID#	Project Title	Status	Project Description	Location
3	Crown Cove	Pre-Application	New residential subdivision	Crown Valley Parkway and Via Valle Rd.
4	Laguna Summit Apartments	Building Plan Check	Slope Repair for existing apartment complex	Crown Valley Parkway and Niguel Rd., NE corner
5	Tract 5231	Pre-Application	Resubdivision of existing tract	Avenida del Caballo, off Paseo de las Colinas
6	Allen Cadillac/Hyundai Expansion	Planning submitted	Expansion and remodel of existing auto dealer facilities	28332 Camino Capistrano
7	Career Lofts	Planning Approved	142-unit apartment project	Cabot Rd., just south of SR-73
8	The Crown Apartments	Planning Approved 7/10/12	284-unit apartment project	NE corner of Crown Valley Parkway and Cabot Rd.
9	EB Crown Valley Pkwy Widening	N/A	Street widening Phases 1 and II	Crown Valley Parkway, between Cabot Rd. and I-5
10	Lifetime Fitness Health club	Planning Approved 5/12	Construction of a 127,000-square-foot fitness center	25600 Rancho Niguel Rd.
11	Regency Theater Remodel	Construction	Remodel of existing theater and creation of additional restaurant space	25471 Rancho Niguel Rod.
City of Laguna Beach				
12	Lifeguard Headquarters	Construction to begin September 2012, ending Winter 2014	Replacing current headquarters with a bigger structure	South Coast Highway, Main Beach Park
13	Live/work units	Concept Design—no open application	30 artist live/work units	7245 Laguna Canyon Rd.
Army Corps of Engineers				
14	ERP Project	In planning process (stalled); anticipated to begin in 5–10 years.	Restoration project to provide water quality benefits, stream bank stabilization, utility infrastructure protection, and ecosystem restoration	AWCWP, between Aliso Creek Rd. and the CTP along Aliso Creek channel
OC Parks				
15	Arundo removal	Beginning in September 2012, through winter 2013/2014	Removal of approximately 25 acres of invasive Arundo vegetation along a 3.7-mile section of Aliso Creek. Removal by manual labor techniques and herbicide spraying.	AWCWP—Aliso Canyon along Aliso Creek

**Table 5-1
Cumulative Projects**

ID#	Project Title	Status	Project Description	Location
16	Drake's Bay storm drain repair	Currently ongoing; anticipated to end winter 2012	Constructing riprap at base of new drain to control stormwater runoff	Drake's Bay, Laguna Niguel—canyon edge.
Moulton Niguel Water District				
17	Plant 3A ETM replacement and protection	Plan to award construction contract June 2013	Jack and bore to install a new pipe casing and replacement pipe under San Juan Creek—Plant 3A 30-inch ETM	Along west bank of San Juan Creek, approximately 1,000 feet downstream of confluence of Trabuco and San Juan creeks. Parallel to Cabot Rd. and Camino Capistrano
18	Plant 2A Operation Facilities Drainage Improvements	In Design Phase	Site improvements, installing storm drains, curb and gutter, backfill of upper pond, security fence	Plant 2A Operations Facility, Laguna Hills
South Orange County Wastewater Authority				
19	Aliso and Sulphur Creek Confluence Stabilization	In Conceptual Development	Stabilization of both east and west creek banks to protect existing MNWD and SOCWA infrastructure and to protect sensitive cultural resources; environmental restoration of surrounding habitat	On Sulphur Creek from Alicia Parkway to confluence of Aliso and Sulphur Creek; on east bank of Aliso Creek to approximately 250 feet south of confluence
20	Aliso Creek Rip Rap Repair	In Conceptual Development	Repair and construction of existing rip rap structures	A 500-foot section of the east bank of Aliso Creek that is approximately 500 feet south of the ACHWEP Structure

5.3 CUMULATIVE EFFECTS FOUND TO BE SIGNIFICANT

Based on the analyses contained in *Chapter 4, Environmental Analysis*, of this EIR, the project would not have a cumulative contribution to any impacts.

5.4 CUMULATIVE EFFECTS FOUND NOT TO BE SIGNIFICANT

Based on the analyses contained in *Chapter 4* of this EIR, the project's contribution to cumulative land use and planning, aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, paleontological resources, and recreation impacts would not be cumulatively considerable, as analyzed below.

5.4.1 Land Use and Planning

The proposed project is located in the AWCWP in unincorporated Orange County and under the jurisdiction of the Orange County General Plan (2011). The park is surrounded by the incorporated communities of Laguna Niguel, Laguna Beach, and Aliso Viejo. As shown in *Table 5-1*, other reasonably foreseeable projects under the jurisdiction of the County General Plan are limited to those within the AWCWP boundaries, including the ERP project, Arundo removal project, Drake's Bay storm drain repair project, and the two SOCWA projects (Aliso and Sulphur Creek Confluence Stabilization and Aliso Creek Rip Rap Repair). These projects appear to be consistent with the Open Space Reserve designation of the AWCWP and would not conflict with the goals and policies of the County General Plan. The proposed project is also consistent with the goals and policies of the General Plan and conforms to the existing land use designations. Therefore, the proposed project would not have a cumulatively considerable effect on land use, and impacts would be less than significant.

5.4.2 Aesthetics

Cumulative aesthetic impacts are generally limited to the proposed project's interaction with other projects within the same viewshed. The reasonably foreseeable projects considered in this analysis are limited to those within the AWCWP and along the park's ridgelines, including the Arundo removal project, the ERP project, the Drakes Bay storm drain repair project, and the and the two SOCWA projects (Aliso and Sulphur Creek Confluence Stabilization and Aliso Creek Rip Rap Repair).

As analyzed in *Section 4.2*, the proposed project would result in temporary ground disturbance, which would cause a short-term aesthetic impact, and would then be re-vegetated to its original state following construction. Because the proposed project is located on the east side of Aliso Creek, which is closed to public access, construction activities would only be intermittently visible from trails along the west side of the creek or distantly visible from points higher up in the park along the ridgelines.

Other projects with the potential to contribute to a cumulative aesthetic impact would only include those occurring at the same time, or those resulting in a permanent aesthetic impact. The Drake's Bay storm drain repair project would conclude before commencement of the proposed project, and would not result in any permanent aesthetic impacts; therefore, it would not contribute to a cumulatively considerable impact. The ERP project is not likely to not begin for 5 or more years; therefore, construction of the proposed project would be complete before the ERP project begins, and there would be no cumulative interaction with the proposed project. Similarly, the two SOCWA projects would occur after construction of the proposed project. The Arundo removal project is likely to be ongoing during construction of the proposed project. Similar to the proposed project, the Arundo removal project would result in removal of

vegetation and temporary ground disturbance; however, both the Arundo removal project and the proposed project are temporary and would not result in permanent, long-term impacts. Therefore, the proposed project would not result in a cumulatively considerable effect on aesthetics, and impacts would be less than significant.

5.4.3 Air Quality

The proposed project is located within the South Coast Air Basin (SCAB), which encompasses all of Orange County and parts of Los Angeles, Riverside, and San Bernardino Counties. SCAB is a nonattainment area for ozone (O₃), nitrogen dioxide (NO₂), and particulate matter (PM₁₀ and PM_{2.5}) under the National Ambient Air Quality Standards (NAAQS) and/or California Ambient Air Quality Standards (CAAQS). The poor air quality in the SCAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (e.g., volatile organic compounds (VOC) and oxides of nitrogen (NO_x) for O₃), potentially contribute to poor air quality.

Emissions from construction of the proposed project would be temporary and would not exceed the thresholds for VOC, NO_x, carbon monoxide (CO), sulfur oxides (SO_x), PM₁₀, or PM_{2.5}. The cumulative effect of the proposed project and other projects in the vicinity would incrementally contribute to the SCAB's levels of pollutants. However, given the short-term nature of construction emissions resulting from the proposed project, the combined emissions from other reasonably foreseeable projects would not be cumulative considerable, and impacts would be less than significant.

Once operational, the new force main would produce emissions only temporarily during intermittent repair activities and would not generate substantial operational emissions. Accordingly, the proposed project would not result in a cumulatively considerable increase of emissions of nonattainment pollutants or other air quality impacts.

5.4.4 Biological Resources

Cumulative biological impacts typically extend to include the entire range or distribution of particular species and vegetation communities. The proposed project is located within a designated reserve of the Central-Coastal Subregion NCCP/HCP. Impacts to coastal sage scrub or take of species covered by the Central-Coastal Subregion NCCP/HCP are authorized by the USFWS Section 10(a)(1)(B) permit associated with the HCP. Impacts to biological resources by development projects outside of the reserve would not be authorized for non-participating landowners and would require approval of the applicable regulatory agencies.

The proposed project would result in direct impacts to 11.3 acres of sensitive natural vegetation communities, as well as impacts to sensitive species and jurisdictional wetlands. These impacts, combined with impacts from other projects in the region, could result in a cumulative impact to

biological resources. The Arundo removal project is intended to benefit biological resources through removal of non-native species. The ERP project, like the Arundo removal project and proposed project, is in the NCCP/HCP reserve and therefore, would be covered by the Central-Coastal Subregion NCCP/HCP. In addition, the proposed project includes mitigation (including on-site restoration at a ratio of 1:1) that would reduce the project's impacts to biological resources. Therefore, the proposed project would not result in a cumulatively considerable contribution to impacts to biological resources within the region.

5.4.5 Cultural Resources

Sub-surface archaeological resources are abundant in south Orange County, particularly along the coast and in creek areas. The proposed project is in an area identified on the County's Master Environmental Assessment (MEA) Sensitivity Map as the Aliso Creek Prehistoric Archaeology sensitivity area. Other projects within this sensitivity area, including those in AWCWP and surrounding developments, which involve subsurface excavations could contribute to a cumulative impact on cultural resources.

The proposed project would not impact any historical structures or resources, and therefore, would not contribute to a cumulative impact on historical resources. There are two known archaeological sites within the project area, as well as the potential for other archaeological resources to be discovered during construction. Impacts to archaeological resources resulting from construction of the proposed project would contribute to a cumulative impact to cultural resources in the region. However, the proposed project includes mitigation such that the project would avoid impacts to known cultural sites. Other reasonably foreseeable projects in would be required to mitigate impacts to cultural resources on a project-by-project basis. Therefore, the proposed project would not result in a cumulatively considerable impact to cultural resources.

5.4.6 Energy

The proposed project would require energy in the form of petroleum to power construction equipment and vehicles. Energy requirements would not be substantial and would be limited to the short-term construction period. Once constructed, operation of the proposed project would not result in an increase of energy consumption (i.e., electricity, natural gas, and petroleum) when compared to existing conditions. Therefore, the proposed project would not have a cumulatively considerable effect on energy supplies due to the use of excessive amounts of electricity, natural gas, or petroleum.

5.4.7 Geology and Soils

Geotechnical conditions tend to remain localized and are generally unique to each site because geologic materials and soils occur at specific locales and are unaffected by activities not acting on them directly; thus, any impacts of the proposed project would be site-specific. Given that

geologic impacts would be centralized and local in nature when considering the proposed project's interaction with other projects in the area, cumulative projects considered in this analysis are limited to those occurring within Aliso Canyon. Therefore, the only reasonably foreseeable projects with the potential to interact with the proposed project to create a cumulative effect are the Arundo removal project, the ERP project, and the two SOCWA projects (Aliso and Sulphur Creek Confluence Stabilization and Aliso Creek Rip Rap Repair).

The Arundo removal is being undertaken using manual labor techniques and herbicide spraying and would involve no subsurface disturbance. The ERP project proposes to provide stream bank stabilization by constructing a series of low riprap grade control structures and contouring of slide slopes to reduce vertical banks, and infrastructure protection by locking the low flow channel in place through the placement of rock at the toe of the channel and soil wraps above the rock. The ERP project would result in beneficial impacts related to geology and soils by stabilizing the creek channel, as would the two SOCWA projects.

The proposed project would not expose people or structures to geologic hazards, and mitigation is provided to reduce potential effects related to landslide areas. The proposed project would be located adjacent to unstable areas along the creek embankment, but would not cause greater instability or collapse. All geology and soil hazards associated with the proposed project would be site-specific and will be mitigated appropriately as necessary. Any potential geologic hazards associated with other potential projects in the area would be mitigated on a project-by-project basis. Therefore, cumulative impacts with regards to geology and soils would be less than significant.

5.4.8 Greenhouse Gas Emissions

GHG emissions are said to result in an increase in the Earth's average surface temperature, commonly referred to as "global climate change." Global climate change, by definition, is cumulative as it is the result of combined worldwide contributions of GHGs to the atmosphere over many years. Impacts associated with the proposed project discussed in *Section 4.8, Greenhouse Gas Emissions*, also serve as the proposed project's cumulative impact analysis.

The GHG analysis prepared for the proposed project determined that the project would generate approximately 118 metric tons of CO₂E during the 7.5 month construction period in 2013. These emissions would be short-term and would be further reduced by additional project design features listed in *Table 3-1* in *Chapter 3*. Long-term operation of the proposed project would not result in a substantial source of GHG operation emissions; therefore, the proposed project would not contribute to a cumulative impact related to GHG emissions.

5.4.9 Hazards

The hazards impacts associated with a project are localized and occur on a project-by-project basis. The hazards and hazardous materials cumulative study area consists of a 1-mile radius around the proposed project site, which is based on the American Society for Testing and Materials (ASTM) standard search radius for inventorying hazardous sites. Accordingly, other projects considered in this cumulative analysis include the ERP project, Arundo removal project, Drake's Bay storm drain repair project, the two SOCWA projects, Aliso Village Shopping Center remodel, and the Crown Cove residential subdivision project.

All of the cumulative projects would be required to comply with federal, state, and local regulations on the transport, use, and disposal of hazardous materials; and therefore, the proposed project would not interact with these projects to create a cumulative impact in regards to hazardous materials. Since no airports are within the project's immediate vicinity, there would be no cumulative impacts related to airport hazards.

In addition, the proposed project results in a beneficial impact by reducing the risk of rupture of the force main, and therefore, further reduces the potential of the project to contribute towards a cumulatively considerable impact related to hazards and hazardous materials.

5.4.10 Hydrology

Hydrological impacts tend to be regional in nature and generally encompass the extent of the watershed in which the project is located. Therefore, the cumulative impact study area for hydrology and water quality is the Aliso Creek Watershed (see *Figure 4.10-1*). Cumulative projects within this watershed include projects within the AWCWP as well as projects within the cities of Aliso Viejo, Laguna Niguel, Laguna Hills, and some portions of Lake Forest and Mission Viejo. Most cumulative projects within the watershed would impact hydrology and water quality by increasing impervious surfaces, resulting in increased stormwater runoff and reduced groundwater recharge. The proposed project would not result in increased impervious surfaces. Therefore, it would not contribute to a cumulative impact related to stormwater runoff.

Trenching during construction could potentially encounter groundwater and require groundwater dewatering; however, this would be a temporary impact and mitigation is incorporated to further reduce impacts. Trenching activities may require erosion protection and drainage improvements where tributaries cross the proposed alignment; however, the proposed project would adhere to all requirements of the Orange County Drainage Area Management Plan (DAMP) and would preserve existing drainage patterns.

Construction of the proposed project could potentially result in impacts to water quality from increased sediment runoff; however, the project has included best management practices (BMPs)

as part of the project design, as referenced in *Table 3-1*, which would reduce any potential cumulative impact related to the violation of water quality standards. Additionally, the proposed project would replace an existing aging pipeline which has the potential to rupture due to corrosion, erosion, or storm events. This would result in a beneficial impact related to the potential to degrade water quality, especially as related to spills and overflows. Therefore, the contribution of the proposed project to hydrology and water quality impacts would not be cumulatively considerable, and impacts would be less than significant.

5.4.11 Noise

The cumulative study area for noise is limited to a 0.25-mile audible distance radius around the proposed project alignment. At distances greater than 0.25 mile, construction noise would be briefly audible and steady construction noise from the proposed project would generally dissipate into quiet background noise levels.

As analyzed in *Section 4.11*, the proposed project would generate noise from construction equipment; however, due to the distance and interceding topography, noise levels would not exceed local thresholds. Other projects within 0.25 mile of the proposed alignment include the ERP project, Arundo removal project, Drake's Bay storm drain repair project, and the two SOCWA projects (Aliso and Sulphur Creek Confluence Stabilization and Aliso Creek Rip Rap Repair). As mentioned above, construction associated with the ERP project, Drake's Bay storm drain repair project, and two SOCWA projects would not be simultaneous with the proposed project, and thus would have no cumulative interaction with the proposed project related to noise. The Arundo removal project would be occurring at the same time as the proposed project; however, this project involves mechanical and herbicidal techniques for vegetation removal that would generate minimal noise. Overall, the proposed project would not result in a cumulatively considerable noise effect, and impacts would be less than significant.

5.4.12 Paleontological Resources

Paleontological resources tend to remain localized and are generally unique to a geologic formation. Therefore, when considering the proposed project's interaction with other projects in the area, cumulative projects considered in this analysis are limited to those occurring within areas underlain by the Topanga or Monterey Formations, which are the units within the project area which are classified as having a high sensitivity rating for paleontological resources. Reasonably foreseeable projects within the AWCWP do not involve ground-disturbing activities, and therefore, would not contribute to cumulative paleontological impacts.

Other projects which would involve ground-disturbing activities in the project vicinity, and thus could contribute to a cumulative paleontological impact, would be required to comply with state and federal regulations related to paleontological resources and, similar to the proposed project,

would contain measures requiring monitoring by a qualified paleontologist. Implementation of these measures would avoid impacts to sensitive paleontological resources and would result in a less-than-significant cumulative impact.





5.4.13 Recreation


Recreational impacts tend to be regional in nature and generally encompass the entire county in which the project is located. Development projects listed in *Table 5-1* that would contribute to growth inducement, either directly through the provision of housing, or indirectly through the provision of employment opportunities or the extension of infrastructure would cumulatively contribute to a need for additional recreational facilities. None of the projects listed in *Table 5-1* include recreational facilities.

The proposed project would not result in direct or indirect population growth that would increase the use of existing neighborhood or regional parks, nor does it include the construction of recreational facilities that would have an adverse physical effect on the environment. Therefore, the proposed project would not cumulatively contribute to a recreational impact, and impacts would be less than significant.

As mentioned above, construction associated with the ERP project, Drake's Bay storm drain repair project, and two SOCWA projects would not be simultaneous with the proposed project, and thus would have no cumulative interaction with the proposed project related to recreation. As such, no significant cumulative effects to park users or other recreational use of the Aliso and Wood Canyons Wilderness Park would result.



-  Proposed Alignment
-  Buffer - 1 mile
-  Cumulative Project Location
-  Aliso Creek Watershed


 0 0.5 1
 Miles

DUDEK

SOURCE: Digital Globe 2008

Figure 5-1
Cumulative Projects Map

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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CHAPTER 6.0

OTHER CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS

6.1 SIGNIFICANT EFFECTS WHICH CANNOT BE AVOIDED

Section 15126.2(b) of the CEQA Guidelines (14 CCR 15000 et seq.) requires an EIR to identify significant environmental effects that cannot be avoided if the proposed project is implemented. As discussed in this EIR, implementation of the proposed project could result in significant impacts related to Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, and Paleontological Resources. However, all of these impacts would be mitigated to below a level of significance with implementation of mitigation measures identified in this EIR. There are no significant effects which cannot be avoided.

6.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE CAUSED BY THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

CEQA Guidelines mandate that the EIR must address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented (CEQA Guidelines, Section 15126(c)). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations of people to similar uses;
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; and/or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether the proposed project may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them. Natural resources in the form of construction materials would be utilized in the construction of the proposed project; however, their use is not expected to negatively impact the availability of these resources. Due to the scale of the proposed project, the use of construction materials and non-renewable resources is not unusual or extraordinary, and, as a result, there would be no significant irreversible environmental effects related to resource consumption during construction. On a permanent, long-term basis, the proposed project would consume minimal energy beyond what is currently used to operate the CTP and existing force mains.

The transport of sludge via pipeline through the AWCWP from the CTP to the RTP poses the potential risk of a pipeline rupture and resulting spill of sludge into the surrounding sensitive natural environment, including Aliso Creek. However, the existing condition is one of considerably more risk than the proposed condition, and implementation of the proposed project would reduce the risk of a rupture and subsequent spill such that the project would result in a beneficial impact related to secondary impacts on biological resources and water quality.

6.3 GROWTH-INDUCING IMPACTS

Section 15126.2(d) of the CEQA Guidelines (14 CCR 15000 et seq.) requires a discussion of how the potential growth-inducing impacts of the proposed project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Induced growth is distinguished from the direct employment, population, or housing growth of a project. If a project has characteristics that “may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively,” then these aspects of the project must be discussed as well. Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place in the absence of the proposed project. For example, a project could induce growth by lowering or removing barriers to growth or by creating or allowing a use such as an industrial facility that attracts new population or economic activity. The CEQA Guidelines also indicate that the topic of growth should not be assumed to be either beneficial or detrimental (Section 15126.2(d)).

The proposed project is located within the AWCWP and involves the replacement of two parallel 4-inch pipelines with a single 6-inch pipeline to transport primary sludge and thickened waste activated sludge from the CTP to the RTP for solids processing. The project does not propose the construction of any new houses or the creation of long-term employment opportunities, and therefore, does not directly induce growth. While the proposed project would improve the reliability and reduce risks related to spills and upset from SOCWA’s Export Sludge Handling System, the replacement of the force main would not increase the capacity of either the CTP or RTP to process additional wastewater, nor would the new pipeline be intended to transport additional sludge beyond the current forecasted quantity. Therefore, the project would not indirectly induce growth.

CHAPTER 7.0 EFFECTS NOT FOUND TO BE SIGNIFICANT

The state CEQA Guidelines (14 CCR 15000 et seq.) require that an environmental document include a brief discussion of various environmental issues that were determined not to be significant. This EIR addresses all probable or foreseeable possible effects of the proposed project. Based on the analysis presented in *Chapter 4*, with mitigation incorporated, effects were found to be not significant for the following issue areas: Land Use and Planning, Aesthetics, Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Paleontological Resources, and Recreation.

An evaluation of those issues contained in the CEQA Environmental Checklist that were not addressed in *Chapter 4* of this document follows.

7.1 AGRICULTURAL AND FORESTRY RESOURCES

Appendix G of the CEQA Guidelines includes the following questions regarding agricultural resources:

Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined by Public Resources Code section 12220(g)), timberland as defined by Public Resources Code section 4526 or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Would the project result in the loss of forest land or conversion of forest land to non-forest use?

The proposed project is located in AWCWP, a regional wilderness park under the jurisdiction of Orange County Parks. There is currently no agricultural production within the park, and therefore, no existing agricultural use would be displaced by the project. This land is designated Open Space Reserve (OSR) and is committed as a public open space area, and therefore, could

not potentially be converted to agricultural use in the future. Additionally, the project area is not zoned as forest land or timberland, nor would it result in the loss of forest land to a non-forest use. As such, no significant impacts to agricultural and forestry resources would result.

7.2 MINERAL RESOURCES

Appendix G of the CEQA Guidelines includes the following questions regarding mineral resources:

Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

The proposed project is not located in an area of known mineral resources, either of regional or local value (County of Orange 2011). Additionally, no mineral resources have been identified on the project site. Therefore, no significant impacts related to mineral resources would result.

7.3 POPULATION AND HOUSING

Appendix G of the CEQA Guidelines includes the following questions regarding population and housing:

Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The proposed project is located in AWCWP. No communities or housing exist within the park, and therefore, no housing or people would be displaced by the proposed project, nor would the construction of replacement housing be required elsewhere. The proposed project involves the replacement of two parallel 4-inch cast iron pipelines that transport primary sludge and thickened waste-activated sludge from the CTP to the RTP for solids processing. The project does not propose new homes or businesses that could directly induce population growth. Additionally, the project does not propose to increase the capacity for either the CTP or RTP; and therefore, would not indirectly induce population growth through the extension of infrastructure. Therefore, no significant impacts related to population and housing would result.

7.4 PUBLIC SERVICES

Appendix G of the CEQA Guidelines includes the following questions regarding public services:

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, a need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

Fire protection and emergency response services for the project site are provided by the County and the respective fire departments of each adjacent municipality. Police protection is provided by the Orange County Sheriff's Department. The replacement of the force main would not result in any potential need for additional fire protection, emergency services, or police protection. The proposed project would not result in any local or regional population increase and would not require the construction of new schools, parks, or other public facilities. Therefore, no significant impacts would result.

7.5 TRANSPORTATION AND TRAFFIC

Appendix G of the CEQA Guidelines includes the following questions regarding transportation and traffic:

Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and nonmotorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Would the project conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Would the project result in changes in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersection) or incompatible use (e.g., farm equipment)?

Would the project result in inadequate emergency access?

Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Regional access to the project site is provided via the South Coast Highway and the San Joaquin Hills Transportation Corridor. Local access to the AWCWP is provided from Alicia Parkway, Moulton Parkway, El Toro Road, Wood Canyon Road, and several smaller, local roadways that provide access to the park from the communities of Laguna Beach, Laguna Niguel, and Aliso Viejo. The AWMA Road traverses the AWCWP from the main entrance at Alicia Parkway through Aliso Canyon to the SOCWA CTP facility. The roadway is a private roadway with locked access gates at each end and is intended for use only by maintenance vehicles associated with SOCWA or other utility agencies. The proposed alignment would be located mostly beneath an at-grade dirt utility access road on the east side of Aliso Creek.

During construction, workers would use local roadways to access the project site. Approximately six to eight construction workers would be at the site on a given day, and minimal trips would be generated; therefore, impacts related to emergency access would be **less than significant**.

Primary sludge and thickened waste activated sludge would be temporarily transported from the CTP to the RTP during construction using 18-wheeler tanker trucks. For approximately 3 weeks, trucks would make an average of 7 round-trips per day, 5 days per week. The majority of the 5-mile trip would be on the privately-owned AWMA Road; however, a short portion would occur along Knollwood Road, Wood Canyon Drive, Aliso Creek Road, and La Paz Road. Trucking would occur only temporarily, and therefore, no significant impacts regarding the project's potential to conflict with applicable plans establishing performance metrics or level of service standards would result.

Once constructed, there would be no regular trips generated by the proposed project. Additionally, the pipeline would be located on the east side of Aliso Creek below ground and opposite the creek of the AWMA Road. Therefore, no conflicts with existing roadways would occur, and impacts would be **less than significant**.

7.6 UTILITIES AND SERVICE SYSTEMS

Appendix G of the CEQA Guidelines includes the following questions regarding utilities and service systems:

Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Would the project require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?

Would the project require or result in the construction of new storm water drainage facilities or improvements of existing facilities, the construction of which could cause significant environmental effects?

Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Would the project require or result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The proposed project involves the construction of new wastewater treatment facilities, the potential environmental impacts of which are analyzed under each of the resource topics presented in *Chapter 4*. The proposed project would not result in increased impervious surfaces; and therefore, would not require the construction of new storm water drainage facilities. Similarly, the project would not require additional water supplies or create additional solid waste. Therefore, no significant impacts related to utilities and service systems are anticipated.

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CHAPTER 8.0 ALTERNATIVES

8.1 INTRODUCTION

In order to fully evaluate proposed projects, CEQA requires that alternatives be discussed. Section 15126.6 of the State CEQA Guidelines (14 CCR 15000 et seq.) requires the discussion of “a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” The alternatives discussion is intended to focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives as listed in *Section 3.4* of this EIR.

Pursuant to the guidelines stated above, a range of alternatives to the proposed project are considered in this EIR. These alternatives were developed in the course of project planning, environmental review, and the public scoping process. The discussion in this section provides the following:

1. A description of alternatives considered.
2. An analysis of whether the alternatives meet most of the objectives of the proposed project (described in *Section 3.4* of this EIR).
3. A comparative analysis of the alternatives under consideration and the proposed project. The focus of this analysis is to determine if alternatives are capable of eliminating or reducing the significant environmental effects of the project to below a level of significance. As identified in the various sections of *Chapter 4* of this EIR, the following issues resulted in potentially significant impacts prior to mitigation: biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and paleontological resources. However, there are no significant project impacts that cannot be reduced to below a level of significance with incorporation of mitigation measures, as analyzed in *Chapter 4*.

Twelve alternatives were originally considered for the proposed replacement of the export system. These alternatives are presented in *Table 8-1*.

**Table 8-1
Alternatives Considered**

Type of Alternative	Name	Brief Description	Description of Alternative	Time to Implement
Force Main	FM-1	New force main east side	Construct new force main on east side of creek within existing easement.	3 years
	FM-2	New force main west side	Construct new force main on west side of creek beneath existing AWMA Road.	3 years
	FM-3	New force main with pipe bridge	Construct new force main on east side of creek within existing easement from CTP to point opposite AVCA Road cul-de-sac; construct pipe bridge over vehicle bridge; pipe over creek; connect to pipe beneath AVCA Road on west side of creek.	4 years, possibly longer
	Relining	Reline existing force main on east side	Reline existing force main to strengthen pipeline.	1 year
Truck Liquid Sludge	TR-1a	Trucking liquid sludge	Truck sludge from CTP to RTP over newly constructed AWMA Road bridge.	2 years
	TR-1b	Trucking liquid sludge	Truck sludge from CTP to RTP via Knollwood Route	0-6 months
Solids Handling at CTP	SH-1a	Construct solids handling facility at CTP	Construct digestion, dewatering and co-generation alternatives similar to other facilities	2 years
	SH-1b	Construct solids handling facility at CTP	Implement innovative solids handling technology such as thermal combustion	3 years, possibly more
Eliminate CTP	ECTP-1	Eliminate CTP – Pump sewage to JBLTP	Sewage flows from South Laguna (South Coast Water District; SCWD/City of Laguna Beach/Emerald Bay Sanitation District; EBSD) pumped to expanded JBLTP; CTP retired	5-10 years
	ECTP-2	Eliminate CTP – Pump sewage to JBLTP/ETM flows diverted to San Juan Creek Outfall System	Sewage flows from South Laguna (SCWD)/CLB/EBSD pumped to expanded JBLTP; CTP retired; ETM flows pumped to San Juan Outfall System; San Juan Ocean Outfall possibly expanded	5-10 years
	ECTP-3	Eliminate CTP – Pump sewage to RTP	Sewage flows from South Laguna (SCWD)/CLB/EBSD pumped to expanded RTP; CTP retired	5-10 years
	ECTP-4	Eliminate CTP – Pump sewage to RTP/ETM flows diverted to San Juan Creek Outfall System	Sewage flows from South Laguna (SCWD)/CLB/EBSD pumped to expanded RTP; CTP retired; ETM flows pumped to San Juan Outfall System; San Juan Ocean Outfall possibly expanded	5-10 years

8.2 ALTERNATIVES CONSIDERED BUT REJECTED

The alternatives described in *Section 8.2* were initially considered by SOCWA but were eliminated from further detailed environmental review for reasons specified below.

8.2.1 Hybrid Force Main Alignment Alternative

Under this hybrid alternative, known as Force Main 3 or FM-3 in preliminary engineering evaluations, the majority of the new export sludge force main would follow the existing easement on the east side of Aliso Creek. The new pipeline would cross Aliso Creek at the northern end, requiring a new pipe bridge, to connect into the existing 6-inch pipeline within AVCA Road installed during the previous Phase 2 project. The biological impacts of construction of a new structure, the pipe bridge within Aliso Creek, were considered to be too intrusive and hence would not meet project objective number 2, to limit the impact of construction and operation on the surrounding Aliso and Woods Canyon. Also, since this alignment mostly follows the same alignment as the proposed project, it was eliminated from further consideration.

8.2.2 Relining Alternative

Rather than replace the existing force main, this alternative would reline the existing pipelines in an attempt to strengthen them. However, the existing pipelines are 4 inches in diameter, and relining would limit their usable diameter to approximately 3 inches in diameter, resulting in reduced capacity to convey sludge. As a result, this alternative would not meet project objective number 1, since it would not move sludge from the CTP to the RTP in a reliable manner, and was therefore eliminated from further consideration.

8.2.3 Elimination of the Coastal Treatment Plant

This alternative was identified during the public scoping process, and would eliminate the CTP as a means of removing sludge force main infrastructure from the AWCWP. It would consist of four possible options, all involving pumping raw wastewater currently treated at the CTP to either the RTP or to the Jay B. Latham Wastewater Treatment Plant (JBLTP) in Dana Point:

- Pump sewage to the JBLTP. Sewage flows from south Laguna Beach would be pumped to the JBLTP, which would require expansion to accommodate these flows.
- Pump sewage to the JBLTP, with effluent transmission main (ETM) flows diverted to San Juan Creek Outfall system. This would be the same as the first option, except that the ETM flows would be pumped to the San Juan Creek Outfall, rather than the Aliso Creek Ocean Outfall, where it is currently discharged. To balance flows between these two outfall systems, it is assumed that the El Toro Water District treated flows would be

transferred from San Juan Creek to Aliso Creek. The San Juan Creek Outfall would require expansion to accommodate these flows.

- Pump sewage to the RTP. Sewage flows from south Laguna Beach would be pumped to the RTP, would require expansion to accommodate these flows.
- Pump sewage to the RTP, with ETM flows diverted to San Juan Creek Outfall system. This would be the same as the third option, except that the ETM flows would be pumped to the San Juan Creek Outfall. The outfall would require expansion to accommodate these flows.

This alternative was eliminated because it would result in additional environmental impacts related to expanded ocean outfall, or expanded treatment plants, that would not result under the proposed project. Also, the estimated preliminary cost would be approximately \$100M, which is prohibitive. Finally, to design, permit, and fund, this alternative would not be ready to be in operation for approximately 5 to 10 years, which would not rectify the more immediate need of replacing the aging infrastructure in Aliso Canyon.

8.3 ALTERNATIVES UNDER CONSIDERATION

An analysis of alternatives has been provided in this document to provide decision makers with a reasonable range of possible alternatives to be considered. Each of the alternatives is described below. As described in the various sections of *Chapter 4* of this EIR, there are no significant project impacts that cannot be reduced to below a level of significance.

8.3.1 No Project Alternative

Under the No Project Alternative, the existing dual 4-inch export sludge force mains would remain in operation to transport sludge from the CTP to the RTP. The pipeline currently is located along the east side of Aliso Creek parallel to other existing utilities. As described in *Section 3.3, Project Purpose and Need*, the existing pipelines have experienced a number of problems, including variability in sludge concentration, pumping pressure, and intermittent operational scenarios leading to internal deposition, and concern over interior and exterior corrosion. These conditions would not be corrected under the No Project Alternative.

Environmental Analysis

Land Use and Planning

The No Project Alternative would comply with applicable plans and policies, similar to the proposed project. Since no construction would occur, there would be no disturbance of sensitive vegetation communities or species, and therefore, no conflicts with the Central-Coastal Subregion NCCP/HCP would arise. Impacts would be generally similar to those of the proposed project, that is, less than significant.

Aesthetics

The No Project Alternative would not result in ground disturbance related to construction activities. Similar to the proposed project, the exiting force mains are located underground and are not visible from surrounding areas. There would be no aesthetic impacts resulting from the No Project Alternative, similar to the proposed project.

Air Quality

The No Project Alternative would not result in emissions related to construction activity. Operational emissions would be similar to those for the proposed project.

Biological Resources

The No Project Alternative would not result in direct impacts to biological resources since no construction or excavation activities would occur, and therefore, would reduce impacts when compared to the proposed project. However, biological resources such as wetlands and habitat could potentially be impacted indirectly through contamination of the environment if one of the existing force mains were to rupture. Spills could affect sensitive habitat and vegetation, and also, if a break were to occur, SOCWA would be required to take emergency actions to halt the breakage. Emergency actions would include use of heavy machinery and equipment, which could affect sensitive biological resources. While difficult to predict the number and location of ruptures, and extent of sludge contamination, overall, this alternative is considered to result in a greater level of impact to biological resources when compared to the proposed project.

Cultural Resources

The No Project Alternative would not involve any new construction or excavation activities, and therefore, would avoid the potential for direct impacts to recorded archaeological sites. However, as discussed under biological resources, cultural resources could potentially be impacted indirectly through contamination of the environment if one of the existing force mains were to rupture. If a break were to occur, SOCWA would be required to take emergency actions to halt the breakage. Emergency actions would include use of heavy machinery and equipment, which could affect sensitive cultural resources. While difficult to predict the number and location of ruptures, and extent of sludge contamination, overall, this alternative is considered to result in a greater level of impact to cultural resources when compared to the proposed project.

Energy

The No Project Alternative would not involve any construction activities, and therefore, would not require fuel or other energy sources to operate construction equipment or additional trucking

activities. The No Project Alternative would continue to operate the existing dual 4-inch force mains, which require electricity to pump sludge from the CTP to the RTP. The amount of energy required would be similar to the amount of energy required to pump sludge through the 6-inch force main proposed by the project. Therefore, while the No Project Alternative would slightly reduce energy requirements during construction, over the long term, operational energy requirements would be the same.

Geology and Soils

The existing dual 4-inch force mains would continue to operate under the No Project Alternative and, similar to the proposed project, would be subject to risk of geologic hazards. This alternative would not involve any construction which could potentially result in soil erosion or activate landslide deposits; therefore, this alternative would reduce impacts related to geology and soils when compared to the proposed project.

Greenhouse Gas Emissions

Under the No Project Alternative, electricity would continue to be consumed for the pumping of sludge from the CTP to the RTP. Energy requirements would be similar to that required by the proposed project, and therefore, impacts related to GHG emissions would be similar.

Hazards and Hazardous Materials

Implementation of the proposed project would replace the existing dual 4-inch ductile iron force mains with a single 6-inch high density polyethylene (HDPE) force main. As analyzed in *Section 4.9*, the proposed project would result in potential short-term construction impacts related to emergency access; however, mitigation measure HAZ-1 would reduce potential impacts to less than significant. Additionally, the proposed project would result in a beneficial impact in relation to the risk of upset caused by a rupture in the pipeline due to the deteriorating condition of the pipeline, which would not be afforded under the No Project Alternative. Overall, the No Project Alternative would increase impacts related to hazards and hazardous materials in comparison to the proposed project.

Hydrology/Water Quality

The No Project Alternative would not involve construction which could lead to short-term impacts related to sediment runoff, polluted runoff or groundwater dewatering. However, the No Project Alternative would leave in place the existing force mains which are at risk for future ruptures and spills and which could impact the water quality of Aliso Creek and downstream water bodies (i.e., the Pacific Ocean). Therefore, the beneficial impacts related to the proposed project's replacement of the force mains and the reduced potential for impacts to water quality from spills would not be realized.

Noise

The No Project Alternative would not require any construction, and therefore, would not result in any short-term noise impacts, similar to the proposed project. No noise would be generated from the continued operation of the existing force mains, similar to the proposed project. Therefore, the No Project Alternative would result in similar impacts related to noise.

Paleontological Resources

The No Project Alternative would not require any construction; and therefore, would not involve earth working activities such as trenching that could pose the potential to disturb geologic deposits within which fossils are buried. Therefore, this alternative would have reduced impacts when compared to the proposed project in relation to paleontological resources.

Recreation

The No Project Alternative would require no construction, and therefore, equipment and vehicles would not potentially conflict with park users. Similar to the proposed project, this alternative would not result in direct impacts related to the recreational use of AWCWP. However, as discussed under biological and cultural resources, recreational use and access could potentially be impacted if one of the existing force mains were to rupture. If a break were to occur, SOCWA would need to close down all or parts of trails to take emergency actions to halt the breakage. In addition, pipeline rupture could affect recreation at Aliso Beach downstream if water quality were to be impaired. While difficult to predict the number and location of ruptures, overall, this alternative is considered to result in a greater level of impact when compared to the proposed project.

Project Objectives

This alternative would meet only project objective number 3, since it would involve no construction, and therefore, would not result in short-term, temporary impacts related to ground disturbance or the operation of heavy equipment. The No Project Alternative would not minimize risk to the environment or avoid the potential impacts of failure of the existing system since it would not abandon the existing, corroded force mains.

8.3.2 West Side Force Main Alignment Alternative

This alternative, known as FM-2 in preliminary engineering evaluations, would locate a new 6-inch export sludge force main west of Aliso Creek within the existing paved areas of the AWMA Road (see *Figure 8-1*). The new pipeline would be required to cross Aliso Creek in two locations. The pipeline would be suspended from the AWMA Road Access Bridge, near Alicia

Parkway, and from the CTP Access Bridge adjacent to CTP facility. The total installed length would be approximately 15,800 feet.

The new 6-inch pipeline would connect to the existing 3,460 lineal feet Phase II 6-inch ductile iron force main located within the right-of-way of AVCA Road. This connection would be located within the existing cul-de-sac, adjacent to the SOCWA gate. An additional segment would be required to connect the northern end of the existing 6-inch pipeline in AVCA Road to the southern extent of the pipeline installed during Phase I in Alicia Parkway.

Due to the vertical fall and rise of the AWMA Road, the pipeline would require the installation of at least two air-vacuum valves (ARVs). To avoid the need for deep trenching and installation of ARVs, trenchless construction methods, specifically horizontal directional drilling, would be used (see *Figure 8-2*).

Environmental Analysis

Land Use and Planning

Similar to the proposed project, the FM-2 Alternative would not divide an established community as it would be located within the open space area of AWCWP, nor would it conflict with the Central-Coastal Subregion NCCP/HCP. The Orange County General Plan, AWCWP RMP, and Aliso Viejo Segment of the ACPU LCP contain goals, policies and objectives related to the development of infrastructure and activities within the AWCWP. Similar to the proposed project, the FM-2 Alternative would generally be consistent with the goals and policies of these plans, or would be consistent with mitigation incorporated.

However, due to greater potential impacts to cultural resources, as discussed below, Alternative FM-2 would not be consistent with many of the cultural resources goals and objectives of the General Plan, the RMP, or the LCP. In addition, the Recreation Element of the General Plan contains goals related to the provision of safe and useful trail systems and minimization of trail closures. As discussed below under Recreation, implementation of Alternative FM-2 would result in the closure of the AWMA Road to public access, as well as potential closures along Aliso Creek Trail. Therefore, this alternative would result in greater impacts when compared to the proposed project.

Aesthetics

Similar to the proposed project, the force main installed under this alternative would be located underground and would not result in permanent aesthetic impacts. However, during construction, the staging of equipment and ground disturbance would occur along the west side of Aliso Creek which is open to public access and paralleled by Aliso Creek Trail, which is frequented by park

users. Therefore, this alternative would likely result in a significant short-term aesthetic impact to park users. Additionally, the force main would be suspended from the AWMA Road Access Bridge and CTP Access Bridge, and would be visible in both cases. Therefore, this alternative would generally have greater impacts related to aesthetics than the proposed project.

Air Quality

Construction techniques and the size of the area disturbed during construction would be similar to the proposed project, and therefore, would result in similar emissions and dust generated. Additionally, once constructed, this alternative would result in similar emissions as the proposed project. Therefore, impacts related to air quality would be similar to the proposed project.

Biological Resources

The FM-2 Alternative would be constructed beneath the existing, paved, AWMA Road, which has been subject to previous ground disturbing activities at the surface. Short-term, indirect, construction related impacts from noise, fugitive dust and to sensitive biological species would be similar to those caused by the proposed project. Also similar to the proposed project, long-term operational impacts would be minimal and less than significant.

Direct impacts related to ground disturbance to special-status vegetation communities would be reduced when compared to the proposed project since ground disturbance would be limited to construction staging impacts within the construction easement along the side of the AWMA Road. This alternative would result in approximately 2.81 acres of impacts to upland communities and 0.19 acres of impacts to wetland/riparian communities (compared to 11.33 acres and 1.66 acres, respectively for the proposed project). Therefore, the FM-2 Alternative would reduce impacts to biological resources when compared to the proposed project.

Cultural Resources

The FM-2 Alternative would largely follow AWMA Road, an existing asphalt road. Previous ground disturbing activities associated with construction of the road have disturbed underlying soils to at least 12 to 18 inches below the original grade; however, unlike on the east side of the creek where the proposed project would be implemented, previous ground disturbance on the west side has not been substantial below these 12 to 18 inches of surface soil, and hence there would be more disturbance to previously undisturbed soils. Ten prehistoric archaeological sites are recorded within 250 feet of the road (Dudek 2012b). Therefore, there is a greater potential for both intact and previously disturbed archaeological deposits to exist within the FM-2 Alignment when compared to the proposed project alignment. As a result, a greater number of archaeological sites could be potentially affected by construction of this alternative than by the proposed project, and potential impacts would be greater.

Energy

Alternative FM-2 would require similar amounts of fuel and other energy sources during construction as the proposed project. Operation of the pipeline on the west side of Aliso Creek would require similar amounts of energy for the pumping of sludge and other operational activities associated with the pipeline as for the proposed project.

Geology and Soils

The FM-2 Alternative would be subject to similar geologic hazards on the west side of Aliso Creek as the proposed project. Seismic activity would be the same as it would be for the proposed project and landslide deposits are present on the west side of the creek as well. Similar project design features and/or mitigation would be implemented for the FM-2 Alternative to reduce the potential for soil erosion from construction and to reduce the potential for activating landslide deposits. Similar to the proposed project, segments of unstable areas also exist along the west side of the creek. However, according to the erosion assessment prepared for this alignment, only approximately 1,200 feet of the FM-2 alignment would have a high erosion risk (as compared to 3,300 feet of the proposed alignment), and 850 feet would be subject to a moderate erosion risk (as compared to 1,250 feet of the proposed alignment) (Tetra Tech 2012). Therefore, impacts related to geology and soils would be slightly reduced when compared to the proposed project.

Greenhouse Gas Emissions

Similar construction equipment would be used for this alternative as for the proposed project, and therefore, would result in similar emissions. Additionally, the energy required to pump sludge from the CTP to RTP would remain similar to current energy requirements, as would the proposed project. Therefore, impacts related to GHG emissions would be similar.

Hazards and Hazardous Materials

Similar to the proposed project, the FM-2 Alternative would replace the existing dual 4-inch ductile iron force mains with a single 6-inch HDPE force main. The FM-2 Alternative would result in similar short-term construction impacts related to the risk of hazardous materials spills and emergency access, and could similarly reduce potential impacts to less than significant. The FM-2 Alternative would also result in a beneficial impact in relation to the risk of upset by abandoning the existing, corroded force mains and replacing them with an improved single force main. Therefore, the FM-2 Alternative would result in similar impacts related to hazards and hazardous materials as the proposed project.

Hydrology/Water Quality

During construction of the FM-2 Alternative, the potential for polluted/sediment laden runoff from the project site to Aliso Creek would be similar to impacts caused by the proposed project, and best management practices (BMPs) would be implemented to reduce impacts. The FM-2 Alternative would, similar to the proposed project, be located underground once constructed, and therefore would not impede flows or result in other hydrological changes. By adhering to all state and federal regulations, as well as the Orange County Drainage Area Management Plan (DAMP), this alternative would result in similar impacts when compared to the proposed project.

Noise

This alternative would result in similar temporary noise impacts from construction noise as the proposed project. Residences along the west ridge of the canyon are approximately the same distances from the construction corridor of the FM-2 Alternative as residences along the east ridge are from the proposed project's construction corridor. While construction of the FM-2 Alternative would be in the immediate vicinity of recreational users on Aliso Creek Trail and the AWMA Road, users would generally only be exposed for a few minutes to noise levels exceeding 60dB(A). Similar to the proposed project, there would be no long-term operational noise impacts resulting from Alternative FM-2. Therefore, noise impacts would be similar to that of the proposed project.

Paleontological Resources

The area where construction of the FM-2 Alternative would occur is underlain by the same geologic rock units as the proposed project; therefore, the sensitivity of these resources in regards to the potential for the occurrence of paleontological resources is the same. However, ground disturbance beneath the AWMA Road has generally not extended to more than 12 to 18 inches below the ground surface, unlike the construction easement of the proposed project which has experienced substantially deeper and more extensive ground disturbance related to the installation and maintenance of the existing pipelines. Therefore, the FM-2 Alternative would have a greater potential for impacts relative to paleontology when compared to the proposed project.

Recreation

Construction of Alternative FM-2 would result in the closure of the AWMA Road to public access for the duration of the 7.5-month construction period, as well as potential closures along Aliso Creek Trail. Construction vehicles and equipment would be staged on and alongside the AWMA Road, further interfering with recreational use of the AWCWP. Therefore, this alternative would result in greater impacts to recreational users than the proposed project.

Project Objectives

This alternative would generally meet all of the project objectives.

8.3.3 Trucking Alternative 1– Bridge Route

As under the proposed project’s short-term construction scenario, this alternative would involve the trucking of sludge from the CTP to the RTP. However, rather than a short-term interim scenario during construction, under this alternative, trucking would be the permanent solution for moving sludge from the CTP to the RTP.

Sludge would be loaded into 5,500-gallon tanker trailers at the CTP. Once loaded, trucks would follow the AWMA Road north through the AWCWP until the road exits the park, becoming AVCA Road. Trucks would continue east onto the original AWMA Road, passing the park ranger station and parking lot. Trucks would cross the AWMA Road Access Bridge, prior to reaching Alicia Parkway, then travel on public streets to the RTP site. Refer to *Figures 8-3* and *Figure 3-7* for a map of the proposed route, and a photograph of the type of truck that would be utilized.

The AWMA Road Access Bridge currently does not meet structural standards, and as a result has maximum weight limit of 16,000 pounds. The anticipated weight of a fully loaded truck would approach 80,000 pounds. Therefore, under this alternative, SOCWA would have to rebuild the bridge, the construction impacts of which are considered in this alternatives analysis. Currently, less than 10% of vehicle traffic crossing the AWMA bridge is related to SOCWA operations. SOCWA has consulted possible participants including the Cities of Laguna Niguel and Aliso Viejo to enter into a cost-sharing agreement for replacement of the bridge, which is estimated to cost \$3M to construct; however, none of the potential participants have expressed interest in the cost-sharing agreement.

An existing agreement between OC Parks and SOCWA allows use of AWMA Road on weekends and holidays for public use by park patrons; pedestrian and bicycle traffic on AWMA Road can be substantial during these periods. As a result, sludge hauling operations would not be safe and reliable on the weekend, and would be required to be limited to 5 days per week, excluding weekends. To maintain a 5-day hauling schedule and avoid weekend trips, 7 trips per day would be required during peak load periods, and an additional truck, for a total of 2 trucks, would be needed to complete the hauling.

Environmental Analysis

Land Use and Planning

This alternative would not divide an established community, conflict with the Central-Coastal Subregion NCCP/HCP, or generally conflict with the goals and policies of applicable plans. However, the General Plan and RMP contain goals related to the provision of a useful and safe regional trail system. Under this alternative, trucks would traverse the AWCWP on the AWMA Road up to 14 times per day (7 round trips). As discussed below, this would create a potential safety hazard for park users and would generally not be consistent with the County’s goals for the AWCWP. Replacement of the AWMA Road Access Bridge would also temporarily disrupt access to the park by blocking the primary entrance point. Therefore, this alternative would result in greater land use compatibility impacts than the proposed project.

Aesthetics

Under this alternative, short-term impacts to aesthetics from ground disturbing activities adjacent to the creek would be avoided. However, replacement of the AWMA Road Access Bridge would involve construction at the entrance to the AWCWP, which would result in a temporary visual impact to park users. Therefore, impacts to aesthetics would be slightly greater under this alternative than for the proposed project.

Air Quality

This alternative would result in increased air quality impacts relative to those associated with the proposed project due to operational emissions associated with trucking. Based on 7 round trips per day, the estimated daily emissions associated with trucking sludge from the CTP to the RTP are shown in *Table 8-2*.

Table 8-2
Estimated Emissions from Sludge Transport (pounds/day)

	ROG	NOx	CO	SOx	PM10	PM2.5
Estimated Emissions	0.27	2.35	2.08	0.00	1.31	0.08
<i>Threshold</i>	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

As shown in *Table 8-2*, the emissions would be less than the South Coast Air Quality Management District’s thresholds of significance for operational emissions, but when compared to the proposed project, they would be greater.

In addition to the operational emissions, air pollutants would be emitted during replacement of the AWMA Road Access Bridge. These emissions associated with bridge construction would be greater than those for construction of the proposed project due to the use of large heavy-duty construction equipment, although similar to the proposed project, those emissions would be short-term.

Biological Resources

Since no force main would be installed, this alternative would not involve construction or ground-disturbing activities that would result under the proposed project, and therefore would avoid the short-term impacts to biological resources as a result of trenching and construction. Also, when compared to the proposed project, lesser impacts would result to upland habitats along the canyon since no force main alignment would be implemented. However, bridge replacement would be required, which would most likely impact ruderal habitat.

Long-term operation of this alternative could indirectly impact sensitive species through increased noise, fugitive dust, pollutants, and with regards to wildlife species, the potential for collisions. Overall, this alternative would result in reduced impacts to sensitive biological resources when compared to the proposed project.

Cultural Resources

This alternative would reduce the potential for direct impacts to recorded archaeological sites within the trucking corridor along AWMA Road. Under this alternative, however, bridge replacement could result in impacts to a known cultural resource site (CA-ORA-423, a permanent camp) near the bridge site. A better understanding of the level of impacts to this resource would need to be determined once bridge design details were made available, as the design could determine the amount of excavation, precise location of abutments, whether or not previously undisturbed soils would be encountered, and other parameters.

This alternative would have the potential for indirect impacts to archaeological resources from accidents in the vicinity of a known archaeological site, if clean-up activities using heavy equipment were to extend beyond the existing paved road. This potential, however, is considered relatively low given established truck safety procedures. Overall, while a precise evaluation of the level of impact to CA-ORA-423 is not yet known, it is assumed that this alternative would result in a similar level of potential impacts to cultural resources when compared to the proposed project.

Energy

This alternative would require energy such as fuel for the rebuilding of the AWMA Road Access Bridge. Fuel would also be required on a long-term basis to haul sludge from the CTP to the RTP

via truck. It is estimated that approximately 2,600 gallons of fuel would be required for the sludge hauling truck to make approximately seven 10-mile round trips 5 days per week. However, electricity would no longer be required under this alternative to pump sludge from the CTP to the RTP. Therefore, overall, energy requirements would be reduced under this alternative.

Geology and Soils

This alternative would not expose any people or structures to geologic hazards. Additionally, this alternative would not involve any construction which could potentially result in soil erosion or activate landslide deposits; therefore, no mitigation would be required. Additionally, handling sludge on the west side of the creek would have fewer long term erosion risks than handling sludge on the east side (Tetra Tech 2012). Hence, this alternative would reduce impacts related to geology and soils when compared to the proposed project.

Greenhouse Gas Emissions

This alternative would result in additional greenhouse gas (GHG) emissions due to operational emissions associated with trucking. Based on 7 round trips per day, 5 days per week, the annual GHG emissions associated with trucking sludge from the CTP to the RTP are estimated to be approximately 36 metric tons carbon dioxide equivalent per year. As discussed in *Section 4.8*, the GHG emissions associated with sludge treatment at the RTP would remain unchanged under this alternative. Under this alternative, however, net indirect GHG emissions associated with generation of electricity for pumping sludge from the CTP to the RTP would be reduced by approximately 47 metric tons carbon dioxide equivalent per year relative to the proposed project. Thus, the overall GHG emissions for this alternative would be less than those for the proposed project.

In addition to the operational emissions, GHGs would be emitted during rebuilding of the AWMA Road Access Bridge. The emissions associated with bridge construction would be greater than those for construction of the proposed project due to the use of large heavy-duty construction equipment. However, like the proposed project, those emissions would be short-term.

Hazards and Hazardous Materials

This alternative involves no construction along the creek, and therefore, does not pose the temporary, short-term risk of spills of potentially hazardous materials such as oil and fuel from construction equipment. Additionally, similar to the proposed project, this alternative would abandon the existing dual 4-inch force mains and would result in an overall beneficial impact relative to the risk of upset or spills.

However, the longer-term operation of this alternative would involve the hauling of sludge through AWCWP and the potential exists for an accident to occur during which sludge and/or fuel could be released into the environment, resulting in a greater long-term, operational impact than the proposed project. Additionally, trucks operating along the AWMA Road in the AWCWP could pose a potential safety hazard to recreational users in the park. This alternative would require trucks to make a left turn from AWMA Road to northbound Alicia Parkway. Adequate gaps for large/slow trucks to make the subject permissive left turn at this uncontrolled intersection are very limited, even during off peak periods. The additional truck trips would potentially increase the likelihood of collision and decrease overall traffic safety at this intersection.

Therefore, impacts related to hazards would be greater under this alternative than for the proposed project.

Hydrology/Water Quality

This alternative would require no construction or alterations to the physical environment of the AWCWP. Therefore, when compared to the proposed project, the potential for erosion and sediment runoff would be reduced and there would be no need for groundwater dewatering. This alternative would also not require the construction of any permanent structures which could place people or housing at risk of flood, or other storm event impacts. Long-term operation of trucks along AWMA Road could result in the leakage of oil and fuels onto the roadway which would result in polluted runoff to the creek; however, this could be minimized through implementation of appropriate BMPs. Therefore, this alternative would generally result in reduced impacts to hydrology and water quality when compared to the proposed project.

Noise

Trucking operations would result in a significant long-term operational noise impacts to adjacent sensitive receptors such as residences. Unlike the proposed project, trucking would be long-term and would result in noise impacts outside of the canyon, especially to residential sensitive receptors near the RTP. Also, bridge construction would result in greater construction noise impacts that would not result under the proposed project. Overall, impacts would be greater under this alternative.

Paleontological Resources

This alternative would avoid the proposed project's earth working activities such as trenching, but would result in potential excavation activities for the replacement bridge. Overall, this alternative would disturb a smaller area than the proposed project and would result in lesser potential impacts to paleontological resources.

Recreation

This alternative would involve up to 14 truck trips (7 round trips) each weekday along the AWMA Road within AWCWP indefinitely. Trucks traveling along AWMA Road could pose a potential safety hazard to recreational users in park, particularly those jogging and biking along AWMA Road. Additionally, construction of the AWMA Road Access Bridge could interrupt access to the park, resulting in a significant short-term impact. Therefore, this alternative would result in greater recreational impacts than the proposed project.

Project Objectives

This alternative would not meet project objective number 1, since the cost to replace the bridge would be prohibitive absent any cost-sharing with other bridge users or stakeholders. Also, it would not meet project objective number 2, since replacement of the bridge would take several years and would not allow for expedient abandonment/removal of the existing force mains. Since it would require bridge replacement, the construction impacts would be greater to riparian and wetland biological resources and hence, this alternative would not limit the impact on the canyon, and project objective number 3 would not be achieved. Overall, this alternative would not meet most of the basic project objectives.

8.3.4 Trucking Alternative 2 – Wood Canyon Drive Route

Similar to the Trucking Alternative 1 – Bridge Route, this alternative would transport sludge from the CTP to the RTP via tanker trailer. However, this alternative route would use the same trucking route as described for the proposed project, instead of using the AWMA Road bridge described under Trucking Alternative Number 1 (refer to *Figure 3-7* in *Chapter 3*). As described in *Section 3.5.1*, trucks would load up with sludge at the CTP, then travel along the AWMA Road north through the AWCWP until the road exits the park becoming AVCA Road. Trucks would travel west on Knollwood then north on Wood Canyon Drive to Aliso Creek Road, passing Wood Canyon Elementary School. Trucks would take Aliso Creek Road east to La Paz Road south, ending at the RTP. Sludge would be unloaded at the RTP, the trucks would be cleaned, and then they would return to the CTP.

Due to the location of an elementary school along the trucking route used in this alternative, trucking would be limited to occurring outside school hours, mostly at nighttime. Seven trips per day would be required under peak conditions and an additional truck, for a total of two trucks, would be required. SOCWA is not adequately staffed for evening and nighttime sludge hauling operations, however, and would need to hire additional staff.

Environmental Analysis

Land Use and Planning

This alternative would not divide an established community, conflict with the Central-Coastal Subregion NCCP/HCP, or generally conflict with the goals and policies of applicable plans. However, the General Plan and RMP contain goals related to the protection of wildlife. Under this alternative, trucks would make up to 7 round trips on the AWMA Road at night. As discussed below, this would create a potential hazard for wildlife and could interfere with wildlife movement in the park. Therefore, this alternative would result in greater land use compatibility impacts when compared to the proposed project.

Aesthetics

Under this alternative, short-term impacts to aesthetics from ground disturbing activities adjacent to the creek would be avoided. Additionally, trucking along AWMA Road to transport sludge from the CTP to the RTP would occur at night, and therefore, would not be visible during park hours. Therefore, impacts to aesthetics would be similar under this alternative when compared to the proposed project, that is less than significant.

Air Quality

This alternative would result in increased air quality impacts relative to those associated with the proposed project due to operational emissions associated with trucking. Given a similar trucking distance to that of Trucking Alternative No. 1, the operational emissions for this alternative would be similar to those shown in *Table 8-2*. This alternative would not generate additional construction emissions as under Trucking Alternative Number 1.

Biological Resources

Since no force main would be installed, this alternative would not involve construction or ground-disturbing activities that would result under the proposed project, and therefore would avoid the short-term impacts to biological resources as a result of trenching and construction.

Long-term operation of this alternative could indirectly impact sensitive species through increased noise, fugitive dust, and pollutants, and with regards to wildlife species, due to the potential for collisions. Also, due to the nighttime hauling of sludge, trucks would need to traverse approximately 3 miles of unlit roadway. This situation poses a potential impact to wildlife that is known to traverse the road during the night.

Despite potential impacts to wildlife, this alternative would generally reduce impacts to biological resources when compared to the proposed project.

Cultural Resources

This alternative would reduce the potential for direct impacts to recorded archaeological sites within the trucking corridor along AWMA Road. Similar to the proposed project, this alternative would have the potential for indirect impacts to archaeological resources from accidents in the vicinity of a known archaeological site, if clean-up activities using heavy equipment were to extend beyond the existing paved road. This potential, however, is considered relatively low given established truck safety procedures. Overall, this alternative would result in reduced impacts to cultural resources when compared to the proposed project.

Energy

No construction would occur under this alternative, and therefore, no fuel for construction equipment would be required. As discussed above for Trucking Alternative 1, approximately 2,600 gallons of fuel would be required per year to transport sludge from the CTP to the RTP. However, this energy requirement would be more than offset by the reduction in electricity needed by eliminating the need for pumping of sludge through the force mains. Therefore, this alternative would reduce impacts related to energy usage compared to the proposed project.

Geology and Soils

This alternative would not expose any people or structures to geologic hazards. Additionally, this alternative would not involve any construction which could potentially result in soil erosion or activate landslide deposits; therefore, no mitigation would be required. Additionally, handling sludge on the west side of the creek would have fewer long-term erosion risks than handling sludge on the east side (Tetra Tech 2012). Hence, this alternative would reduce impacts related to geology and soils when compared to the proposed project.

Greenhouse Gas Emissions

This alternative would result in decreased GHG emissions relative to those associated with pumping under the proposed project as discussed under Trucking Alternative Number 1. However, this alternative would not generate additional construction GHG emissions as under Trucking Alternative Number 1.

Hazards and Hazardous Materials

This alternative involves no construction along the creek, and therefore, does not pose the temporary, short-term risk of spills of potentially hazardous materials such as oil and fuel from construction equipment. Additionally, similar to the proposed project, this alternative would abandon the existing dual 4-inch force mains and would result in an overall beneficial impact relative to the risk of upset or spills.

However, the longer-term operation of this alternative would involve nighttime hauling of sludge, requiring the trucks to traverse approximately 3 miles of unlit roadway. This situation poses a potential safety impact for the truck driver, as well as the potential for spills of sludge or fuel as a result of an accident, that would be greater when compared to the proposed project. Therefore, impacts related to hazards would be greater under this alternative than for the proposed project.

Hydrology/Water Quality

This alternative would require no construction or alterations to the physical environment of the AWCWP. Therefore, when compared to the proposed project, the potential for erosion and sediment runoff would be reduced, and there would be no need for groundwater dewatering. This alternative would also not require the construction of any permanent structures which could place people or housing at risk of flood, or other storm event impacts. Long-term operation of the trucks along AWMA Road could result in the leakage of oil and fuels onto the roadway which would result in polluted runoff to the creek; however, this could be minimized through implementation of appropriate BMPs. Therefore, this alternative would generally result in reduced impacts to hydrology and water quality when compared to the proposed project.

Noise

Nighttime trucking operations would result in significant, long-term operational noise impacts to adjacent sensitive receptors such as residences, particularly at the RTP where residences are in close proximity to the project site. Therefore, impacts would be greater under this alternative.

Paleontological Resources

This alternative would not involve earth-working activities such as trenching; rather all activities would occur above the ground surface. Therefore, this alternative would not disturb any geologic units and would not impact paleontological resources. Impacts would be reduced when compared to the proposed project.

Recreation

Trucking operations would occur along the west side of Aliso Creek where a designated trail system exists and which is frequently used by recreational users. However, because trucking operations would occur at night under this alternative, impacts to recreational users would be reduced, and similar to the proposed project, would have a less than significant impact.

Project Objectives

This alternative would not meet project objective number 3, due to the trucking noise impacts to sensitive receptors, and due to increased risk to wildlife due to same nighttime trucking activity. It would also not meet objective number 1, due to the risk of spills associated with nighttime trucking activity on unlit roadways. As such, it would not meet most of the basic project objectives.

8.3.5 Solids Handling at the CTP

Under this alternative, known as SH-1 in preliminary engineering evaluations, SOCWA would construct solids handling facilities at the CTP such that the existing Export Sludge Handling System could be abandoned. Two approaches were considered for this alternative: (1) construct anaerobic digestion, sludge dewatering system similar to the systems at other SOCWA facilities (resulting in final sludge product concentrations between 22 – 24%), and a cogeneration facility and (2) construct an innovative technology, such as thermal combustion (resulting in final sludge product concentrations over 90%). The latter option could be pursued through a privatized contracting approach based on the relatively unfamiliar technology. Each option would involve the construction of a new, approximately 40-foot-tall building on the CTP site. The remaining sludge would be trucked from the CTP to a final disposal/reuse site (e.g. compost, landfill), traveling along AWMA Road through the park.

Environmental Analysis

Land Use and Planning

Similar to the proposed project, this alternative would not divide an established community, conflict with the Central-Coastal Subregion NCCP/HCP, or generally conflict with the goals and policies of applicable plans. Impacts would be similar to the proposed project and less than significant.

Aesthetics

This alternative would result in greater visual impacts than the proposed project due to the construction of additional facilities at 40-foot heights at the CTP site. The CTP site is currently developed with wastewater treatment facilities, and the new uses would not significantly change the visual character of the site. However, the site is visible from the surrounding AWCWP and vista points, including the Aliso Summit Trail. Therefore, the construction of these new facilities, including buildings up to 40 feet tall, would result in a permanent impact to aesthetics, and impacts would be greater when compared to the proposed project.

Air Quality

This alternative would require construction of new facilities, including centrifuges, ancillary equipment for sludge dewatering, and a cogeneration facility, which would result in construction emissions greater than those under the proposed project. Operational emissions would be expected to be similar to those associated with solids handling at the RTP, assuming the amount of solids handling at the RTP would be reduced proportionately to the new solids handling at the CTP. From a regional perspective, the operational emissions would remain unchanged when compared to the proposed project.

Biological Resources

This alternative would involve construction of new facilities at the CTP site. No construction would occur off the CTP site within the AWCWP. The CTP site has been previously disturbed and no sensitive vegetation communities would be directly impacted from construction of the facilities associated with this alternative. Indirect impacts related to noise, fugitive dust and polluted runoff could impact sensitive species within the AWCWP areas surrounding the CTP. Therefore, when compared to the proposed project, this alternative would reduce impacts to sensitive biological resources.

Cultural Resources

This alternative would be constructed on a previously disturbed area within the CTP site. Excavations related to the construction of the new facilities at the CTP site could potentially result in the discovery and disturbance of cultural resources. However, no known historical or archaeological sites are located where construction would occur and the area to be developed would be less than the area impacted by trenching for the proposed project. When compared to the proposed project, this alternative would reduce potential impacts to cultural resources.

Energy

Under this alternative, sludge would be processed at the CTP and electricity requirements for pumping sludge from the CTP to the RTP would be eliminated. However, more purchased electricity would be required at the CTP for the additional sludge handling process and overall this alternative would require more energy when compared to the proposed project.

Geology and Soils

This alternative would, similar to the proposed project, be located in a seismically active region subject to strong ground shaking and other seismic-related events. Any structures located on the western edge of the site would be located adjacent to potentially active landslide deposits. Due to the size and height of the structures proposed by this alternative, there is potential for loss from a seismic event. However, all structures would be constructed to conform to the Uniform Building Code, which would reduce potential impacts from seismic events or other geologic impacts. Additionally, this alternative would avoid construction along unstable portions of Aliso Creek. Therefore, this alternative would result in reduced impacts related to geology and soils.

Greenhouse Gases

From a regional perspective, the GHG emissions would remain unchanged under this alternative when compared to the proposed project. The GHG emissions associated with generation of

electricity for pumping sludge from the CTP to the RTP would be eliminated. However, more overall purchased electricity and chemical production would result under this alternative when compared to the proposed project (Carollo Engineers 2012). Thus, the overall GHG emissions from this alternative would be greater than those for the proposed project.

Hazards and Hazardous Materials

Similar construction-related hazardous materials would be required for construction of this alternative as for the proposed project. Additional chemicals would be required for the additional treatment processes that would be implemented by the solids handling facilities. However, similar to the proposed project, BMPs would be incorporated to contain accidental spills of hazardous materials. Also similar to the proposed project, a Traffic Management Plan would be required to reduce potential impacts related to emergency access resulting from construction traffic traveling along AWMA road within AWCWP.

The risk associated with failure of the existing force mains would be eliminated under this alternative since all sludge would be processed at the CTP and the existing force mains would be abandoned. Therefore, similar to the proposed project, the risk of upset would be reduced compared to existing conditions.

Hydrology/Water Quality

This alternative would result in an increase in the amount of impervious surfaces on the CTP site, which could result in increased stormwater flows and runoff from the site. Conversion of pervious surfaces to impervious surfaces could also alter the drainage patterns of the site. However, this alternative would require compliance with the Orange County DAMP, and would be designed to avoid alterations to existing drainage patterns and to minimize off-site flows.

For this alternative, similar to the proposed project, SOCWA would prepare a Stormwater Pollution Prevention Plan (SWPPP) and incorporate BMPs during construction (as well as during operation for this alternative) to reduce impacts to water quality that could result from runoff into the adjacent Aliso Creek. Overall, impacts to hydrology and water quality would be similar when compared to the proposed project.

Noise

Construction of this alternative would occur entirely within the CTP site, which is located at the southern end of Aliso Canyon and is surrounded by the AWCWP. Construction noise would generally be associated with the operation of heavy equipment and trucks. Operational noise impacts would also result from this alternative due to the operation of the new solids handling facilities; these operational noise impacts would not occur under the proposed project.

However, while noise generated by this alternative would be greater than for the proposed project, the nearest sensitive receptors to the site would be park users hiking along Aliso Summit Trail and golfers at the Aliso Creek Golf Course, both of which are located greater than 0.25 mile from the CTP site. Therefore, noise generated by this alternative is not expected to result in significant impacts to park users. Similarly, operational noise is not expected to impact residential receptors on the canyon rim.

Paleontological Resources

This alternative would be constructed entirely at the CTP site, which is underlain by younger alluvium. Younger alluvium is classified as having a low sensitivity for the occurrence of paleontological resources. Unlike the proposed project which has the potential to impact geologic units classified as having a high sensitivity (the Topanga and Monterey formations), the potential for discovery of paleontological resources during earthwork is low, and impacts would be reduced under this alternative.

Recreation

All construction and operational activities associated with this alternative would occur at the CTP site at the southern end of the AWCWP. Some trucking would occur along the AWMA Road to remove the final sludge product to a final disposal or reuse site; however, trucking would be infrequent and would not substantially interfere with recreational use of the park. Therefore, similar to the proposed project, this alternative would have less than significant impacts related to recreation.

Project Objectives

This alternative would not meet project objective number 1, since the cost to build the new facilities would be prohibitive and not cost effective. SOCWA estimates an approximate cost of \$17M to construct this alternative, as opposed to approximate cost of \$4M to implement the proposed project; in addition, completed infrastructure at the RTP would go unused if this alternative is implemented, which is not considered a cost effective use of public dollars. This alternative would generally meet the other project objectives.

8.3.6 Summary of Alternatives

A summary of impacts of the alternatives compared to the proposed project is included in *Table 8-3*.

8.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126.6(b), indicate that a list of reasonable alternatives must be developed and considered by the lead agency. Elimination of potential environmental impacts of the proposed project should be considered when developing potential alternatives. As evaluated in *Chapter 4* of this EIR and as shown in the table under the Proposed Project column, the significant impacts of the proposed project are: Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, and Paleontological Resources.

As shown in *Table 8-3* above, the No Project Alternative would be environmentally superior to the proposed project, based on the minimization or avoidance of most of the proposed project's significant environmental impacts. However, the No Project Alternative does not meet most of the basic project objectives. Additionally, CEQA Guidelines, Section 15126.6(c) require that, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

Based on the summary provided in *Table 8-3*, the Solids Handling Alternative and Trucking Alternative 2 would result in reduced impacts to four topics (Biological Resources, Cultural Resources, Geology and Soils, and Paleontological Resources). However, Trucking Alternative 2 would result in greater impacts to air quality when compared to the proposed project, and hence, this alternative does not afford the same degree of impact reduction as the Solids Handling Alternative. It would also not meet most of the basic project objectives.

The Solids Handling Alternative would result in the greatest degree of reduction of the proposed project's identified significant impacts, while increasing impacts to other topics, since it would result in greater impacts to Aesthetics, Air Quality, Greenhouse Gas Emissions, and Noise. This alternative would meet most of the basic project objectives, and therefore it is the environmentally superior alternative. However, since all of the proposed project's significant impacts would be fully mitigated to below a level of significance, this alternative would not offer a substantial advantage in terms of impact avoidance for any environmental topic, while increasing impacts elsewhere.

**Table 8-3
Summary of Alternatives' Impacts**

Issue Area	Proposed Project (FM-1 Alternative)	No Project Alternative¹	FM-2 Alternative	Trucking Alternative No. 1	Trucking Alternative No. 2	Solids Handling Alternative
Land Use & Planning	Less than significant	Similar	Greater impacts	Greater impacts	Greater impacts	Similar
Aesthetics	Less than significant	Similar	Greater impacts	Slightly greater impacts	Similar	Greater impacts
Air Quality	Less than significant	Similar	Similar	Greater impacts	Greater impacts	Greater impacts
Biological Resources	Less than significant with mitigation	Greater impacts	Reduced impacts	Reduced impacts	Reduced impacts	Reduced impacts
Cultural Resources	Less than significant with mitigation	Greater impacts	Greater impacts	Similar	Reduced impacts	Reduced impacts
Energy	Less than significant	Similar	Similar	Reduced impacts	Reduced impacts	Greater impacts
Geology and Soils	Less than significant with mitigation	Reduced impacts	Slightly reduced impacts	Reduced impacts	Reduced impacts	Reduced impacts
Greenhouse Gas Emissions	Less than significant	Similar	Similar	Reduced impacts	Reduced impacts	Greater impacts
Hazards and Hazardous Materials	Less than significant with mitigation	Greater impacts	Similar	Greater impacts	Greater impacts	Similar
Hydrology and Water Quality	Less than significant with mitigation	Greater impacts	Similar	Reduced impacts	Reduced impacts	Similar
Noise	Less than significant	Similar	Similar	Greater impacts	Greater impacts	Slightly greater impacts
Paleontological Resources	Less than significant with mitigation	Reduced impacts	Greater impacts	Reduced impacts	Reduced impacts	Reduced impacts
Recreation	Less than significant	Greater impacts	Greater impacts	Greater impacts	Similar	Similar
Meets Most of the Basic Project Objectives?	Yes	No	Yes	No	No	Yes

¹ Impacts compared to those of proposed project.



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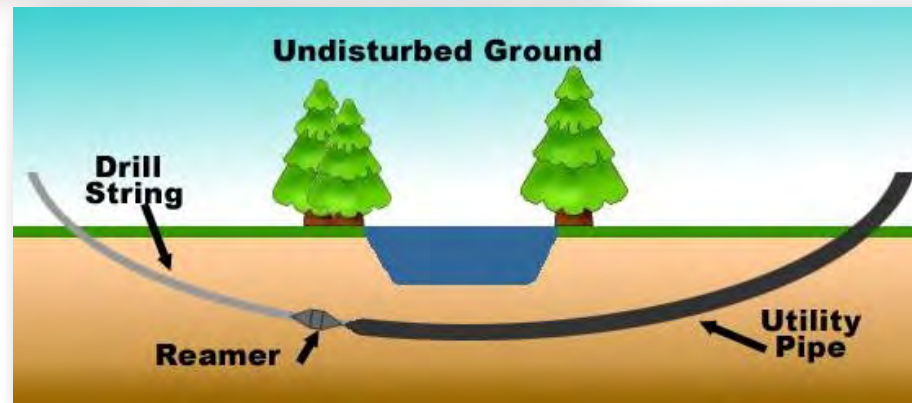
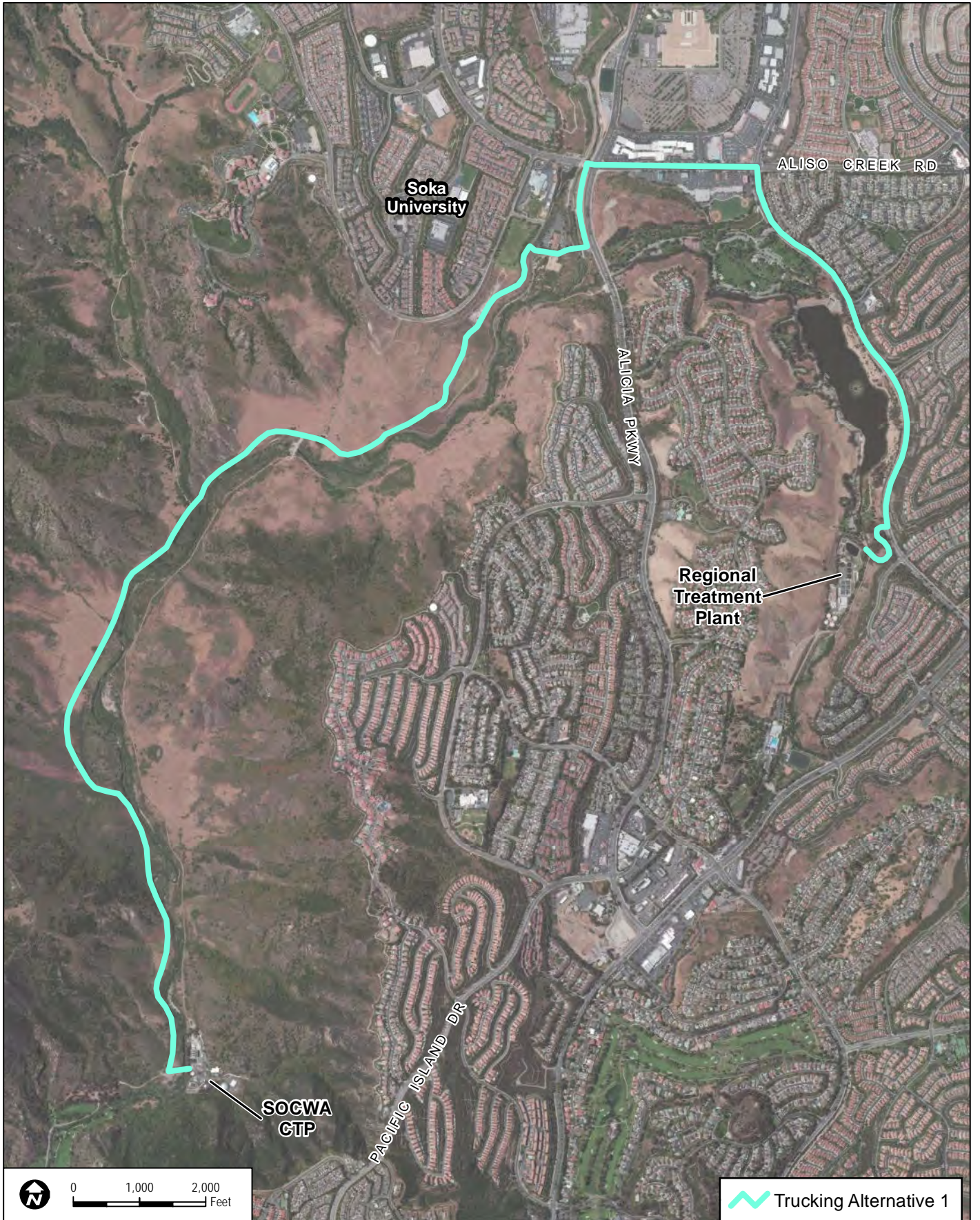



FIGURE 8-2
Horizontal Directional Drilling Technique for Alternative FM2

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Feet

 Trucking Alternative 1

DUDEK

SOURCE: Bing Maps

Figure 8-3

Trucking Alternative 1 - Bridge Route

6938

COASTAL TREATMENT PLANT EXPORT SLUDGE FORCE MAIN REPLACEMENT PROJECT

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CHAPTER 9.0 LIST OF PREPARERS

SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

Brian Peck, Director of Engineering

DUDEK

Shawn Shamlou, AICP, Senior Project Manager

Michael Metts, Principal Engineer

Megan Lawson, Lead Environmental Analyst

Austin Melcher, Environmental Analyst

Tricia Wotipka, Lead Biologist

Jeff Priest, Biologist

David Deckman, Air Quality Principal

Jennifer Pace, Air Quality and GHG Analyst

Jonathan Leech, AICP, Noise Analyst

Trey Driscoll, Hydrology

Nicole Peacock, Hazardous Materials

Amy Seals, Technical Editor

Sheila Sapalicio, Publications Assistant

Hannah Westwood, Publications Production Lead

Andrew Greis, GIS Specialist

Tyler Friesen, GIS Analyst

SUBCONSULTANTS

Thomas A. Deméré, PhD, Director, Dept. of Paleo Services, San Diego Natural History Museum

Eric G. Ekdale, PhD, Staff Paleontologist, San Diego Natural History Museum

Sarah A. Siren, Paleontological Field Manager, San Diego Natural History Museum

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CHAPTER 11.0 WRITTEN COMMENTS AND RESPONSES

The Draft Environmental Impact Report (DEIR) for the Coastal Treatment Plant Export Sludge Force Main Replacement Project was circulated for public review and comment beginning on November 9, 2012 and ending on February 6, 2013. This section of the Final EIR presents copies of comments on the Draft EIR received in written form during the public review period, and provides SOCWA's responses to each of those comments. Each comment letter is lettered and the issues within each comment letter are bracketed and numbered. Comment letters are followed by responses, which are numbered to correspond with the bracketed comment letters.

SOCWA's responses to comments on the Draft EIR represent a good-faith, reasoned effort to address the environmental issues identified by the comments. Under Section 15088 of the CEQA Guidelines, SOCWA is not required to respond to all comments on the Draft EIR, but only those comments that raise environmental issues. Case law under CEQA recognizes that SOCWA need only provide responses to comments that are commensurate in detail with the comments themselves. In the case of specific comments, SOCWA has responded with specific analysis and detail; in the case of a general comment, the reader is referred to a related response to a specific comment, if applicable. The absence of a specific response to every comment does not violate CEQA if the response would merely repeat other responses.

Table 11-1 provides a list of public agencies, organizations, and individuals that provided comments on the DEIR. Written comments and responses to these comments are presented below.

Table 11-1
Written Comments Received

<u>Comment Letter</u>	<u>Organization</u>
<u>A</u>	<u>State Clearinghouse</u>
<u>B</u>	<u>United States Fish and Wildlife Service</u>
<u>C</u>	<u>Native American Heritage Commission</u>
<u>D</u>	<u>California Department of Fish and Game</u>
<u>E</u>	<u>California Department of Transportation</u>
<u>F</u>	<u>Orange County Public Works</u>
<u>G</u>	<u>Orange County Parks</u>
<u>H</u>	<u>City of Laguna Niguel</u>
<u>I</u>	<u>Nature Reserve of Orange County</u>
<u>J</u>	<u>Village Laguna</u>
<u>K</u>	<u>Clean Water Now</u>
<u>L</u>	<u>Laguna Greenbelt</u>
<u>M</u>	<u>Sierra Club</u>
<u>N</u>	<u>California Cultural Resource Preservation Alliance, Inc.</u>
<u>O</u>	<u>Southern Laguna Civic Association</u>

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Comment Letter A



Edmund G. Brown Jr.
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Ken Alex
Director

Memorandum

Date: December 17, 2012
To: All Reviewing Agencies
From: Scott Morgan, Director
Re: SCH # 2011051010
Coastal Treatment Plant Export Sludge Force Main Replacement

Pursuant to the attached letter, the Lead Agency has *extended* the review period for the above referenced project to February 6, 2013 to accommodate the review process. All other project information remains the same.

A-1

cc: Brian Peck
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, CA 92629

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 443-0613 FAX (916) 323-3018 www.opr.ca.gov

DUDEK

December 14, 2012

State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814
(916)445-0613

RECEIVED
DEC 14 2012
STATE CLEARING HOUSE

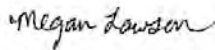
6938

Subject: Extension of Public Review Period for SCH#2011051010

To Whom It May Concern:

We would like to request to extend the public review period for the South Orange County Wastewater Authority Coastal Treatment Plant Export Sludge Force Main Replacement Project EIR (SCH#2011051010). The original public review period was scheduled from November 9, 2012 through January 7, 2013. We would like to extend the public review period to end on February 6, 2013.

Sincerely,



Megan Lawson
Environmental Planner

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Response to Letter A

**State Clearinghouse
December 17, 2012**

- A-1** This comment acknowledges that SOCWA extended the public review period for the Coastal Treatment Plant Export Sludge Force Main Replacement project until February 6, 2013. The request for extension and Notice of Completion are attached. No further response is required.

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Comment Letter B



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011



In Reply Refer To:
FWS-OR-12B0148-13TA0149

FEB 07 2013

Mr. Brian Peck, P.E.
Director of Engineering
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, California 92629

Subject: Draft Environmental Impact Report for the Coastal Treatment Plant Export Sludge
Force Main Replacement Project, Orange County, California

Dear Mr. Peck:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Impact
Report (DEIR) for the Coastal Treatment Plant Export Sludge Force Main Replacement Project
in unincorporated Orange County, California. The proposed project will replace approximately
16,600 feet of two existing 4-inch pipelines with a single 6-inch pipeline along the east side of
Aliso Creek within Aliso and Wood Canyons Wilderness Park (AWCWP).

B-1

The primary concern and mandate of the Service is the protection of public fish and wildlife
resources and their habitats. The Service has legal responsibility for the welfare of migratory
birds, anadromous fish, and endangered animals and plants occurring in the United States. The
Service is also responsible for administering the Endangered Species Act of 1973 (Act), as
amended (16 U.S.C. 1531 et seq.).

B-2

A large portion of the proposed project is located in the Reserve System (Reserve) established
under the Central and Coastal Orange County Natural Community Conservation Plan/Habitat
Conservation Plan (NCCP/HCP). Since the mid-1990's, the Service has participated in Federal
planning efforts, led by the U.S. Army Corps of Engineers (Corps), to address the degradation of
Aliso Creek resulting primarily from development of the upper watershed and the installation of
the Aliso Creek Wildlife Habitat Enhancement Project (e.g., Service 1996, 1999, 2002, and
2010). Preliminary measures identified by the Corps to address the instability of Aliso Creek
include the potential for utility/infrastructure relocations (Corps 2011). Given the anticipated
lateral migration of Aliso Creek (e.g., Tetrattech 2012), the relocation of infrastructure away from
the creek would decrease the need for protection of the infrastructure from erosion and storm
flow related damage.

B-3

Mr. Brian Peck, P.E. (FWS-OR-12B0148-13TA0149)

2

Our concerns with respect to this project are the extent of impacts to preserved biological resources in and adjacent to Aliso Creek that will occur as a result of the proposed project alignment and the fact that the DEIR does not fully address these potential impacts. In particular, we are concerned the proposed pipeline is likely to require protection along approximately 3,300 feet of Aliso Creek in specific areas considered at high risk of erosion and potentially an additional 1,250 feet where a moderate risk of erosion has been identified (DEIR, page 4.7-9). The environmental effects associated with anticipated lateral migration of Aliso Creek and foreseeable remedial actions (e.g., installation of rip-rap, sheet pile or other hard structures to protect the pipeline) are not identified or analyzed as part of the project.

B-4

We offer the following specific comments and recommendations regarding project-associated biological impacts based on our review of the DEIR, our knowledge of declining habitat types and species within Orange County, and as a signatory to the NCCP/HCP. These comments are provided in keeping with our agency’s mission to “work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.”

B-5

1. Project Description

For the proposed project and each of the alternatives, the reasonably foreseeable pipeline maintenance and protection projects that will be required as a result of each proposed pipeline alignment should be included as part of the project and analyzed for potentially significant environmental effects. This includes protection from both Aliso Creek and any drainage tributaries from the canyon slopes that cross the proposed alignment and may undermine the pipeline. It also includes any disturbance required to access, inspect, and/or maintain the pipeline.

B-6

To minimize permanent impacts to biological resources associated with installation of hard structures on the creek banks over the long term, we recommend an alternative that will minimize constraints on the lateral migration of the creek to the greatest extent possible. It appears alternative FM-2 (relocation of the pipeline to the west bank of Aliso Creek) would reduce the length of pipeline at high risk of erosion by almost half (i.e., 1,200 feet of pipeline would likely require protection from the lateral migration of Aliso Creek); however, a 36-inch pipeline would remain on the east bank of Aliso Creek and may also require protection. Therefore, we recommend an alignment that would move the new pipeline east of the 36-inch line.

B-7

An appropriate mitigation measure for constraining the lateral migration of the Aliso Creek along its east bank is the removal of constraints along its west bank. We recommend the DEIR include a commitment by South Orange County Water Authority (SOCWA) to relocate its main entrance road (currently located on the west bank) to the east bank prior to implementing pipeline protection measures that will further degrade habitats in the Reserve. We recognize that

B-8

Mr. Brian Peck, P.E. (FWS-OR-12B0148-13TA0149)

3

additional facilities are located on the west bank that are not owned or operated by SOCWA. We anticipate ongoing planning efforts with the Corps will continue to evaluate and address these constraints.

B-8
Cont.

2. Impacts to the NCCP/HCP Reserve

The proposed project will result in temporary impacts to 15 acres, including 3.35 acres of coast sage scrub in close proximity to documented federally threatened coastal California gnatcatcher (*Polioptila californica californica*, gnatcatcher) locations. Removal of this vegetation has the potential to affect the gnatcatcher. The NCCP/HCP and its associated section 10(a)(1)(B) permits grant Participating Landowners authorization to “take” certain Identified Species in association with permitted uses within the Reserve. Although SOCWA is not a Participant in the NCCP/HCP process, among the permitted uses within the Reserve addressed by the NCCP/HCP is the replacement, rehabilitation and upgrading of facilities that does not result in permanent loss of existing natural vegetation (section 5.9, Infrastructure Policies, pp.II-357). On page 4.4-18 of the DEIR it is stated that “non-participating landowners have the option of addressing unavoidable impacts/take within reserves by either providing acceptable mitigation through separate permits or authorizations under FESA/CESA or paying a mitigation fee to the NCCP nonprofit corporation.” Therefore, impacts to the gnatcatcher could be authorized in the Reserve through a deduction of take allocated to the County of Orange or through consultation pursuant to section 7 of the Act (if there is a Federal nexus) or permitting pursuant to section 10 (no Federal nexus). However, the mitigation fee is only an option on non-Reserve lands.

B-9

We also note that a small portion of the proposed pipeline (approximately 170 feet) would be located above ground and covered with a wood box. The DEIR should clarify why this is not considered a permanent impact in the Reserve.

B-10

3. Sensitive Plants

The DEIR concludes that no impacts to sensitive plant species are expected based on negative survey results and an evaluation that no special-status plants have a moderate or high potential to occur in the study area (page 4.4-14). The federally threatened thread-leaved brodiaea (*Brodiaea filifolia*) has previously been documented in the study area (Dudek 2001); therefore, we consider this species to have a high potential to occur in the project area. Because flowering plants represent only a portion of the total population of plants present at a given site and because seedlings and young plants only produce leaves for a few years before they are able to produce flower stalks, the species may go undetected during surveys (Service 2009). We recommend additional focused surveys are conducted for this species prior to initiation of construction prevent unanticipated impacts to this species.

B-11

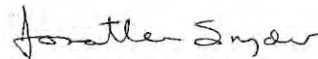
Mr. Brian Peck, P.E. (FWS-OR-12B0148-13TA0149)

4

We appreciate the opportunity to comment on the subject DEIR. If you have any questions regarding these comments, please contact Christine Medak of this office at 760-431-9440, extension 298.

B-12

Sincerely,



for Karen A. Goebel
Assistant Field Supervisor

cc:

Dave Mayer, California Department of Fish and Wildlife
William Bridges, Orange County Parks
James Sulentic, Nature Reserve of Orange County

Literature Cited:

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Mr. Brian Peck, P.E. (FWS-OR-12B0148-13TA0149)

5

U.S. Fish and Wildlife Service (Service). 2002. Planning Aid Report: Alternatives Analysis for the Aliso Creek Watershed Management Feasibility Study, Orange County, California (FP/COE-064). Prepared for the U.S. Army Corps of Engineers, Los Angeles District, Los Angeles, California. November 2002.

U.S. Fish and Wildlife Service (Service). 2010. Comments on the feasibility scoping meeting documentation for the Aliso Creek Mainstem Ecosystem Restoration Project, dated December 2009. Prepared for the U.S. Army Corps of Engineers, Los Angeles District, Los Angeles, California. June 2010.

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Response to Letter B

United States Fish & Wildlife Service February 7, 2013

B-1 SOCWA appreciates USFWS' review and comment on the Draft EIR. This comment repeats basic project description information provided in the Draft EIR.

B-2 This comment correctly identifies USFWS' role as a commenting agency.

B-3 SOCWA acknowledges the Service's role in planning efforts related to Aliso Creek. SOCWA also recognizes the potential for erosion and storm flow to damage existing and proposed infrastructure.

Alternatives to relocate infrastructure away from the creek were analyzed in Section 8.2.3 of the Draft EIR.

B-4 Potential impacts to biological resources are fully analyzed in Section 4.4.6 of the Draft EIR and in Appendix C. It is SOCWA's understanding that a comprehensive plan looking at the natural resource restoration/protection issues related to Aliso Creek is being undertaken by the U.S. Army Corps of Engineers with OC Public Works acting as the local sponsor. SOCWA intends to actively participate in that process. The comprehensive plan would protect utilities in the creek corridor, but would also address a broader range of goals including stabilizing the creek bank and protecting wildlife and habitat. The potential effects of stabilization to biological resources and other resources would be analyzed at the time when such activities are proposed.

While the portions of the buried force main may or may not be uncovered by erosion in the future, the proposed project would be beneficial in that it would rectify the existing situation and fulfill the project objectives, particularly objective no. 2, which would help reduce and avoid the potential adverse impacts resulting from pipeline failure.

B-5 This comment introduces general comments which are presented in greater detail in comments B-6 through B-11. Refer to responses to B-6 through B-11 for additional detail.

B-6 Refer to response to comment B-4. Protection along Aliso Creek is anticipated to be addressed by a comprehensive plan being prepared by the U.S. Army Corps of Engineers with OC Public Works acting as the local sponsor. The necessity for stabilization along drainage tributaries will be included as part of the final design as referenced in mitigation measure GEO-1 in Section 4.7.5 of the Draft EIR.

- Operation of the proposed project is discussed in Section 3.5.2 of the Draft EIR and is analyzed throughout Chapter 4.0. As discussed in Section 3.5.2, annual maintenance would not result in ground disturbing activities. Annual maintenance would occur similarly to existing conditions and would involve maintenance vehicles traveling along the dirt utility access roads; maintenance personnel would visually inspect the pipeline not within the roadway ROW by foot. No off-road vehicle trips or excavation would occur as part of annual maintenance.
- B-7** SOCWA notes that USFWS recommends an alternative alignment that would move the new pipeline east of the existing 36-inch ETM. As shown in Figures 3-2a, 3-2b, and 3-2c, the force main is generally planned to be located approximately 7 feet east of the 36-inch ETM; however, due to site characteristics, in some locations along the alignment the new force main would be located between 5 and 9 feet to the west of the existing ETM.
- B-8** SOCWA notes that the USFWS requests relocation of the SOCWA main entrance from the west side of the creek to the east side. However, implementing such a project component is not required under CEQA as a mitigation measure, as there is no nexus to a significant impact caused by use of the existing entrance road. Road relocation is part of an ongoing discussion between SOCWA and the County of Orange. It is anticipated that the road relocation plan will be developed in conjunction with the plan for creek stabilization. Refer also to response to comment B-4.
- B-9** This comment repeats information from the biological analysis of the Draft EIR, Section 4.4. SOCWA acknowledges that payment of a mitigation fee is only an option on non-Reserve lands. Page 4.4-18 of the Final EIR has been revised accordingly. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.
- B-10** The relatively short portion of the pipeline (approximately 170 feet) that would be constructed aboveground in an enclosed box would be located within the ROW of the utility access road and would not disturb any sensitive vegetation communities. So, while impacts from the construction of this section of the pipeline may be considered “permanent”, impacts would be less than significant.
- B-11** The biological technical report (Dudek 2012) prepared for the project determined that thread-leaved brodiaea (*Brodiaea filifolia*) is not expected to occur on site due to the limited presence of suitable habitat. Additionally, thread-leaved brodiaea was not observed during focused surveys conducted in both 2011 and 2012. However, as noted by USFWS, thread-leaved brodiaea has been observed in the project area previously. A

project design feature has been added to the Final EIR, in Table 3-1, requiring pre-construction surveys for thread-leaved brodiaea prior to ground disturbance activities. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.

B-12 SOCWA appreciates the comments received from USFWS.

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Comment Letter C

STATE OF CALIFORNIA

Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net



November 20, 2012

Mr. Brian Peck, Manager
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, CA 92629

Re: SCH#2011051010; CEQA Notice of Completion; draft Environmental Impact Report (DIER) for the "Coastal Treatment Plant Export Sludge Force Main Replacement Project ;" located in southern Orange County, California

Dear Mr. Peck:

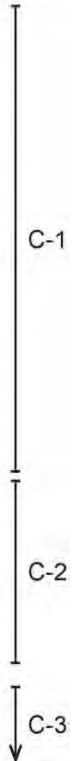
The NAHC is the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources pursuant to California Public Resources Code §21070 and affirmed by the Third Appellate Court in the case of EPIC v. Johnson (1985: 170 Cal App. 3rd 604).

This letter includes state and federal statutes relating to Native American historic properties or resources of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law. State law also addresses the freedom of Native American Religious Expression in Public Resources Code §5097.9.

The California Environmental Quality Act (CEQA – CA Public Resources Code 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance.' In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. The NAHC advises the Lead Agency to request a Sacred Lands File search of the NAHC if one has not been done for the 'area of potential effect' or APE previously.

The NAHC "Sacred Sites," as defined by the Native American Heritage Commission and the California Legislature in California Public Resources Code §§5097.94(a) and 5097.96. Items in the NAHC Sacred Lands Inventory are confidential and exempt from the Public Records Act pursuant to California Government Code §6254 (r).

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries of cultural resources or burial sites once a project is underway. Culturally affiliated tribes and individuals may have knowledge of the religious and cultural



significance of the historic properties in the project area (e.g. APE). We strongly urge that you make contact with the list of Native American Contacts on the attached list of Native American contacts, to see if your proposed project might impact Native American cultural resources and to obtain their recommendations concerning the proposed project. Pursuant to CA Public Resources Code § 5097.95, the NAHC requests cooperation from other public agencies in order that the Native American consulting parties be provided pertinent project information. Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). Pursuant to CA Public Resources Code §5097.95, the NAHC requests that pertinent project information be provided consulting tribal parties, including archaeological studies. The NAHC recommends *avoidance* as defined by CEQA Guidelines §15370(a) to pursuing a project that would damage or destroy Native American cultural resources and California Public Resources Code Section 21083.2 (Archaeological Resources) that requires documentation, data recovery of cultural resources, construction to avoid sites and the possible use of covenant easements to protect sites.

↑
C-3
Cont.

C-4

Furthermore, the NAHC if the proposed project is under the jurisdiction of the statutes and regulations of the National Environmental Policy Act (e.g. NEPA; 42 U.S.C. 4321-43351). Consultation with tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 *et seq.*, 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

C-5

Confidentiality of "historic properties of religious and cultural significance" should also be considered as protected by California Government Code §6254(r) and may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APEs and possibility threatened by proposed project activity.

C-6

Furthermore, Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for inadvertent discovery of human remains mandate the processes to be followed in the event of a discovery of human remains in a project location other than a 'dedicated cemetery'.

C-7

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

C-8

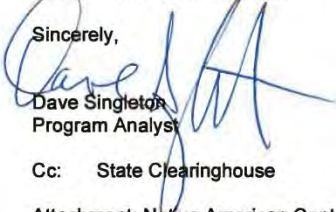
Finally, when Native American cultural sites and/or Native American burial sites are prevalent within the project site, the NAHC recommends 'avoidance' of the site as referenced by CEQA Guidelines Section 15370(a).

C-9

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

┌ C-10

Sincerely,



Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: Native American Contact List

**Native American Contacts
Orange County
November 20, 2012**

Juaneno Band of Mission Indians Acjachemen Nation
David Belardes, Chairperson
32161 Avenida Los Amigos Juaneno
San Juan Capistrano CA 92675 m
chiefdavidbelardes@yahoo.
(949) 493-4933 - home
(949) 293-8522

Juaneno Band of Mission Indians
Anita Espinoza
639 Holten Road Juaneno
Talent , Or 97540
neta777@sbcglobal.net
(505) 310-5850 - cell

Juaneno Band of Mission Indians Acjachemen Nation
Anthony Rivera, Chairman
31411-A La Matanza Street Juaneno
San Juan Capistrano CA 92675-2674
arivera@juaneno.com
(949) 488-3484
(949) 488-3294 - FAX
(530) 354-5876 - cell

United Coalition to Protect Panhe (UCPP)
Rebecca Robles
119 Avenida San Fernando Juaneno
San Clemente CA 92672
rebrobles1@gmail.com
(949) 573-3138

Juaneno Band of Mission Indians
Alfred Cruz, Cultural Resources Coordinator
P.O. Box 25628 Juaneno
Santa Ana , CA 92799
alfredgacruz@sbcglobal.net
714-998-0721
714-998-0721 - FAX
714-321-1944 - cell

Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry, Representing Tribal Chairperson
4955 Paseo Segovia Juaneno
Irvine , CA 92612
949-293-8522

Juanefio Band of Mission Indians
Sonia Johnston, Tribal Chairperson
P.O. Box 25628 Juaneno
Santa Ana , CA 92799
sonia.johnston@sbcglobal.
714-323-8312
714-998-0721

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2011061010: CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Coastal Treatment Plant Export Sludge Force Main Replacement Project; located in southern Orange County, California.

Response to Letter C

Native American Heritage Commission November 12, 2012

- C-1** This comment identifies the Native American Heritage Commission's (NAHC) role and its relationship with the California Environmental Quality Act (CEQA) and other state and federal statutes relating to Native American historic properties or resources of religious and cultural significance. The Draft EIR, in Section 4.5, addresses potential impacts to cultural resources, including historical, archaeological and paleontological resources.
- C-2** As discussed in Section 4.5 of the Draft EIR, a search of the NAHC Sacred Lands File was conducted on May 2, 2011 to determine the presence of any Native American cultural resources with the proposed project area. The NAHC indicated that cultural resources are present in the proposed project area.
- C-3** As noted in the Extended Phase 1 Archaeological Investigations Report (Appendix D to the Draft EIR), which was not released with the Draft EIR due to the confidentiality of information included within the report, the NAHC identified eight Native American contacts that would potentially have specific knowledge regarding cultural resources in the project area. Letters were sent to the eight Native American contacts on October 11, 2012. No responses were received as of October 26, 2012.
- Alfred Cruz, Juaneño Band of Mission Indians, attended meetings on May 24, 2011 and July 23, 2012 with Brian Peck (SOCWA Director of Engineering), Ken Victorino (Dudek Senior Archaeologist), and Dr. Patricia Martz (California Cultural Resource Preservation Alliance) to discuss the status of archaeological investigations for the SOCWA CTP Export Sludge Force Main project. Mr. Cruz also reviewed the methodology for the Extended Phase 1 Archaeological Investigations; participated in a field visit on September 11, 2012 with Mr. Peck, Mr. Victorino, and Dr. Martz to discuss the Extended Phase 1 methodology; and acted as the Native American observer during the Extended Phase 1 geoprobe excavations on October 15, 2012. Also refer to response to comment C-4.
- C-4** As indicated in Section 4.5 of the Draft EIR, there are two known cultural sites (CA-ORA-581 and CA-ORA-582) within the proposed project alignment. Extended Phase 1 geoprobe excavations determined that the proposed pipeline alignment is outside the recorded CA-ORA-581 site boundary, and impacts to this site would be avoided. In order to avoid impacts to CA-ORA-582, the pipeline will be constructed in an aboveground encasement for approximately 170 feet. Additionally, mitigation

- measures CUL-1 (pre-construction workshop), CUL-2 (archaeological and Native American monitoring within CA-SBA-582 site boundary and 100-foot buffer around the boundary), and CUL-3(re-direct construction and notify archaeologist and Native American if there is an unexpected discovery) are recommended to further ensure avoidance and/or recovery of cultural resources.
- C-5** Refer to response to comment C-3. Eight Native American contacts were notified of the proposed project, and extensive consultation with Alfred Cruz of the Juaneño Band of Mission Indians was undertaken. The proposed project is not under the jurisdiction of the statutes and regulations of NEPA, and therefore, consultation in compliance with NEPA and Section 106 is not required.
- C-6** The Extended Phase 1 Archaeological Investigations Report prepared for the proposed project (Appendix D to the Draft EIR) was not released with the Draft EIR due to the confidentiality of “historic properties of religious and cultural significance” discussed within the report.
- C-7** In Section 4.5.7 of the Draft EIR, mitigation measures CUL-1 (pre-construction workshop), CUL-2 (archaeological and Native American monitoring within CA-SBA-582 site boundary and 100-foot buffer around the boundary), and CUL-3 (redirect construction and notify archaeologist and Native American if cultural materials are unexpectedly discovered) are provided in case of the unexpected discovery of human remains during construction of the proposed project.
- C-8** Refer to response to comment C-3. Eight Native American contacts were notified of the proposed project on October 11, 2012. No responses were received as of October 26, 2012.
- C-9** Refer to response to comment C-4. There are two known cultural sites (CA-ORA-581 and CA-ORA-582) within the proposed project alignment. Extended Phase 1 geoprobe excavations determined that the proposed alignment is outside the recorded CA-ORA-581 site boundary. In order to avoid CA-ORA-582, the pipeline will be constructed in an aboveground encasement.
- C-10** SOCWA appreciates NAHC’s review and comments on the Draft EIR and will coordinate with the NAHC as necessary.

Comment Letter D



State of California - The Natural Resources Agency
 DEPARTMENT OF FISH AND GAME
 South Coast Region
 3883 Ruffin Road
 San Diego, CA 92123
 (858) 467-4201
<http://www.dfg.ca.gov>

EDMUND G. BROWN, JR., Governor
 CHARLTON H. BONHAM, Director



December 20, 2012

Mr. Brian Peck
 Southern Orange County Wastewater Authority
 34156 Del Obispo Street
 Dana Point, CA 92629

Subject: Comments on the Draft Environmental Impact Report (DEIR) for the Coastal Treatment Plant Export Sludge Force Main Replacement Project, Orange County, CA (SCH# 2011051010)

Dear Mr. Peck:

The Department of Fish and Game (Department) has reviewed the above-referenced Draft Environmental Impact Report (DEIR) dated November 2012 (received by the Department on November 13, 2012). The comments provided herein are based on information provided in the DEIR and associated documents (including Appendix C: Biological Resources Technical Report), our knowledge of sensitive and declining vegetation communities in the County of Orange (County), and regional conservation planning efforts.

D-1

The Department is a Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act [CEQA] Guidelines §15386) and a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act ([CESA] Fish and Game Code §2050 et seq.), Fish and Game Code section 1600 et seq., and other sections of the Fish and Game Code. The Department also administers the Natural Community Conservation Planning (NCCP) program. This area of the County participates in the NCCP program by implementing its Central-Coastal Subregion NCCP. While the Department acknowledges that the South Orange County Wastewater Authority (SOCWA) is not a signatory to the Central-Coastal NCCP, the project site is located within this plan's approved boundaries.

D-2

Location of the proposed project is within the Aliso and Wood Canyons Wilderness Park (AWCWP), a County-designated wilderness park which encompasses approximately 3,900 acres of natural open space lands within southwestern Orange County (County). The park includes the hills, canyons, and floodplain surrounding Aliso and Wood Canyons and portions of Laguna Canyon. The AWCWP is almost completely surrounded by urban development associated with the communities of Aliso Viejo, Laguna Niguel, Laguna Hills, Laguna Woods, and Laguna Beach. The Aliso Creek Golf Course is located immediately to the south of the proposed Coastal Treatment Plant (CTP). The project area parallels the east side of Aliso Creek from the intersection with Alicia Parkway southwest to the CTP and passes through a diversity of landscapes, including oak woodlands, grassland, and coastal sage scrub. The majority of lands within the AWCWP are designated by the Central-Coastal NCCP as "Reserve Lands." These lands include Wood Canyon and Lower Aliso Canyon. Upper Aliso Canyon is designated by the Central-Coastal NCCP as "Non-Reserve Open Space Lands." Within the Reserve Lands, take of coastal sage scrub habitat and the Endangered Species Act (ESA) listed-as-threatened coastal California gnatcatcher (*Polioptila californica californica*) are allowed

D-3

Conserving California's Wildlife Since 1870

Wm. Brian Peck
 December 20, 2012
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only in relation to specified planned activities (i.e., allowable uses) regarding the amount of take and other parameters specified in the Central-Coastal NCCP Implementation Agreement.

The proposed project involves the replacement of approximately 16,800 feet of two existing parallel 4-inch pipelines between the CTP and Alicia Parkway. It would replace the existing forces main with a single 6-inch force main. The pipeline is proposed to be constructed on the east side of Aliso Creek, parallel to Moulton Niguel Water District's sewer line within the existing dirt utility access road right-of-way. Construction of the proposed project would occur over approximately seven and a half months and would potentially include a three week period during which sludge would be transported from the CTP to the Regional Treatment Plant using an 18-wheeler tanker truck. Pipeline installation would occur within a 30-foot easement within which three feet would be excavated for the pipeline trench.

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 D-3
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Significant impacts to biological resources have been identified as temporary impacts to: ESA and CESA-listed flora and fauna, nesting birds, various upland habitats, riparian habitat, and jurisdictional waters. Measures to mitigate for these impacts include: preconstruction surveys, on-site biological monitoring, revegetation plans, and the acquisition of wetland permits. In order to assist the SOCWA in avoiding, minimizing, and adequately mitigating project-related impacts to biological resources, we offer the following comments and recommendations.

D-4

1. Mitigation measure BIO-4 indicates that, "...direct impacts to 11.3 acres of special-status vegetation communities shall be mitigated through on-site restoration at a 1:1 ratio to restore impacted special-status vegetation communities to pre-construction conditions." It is the opinion of the Department that a 1:1 ratio is not adequate for mitigation impacts to a conserved area. While ratios for riparian and wetland habitats will be determined as part of a Lake and Streambed Alteration Agreement (see Comment 2), a 2:1 ratio for sensitive uplands (including California sagebrush scrub, coyote brush scrub, Menzies' goldenbush scrub, and California annual grassland) is appropriate. Not only does this ratio compensate for the temporary impacts, but it also accounts for the temporal loss of function of these habitats. This should be reflected in the final EIR.

D-5

2. The Department has responsibility for wetland and riparian habitats. It is the policy of the Department to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion which would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include but are not limited to conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations. Mitigation measures to compensate for impacts to mature riparian corridors must be included in the final EIR and must compensate for the loss of function and value of a wildlife corridor.

D-6

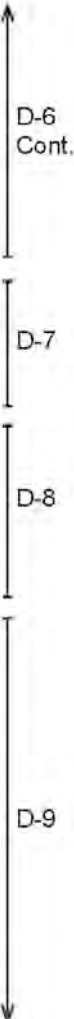
a. The project area supports riparian and wetland habitats; therefore, a jurisdictional delineation of the creeks and their associated riparian habitats should be included in the final EIR. The delineation should be conducted pursuant to the U. S. Fish and Wildlife Service wetland definition adopted by the Department¹. Please note that some wetland

¹Cowardin, Lewis M., et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

Mr. Brian Peck
 December 20, 2012
 Page 3 of 4

and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

- b. The Department also has regulatory authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed. The final EIR should state that the areas defined with the current jurisdictional delineation report are being regulated pursuant to Section 1600 et seq. of the Fish and Game Code. While mitigation ratios to offset temporary and permanent impacts are stated in the DEIR, the Department will evaluate the adequacy of ratios at the time the project applicant formally submits a streambed notification package to the Lake and Streambed Alteration Program of the Department.
- 3. It is unclear from the DEIR whether noise was considered as a potential significant impact to biological resources, particularly with regard to nesting birds. Generally, average hourly noise levels above 60 decibels are considered to negatively impact nesting birds and other wildlife. The Department requests that anticipated noise levels at the project site be discussed in relationship to biological resources in the final EIR, and that mitigation measures are also included to avoid noise impacts to nesting birds, if applicable.
- 4. Mitigation language proposed in the DEIR only partially addresses the Department's concerns for resident, migratory and other bird species (e.g., raptors). In order to comply with sections 3503 and 3503.5 of the Fish and Game Code, and ensure no direct impacts occur to active avian nests, construction activities within or adjacent to avian nesting habitat should occur outside of the avian breeding season. This season runs from February 1 to September 15 (and as early as January 1 for some raptors) to avoid take of birds or their eggs. Depending on the avian species present, a qualified biologist may determine that a change in the breeding season dates is warranted.
 - a. Chapter 3.0: Project Description indicates that construction will take place from April 2014 through November 2014 (page 3-5). If avoidance of the avian breeding season is not feasible, the Department recommends that, beginning thirty days prior to the initiation of project activities, a qualified biologist with experience in conducting breeding bird surveys conduct weekly bird surveys to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). The surveys should continue on a weekly basis with the last survey being conducted no more than 10 days prior to the initiation of project activities. If a protected native bird is found, the project proponent should delay all project activities within 300 feet of on- and off-site suitable nesting habitat (within 500 feet for suitable raptor nesting habitat) until August 31. Alternatively, the qualified biologist could continue the surveys in order to locate any nests. If an active nest is located, project activities within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified biological monitor, must be postponed until the nest is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Flagging, stakes, and/or construction fencing may be appropriate to demarcate the inside boundary of the buffer of 300 feet (or 500 feet) between the project activities and the nest. The project proponent should provide SOCWA with results of the recommended protective



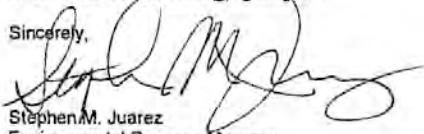
Wm. Brian Peck
December 20, 2012
Page 4 of 4

measures described above to document compliance with applicable State and Federal laws pertaining to the protection of native birds.

- b. If the biological monitor determines that a narrower buffer between the project activities and observed active nests is warranted, he/she should submit a written explanation as to why (e.g., species-specific information; ambient conditions and birds' habituation to them; and the terrain, vegetation, and birds' lines of sight between the project activities and the nest and foraging areas) to SOCWA and, upon request, the Department. Based on the submitted information, SOCWA (and the Department, if the Department requests) should determine whether to allow a narrower buffer.

We appreciate the opportunity to comment on the DEIR for this project and to assist SOCWA in further minimizing and mitigating project impacts to biological resources. If you should have any questions or comments regarding this letter please contact Jennifer Edwards at (858) 467-2717 or via email at JEdwards@dfg.ca.gov.

Sincerely,



Stephen M. Juarez
Environmental Program Manager
South Coast Region

cc: Scott Morgan, State Clearinghouse, Sacramento

↑ D-9
| Cont.
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| D-10
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| D-11

Response to Letter D

California Department of Fish and Game December 20, 2012

- D-1** SOCWA appreciates the Department's review of the Draft EIR.
- D-2** This comment identifies the CDFG as a Trustee Agency with jurisdiction over natural resources affected by the project. This comment also identifies the project as within the boundaries of the Central-Coastal Subregion NCCP, and acknowledges that SOCWA is not a signatory. This is consistent with the discussions in Section 2.4.1 and Section 4.4.3.4 of the Draft EIR.
- D-3** This comment repeats the basic project description information provided in the Draft EIR. No additional response is required.
- D-4** This comment repeats the biological impact analysis provided in the Draft EIR in Section 4.4. Comments below provide more specific responses.
- D-5** SOCWA concurs that a 2:1 mitigation ratio is appropriate for California sagebrush scrub, coyote brush scrub, and Menzie' goldenbush scrub; however, SOCWA believes that a 1:1 mitigation ratio remains appropriate for annual grassland. Mitigation measure BIO-4 has been revised in the Final EIR to reflect appropriate ratios for restoration. SOCWA concurs that final mitigation ratios will be determined as part of the permitting process with CDFG.
- D-6** Comments regarding CDFG oversight of wetlands is noted. A jurisdictional delineation was not conducted as part of the project; as noted in Appendix C to the Draft EIR, and in Section 4.2.4.6, given the steep topographic character of Aliso Creek and its adjacent tributaries, a formal delineation of land under the jurisdiction of the CDFG, ACOE, RWQCB, and CCC was not conducted. Wetlands were identified in the study area using the Cowardin method of wetlands classification, which defines wetland boundaries by the presence of at least one parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (USFWS 1979). Wetlands within the Study Area were documented by visually assessing and mapping the drip line of hydrophytic vegetation and noting the presence or absence of hydrology indicators (e.g., drift lines, drainage patterns, scour etc.).
- D-7** The Draft EIR's impact analysis considered indirect noise impacts to birds to be potentially significant. The impact discussion and mitigation measures related to special-status birds were revised in Section 4.4 of the Final EIR to clarify the consideration of indirect impacts, including noise. The impact discussion on Page 4.4-22 now reads as follows:

- Special-Status Birds

California gnatcatchers were observed in the study area during focused surveys, as shown in *Figures 4.4-3a, b, and c*. Construction activities conducted during the California gnatcatcher's breeding season (generally mid-February through August) could disrupt breeding activity, both through direct temporary impacts to habitat and indirect effects from construction such as noise. Nesting least Bell's vireos were observed in Aliso Creek during focused surveys, as shown in *Figures 4.4-3a, b, and c*. Construction activities conducted during the breeding season of this species (generally April through August) could also disrupt breeding activity through direct temporary impacts to habitat and indirect impacts. Other special-status birds that may nest in the study area include Cooper's hawk, white-tailed kite, northern harrier, Nuttall's woodpecker, yellow-breasted chat, yellow warbler, and southwestern willow flycatcher. Construction during their nesting seasons also could both directly and indirectly disrupt breeding activity. Temporary, direct and indirect impacts to nesting special-status birds would be a **significant impact**. As a result, mitigation measure BIO-1 is recommended, refer to *Section 4.4.7*.

Mitigation measure BIO-1 on page 4.4-27 now reads as follows:

- **BIO-1** The following avoidance measures shall be implemented prior to construction to prevent inadvertent direct and indirect impacts to special-status birds:
 - Pre-construction nest surveys shall be conducted by an appropriately qualified biologist within 1 week prior to vegetation clearing if construction occurs during the nesting season of species known or with potential to nest in the study area. Locations of nesting birds shall be mapped and appropriate no-work buffers shall be established, including 500-foot buffers for listed species such as California gnatcatcher and least Bell's vireo, 500 feet for special-status raptors, and 50-foot buffers for non-listed passerine species.
 - SOCWA and its biologist shall coordinate the procedures for minimizing harm to or harassment of wildlife encountered during construction with the SOCWA contractor and other key construction personnel prior to clearing, grubbing, or grading.
 - SOCWA's biologist and contractor shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas during the non-breeding season immediately prior to brush-clearing and earth-moving activities.

Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.

D-8 Given the tentative construction schedule and anticipated duration of construction (9-10 months), full avoidance of the avian breeding season is not possible. Therefore, biological monitoring has been included in the Draft EIR (see mitigation measure BIO-1 in Section 4.4.7) to ensure that potential impacts to nesting birds would be reduced to a level below significance.

D-9 Since avoidance of the breeding season is not feasible (refer to response to comment D-8), as part of the Final EIR, mitigation measure BIO-1 has been revised to reflect the changes suggested by CDFG. Mitigation measures BIO-1 on Page 4.4-27 has been revised to read as follows:

- **BIO-1** The following avoidance measures shall be implemented prior to construction to prevent inadvertent direct and indirect impacts to special-status birds:
 - Pre-construction nest-breeding bird surveys shall be conducted by an appropriately qualified biologist beginning 30 days prior to initiation of project activities, and recurring weekly, within 1 week prior to vegetation clearing—if construction occurs during the nesting season (February 1 through September 15) of species known or with potential to nest in the study area. Surveys shall be conducted to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). The last survey shall be conducted no more than 10 days prior to the initiation of project activities.
 - Locations of nesting birds shall be mapped and if a protected native bird is found, appropriate no-work buffers shall be established, including 500/300-foot buffers for listed species such as California gnatcatcher and least Bell’s vireo, 500 feet for special-status raptors, and 50-foot buffers for non-listed passerine species until August 31. Alternatively, the qualified biologist could continue the surveys in order to locate any nests. If an active nest is located, project activities within 300 feet of the nest (within 500 feet for raptor nests), or as determined by the qualified biologist, must be postponed until the nest is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Flagging, stakes, and/or construction fencing may be appropriate to demarcate the inside boundary of the buffer of 300 feet (or 500 feet) between the project activities and the nest. The qualified biologist shall provide SOCWA the results of the

protective measures to document compliance with applicable State and Federal laws pertaining to the protection of native birds.

- SOCWA and its biologist shall coordinate the procedures for minimizing harm to or harassment of wildlife encountered during construction with the SOCWA contractor and other key construction personnel prior to clearing, grubbing, or grading.
- SOCWA’s biologist and contractor shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas during the non-breeding season immediately prior to brush-clearing and earth-moving activities.

Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.

D-10 SOCWA notes that the qualified biologist may suggest reducing the buffer between project activities and observed active nests if warranted. If requested, a written explanation will be submitted to CDFG.

D-11 SOCWA appreciates the Draft EIR comments received from CDFG.

Comment Letter E

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
District 12
3347 Michelson Drive, Suite 100
Irvine, CA 92612-8894
Tel: (949) 724-2241
Fax: (949) 724-2592



*Flex your power!
Be energy efficient!*

February 4, 2013

Brian Peck
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, CA 92629

File: IGR/CEQA
SCH#: 2011051010
Log #: 2707B
SR-73, SR-133

Subject: Coastal Treatment Plant Export Sludge Force Main Replacement

Dear Mr. Peck,

Thank you for the opportunity to review and comment on the **Draft Environmental Impact Report (DEIR) for the Coastal Treatment Plant Export Sludge Force Main Replacement Project**. The proposal involves the replacement of two parallel 4-inch cast iron pipes that transport primary sludge and thickened waste-activated sludge from the Coastal Treatment Plant (CTP) to the Regional Treatment Plant (RTP) for solids processing. The project site is located within Aliso and Wood Canyons Wilderness Park. The nearest State routes to the project site are SR-73 & SR-133.

E-1

E-2

The Department of Transportation (Department) is a commenting agency on this project and has no comment at this time. However, in the event of any activity in the Department's right-of-way, an encroachment permit will be required.

E-3

Please continue to keep us informed of this project and any future developments that could potentially impact State transportation facilities. If you have any questions or need to contact us, please do not hesitate to call Marlon Regisford at (949) 724-2241.

E-4

Sincerely,

Marlon Regisford for
Christopher Herre, Branch Chief
Local Development/Intergovernmental Review

C: Scott Morgan, Office of Planning and Research

"Caltrans improves mobility across California"

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Response to Letter E

**California Department of Transportation
February 4, 2013**

- E-1** SOCWA appreciates Caltrans' review of the Draft EIR.
- E-2** This comment accurately restates the proposed project as presented in the Draft EIR.
- E-3** It is noted that as a commenting agency, Caltrans has no comments at this time. SOCWA will pursue an encroachment permit from Caltrans as necessary.
- E-4** As requested, SOCWA will coordinate with Caltrans District 12 should any State transportation facilities be affected.

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Comment Letter F



Ignacio G. Ochoa, P.E., Interim Director
300 N. Flower Street
Santa Ana, CA
P.O. Box 4048
Santa Ana, CA 92702-4048
Telephone: (714) 687-8800
Fax: (714) 967-0898

NCL 12-042

February 7, 2013

Mr. Brian Peck, P.E.
Director of Engineering
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, California 92629

SUBJECT: Draft Environmental Impact Report for Coastal Treatment Plant Export Sludge Force Main Replacement Project

Dear Mr. Peck:

The County of Orange has reviewed the Draft Environmental Impact Report (EIR) for Coastal Treatment Plant Export Sludge Force Main Replacement project and offers the following comments:

F-1

Environmental Resources:

- 1. EIR Pages 4.1-4 and 4.1-8 note that the current zoning is OS, which would allow features such as the proposed project through a site development permit. Page 1-6, however, correctly notes that the project would be authorized through a Coastal Development Permit issued by the California Coastal Commission, while the County's role would be limited to that of issuing a public properties/encroachment permit. The inconsistency between sections should be resolved.
2. The EIR draws a number of conclusions that lack appropriate supporting information:
- EIR Page 4.10-11 states "the proposed project would adhere to all requirements in the Orange County DAMP". DAMP Page 7-15, however, states, for this coastal zone: "Avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss."
- Page 4.10-11 concludes "the proposed project would...preserve the existing drainage patterns while preventing the development of substantially erosive features. Therefore, the proposed project would not result in alteration to the course of a stream or river in a manner that would result in substantial erosion or siltation on or off site, and impacts would be less than significant."

F-2

F-3

F-4

- Page 4.9-10 concludes the project does not create "the potential for reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment." F-5
 - Page 4.10-12 states, that "in the case of a rupture or spill compliance with the SSM and the SSOPP/SSORP would reduce potential impacts to water quality to less than significant." F-6
- In each case above, additional supporting information should be provided for claims that on their face seem questionable. The project is in an area particularly susceptible to erosion, and protections from bank undercutting are not proposed as part of the project. F-7
- Spill response to a large sewage line rupture should not be presumed to reduce all water quality impacts to insignificance. F-8
- The following should also be noted with respect to the above comments:
- The April 2012 Lower Aliso Creek Erosion Assessment prepared by Tetra Tech concludes on Page iii that "the proposed pipeline alignment will likely be impacted by bank erosion over the 50-year planning period (in) the proposed FM 1 alignment along the east (left) bank (for) approximately 3,300 feet (or) the proposed FM 2 alignment along the west (right) bank (for) approximately 1,200 feet." F-9
 - Page 4 states "past storms have resulted in erosion that has caused the failure of the Moulton Niguel Water District (MNWD) 18-inch sewer line in Aliso Canyon. Erosion from storm events has not caused past failures of either the SOCWA 4-inch diameter Export Sludge force mains or the Effluent Transmission Main (ETM)", that is, yet. F-10
 - Page 4.7-9 of the EIR states "the creek embankment is particularly steep and unstable along certain portions of the proposed alignment." F-11
3. Page 2-10 of the EIR notes "areas of potential erosion impact...would need to be addressed through localized projects if the ERP (Aliso Creek Ecosystem Restoration Project) continues to be delayed. These interim improvements would be needed to protect the MNWD sewer and the SOCWA ETM regardless of the selected alternative for the export sludge handling system replacement". Such "localized project" or "interim improvement" measures are mentioned, but not specifically proposed in this document. F-12
- Page 18 of the November 2011 Ninyo and Moore Preliminary Geotechnical Evaluation states "creek erosion should be mitigated to protect the pipeline alignment. Where the creek is close to the proposed pipeline, embankment stabilization may be appropriate, in addition to erosion control. Embankment stabilization may involve some type of retaining structure (gabion walls, rip rap, etc.) and/or reinforced earth slope F-13

construction. Slope stabilization should be designed and constructed along with the planned erosion protection system."

↑ F-13
Cont.

- Page 17 of the September 2012 Dudek Pre-Design Report states that "bank protection measures are recommended within the next ten years."

↑ F-14

Consideration should be given to including these in the document as part of the project proposal. There is no reasonable expectation that they could be implemented quickly enough when actually needed, without such advance planning and approval, to prevent a future breach.

↑ F-15

Flood Programs/Hydrology:

Please change the links for Drainage Area Management Plan and Orange County Hydrology Manual in Appendix G, Hydrology Memorandum, page 8, to the following:

<http://ocwatersheds.com/documents/damp/mapplan>

↑ F-16

<http://ocflood.com/nfc/hydrology>

County of Orange recently updated its web page and the referenced links you inserted in Appendix G are no longer available.

County Property Permits:

The Orange County Flood Control District's Sulphur Creek Dam (J03D01) right-of-way will be impacted by this project. More detailed maps showing right-of way boundaries will be required prior to final determination of specific permits. These impacts should be specifically addressed as the project progresses.

↑ F-17

OC Parks:

Of principal concern to OC Parks are the two Trucking Alternatives. Neither is acceptable, as they both would significantly impact Aliso and Wood Canyons Wilderness Park. The alternatives would involve trucking the sludge on the AWMA access road between the park entrance and the treatment plant, an operation that would require between five and seven roundtrips each weekday using very large trucks.

↑ F-18

Trucking the sludge is not a reasonable alternative from OC Parks perspective. Aside from dramatically affecting the ambiance of a wilderness park, the trucking activity would pose a real conflict with the many park visitors who use the AWMA access road for hiking, running and bicycling.

Section 2.2 Surrounding Land Uses - This section should mention Aliso Beach County Park as well.

↑ F-19

Section 3.5.2 Construction - An explanation should be provided as why three weeks of trucking of the sludge is required to change over from the current pipes to the new force main. Could that time be shortened?

↑ F-20

Section 3.5.3 Project Design Features and Construction Measures

- Please design and install reinforcement surrounding the force main at all points near high erosion areas of the creek.
- Please design and install at least four shut-off valves in the pipeline to isolate spill areas and limit the potential discharge.
- An existing drain pipe crossing under the Aliso Creek East Trail near the washout below Ridgeview Park (See Figure 3-2b) should be repaired to facilitate safe passage for SOCWA vehicles.

F-21
F-22
F-23

Section 4.5.3.1 Cultural Resources - Cultural History

- The EIR should address archaeological site ORA-423 identified in "Archaeological Report - Volume I Executive Summary - The Test Excavations of Seven Archaeological Sites within the Proposed AWMA Project in the Lower Aliso Creek Corridor" dated August 1987.

F-24

Section 4.10 Hydrology and Water Quality

- Please correct the document to replace the references to the Sanitary Sewer Overflow Prevention Plan (SSOPP) with the more current Spill Response Plan (SRP). The SRP document provides the basis to "ensure the protection of the environment and the public's health and safety, to comply with its NPDES permit and California Water Code requirements." Please consider including an installed inflatable dam on Aliso Creek to isolate any spills in the creek and to reduce the potential downstream damage, particularly at Aliso Beach County Park. The Spill Response Plan should include OC Parks Ranger Dispatch (562) 594-7232 in emergency notifications.

F-25
F-26
F-27

Sincerely,



Polin Modanlou, Manager,
OC Public Works/OC Planning
300 North Flower Street
Santa Ana, California 92702-4048
Polin.Modanlou@ocpw.ocgov.com

cc: Mehdi Sobhani, Manager, OC Flood
Chris Crompton, Manager, Environmental Resources
Mahrooz Ilkhanipour, Manager, County Property Permits
Rich Alder, Manager, OC Parks

Response to Letter F

OC Public Works February 7, 2013

- F-1** SOCWA appreciates OC Public Works review and input on the DEIR.
- F-2** SOCWA agrees that both the County and California Coastal Commission would have oversight of the proposed project. The County has authority to issue a public properties/encroachment permit. The CCC would issue a Coastal Development Permit. The information regarding the “site development permit” indicated on Page 4.1-4 and 4.1-8 of the Draft EIR is accurate and was derived from the County Zoning Code. It is SOCWA’s understanding that the project would not be subject to a site development permit since the project would be a replacement project rather than a new utility project.
- F-3** The proposed project is a replacement project and does not constitute new development per se. SOCWA has sought to minimize and avoid areas susceptible to erosion to the extent feasible while balancing other project objectives and environmental impacts. Also, it is assumed that development guidance would be provided as part of the DAMP permit process. As such, the project would adhere to the DAMP requirements. No text revisions to the Final EIR are necessary.
- F-4** The analysis presented on Page 4.10-11 that is summarized by the commenter is accurate as presented in the Draft EIR. Supporting analysis regarding the project’s impact to drainage patterns, such as grading and trenching during construction, and the project’s adherence to DAMP requirements, is provided above the conclusion referenced by the commenter.
- F-5** The analysis presented on Page 4.9-10 that is summarized by the commenter is accurate as presented in the Draft EIR. Supporting analysis regarding the project’s impact to drainage patterns is provided above the conclusion referenced by the commenter. When compared to baseline conditions as required under the CEQA Guidelines Section 15125, the replacement project would result in a benefit by reducing the potential for risk of upset, as provided in the Draft EIR in Section 4.9.4, Page 4.9-10.
- F-6** The analysis presented on Page 4.10-12 that is summarized by the commenter is accurate as presented in the Draft EIR. Supporting analysis regarding the project’s impact to water quality is provided above the conclusion referenced by the commenter. Also refer to response to comment F-5.

- F-7** This comment provides a general statement regarding comments F-3 through F-6. Refer to responses to comments F-3 through F-6 for more specifics.
- F-8** Spill response is not the only stated reason why impacts to water quality would be less than significant, as indicated by the commenter. As indicated in Section 4.10.4 of the Draft EIR, implementation of the proposed project would substantially reduce the risk of spill or upset associated with a rupture of the force main by replacing existing corroded pipelines with a corrosion-resistant high density polyethylene (HDPE) pipeline. When compared to existing conditions, this would result a beneficial impact to water quality issues result from pipeline rupture. Compliance with the SSMP, which outlines inspection and maintenance procedures, would further reduce the risk of spill or upset from rupture of the pipeline.
- F-9** The commenter accurately summarized the April 2012 Lower Aliso Creek Erosion Assessment. As stated in the AWCWP Resource Management Plan, Aliso Creek bank erosion is a result of local land use practices, such as the increase of impervious surfaces and removal of vegetation (which result in greater volumes of water and stronger currents during storm flow), and from the creation of unauthorized trails which compact soils, remove ground cover, and concentrate runoff flows (LSA 2009, page 99). Existing utilities, and in particular, the SOCWA force main, are not a cause of erosion, nor is there any indication that the proposed project will have, create, or result in erosive impacts. The impacts of the existing environment on the project are beyond the scope of CEQA. Erosion in the creek is an existing condition that will not be affected by the Project.
- Bank erosion has not resulted in past failures of the SOCWA force mains, and is not the reason for replacement of the pipeline. While bank erosion in the proposed alignment could occur, it is our understanding that a comprehensive plan looking at the natural resource restoration/protection issues related to Aliso Creek is being undertaken by the U.S. Army Corps of Engineers with OC Public Works acting as the local sponsor. SOCWA intends to participate in that process; however, SOCWA's mission does not include creek stabilization. SOCWA's mission is to collect, treat, beneficially reuse and dispose of wastewater in a manner that protects and respects the environment, maintains the public's health, and meets local, state and federal regulations. It is also important to note that the existing ETM requires erosion protection, regardless of the proposed Force Main project evaluated in the Draft EIR; SOCWA has chosen the eastern alignment in part due to this fact.
- F-10** Refer to response to comment F-9.

- F-11** The analysis presented on Page 4.7-9 that is summarized by the commenter is accurate as presented in the Draft EIR. Supporting analysis regarding the project’s relationship to potential unstable geologic units is provided above the conclusion referenced by the commenter.
- F-12** The commenter is correct, interim creek stabilization measures are not proposed; refer to response to comment F-9.
- F-13** Refer to responses to comments F-9 and F-12.
- F-14** Refer to responses to comments F-9 and F-12.
- F-15** Refer to responses to comments F-9 and F-12.
- F-16** Comment regarding updated hyperlinks referenced in the Draft EIR is noted and appreciated. The Final EIR has been revised to incorporate the updates. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.
- F-17** SOCWA will coordinate with Orange County Flood Control District as necessary regarding the Sulphur Creek Dam and the District’s right-of-way.
- F-18** SOCWA acknowledges OC Parks concern for the two trucking alternatives due to the frequent use of the AWMA Road that would be required and the potential for this use to impact the ambiance of the wilderness park and conflict with park visitors. These impacts are disclosed in the Draft EIR in Sections 8.3.3 and 8.3.4. This information will be made available to SOCWA decision makers prior to consideration of the proposed project and EIR.
- F-19** Section 2.2 of the Draft EIR has been revised to include mention of Aliso Beach County Park as a surrounding land use. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.
- F-20** As indicated in the Draft EIR in Section 3.5.1, approximately three weeks of temporary trucking would be required during construction. Approximately 1,000 feet of the new force main would be constructed along the same alignment of the existing force mains due to limited horizontal space. As such, the existing force main would be out of service during this period of construction. Also, at the time that the new force main is connected at each end of the alignment (at the CTP and RTP sites), the

existing force mains would be out of service. These construction activities would require alternate means of transporting sludge for a temporary duration.

Construction scheduling will be developed to minimize the duration of these operations. Every effort will be made to minimize or avoid temporary trucking during construction, but some short duration trucking may not be avoidable.

F-21 Design of the force main incorporates high density polyethylene (HDPE) pipe materials, with heat welded joints. In this manner, the new force main would be a continuous pipeline from one end to the other. This construction is contrasted to the conventional pipeline construction where slip-on joints are used that can separate in the event of an erosion event. The HDPE pipeline construction would remain intact during potential erosion events.

Concrete encasement placed around the pipeline would likely increase risk during potential erosion events in that the concrete encasement of the pipeline could be undermined by the erosion event. In such a case, the extreme weight of the concrete encasement could place excessive stress on the pipeline materials and cause failure of the pipeline.

F-22 During design, risk assessment was discussed regularly. In the case of a force main of this type, one of the highest risks is internal pipeline pressure. Every effort has been made to minimize internal pipeline pressure to lower the risk of potential failure and to lower the cost of operation for the overall pumping process. In this manner, the design increases park protection and lowers the cost of wastewater operations to the ratepayers.

In terms of risk management, incorporation of inline valves increases pipeline risk. In the event that a valve is closed for any reason, it is possible that the valve may not be opened by mistake. If the pumps were started under that scenario, the internal pressures in the pipeline would increase dramatically. Although every effort would be made to avoid such a situation, the fact remains that with the valves installed, the risk remains that they could be inadvertently let closed by mistake. Therefore, the only way to eliminate that risk is to eliminate the valves.

In considering construction of inline valves, it is a decision of which situation increases risk the most. As the sludge pumping system is capable of detecting a significant change in pumping pressure, such a change would result in ceasing pumping operations. Ceasing pumping operations would eliminate the potential spill of sludge to the environment. All previous failures of the existing force mains resulted in minimal discharge of sludge to the environment. Thus, the decision to

- eliminate inline valves was made to avoid increasing the risk of pipeline failure due to an inadvertently closed valve, and will lower overall risk to the environment.
- F-23** While repair of the existing drain pipe crossing below Ridgeview Park is not proposed as part of the current EIR project, SOCWA appreciates OC Parks' input, and SOCWA will coordinate with OC Parks on the possibility of repairing the crossing. The necessity for stabilization will be included as part of the final design as referenced in mitigation measure GEO-1 in Section 4.7.5 of the Draft EIR.
- F-24** The DEIR has been revised to include reference to prehistoric archaeological site CA-ORA-423 as follows. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.

Section 4.5.3.2 Literature Review

CA-ORA-423 was originally recorded by Cooley and Butler in 1973 as a “flat alluvial deposit” at the junction of Aliso and Sulphur Creeks, covering roughly 2 to 3 acres. The creeks had appeared to “cut through” the site deposit. Site depth, as observed within the creek bank exposures, was between 2 to 7 feet. Cultural material identified in the Aliso Creek bank included two ground stone artifacts and fresh water mussel shells. Shells and chipped stone artifacts were also observed. The site was revisited in 1976 (SRS 1976) and characterized as being located on the triangle of land formed by the confluence of Aliso and Sulphur creeks, and bounded on the east by Alicia Parkway. The site area recorded extended no farther than the north side of Sulphur Creek and was consistent with the Cooley and Butler characterization prepared in 1973. CA-ORA-423 was tested by RMW in 1986 (RMW 2000). Based on excavations at the northern end of the site, it was described as “a large, relatively undisturbed village” with a wide range of cultural material including chipped stone tools, ground stone tools, and faunal remains. Three burials that were eroding from the creek bank were salvaged and reburied in 1994 (Langenwalter 1994, as cited in RMW 2000). The most recent excavations by Hurd and Langenwalter in 1998 and 1999 have not yet been documented (RMW 2000). All investigations suggest that alluviation of Aliso and Sulphur creeks may have buried portions of the prehistoric site deposit.

The proposed SOCWA Export Sludge Force Main pipeline corridor would be placed within an existing dirt road on the southern banks of Aliso Creek and Sulphur Creek. The dirt road has been cut into a relatively steep, north-facing slope heading into the creeks below. Based on cut slopes existing on the south side of the road bed, the natural north-facing slope was graded when the road was constructed, removing

approximately 2 to 4 feet of soils. In the absence of the road bed, the natural topography of the proposed pipeline corridor would have been over 20 percent. Prehistoric residential occupation sites such as CA-ORA-423 are not identified on this steep topography, as the sloping landform is not conducive to long-term habitation. Prehistoric residential camps are identified on fairly level ground surfaces, such as the terrace on the north side of Aliso Creek and Sulphur Creek. Therefore, the proposed pipeline corridor on the south side of Aliso Creek and Sulphur Creek is considered to have a relatively low potential for prehistoric occupation.

Additional existing disturbance within the dirt road corridor is associated with two existing force mains located on the north and south sides of the proposed export sludge force main pipeline (see DEIR Figure 3-3).

Section 4.5.3.4 Field Investigations

Phase I Survey

The proposed pipeline corridor was intensively examined for the presence of prehistoric remains in July, 2011. The proposed pipeline corridor within the vicinity of the recorded CA-ORA-423 site boundary on the southern Aliso Creek and Sulphur Creek banks was characterized by very good (50 to 90 percent) ground surface visibility within the existing dirt road. In order to determine the presence of potential buried cultural deposits below the dirt road, creek bank exposures adjacent and north of the proposed pipeline corridor were systematically examined along the pipeline corridor south of the Aliso Creek/Sulphur Creek confluence eastward to Alicia Parkway. No evidence of any prehistoric cultural material including shellfish, chipped stone tools, ground stone fragments, or animal bone was observed within any of the dirt road surfaces, or in the Aliso Creek or Sulphur Creek southern creek bank.

The following substantial evidence indicates that no prehistoric resources, including any associated with CA-ORA-423, are located within the proposed pipeline corridor south of Aliso Creek and Sulphur Creek:

1. The proposed pipeline corridor is located within a relatively steep landform oriented toward the creeks. Prehistoric sites reflecting residential occupation are not identified within this type of landform, as Native Californian populations required relatively level surfaces to establish their shelters.
2. The existing dirt road within the proposed pipeline corridor has been substantially graded, between approximately 2 to 4 feet.

3. The intensive archaeological surface survey of the proposed pipeline corridor and adjacent southern Aliso Creek/Sulphur Creek banks were characterized by favorable ground surface visibility, and the results were negative.

Section 4.5.6 Impacts

Would the project cause a substantial adverse change in the significance of a unique archaeological resource?

The proposed SOCWA Export Sludge Force Main pipeline would be excavated within the existing dirt road above the southern Aliso Creek and Sulphur Creek bank as shown in DEIR Figure 3-2c. All construction activity would occur within the previously disturbed dirt road and between the two existing force mains. No storage of equipment and/or materials would occur in areas outside of the dirt road. Therefore, the proposed SOCWA export sludge force main pipeline would be installed in a previously disturbed trench, in an area where no prehistoric archaeological resources were identified. The location is considered to have a very remote potential for unknown, buried archaeological resources, as the original steep embankment heading down to the Aliso Creek/Sulphur Creek is not a landform where prehistoric occupation is anticipated. Therefore, impacts to archaeological resources would be less than significant. Although impacts would be less than significant, mitigation measures CUL-1, CUL-2 and CUL-3 are recommended in Section 4.5.7.

Section 4.5.7 Mitigation Measures

CUL-2 All ground disturbances within the defined CA-ORA-582 site boundary, and within a 100-foot buffer extending from the CA-ORA-582 and CA-ORA-423 site boundaries, shall be monitored by a qualified archaeologist and a local Native American representative.

References

RMW Paleo Associates (RMW). 2000. Cultural Resources Assessment and Treatment Plan for the Aliso Creek Emergency Sewer (ACES) Project, Aliso Water Management Agency, Aliso and Wood Canyons Wilderness Park, Orange County, California.

Scientific Resource Surveys (SRS). 1976. Archaeological Report on The Aliso Water Management Agency – Phase III, Proposed Regional Wastewater Treatment Facilities, Orange County, California.

. 1978. Archaeological Report – Volume 1, Executive Summary, The Test Excavations of Seven Archaeological Sites within the Proposed AWMA Project in the Lower Aliso Creek Corridor, Orange County, California.

F-25 In response to comment F-25, Section 4.10 (page 4.10-9) of the DEIR has been revised as follows:

In July 2009, SOCWA submitted the Sewer System Management Plan (SSMP) to the SWRCB. The SSMP describes SOCWA's activities in managing its wastewater collection system in order to further eliminate preventable sewer spills, minimize those spills that may occur, and protect both public health and the environment. In accordance with the SSMP Overflow Emergency Response Plan, SOCWA has developed and implemented a ~~Sanitary Sewer Overflow Prevention Plan and Response Plan (SSOPP/SSORP)~~ Spill Response Plan (SRP) to "ensure the protection of the environment and the public's health and safety, to comply with its NPDES permit and California Water Code requirements." The SRP identifies proper notification procedures of the primary responders and regulatory agencies, procedures to address emergency operations (including notification of OC Parks Ranger Dispatch (562) 594-7232 in case of an emergency), and reasonable steps to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States.

Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.

F-26 Current design does not result in any construction within Aliso Creek. Spill containment equipment is maintained by SOCWA and provided onsite in the event of a pipeline failure event, as in past force main failure events. These operational procedures have successfully minimized discharges to Aliso Creek and protected the environment. SOCWA will continue to maintain appropriate spill containment equipment in the future.

F-27 Refer to response F-25 for revisions to the Draft EIR in response to comments on the SRP.

Comment Letter G



STEVE FRANKS
DIRECTOR
OC COMMUNITY RESOURCES

RYAN DRABEK
DIRECTOR
OC ANIMAL CARE

KAREN ROPER
DIRECTOR
OC COMMUNITY SERVICES

MARK DENNY
DIRECTOR
OC PARKS

HELEN FRIED
COUNTY LIBRARIAN
OC PUBLIC LIBRARIES

DATE: February 6, 2013
TO: Yolanda Jordan, OC Planned Communities
FROM: *RAA* Rich Adler, OC Parks Real Estate Manager
SUBJECT: Review of Draft EIR for Coastal Treatment Plant Export Sludge Force Main Project (South Orange County Wastewater Authority) - NCL 2012-042

In response to your request for input on the subject project, OC Parks has reviewed the document, and offers the following comments:

Chapter 8.0 Alternatives

Of principal concern to OC Parks are the two Trucking Alternatives. Neither is acceptable, as they both would significantly impact Aliso and Wood Canyons Wilderness Park. The alternatives would involve trucking the sludge on the AWMA access road between the park entrance and the treatment plant, an operation that would require between five and seven roundtrips each weekday using very large trucks.

Trucking the sludge is not a reasonable alternative from OC Parks perspective. Aside from dramatically affecting the ambiance of a wilderness park, the trucking activity would pose a real conflict with the many park visitors who use the AWMA access road for hiking, running and bicycling.

OC Parks has the following additional comments:

1. **2.2 Surrounding Land Uses** – This section should mention Aliso Beach County Park as well.
2. **3.5.2 Construction** – An explanation should be provided as why three weeks of trucking of the sludge is required to changeover from the current pipes to the new force main. Could that time be shortened?

↓
G-1
↓



13042 OLD MYFORD ROAD, IRVINE, CA 92602 • PHONE (866) OC PARKS FAX (714) 667-6511

3. 3.5.3 Project Design Features and Construction Measures

- Please design and install reinforcement surrounding the force main at all points near high erosion areas of the creek.
- Please design and install at least four shut-off valves in the pipeline to isolate spill areas and limit the potential discharge.
- An existing drain pipe crossing under the Aliso Creek East Trail near the washout below Ridgeview Park (See Figure 3-2b) should be repaired to facilitate safe passage for SOCWA vehicles.

4. 4.5.3.1 Cultural Resources – Cultural History – The EIR should address archaeological site ORA-423 identified in "Archaeological Report - Volume I Executive Summary - The Test Excavations of Seven Archaeological Sites within the Proposed AWMA Project in the Lower Aliso Creek Corridor" dated August 1978.

5. 4.10 Hydrology and Water Quality – Please correct the document to replace the references to the Sanitary Sewer Overflow Prevention Plan (SSORP) with the more current Spill Response Plan (SRP). The SRP document provides the basis to "ensure the protection of the environment and the public's health and safety, to comply with its NPDES permit and California Water Code requirements." Please consider including an installed inflatable dam on Aliso Creek to isolate any spills in the creek and to reduce the potential downstream damage, particularly at Aliso Beach County Park. The Spill Response Plan should include OC Parks Ranger Dispatch (562) 594-7232 in emergency notifications.



G-1
Cont.

Response to Letter G

OC Community Resources – OC Parks February 6, 2013

- G-1** While it is noted that this letter was not addressed to SOCWA, SOCWA recognizes receipt of this letter during the public comment period. However, the comments contained within this letter are repeated within the comment letter from OC Public Works. Therefore, please refer to the response to Letter F for responses to the comments within this letter.

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Comment Letter H



CITY OF LAGUNA NIGUEL
Public Works/Engineering
30111 Crown Valley Parkway • Laguna Niguel, California 92677
Phone/949•362•4337 Fax/949•362•4385

CITY COUNCIL
Laurie Davies
Linda Lindholm
Jerry McCloskey
Robert Ming
Jerry Slusiewicz

January 8, 2013

Brian Peck, Director of Engineering
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, California 92629

Subject: Comments on Environmental Impact Report for the Coastal Treatment Plant
Export Sludge Force Main Replacement Project SCH #2011051010

The City of Laguna Niguel is expressing formal opposition to Trucking Alternative 1 and 2 in
the Environmental Impact Report for the Coastal Treatment Plant Export Sludge Force Main
Replacement Project SCH #2011051010.

H-1

Both trucking alternatives add truck trips to City owned and maintained arterial roadways, which
will increase traffic congestion and will, over time, increase damage to the roadway shortening
the useful life of the pavement section.

H-2

In addition, for Trucking Alternative 1, the proposed route includes a left turn from AMWA
Road to northbound Alicia Parkway. Adequate gaps for large/slow trucks to make the subject
permissive left turn at this uncontrolled intersection are very limited, even during off peak
periods. The additional truck trips will increase the likelihood of collisions and decrease overall
traffic safety at the intersection.

H-2

Please make sure our comments are included and addressed as part of the final EIR review. If
you have any questions, please contact me at drogers@cityoflagunaniguel.org or at
949.362.4377.

H-3

Sincerely,

[Handwritten signature of David Rogers]

David Rogers
Director of Public Works/
City Traffic Engineer

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Response to Letter H

City of Laguna Niguel

January 8, 2013

- H-1** SOCWA acknowledges that the City of Laguna is formally opposed to Trucking Alternatives 1 and 2 due to the increased traffic congestion, damage to pavement, and the risk of collisions at the left turn from AWMA Road to Alicia Parkway. This information will be made available to SOCWA decision makers prior to consideration of the project.
- H-2** Hazards impacts of the Trucking Alternative 1 has been added to Section 8.3.3 of the Draft EIR. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.
- H-3** SOCWA appreciates the City of Laguna’s comments and has addressed them herein.

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Comment Letter I

U.S. Fish & Wildlife Service
California Department
of Fish & Game
California Department
of Parks & Recreation
County of Orange
Irvine Ranch Water District
Metropolitan Water District
Southern California Edison



University of California, Irvine
Transportation Corridor Agencies
City of Irvine
The Irvine Company
Headlands Reserve, LLC
California Department of Forestry
Coastal Greenbelt Authority
Orange County Fire Authority

February 6, 2013

Brian Peck
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, CA 92629

Subject: Draft EIR for Coastal Treatment Plant Export Sludge Force Main Replacement Project

Dear Mr. Peck,

As stated in the Draft Environmental Impact Report (EIR) for the Coastal Treatment Plant Export Sludge Force Main Replacement Project (Project), the Project falls within the Coastal Reserve of the Orange County Central-Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). As the management entity of the NCCP/HCP, the Nature Reserve of Orange County (NROC) has the expectation that South Orange County Wastewater Authority (SOCWA) will continue to follow NCCP/HCP guidelines as they pertain to the operation and maintenance of existing infrastructure facilities located within the Reserve System.

I-1

As described in the EIR, there are a number of sensitive biological resources present in the NCCP/HCP Coastal Reserve within and adjacent to Aliso Creek that may be impacted by the replacement of the existing sludge lines. NROC encourages SOCWA to continue to work with the County of Orange, specifically, OC Parks, to avoid and minimize, to the extent possible, impacts to the sensitive biological resources located within the project area during all phases of project development and implementation, including planning, construction, monitoring, and future maintenance of the replacement line.

I-2

As the Project continues to move through the environmental review process, NROC also encourages SOCWA to work with OC Parks, and, as appropriate, NROC in developing a comprehensive habitat restoration plan that adequately mitigates the biological impacts of the Project within the project area.

I-3

Thank you for providing the opportunity to comment on this phase of the planning process. We look forward to working with you and the County as the project moves forward.

I-4

Respectfully,

Milan Mitrovich, PhD
Ecologist
Nature Reserve of Orange County

Forever Wild

15600 Sand Canyon Avenue • Irvine, CA 92618 Phone: 949 455-3324 • Fax: 949 455-3325
www.naturereserveoc.org

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Response to Letter I

Nature Reserve of Orange County February 6, 2013

- I-1** SOCWA will continue to follow NCCP/HCP guidelines as applicable to existing infrastructure facilities located within the Reserve System. Section 4.1.4 of the Draft EIR analyzes the project's consistency with the Central-Coastal Subregion NCCP/HCP.
- I-2** In the Draft EIR in Section 4.1, and also in the Biological Resources Technical Report provided as Appendix C to the Draft EIR, SOCWA has duly assessed potential impacts to biological resources, including potential impacts to the Central-Coastal Subregion NCCP/HCP. SOCWA has sought to avoid and minimize these effects to the extent practicable by various means, including by designing the project within an existing disturbed access road.
- I-3** SOCWA concurs and will continue to coordinate with OC Parks, and as appropriate, NROC to provide mitigation for project impacts. Mitigation presented in Section 4.4.7 of the Draft EIR would fully mitigate all potential biological resources impacts to a level below significance.
- I-4** SOCWA appreciates NROC's review and comment on the Draft EIR.

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Comment Letter J



To preserve and enhance the unique village character of Laguna Beach

January 22, 2013

SOCWA
34156 Del Obispo St.
Dana Point, CA 92629
Attn: Brian Peck

Re: EIR for Sludge Pipeline

Dear Mr. Peck,

Village Laguna has a forty-year history of activism in the protection of open space in and around Laguna Beach. We helped create the Laguna Coast Wilderness Park, and in recent years we have been involved in raising public awareness of the threat to Aliso and Woods Canyon Wilderness Park posed by the SUPER Project, which would have channelized the creek in order to protect the sewer pipes that run alongside it.

J-1

Our interest in SOCWA's proposed sludge pipeline in Aliso Canyon arises from our concern for the future of the wilderness park. The resource management plan for the park focuses on *preserving the park's natural resources and providing recreational opportunities and public access with minimal impact on those resources*. It doesn't mention any role as a conduit for sewage. In fact, a wilderness park is no place for sewer pipes, and we would like to see all of them removed from it eventually. Where there are sewer lines, they will need to be protected from erosion, and, as we have seen with the SUPER Project (with its 26 dams and its massive grading), doing so is very likely to threaten the integrity of the creek and the park. This is the first opportunity we have had since the park was created to remove any of the existing sewer pipes from the canyon, and we hope that SOCWA will take that step.

J-2

We propose (1) that the EIR's preferred alternative, a pipeline in the same location as the existing one, be rejected and (2) that the trucking alternative be adopted while a comprehensive plan is developed for eventually moving all of the sewage infrastructure out of the wilderness park.

J-3

Taking these steps would allow time for a public interagency discussion of the future of wastewater management in South Orange County that would evaluate twenty-first-century technologies. A facility plan for the Coastal Treatment Plant is reportedly being prepared by CH2MHill, and the results are likely to have some bearing on the appropriateness of continuing to pump sludge through the canyon. Public concerns about

J-4

P.O. Box 1309 Laguna Beach, California 92652 www.villagelaguna.org

protecting the ocean, conserving energy and water, and reducing the production of greenhouse gases all call for new, integrated approaches to the handling of sewage, and these approaches are increasingly becoming available. Furthermore, we understand that their costs can often be managed with federal or state grants or by public-private partnerships. Replacing a 30+-year-old sludge pipeline in place is a step in the wrong direction.

J-4
Cont.

From this perspective, we have the following comments:

1. In the list of goals of the project (ES-2), item 3 should mention protecting not just Aliso and Woods Canyons but "Aliso and Woods Canyons Wilderness Park." The existence of the park is mentioned later (4.1-7), but because the wilderness-park status of the area calls into question the appropriateness of the whole project, it should be kept in mind from the beginning.

J-5

2. It is argued (4.1-8) that consistency with Policy 13f of the Orange County General Plan ("Identify and seek to avoid areas that are particularly susceptible to erosion and sediment loss") will be met by using best-management practices during construction. However, this conclusion overlooks the fact that erosion can be expected to affect the east-side pipeline for much of its length throughout its lifetime.

J-6

The eastward migration of the creek has been the subject of hundreds of thousands of dollars' worth of studies and was the justification for the SUPER Project, which would have dealt with the problem by constructing 26 dams and channelizing the creek between them. More recently, a study of erosion vulnerability conducted by TetraTech for SOCWA has revealed that, with the pipe on the east side of the creek, 3,300 feet of its 15,000-foot length would be at high risk of erosion during the 50-year life of the project, while with the pipe on the west side of the creek only 1,200 feet would be at such risk (8-10 and 8-15). While the draft report mentions lateral migration of the creek in passing (4.10-4), the results of these studies are not considered in evaluating the alternatives. Certainly the western alignment alternative should receive more credit for being somewhat less vulnerable to erosion.

J-7

More broadly, the preferred alignment appears to depend upon the completion of alterations to the creek that are on hold indefinitely, are still only in the planning stages (2-10), and are likely to be controversial. The east-side pipeline is *the only alternative that will require long-term protection against erosion*. Some discussion of the environment impact of this protection and, alternatively, of *not* providing it (should the "Ecological Restoration Project" be abandoned) ought to be made part of the evaluation of alternatives and counted as an argument against the pipeline.

J-8

3. Trucking, one of the two alternatives identified as "environmentally superior," is dismissed because of the inadequacy of the bridge (8-12) and the difficulty of moving trucks, as an alternative, past the school. Surely, however, the bridge, the gateway to the wilderness park, can't be left inadequate forever. At 16,000 lb. capacity, it appears insufficient even to support fire trucks (average weight 80,000 lb., according to Wiki Answers) in the event of a wildfire in the park. *Upgrading of the bridge should be*

J-9

considered a given for reasons of public safety alone and should not be taken as an argument against a trucking alternative.

Incidentally, the report says that the route past the school would have to be used only at night, but the temporary use of the same route during construction is anticipated to be during the daytime (8-17). It would appear, then, that nighttime trucking is not the only option available.

Trucking the sludge would have benefits in terms of energy savings and reduction of greenhouse gases (8-15) as well as removing existing sewer infrastructure from the park, and its additional impacts on air quality would remain below the SCAQMD's thresholds. It would presumably also save water, since it would no longer be necessary to add enough water to the sludge to move it through the pipeline. SOCWA has a history of trucking in emergencies and for periodic flushing of the pipeline and could presumably begin doing so immediately and perhaps at no additional cost for equipment.

4. The solids-handling alternative—another alternative judged “environmentally superior”—is dismissed with an argument about aesthetics, but that impact seems unlikely to be distinguishable from that of the existing plant. The greater cost of this proposal is also cited as a disadvantage, but cost is not one of the environmental impacts to be evaluated. A more detailed description of the solids-handling process would help in assessing this alternative. We see that it would generate electricity, and we can't be sure that the electricity saved at the Regional Treatment Plant and the greenhouse gases that would no longer be produced there have been included in the calculations (8-22). Some figures on energy use and greenhouse gas production might clarify this and make this alternative seem even more attractive. Equipping the plant with a digester would not only allow cogeneration now but also pave the way for the production of electricity on a larger scale through fuel-cell technology.

In summary, we believe that a reevaluation of the alternatives would favor bringing the bridge up to the standards essential for public safety as soon as possible, choosing the trucking alternative as an interim solution, and developing a comprehensive plan—involving all stakeholders and informed by the facility plan that is now in progress—for eventually moving all of the sewage infrastructure out of the wilderness park.

We look forward to your response on these issues.

Sincerely,

Ginger Osborne

Ginger Osborne
President

J-9
Cont.
J-10
J-11
J-12
J-13
J-14

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Response to Letter J

Village Laguna January 22, 2013

J-1 SOCWA acknowledges Village Laguna’s active role in the protection of open space in and around Laguna Beach.

J-2 The original force main was installed by AWMA in 1982, prior to the formation of the AWCWP. While public infrastructure is not listed as the primary role of the AWCWP in the Resource Management Plan, public and private utility buildings and structures are allowed within Open Space zones as designated by the County of Orange. In addition, “all public and quasi-public service facilities and structures, including, but not limited to...sewer facilities” are considered allowed uses by the Central-Coastal Subregion NCCP/HCP in Reserve Lands.

SOCWA acknowledges Village Laguna’s support for alternatives that would remove pipelines from the AWCWP. This information will be made available to SOCWA decision makers prior to consideration of the project.

This goal is complicated due to the number of different utilities and the owners for those utilities, as summarized below:

SOCWA

- Effluent Transmission Main (east side of Aliso Creek)
- Export Sludge Force Mains (east side of Aliso Creek)
- AWMA Road (paved, access road, west side of Aliso Creek)
- AMWA Road Access Bridge
- Coastal Treatment Plant (east side of Aliso Creek)
- Moulton Niguel Water District
- 18-inch Diameter Sewer (east side of Aliso Creek)

South Coast Water District

- Recycled Water Storage Tank, Pump Station, Maintenance Facility (on Coastal Treatment Plant site, west side of Aliso Creek)
- Aliso Creek Water Harvesting Facility (under development, on Coastal Treatment Plant site, west side of Aliso Creek)

The location of these facilities has raised periodic questions since the establishment of the Aliso and Wood Canyon Wilderness Park (AWCWP) in the mid-1980s. However, the removal of these facilities has not been identified as a goal by OC Parks within the AWCWP Resources Management Plan. OC Parks and SOCWA are currently working together to implement long terms goals such as the proposed extension of the Aliso Creek Trail as part of a ‘mountains to the ocean’ trail system.

SOCWA is currently developing a Facility Plan for the both the Coastal and the Regional Treatment Plants. One of the tasks of this facility plan is to develop a conceptual level cost estimate of relocation the capacity of the Coastal Treatment Plant to the Regional Treatment Plant. This cost estimate will be used as supporting information in discussion regarding long term planning for SOCWA facilities. SOCWA recognizes that future changes in regulation, changes in effluent use or, ultimately, the end of the useful life of the Coastal Treatment Plant may spur the agency to consider the relocation of the treatment plant. However, this does not fall within the project objectives of the Draft EIR.

J-3 SOCWA acknowledges that Village Laguna supports the adoption of interim trucking as presented in Trucking Alternatives 1 and 2, Sections 8.3.3 and 8.3.4 of the Draft EIR. SOCWA also notes that Village Laguna supports the adoption of a comprehensive plan to remove sewage infrastructure from the park. This information will be made available to SOCWA decision makers prior to consideration of the project.

J-4 SOCWA welcomes interagency discussions of the future of water resources management in South Orange County; however, as stated in the Draft EIR, Section 3.4, project objective 2 indicates the need for an expediency to the replacement project (refer to Page 2-10 in Section 2.6 of the Draft EIR).

Chapter 8 of the Draft EIR includes analysis of a reasonable range of alternatives as required under CEQA Guidelines Section 15126.6(a).

J-5 Objective 3, which reads “To limit the impact of construction and operations on the surrounding Aliso and Woods Canyon,” is intended to refer to the natural environment of the project area and includes the AWCWP area.

J-6 Refer to response to comment J-8 below.

In addition to the BMPs identified in the Draft EIR, SOCWA would implement mitigation measure GEO-1 as indicated in Section 4.7.5 of the Draft EIR. This mitigation measure would include a design-level geotechnical evaluation to evaluate the potential for unstable geologic conditions. The Final EIR, in Section 4.1.4, Table

4.1-1, has been revised to clarify this information. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.

J-7 In Section 8.3.2 of the Draft EIR, on page 8-10, the following information is provided regarding the West Side Force Main Alignment Alternative:

“Similar to the proposed project, segments of unstable areas also exist along the west side of the creek. However, according to the erosion assessment prepared for this alignment, only approximately 1,200 feet of the FM-2 alignment would have a high erosion risk (as compared to 3,300 feet of the proposed alignment), and 850 feet would be subject to a moderate erosion risk (as compared to 1,250 feet of the proposed alignment) (Tetra Tech 2012). Therefore, impacts related to geology and soils would be slightly reduced when compared to the proposed project.”

The erosion assessment referred to in this statement is the Tetra Tech study (2012). The results of this study, which indicated that areas of both high and moderate erosion risk exist along the west side of the creek, was the basis for the determination that impacts related to geology and soils would be slightly reduced for the West Side Force Main Alignment Alternative when compared to the proposed project.

J-8 This comment states that the east side alignment (FM-1) is the only alternative that would require long-term protection against erosion. As discussed above in response to comment J-7, approximately 1,200 feet of the West Side Force Main Alignment Alternative would be subject to a high erosion risk and approximately 850 feet of that alignment would be subject to a moderate erosion risk. Therefore, the west side alignment might also require long-term protection against erosion.

It is SOCWA’s understanding that a comprehensive plan looking at the natural resource restoration/protection issues related to Aliso Creek is being undertaken by the U.S. Army Corps of Engineers with OC Public Works acting as the local sponsor. SOCWA intends to actively participate in that process. The comprehensive plan would protect utilities in the creek corridor, but would also address a broader range of goals including stabilizing the creek bank and protecting wildlife and habitat. The potential effects of stabilization to biological resources and other resources would be analyzed at the time when such activities are proposed. It should be further noted that protection of east side utilities will be needed regardless of the Force Main project, since the existing Effluent Transmission Main pipeline would remain along the east side of the creek.

- Also, while the portions of the buried force main may or may not be uncovered by erosion in the future, the proposed project would be beneficial in that it would rectify the existing situation and fulfill the project objectives, particularly objective no. 2, which would help reduce and avoid the potential adverse impacts resulting from pipeline failure.
- J-9** The commenter's support for a replacement AWMA Road Access Bridge is acknowledged. The Draft EIR notes that less than 10% of vehicle traffic crossing the bridge is related to SOCWA operations (Page 8-12 of the Draft EIR). Also, SOCWA has consulted possible participants including the Cities of Laguna Niguel and Aliso Viejo to enter into a cost-sharing agreement for replacement of the bridge, which is estimated to cost \$3M to construct; however, none of the potential participants have expressed interest in the cost-sharing agreement. These facts are important to include in the discussion of any alternative that would rely on bridge access and SOCWA disagrees that this argument should be deleted from the EIR.
- J-10** Trucking during construction of the proposed project would last approximately 3 weeks and would be scheduled for a time when school is not in session, preferably during summer vacation. Nighttime trucking would be the only option available for long-term trucking since there are only limited times during the year when school is not in session during the day. Refer to Page 8-17 of the Draft EIR.
- J-11** As discussed on Page 8-15 of the Draft EIR, Trucking Alternative 1 would reduce carbon dioxide emissions by approximately 11 metric tons per year relative to the proposed project. This is approximately a 23% reduction from current operating conditions. While this alternative's air quality emissions would remain below the SCAQMD's thresholds of significance for operation emissions, operational emissions would be greater than for the proposed project.
- Water savings would not be incurred by Trucking Alternative 1 because the water used for flushing is secondary effluent that would otherwise be discharged to the ocean. However, trucking could foreseeably begin without additional equipment cost as stated by the commenter.
- J-12** The Solids Handling Alternative would result in greater visual impacts when compared to the proposed project, as disclosed in Section 8.3.5 of the Draft EIR.
- Regarding the cost of this alternative, while the commenter is correct in that cost is not one of the environmental impacts to be evaluated, the cost is presented in Section 8.3.5 under the discussion of the ability of the alternative to meet most of the basic

project objectives. As such, the cost of the alternative plays a role in its ability to meet project objective number 1.

Additional details regarding this alternative have been preliminarily studied by Carollo Engineering in its June 2012 *Coastal Treatment Plant Sludge Export Replacement Project On-Site Sludge Processing Analysis*. Greenhouse gas emissions for this alternative are presented in Carollo Engineering's September 2012 *Coastal Treatment Plant Sludge Export Replacement Project Greenhouse Gas Projections*. The report does indeed account for the reduction in electricity at the RTP under this alternative.

As discussed in the Carollo Engineering (2012) report, a digester is included as part of Alternative SH-1.

- J-13** SOCWA disagrees that a re-evaluation of alternatives is necessary; rather, the alternatives analysis presented in Chapter 8 fulfills all requirements stipulated in Section 15126.6 of the CEQA Guidelines. Also refer to responses to comments J-3 and J-4.
- J-14** SOCWA appreciates Village Laguna's comments on the Draft EIR.

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Comment Letter K



Date: February 5, 2013

Re: Comments transmitted via email

Lead Agency: South Orange County Wastewater Authority (SOCWA)

DEIR Consultant: Dudek Engineering

DRAFT Environmental Impact Report for the Coastal Treatment Plant
Export Sludge Force Main Replacement Project **SCH #2011051010**

Contacts: Brian Peck Staff SOCWA

Shawn Shamlou Staff DUDEK

SOCWA:

CWN is pleased to submit the following comments regarding this DEIR. We support the following alternatives in **descending** order: **FM-1**, **FM-2** and **FM-3**.

In our opinion, none of the remaining alternatives merits any further consideration. Over the past decade during our constant support of this proposal, more than enough local and County technical staff time, hence significant stakeholder funds have been spent. We feel that this project needs to move forward expeditiously.

History: Two of our board members were also co-founding directors of the now defunct **Clean Water Now! Coalition** (CWNIC: 1998-2012): Roger E. Butow, who served as the Executive Director and Director Scott Woodard, who represented the international 501 c 3 Whaleman Foundation.

The CWNIC did in fact hand deliver a formal letter of support on our stationery regarding the former incarnation of this project (**ACES**) to then SOCWA General Manager David Caretto. We apologize herein, we've been unable to find our in-house copy, but we believe that letter was provided in or around late 2000 or early 2001.

In the letter, we expressed our genuine alarm regarding the ominous calamity of a potential monolithic environmental disaster and existing infrastructure failure/collapse, through stream erosion, catastrophic events and other technical deficiency issues beyond SOCWA's control or mitigative capacity.



Mailing Address: P.O. Box 4711 Laguna Beach CA 92652
Phone: (949) 715-1912 www.clean-water-now.org



(cont)

Page 2 of (4)

Moreover, back in 2001, to our knowledge we were the **only** South Orange County NGO to be openly supportive of SOCWA's original ACES proposal. SOCWA was being reasonable by stressing the urgency of basically emergency repair and/or replacement. We admired their leadership role seeking cures.

Our opinion was based upon known facts: The CWNIC was the **only** NGO to have 100% attendance at the monthly watershed study meetings co-hosted by the County of Orange and the USACE. We were well educated and updated by the always-competent SOCWA staff regarding the ramifications surrounding infrastructural failure. This massive **"accident waiting to happen"** if delayed convinced us that significant health and safety impacts necessitated redress.

CWN as composed today feels that every day which passes brings us closer to a precipice of the unthinkable: Millions of gallons of sludge in the Creek that would not only have short term, acute effects upon both human and wilderness biota in Aliso Creek Canyon but wreck chronic havoc upon the County Beach ecosystems as well. Emergency response personnel and equipment would damage already degraded habitat immeasurably and for indefinite, unpredictable periods of time.

Thus to delay the progression of this project is an unconscionable and unacceptable gamble. It is akin to the Sword of Damocles, hovering in its harmful yet avoidable potential. It represents the greatest threat to the very fragile ecosystems many proclaim that they are profoundly committed to protect.

A large portion of our most recent distress has come from those who would detain reparation, waiting for a larger, more thorough eco-restoration of the entire Aliso Creek Canyon, including the estuary. We do not see delay pleadings for that nebulous rehabilitation and attendant protracted CEQA process outweighing the need for this project's meritorious implementation post haste.

There's no indication that either the sums required (tens of millions of \$\$\$) or the political will to achieve such a hitherto unheard of watershed restoration in South Orange County will happen any time soon, let alone ever. A very critical portion of the lowest reach is a resort and golf course. It is owned and operated by an LLC with vague, indeterminate plans for the future, including 100% rehabilitation.

Mailing Address: P.O. Box 4711 Laguna Beach CA 92652
 Phone: (949) 715.1912 www.clean-water-now.org

K-3
Cont

K-4



(cont.)

Page 3 of (4)

In short, this is a self-evident emergency situation that poses a risk to health, life, property **and** the environment. It begs for prompt, prioritized intervention to prevent a worsening of the situation. By then, only symptomatic, palliative care by the agencies engaged in the monolithic cleanup and aftermath would be possible, preventive causal factors having been ignored, unfunded and not implemented.

Damage control, if disaster occurs, will only bring more finger pointing and the subsequent blame game won't turn back the clock to some idyllic, pre-development period. The benefits stand on their own merit, and holding this project hostage, in a holding pattern in the hope of leveraging or procuring gross sums to pursue complex restoration of the watershed is specious at best.

And who can supply technically knowledgeable, professionally accredited experts that contend such a broad-based restoration, no matter how comprehensive, won't redundantly include this same project exactly as proposed, as an integral, initial and even primary prophylactic objective? Time will have been squandered.

S.M.A.R.T. is a well-known engineering metric, a means to anticipate a project's success potentiality: **S**pecific **M**easurable **A**chievable **R**ealistic and **T**imely. This project fulfills, qualifies in all 5 elements. It needs no more hindering.

The Center for Watershed Protection, a highly respected 501 c-3 resource, asserts that any urbanized region, once it has 25% or more impervious land surfaces, becomes increasingly difficult to bring back into historical, ecologically functional environmental conditions. Each percentile above that is exponential.

Aliso Creek Watershed has been estimated to be almost 80% impervious, urbanization beginning earnestly in the 1960s. It doesn't take an Einstein to do the math. Stream restoration specialists like Dr. Ann Riley, a prestigious consultant to the SWRCB, gave last rights and declared Aliso Creek Watershed "toast," beyond high value redemption years ago at State workshops CWN members attended.

Frankly, we don't believe that this watershed will be resuscitated in our lifetime, but that existing sludge line in question will fall soon, leaving the agencies responsible in dire straits both logistically and financially: It's not a matter of **"IF,"** it's **"WHEN."**

K-4
Cont.

Mailing Address: P.O. Box 4711 - Laguna Beach CA 92652
Phone: (949) 715.1912 www.clean-water-now.org



(cont.)

Page 4 of (4)

An unfortunate and inconvenient truth, the Aliso Creek Watershed restoration funding **had** an open window of opportunity many years ago that would have brought significant federal influx and matching funds from other outside sources.

Sadly, disparate agendas and petitions from public stakeholder representatives, many unknowledgeable, condemned that approach to an early and untimely demise. Notable and prominent were the same self-described altruistic eco-protectionists who now demand reverting to that integrated yet abandoned master plan. Turning back the clock to an unsuccessful analog, that irrevocably ties this sludge project's future approval to that larger, more cohesive plan isn't **SMART**.

These were significant factors in the closing of that past funding window and now petty blockages jeopardize the future chances of this project. CEQA encourages public participation, not unobtainable Pollyanna wish lists, nor the more recent written abuse of the system and the lead agency's chosen agents and its consultants. Vindictive and inflammatory allegations, coupled with outrageous demands, aren't productive and obviate consensus-driven resolutions.

Let's stop **"Waiting for Godot,"** yet more studies, more analyses and assessments are not necessary. Delaying this effort in the vague hope of a **deus ex machina**, an act or intervention that magically provides massive funding and instantly heals, a **"happy ending"** which transports the entire watershed back 50 years to 1964, is myopic, selfish and not **SMART**.

In the meantime, CWN looks forward to working **with** SOCWA, its members, staff, consultants and project vendors collaboratively to assure that we finally achieve our individual mission statements as well as positive, mutual, curative goals.

Respectfully submitted,

Roger E. Buitow
 Executive Director
 Email: roger@clean-water-now.org

CLEAN WATER NOW is an innovative, science-based organization committed to solution-oriented collaboration as a means of developing safe, sustainable water supplies and preserving healthy ecosystems.

Mailing Address: P.O. Box 4711 Laguna Beach, CA 92652
 Phone: (949) 715 1912 www.clean-water-now.org

↑
 K-4
 Cont.
 ↓
 K-5

Response to Letter K

**Clean Water Now
February 5, 2013**

- K-1** SOCWA appreciates Clean Water Now (CWN)'s comments on the Draft EIR. We acknowledge CWN's support of the following three alternatives in descending order: FM-1, FM-2 and FM-3. This information will be made available to SOCWA decision makers prior to consideration of the project.
- K-2** Comment regarding CWN's history with the proposed project is acknowledged. SOCWA appreciates the commenter's support for the proposed project.
- K-3** SOCWA recognizes and appreciates CWN's previous involvement in this project, and appreciates the commenter's support for the proposed project.
- K-4** SOCWA concurs with the potential environmental impacts should the existing sludge handling system fail. The proposed project evaluated in the Draft EIR seeks to rectify this issue.
- SOCWA concurs that larger watershed restoration projects being pursued by others would further delay the proposed replacement project, thereby increasing the potential for pipeline failure.
- K-5** SOCWA appreciates comments received from CWN.

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Comment Letter L



Laguna Greenbelt, Inc.

a non-profit corporation

Brian Peck
 SOCWA
 34156 Obispo St
 Dana Point, CA 92629
bpeck@socwa.com

February 4, 2013

RE: Coastal Treatment Plant Export Sludge force Main Replacement Project DEIR

Dear Mr. Peck:

Laguna Greenbelt, Inc., is a long time non-profit community organization based in Laguna Beach. Since 1968 we have advocated for conservation and public use of open space lands in the coastal canyons in and around Laguna Beach, including Aliso Canyon.

During the early 1970s, James Dilley, the LGB founder, secured Orange County and Coastal Commission support for his vision of establishing a greenbelt. This led directly to the setting aside of Aliso, Wood and Mathis canyons as a county wilderness park as part of the 22,000 acre Laguna Greenbelt. We are protective of these lands, and we wish to work with all public agencies to maintain them according to the objective in the park resource management plan, “preserving the park’s natural resources and providing recreational opportunities and public access with minimal impact on those resources.”

Unfortunately, a wilderness park is a poor place for this project. Treatment plant buildings, sewer lines, and a massive concrete drop structure have impacted Aliso Canyon and Aliso Creek. Over the years there have been studies proposing solutions to ameliorate the impacts of surrounding development and this sewage infrastructure, such as the failed ACWHEP, and the proposed Super Project with many dams and extensive grading. None of them has addressed the possibility of extensive restoration of parklands to ensure the integrity of the park, its canyons, and, especially, the creek.

In the face of decades of severe erosion and creek bed migration leading to pipe failures and subsequent hardening of the creek channel, followed by erosion and creek bed migration, etc., the DEIR proposes yet another project to continue to move sludge through the canyon in a ‘buried’ pipeline. This will not solve any of the problems with the creek bed, and the buried pipe will be uncovered by erosion, followed by more ‘emergency’ concretizing of the creek bank.

Aliso Creek has lost at least 2 miles (~10%) of its original length due to upstream channelizing and narrowing as it passes through six upstream cities. When the water reaches the park it has too much energy, and the result is severe down cutting and erosion of the creek bed, and regular flooding of the canyon bottom, including the golf course and resort.

L-1
 L-2
 L-3
 L-4

What is needed is a comprehensive look at ‘fixing’ the creek by allowing it to meander to lose some of the extra energy. We urge that there be public interagency consideration of the following: the future of wastewater management in South Orange County; viable twenty-first century technologies for sewage management (cf., City of Santa Paula Water Recycling Facility); and a comprehensive plan that acknowledges public concerns about protecting the ocean, conserving energy and water, reducing greenhouse gases, cleaning up Aliso Creek pollution, and restoring Aliso Canyon to its natural setting.

L-5

Replacing the present line represents only a short-term solution to the problem of deterioration of an antiquated and outmoded piping system. At the same time, we recognize that erosion remains a high risk to the existing pipelines. Thus, we prefer the “environmentally superior” alternative of trucking the sludge if and when the existing pipelines are unable to safely carry the sludge. This alternative, however, is dismissed in the report because of an inadequate bridge entrance to the wilderness park. We further propose that the bridge be immediately upgraded in anticipation of future traffic of the heavy sludge trucks and to ensure public safety in the event of wildfire in the park necessitating use of fire trucks.

L-6

Another alternative would process the sewage at the present site by building a digester that would produce energy and cleanse the water. This is considered too expensive to be implemented now without a long-range plan, although we would favor consideration of this alternative along with new technologies if it were established outside the wilderness park.

L-7

SOCWA would need to monitor the pipelines carefully and anticipate spills that could affect sensitive habitat and vegetation and be prepared now or in the near future to shut down the pipelines and immediately implement the trucking alternative. If and when it may be necessary, a trucking alternative would resolve many existing problems identified in the EIR, including the following:

L-8

*Elimination of “variability in sludge concentration, pumping pressure, and intermittent operational scenarios leading to internal deposition, and concern over interior and exterior corrosion.”

*Minimum “disturbance of sensitive vegetation communities or species, and therefore, no conflicts with the Central-Coastal Subregion NCCP/HCP would arise.”

L-9

*No ground disturbance related to construction activities: “There would be no aesthetic impacts.”

L-10

*No direct impacts to recorded archaeological sites due to no construction activity.

L-11

*Reduced impacts related to geology and soils and disturbance to “geologic deposits within which fossils are buried.”

L-12

*No major noise impacts.

L-13

*Minimum impact on public recreational use since trucking would occur at night.

L-14

The DEIR’s preferred alternative to replace the existing pipelines with a new one should be rejected and instead a comprehensive plan be prepared that would eventually remove sewage infrastructure from the wilderness park.

L-15

We appreciate the opportunity to comment on the EIR and urge you to consider our preference for an alternative that should lead to a comprehensive plan for the wilderness park.

If there are any questions, please contact us via email, at lagunagreenbelt@gmail.com, or by telephone at the number below.

↑
L-15
Cont.

Sincerely,



Elisabeth Brown, Ph.D
President

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Response to Letter L

Laguna Greenbelt, Inc.
February 4, 2013

L-1 SOCWA recognizes Laguna Greenbelt’s role in advocating for conservation and public use of open space lands in and around Laguna Beach, and its role in establishing the AWCWP.

L-2 SOCWA notes that the commenter opposes the use of the AWCWP for infrastructure use. Land use effects of the project are analyzed in Section 4.1.4 of the Draft EIR.

As stated in the AWCWP RMP (LSA 2009), habitat fragmentation, invasive plant species, existing fuels and fire hazard conditions, the urban edge effect, public use, and erosion constitute the main threats to the AWCWP. Existing utilities, and in particular, the SOCWA force main, are not cited as primary threats to the park. Rather, erosion threats are cited as resulting from local land use practices, such as the increase in impervious surfaces and the removal of vegetation, and from the creation of unauthorized trails, particularly downhill, within the park which “compact soils, remove ground cover, and concentrate runoff flows” (LSA 2009, page 99).

L-3 As stated in the Draft EIR on page 3-4, recent failures in the force main are attributed to variability in sludge concentration, pumping pressure, and intermittent operational scenarios leading to internal deposition, and concern over interior and exterior corrosion. SOCWA does not intend to solve creek bed problems as part of the project, but as stated in Section 3.4 of the Draft EIR, the project objectives include:

1. To move sludge from the CTP to the RTP in a reliable, cost-effective manner that minimizes risk to surrounding environment.
2. To abandon or remove the existing export sludge force mains in an expedient manner to avoid adverse impacts of a failure of the existing system on Aliso Creek and the surrounding environment.
3. To limit the impact of construction and operations on the surrounding Aliso and Woods Canyons Wilderness Park and adjacent areas.

While the portions of the buried force main may or may not be uncovered by erosion in the future, the proposed project would be beneficial in that it would rectify the existing situation and fulfill the project objectives, particularly objective no. 2, which would help reduce and avoid the potential adverse impacts resulting from pipeline failure.

- L-4** Comment regarding past erosion along Aliso Creek is noted. The severe down cutting and erosion of the creek bed is likely a combination of the energy as well as the lack of sediment load carried by the inflow due to urbanization of the watershed (i.e. increasing the impervious cover). The erosion seen in the channel adjacent to the golf course and resort is less substantial that can be seen in reaches further upstream; flooding in the golf course and resort reaches are a function of the substantially smaller channel which results in reduced conveyance as compared to reaches further upstream.
- L-5** SOCWA supports a comprehensive plan to manage erosion and other issues in the creek, and would provide input on such a plan. However, as stated in response to comment L-3, the project addressed in the Draft EIR does not include such a plan. It is SOCWA's understanding that a comprehensive plan looking at the natural resource restoration/protection issues related to Aliso Creek is being undertaken by the U.S. Army Corps of Engineers with OC Public Works acting as the local sponsor. SOCWA intends to actively participate in that process. The comprehensive plan would protect utilities in the creek corridor, but would also address a broader range of goals including stabilizing the creek bank and protecting wildlife and habitat.
- A comprehensive plan to manage erosion and other issues is not within SOCWA's mission. SOCWA's mission is to collect, treat, beneficially reuse and dispose of wastewater in a manner that protects and respects the environment, maintains the public's health, and meets local, state and federal regulations.
- L-6** As stated in the Draft EIR on page 8-25, the Trucking Alternative 2 would result in reduced impacts to four topics (Biological Resources, Cultural Resources, Geology and Soils, and Paleontological Resources). However, Trucking Alternative 2 would result in greater impacts to air quality when compared to the proposed project. For the sake of clarification, while environmentally superior to the proposed project, Trucking Alternative 2 was not identified as the environmentally superior alternative in the Draft EIR.
- SOCWA notes the commenter's support for AWMA bridge replacement as discussed for Trucking Alternative 1.
- L-7** The Solids Handling Alternative, which would process the sewage at the CTP site, is evaluated in Section 8.3.5 of the Draft EIR. SOCWA notes the commenter's support for this alternative, and this comment will be made available to SOCWA decision makers prior to consideration of the project.
- L-8** SOCWA currently monitors the existing pipelines and is ready to implement the interim trucking if the need arises. The proposed project includes the replacement of

the existing ductile iron force mains with a single HDPE pipeline, which is far more resistant to corrosion.

It is noted that the two trucking alternatives would avoid the variability in sludge concentration and other issues described by the commenter.

L-9 As discussed in Sections 8.3.3 and 8.3.4 of the Draft EIR, the trucking alternatives would not involve construction or ground-disturbing activities that would result in short-term impacts to biological resources. However, long-term operation of the trucking alternatives could indirectly impact sensitive species through increased noise, fugitive dust, and pollutants, and with regards to wildlife species, due to the potential for collisions. The proposed project would not result in conflicts with the Central-Coastal NCCP/HCP; therefore, the trucking alternatives would not be more consistent with the Central-Coastal NCCP/HCP.

L-10 As discussed in Sections 8.3.3 and 8.3.4 of the Draft EIR, neither trucking alternative would result in short-term aesthetic impacts related to ground disturbance. However, construction of the proposed project is anticipated to last approximately 9-10 months, after which no aesthetic impacts related to construction would result. There would also be a 2 to 3-year regrowth time for revegetation. Trucking Alternative 1, which involves the rebuilding of the AWMA Road Access Bridge, would involve approximately 7 round trips of tanker trailers through the AWCWP each day, thereby resulting in longer-term temporary visual impacts to park users.

L-11 As discussed in Section 8.3.3 of the Draft EIR, Trucking Alternative 1 would involve construction of a new AWMA Road Access Bridge, which has the potential to impact a known cultural resource site (CA-ORA-423). Therefore, TR-1 would not avoid all impacts to archaeological sites.

As discussed in Section 8.3.4 of the Draft EIR, Trucking Alternative 2 would reduce potential cultural resource impacts, as stated by the commenter.

L-12 As discussed in Section 8.3.3 of the Draft EIR, Trucking Alternative 1 could potentially impact geologic deposits during excavation activities for the bridge replacement. However, the affected area would be smaller than that affected by the proposed project, and impacts related to geology and soils, as well as paleontology, would be reduced by this alternative.

L-13 The trucking alternatives would result in the long-term operation of tanker trailers, which would create a substantial noise source, both within the AWCWP and near sensitive residential receptors near the RTP. Therefore, the statement that the trucking

alternatives would result in “no major noise impacts” is incorrect, and rather, the trucking alternatives would actually result in increased noise impacts compared to the proposed project. Refer to Sections 8.3.3 and 8.3.4 of the Draft EIR,

L-14 Trucking Alternative 1 would occur during the day, and would avoid weekends and holidays. The operation of up to 7 round trips per day of the tanker trailers on the AWMA Road would result in a long-term impact to public recreational use and would result in greater recreational impacts than the proposed project. Additionally, construction of a new AWMA Road Access Bridge could temporarily interrupt access to the AWCWP at the main entrance, further increasing impacts related to recreational use.

Trucking Alternative 2 would reduce recreation impacts. Refer to Sections 8.3.3 and 8.3.4 of the Draft EIR.

L-15 Refer to responses to comments L-3 and L-5. SOCWA appreciates Laguna Greenbelt’s comments on the Draft EIR.

Comment Letter M



February 6, 2013

Brian Peck, Director of Engineering
 South Orange County Wastewater Authority
 34156 Del Obispo Street
 Dana Point, California 92629

RE: Comments to Draft EIR
 Coastal Treatment Plant Export Sludge Force Main Replacement Project
 SCH#2011051010

Dear Brian:

After attending and commenting at many, many meetings related to the Coastal Treatment Plant as well as the export sludge force main replacement project, there is very little left to say on the topic as it relates to the EIR. Although I realize SOCWA feels it has gone above and beyond in its community outreach efforts and has taken into account comments from all stakeholders, the Sierra Club remains very disappointed in what appears to be the "same old, same old" approach.

M-1

For several years I have personally pleaded with you, your board and Tom Rosales to consider the best environmental solutions possible. We (you and the stakeholders, including several environmental organizations) all took a "blood oath" to follow through with a comprehensive plan for the entire Aliso Canyon and Aliso Creek that would address a multitude of issues. We agreed that any plan that was just a band-aid approach was nothing more than the definition of insanity which as Albert Einstein told us is doing the same thing over and over and expecting a different result.

M-2

We have discussed much more progressive and sustainable alternatives to this entire project, but these appear to be lacking in this draft EIR.

All of my comments are on file and have been recorded by a court reporter in multiple public meetings. It was my hope, the Sierra Club's hope, that SOCWA would actually take a proactive approach to this and come up with a solution that would better serve our finite natural resources.

M-3

I would recommend reopening the EIR for consideration of other alternatives that have been discussed at length in many meetings. There are new technologies out there and better ways of solving our issues in this precious ecosystem.

Thank you for the opportunity to comment on this Draft EIR. I do hope you will consider actually doing some of the things we have repeatedly discussed.

M-4

Sincerely,

Penny Elia

Penny Elia
 Task Force Chair, Save Hobo Aliso
 Sierra Club

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Response to Letter M

Sierra Club
February 6, 2013

- M-1** SOCWA appreciates Ms. Elia’s attendance and involvement at the public meetings and workshops regarding the proposed project. SOCWA has presented alternatives to the proposed project, in Chapter 8 of the Draft EIR.
- M-2** Alternatives that were suggested by the commenter during the public scoping period were considered as part of the EIR alternatives analysis, as presented in Chapter 8 of the Draft EIR. The Draft EIR presents a reasonable range of alternatives as required under Section 15126.6 of the CEQA Guidelines.
- M-3** Refer to response to comment M-2. SOCWA has considered all alternatives presented as part of the scoping process and as part of public outreach efforts for the project, and has presented all alternatives in the Draft EIR in Chapter 8. As such, per the CEQA Guidelines Section 15088.5, recirculation of the Draft EIR is not required.
- M-4** SOCWA appreciates Ms. Elia’s comments on the Draft EIR and notes her support for the pursuit of a comprehensive plan for the entire Aliso Canyon.

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Comment Letter N



California Cultural Resource Preservation Alliance, Inc.

P.O. Box 54132
Irvine, CA 92619-4132

An alliance of American Indian and scientific communities working for
the preservation of archaeological sites and other cultural resources.

February 3, 2013

Brian Peck, P.E.
Director of Engineering
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, CA 92629

Dear Mr. Peck:

Thank you for the opportunity to review the Draft Environmental Impact Report for the Coastal Treatment Plant Export Sludge Force Main Replacement Project. While we join the environmental community in the concern for a coming together of all pertinent agencies to work on a comprehensive plan to improve the Aliso Creek ecosystem, we approve of the design of the proposed project to avoid and preserve the National Register of Historic Places eligible site CA-ORA-582, and the policy to “Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains...”

I N-1
N-2

We encourage the avoidance and preservation of other significant archaeological sites that may be impacted by the proposed project. The South Orange County Wastewater Authority is to be commended for their sensitivity regarding Native American values and for giving sincere consideration to the preservation of archaeological sites in place.

I N-3
N-4

Sincerely,

Patricia Martz, Ph.D.
President

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Response to Letter N

California Cultural Resource Preservation Alliance February 3, 2013

- N-1** SOCWA appreciates CCRPA’s review and comment on the Draft EIR.
- N-2** SOCWA acknowledges that CCRPA supports the proposed design, which includes avoidance of cultural resource CA-ORA-582.
- N-3** Avoidance and preservation of other potential significant archaeological sites is also a goal of SOCWA, as described in mitigation measures CUL-1, CUL-2, and CUL-3 in Section 4.5.7 of the Draft EIR.
- N-4** SOCWA appreciates CCRPA’s review and comment on the Draft EIR.

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Comment Letter O

February 7, 2013

Brian Peck, Director of Engineering
 South Orange County Wastewater Authority
 34156 Del Obispo Street
 Dana Point, California 92629

RE: Public Comments to Draft Environmental Impact Report for the
 Coastal Treatment Plant Export Sludge Force Main Replacement Project
 SCH#2011051010 – November 2012

The Draft Environmental Impact Report is an opportunity to advance "...reasonable, feasible, environmentally superior alternatives..." per the California Environmental Quality Act (CEQA – Public Resources Code Sections 21000 et. Seq.). While thorough in many respects, the present Draft EIR can benefit by public input from dedicated community organizations familiar with improvements among wastewater agencies throughout California

O-1

The South Laguna Civic Association (SLCA), established in 1946, seeks to provide community input on many local public works projects to support the best available strategies, techniques and technologies in developing sustainable solutions to canyon, creek and ocean pollution. Improvements to upgrade Biosolids Handling at the Coastal Treatment Plant will require teamwork among the SOCWA Board and staff with City and community leaders in developing a wastewater system reflecting Laguna Beach's best environmental and sustainability traditions. Teamwork among all stakeholders continues to yield progress in addressing many of today's most pressing wastewater issues.

O-2

These comments and recommendations on the "sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (CCR 15204(a)) are offered by the SLCA to support recent innovations in wastewater management and beneficial reuse strategies. Additional comments are also offered to educate decision-makers of the impact of the proposed project on larger water and water pollution concerns.

O-3

Incorporating private/public partnerships and other techniques during any future revisions of the Draft EIR of the Coastal Treatment Plant's (CTP) aging infrastructure would effectively improve local water sustainability, advance energy independence, reduce climate change emissions and eliminate or diminish the 12 to 15 million gallons of secondary sewage discharged daily into the ocean only 1.2 miles offshore of Laguna Beach.

O-4

Project alternatives for solids handling (SH-1a; SH-1b) combined with fuel cell technology at CTP or eliminating the CTP (ECTP-1,2,3 or 4) and transporting sewage to other SOCWA facilities with slant drill technology can avoid and sustainably mitigate project impacts to the environment. Re-opening the Draft EIR for revisions and improvements will produce a superior project analysis.

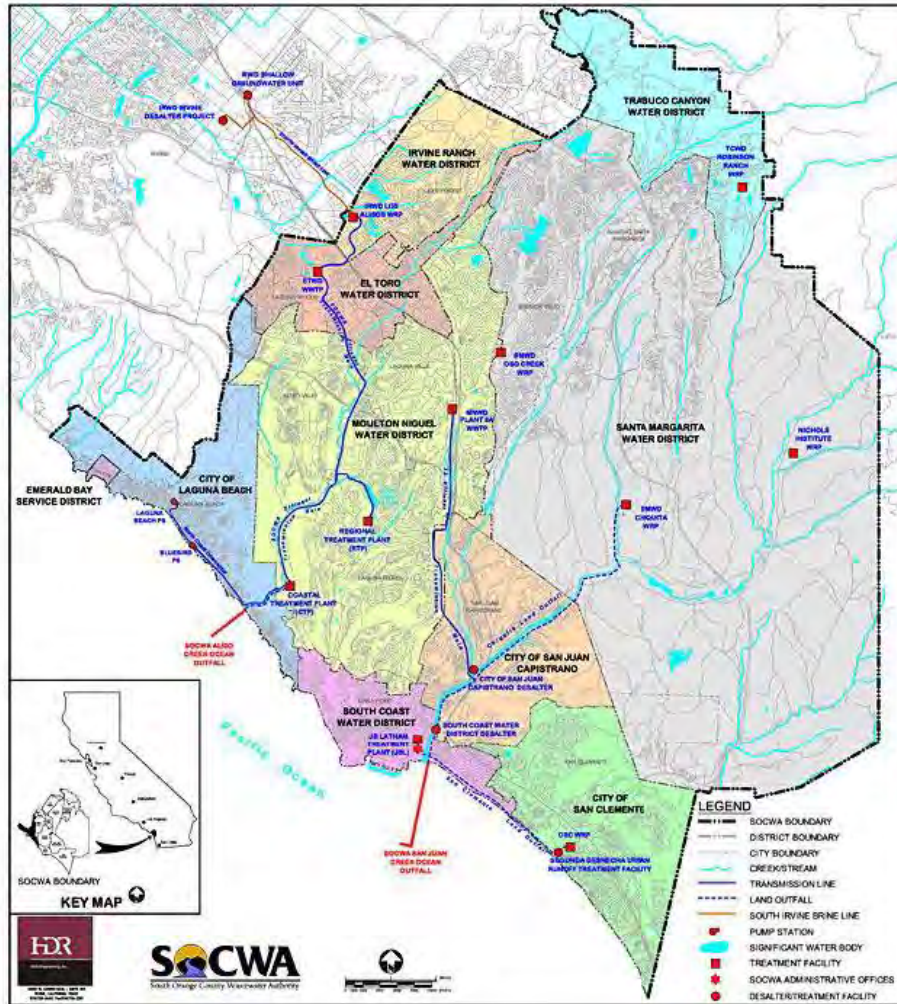
O-5

The Proposed Sludge Line Force Main Export Pipeline through the Aliso & Woods' Canyon Wilderness Park is part of a regional wastewater system managed by the South Orange County Wastewater Authority (SOCWA) established in 1982 with two ocean outfalls. Major infrastructure projects must be

O-6

evaluated within the regional context to best accomplish multiple community benefits to ratepayers and the general public.

0-6
Cont.



0-7

The proposed project seeks to transport biosolids originating from Emerald Bay and Laguna Beach through the North Coast Interceptor and sewage from South Laguna, Monarch Bay and the Dana Point Headlands through the Tunnel Interceptor inland utilizing a 4 mile 6" force main pipeline to the Regional Treatment Plant in Laguna Niguel. Sewage biosolids are generated from regional residential, commercial and hotel activities as well as the over 6 million annual visitors to Laguna Beach. The Tunnel Interceptor anticipates a 5% to 27% increase sewage flow from development of the Dana Point Headlands Hotel and Residential Complex.

Unfortunately, the Draft EIR does not recognize the poor location and condition of the Coastal Treatment Plant, built in 1954 and last upgraded in 1982. Project objectives (ES-2) appear to be a piece-meal approach to a larger wastewater management system in need of upgrades and improvements. Absent from objectives are goals to integrate the best available wastewater management practices in an area of high environmental sensitivity with important implications to the local and regional coastal economy.

O-8

Omitted from Areas of Controversy (ES-3) is analysis of the key component of the proposed Export Sludge Force Main Replacement Project. The Coastal Treatment Plant as point of origin for the Sludge Force Main is not evaluated in terms of siting, operations and lack of cogeneration features common at all other SOCWA facilities. Replacement of an expensive, energy intensive pipeline to accommodate an aging sewage treatment plant located at the confluence of a steep canyon at the end of 32 square mile watershed is antithetical to progress and may constitute “back-sliding” for failure to incorporate today’s common wastewater best management practices. Piece meal replacement of antiquated systems invariably wastes resources and time better suited for designing and implementing a more comprehensive, cost-effective operation at the Coastal Treatment Plant. A comprehensive plan will recognize the proposed project to be an expensive, obsolete approach to modern wastewater and biosolids management. The Coastal Treatment Plant and Sludge Force Main are within the jurisdictional boundaries of the California Coastal Commission.

O-9

O-10

An additional area of omission in the Draft EIR is the relationship of the proposed sludge line replacement to the federal SUPER Project. To protect all sewage infrastructure along Aliso Creek, a \$50 million joint federal/regional effort seeks to install 26, large, concrete “drop structures” throughout the proposed project route. Construction of these structures will impact the sludge line route requiring expensive re-routing and additional impacts to the wilderness park. In the absence of coordination, ratepayers will pay to install the proposed pipe only to pay again to relocate it during construction of the SUPER Project.

O-11

Alternatives Analysis in the Draft EIR lacks detailed information and any cost benefit considerations for cogeneration. While recognizing the “Solids Handling Alternative (at the Coastal Treatment Plant) would result in the greatest degree of reduction of the proposed project’s identified significant impacts”, the EIR concludes it would result in greater impacts to Aesthetics, Air Quality, Greenhouse Gas Emissions and Noise without providing any qualifying data to support these conclusions.

I O-12

O-13

As an example, in terms of “Aesthetics”, a Solids Handling Facility at the Coastal Treatment Plant would isolate any aesthetic impacts to the immediate facility. This is environmentally superior to impacting the entire wilderness park with a four mile long pipe. “Air Quality” impacts are not identified and fail to consider use of non-combustible alternatives such as fuel cell technology with no air quality emissions. Energy impacts from development of on-site fuel cell systems will likely offer a net positive gain in energy savings.

O-14

O-15

Cogeneration at regional treatment facilities commonly provides all on-site electrical energy with additional revenues from sales of compressed natural gas and surplus electrical energy production. The Coastal Treatment Plant is the only SOCWA facility without cogeneration capabilities to best manage biosolids in an environmentally superior manner. Laguna Beach, considered a worldwide leader in environmental initiatives with an economy dependent on sustainability, will be the principal beneficiary of any improvements to upgrade the Coastal Treatment Plant.

O-16

<p>Likewise the source of any potential “Greenhouse Gas Emissions” relating to project alternatives is not identified nor compared to the level of emissions required to pump heavy sludge over a 30 year project lifecycle. Anticipated energy demand for pumping through a four mile pipeline is set at \$30,000 per year and, with projected increases in electrical energy costs, will likely exceed over \$1 million dollars over the projects lifecycle. Total project costs should be revised to over \$5 million to include the significant hidden expense of electricity requirements. The source of increased “Noise” associated with project alternatives is without sufficient data for comparison purposes.</p>	<p>O-17 O-18</p>
<p>Ignoring comprehensive analysis of Project Alternatives and all costs associated with the proposed project creates an incomplete Draft EIR for public review and comment. The Proposed Project budget may be estimated at least 20% below actual costs when energy requirements are considered.</p>	<p>O-19 O-20</p>
<p>Among “Alternatives Considered But Rejected”, 8.2.2 does not contemplate pumping sludge at a longer rate through a relined existing pipe. Relining will reduce the pipe diameter about 25% from 4” to 3”. Development of a solids handling facility to process 25% to 75% of sludge at the Coastal Treatment Plant would reduce load volumes accordingly and eliminate the need to replace the existing pipe saving money, time and impacts to the wilderness park. Extending pumping time by 25% to a 24/7 schedule would also eliminate the need to replace the pipe.</p>	<p>O-21</p>
<p>Alternative 8.2.3 “Elimination of the Coastal Treatment Plant” reflects comments from many Water District Board Members and SOCWA Board and Staff Members as to the poor location of this facility subject to routine flooding and stormwater damage. In fact, no stakeholder group including wastewater managers considers the location of the CTP to be wise or sustainable.</p>	<p>O-22</p>
<p>Pumping sewage to the JB Latham Wastewater Treatment Plant (JBLTP) in Dana Point can relocate operations to a much larger facility in an area with less stormwater flood threats and less environmentally sensitive in terms of marine habitat. The \$5 million required to replace the existing Sludge Line can be reallocated to improve the JPLTP and economy of efficiencies associated with a larger, safer facility will support a sustainable cogeneration operation.</p>	<p>O-23</p>
<p>Retiring the Coastal Treatment Plant and eliminating flows through Aliso Wood Canyon Wilderness Park is environmentally superior to present practices or the proposed project. In addition to precluding expenditures for a \$50 million SUPER Project for creek infrastructure protection, the Laguna State Marine Reserve – a crucial nursery for successful statewide Marine Life Protection and recovery – would be guaranteed safety from any future sewage spills. Redirecting inland sewage flows to the San Juan Ocean Outfall located in a less environmentally critical location and twice as far from shore as the Aliso Creek Ocean outfall can be mitigated by increasing recycled water service to Laguna Beach.</p>	<p>O-24</p>
<p>As an additional mitigation measure, recycled water from the El Toro Water District and Moulton Niguel Water District can be distributed through Laguna Canyon to downtown Laguna Beach, art festival grounds and other facilities to diminish flows to the San Juan Ocean Outfall. Providing recycled water to underserved communities and Highway 73 will also reduce ocean discharges while increasing local water security for wildland fire suppression, earthquakes and similar disasters.</p>	<p>O-25</p>

The Draft EIR makes no attempt to coordinate SOCWA resources among its several wastewater treatment plants. Regional use of recycled water remains underserved despite production capacities. The proposed project is an example of an expensive, time consuming piece by piece operation replacing one pipe at a time, hopefully, before it ruptures and breaks. Such a narrow perspective is not representative of the public's interest in depending upon an ever improving system of water and wastewater management.

O-26

The EIR concludes the cost to eliminate the Coastal Treatment Plant at \$100 million without recognizing the long term economic and environmental benefits of this alternative.

O-27

The Draft EIR does not investigate special funding provisions exclusively provided to upgrade and improve wastewater and recycling facilities. A State Revolving Loan Fund of \$50 million immediately reduces by half the unconfirmed estimate of \$100 million indicated in the Draft EIR narrative to improve or eliminate the Coastal Treatment Plant. Emerging private investment partnerships can also finance alternatives but were not considered in the EIR analysis. Investment groups including Alinda Partners finance, design and operate sewage treatment plants. Fuel cell companies produce energy from sewage derived methane. Sewage treatment plants gain revenues providing electricity and natural gas to the grid. A well considered alternatives analysis will incorporate these new revenues streams before rejecting improvements to the Coastal Treatment Plant.

O-28

The "No Project Alternative" recognizes the critical conditions existing in Aliso Creek to threaten all SOCWA infrastructure. Knowing the potential threat to public health and safety, SOCWA intends to proceed to replace sewage infrastructure in the same vicinity and, in some cases, precise location as presently impaired pipelines along an admittedly, rapidly eroding Aliso Creek.

O-29

Section 8.3.1 acknowledges "biological resources such as wetlands and habitat could be potentially impacted indirectly through contamination of the environment if one of the existing force mains were to rupture. Spills could affect sensitive habitat and vegetation, and also, if a break were to occur, SOCWA would be required to take emergency actions to halt the breakage. Emergency actions would include the use of heavy machinery and equipment, which could affect sensitive biological resources. While difficult to predict the number and location of ruptures (or when), and extent of sludge contamination, overall this alternative is considered to result in a greater level of impact to cultural resources when compared to the proposed project". In short, a potential rupture in the existing sludge force main pipeline is possible at any time to contaminate portions of Aliso Creek and possibly Laguna Beach's coastal tidepools, kelp forest and ocean waters.

O-30

Energy requirements identified in 8.3.1 indicates no improvements to existing electrical energy demands required to pump BioSolids against gravity through a 6" proposed pipeline replacement. Electrical demand is indicated to be about the same as presently used in the existing 4" BioSolids pipe. Laguna Beach's Climate Protection Action Plan adopted in 2009, requires improvements to energy consumption among all municipal and residential projects.

O-31

"The purpose of the Laguna Beach City Climate Protection Action Plan (CPAP) is to provide a blueprint to implement the key provisions of the U.S. Mayors' Climate Protection Agreement, which City Council adopted on February 6, 2007. The broad goal is to reduce manmade greenhouse gas (GHG) emissions 7% below 1990 levels no later than 2012, which would mean a reduction in Laguna Beach of 10% from present levels." <http://www.lagunabeachcity.net/civica/filebank/blobdload.asp?BlobID=2332>

O-32

Since the boundaries of the City of Laguna Beach include South Laguna and, for purposes of sewage management, Emerald Bay, City ownership of the Coastal Treatment Plant is 47% and represents the principal party in the operation of the CTP and existing BioSolids pipeline. A 30 year project influencing the safety of Laguna Beach’s environmental, economic and public resources requires a coordinated alternative capable of incorporating standard measures to reduce overall energy consumption. Water demands presently require as much as 20% of overall usage and the proposed project EIR offers no information for complying with local energy conservation measures and wastewater energy reduction through cogeneration or similar mitigations.

O-33

Environmental Setting

The proposed project is designed in response to heavy erosion along Aliso Creek threatening or exposing regional SOCWA sewage infrastructure and a deteriorated pipeline.

O-34

As background, a brief review of the natural history is useful in understanding present conditions.

The major erosion impacts to the mid and lower reach of Aliso Creek began when early Spanish missionaries and ranchers removed trees for ship building and repairs, construction and firewood fuel. European grazing practices striped large tracts of native tree canopies and abundant watersheds. These “wooded wetlands” featured multistoried cottonwood forests, meandering multiple stream channels, backwater ponds, and wet meadows found now only along undeveloped portions San Mateo Creek and Estuary located a few miles south of Aliso Creek.

Earlier native tribes lived in small villages along a long 1500 foot oxbow bend in Aliso Creek. Well forested with giant Sycamore trees, cottonwoods, and abundant wetland fisheries, the “Nigueli” tribe were sustained by Southern Steelhead Trout, coastal abalone and wildlife. The name Laguna Niguel is derived from the words “Laguna”... Spanish for “lagoon”, and “Nigueli”... the name of a Juaneno Indian village once located inland along Aliso Creek.

O-35

The present 50 acre parking lot area for the Federal Chet Holfield Ziggurat Building constructed during the Nixon era as a Western White House covers the entire native Aliso Creek oxbow and acres of beneficial hydric soils. Restoring the function of this large inland wetland and natural groundwater recharging opportunity along with educational displays of native tribes, craft and environmental art can educate the millions of new residents and visitors to this regional heritage resource and historical Native American site.

The Aliso and Wood Canyons Wilderness Park (AWCWP) is categorized as a regional wilderness park in the Orange County General Plan Recreational Element. A regional wilderness park is:

“A regional park in which the land retains its primeval character with minimal improvements and which is managed and protected to preserve natural resources.” (CTP EIR- 4.1.2.2)

O-36

A “primeval character” requires a wooded wetland of the alluvial floodplain and re-vegetation of carelessly over-grazed foothills presently contributing to elevated stormwater erosion flows to creek infrastructure.

Strategic harvesting of stormwater flows for filtration and potential use to supplement local potable supplies, parkland irrigation, wildfire suppression and disaster water supplies can ease regional water demands. Beneficial use of Ziggurat groundwater supplied by stormwater can mitigate elevated flows damaging SOCWA infrastructure in Aliso Creek. Likewise, comprehensive re-vegetation with native trees, sages and groundcover can dramatically reduce storm flows into Aliso Creek while enhancing surrounding property values sited near a native plant reserve in the Aliso Wood Canyon Wilderness Park.

O-37

The proposed project is designed to mitigate erosion threats to SOCWA infrastructure along Aliso Creek. Reforestation and re-vegetation of the area consistent with pre-European conditions can restore the many beneficial functions of a healthy creek ecology in a semi-arid setting. Re-vegetation strategies have recently been determined to be the most cost effective, long term intervention to protect natural resources as well as sewage infrastructure.

“As a result of litigation pursued by the Mono Lake Committee, National Audubon Society, California Trout and others, first the courts and subsequently the State Water Resources Control Board ordered restoration of the area’s damaged resources. The L.A. Department of Water and Power is responsible for implementing the Water Board-approved restoration plan.

The Committee believes that the best and most cost-effective method of restoration is re-establishing natural processes. This means establishing peak flows on the creeks that give the creeks enough energy to recreate their former habitats without significant intervention or continued maintenance. When past degradation is such that it is difficult to reinstate natural processes, the Committee supports a limited “helping hand,” such as reopening side channels on the streams to raise water tables and provide complex habitat, or planting native vegetation to jump-start streambank recovery.”

O-38

Floodplain reforestation involves planting trees and other vegetation within the floodplain with the explicit goal of re-establishing a mature, native vegetative canopy that will intercept rainfall and maximize infiltration. The stormwater management benefits from floodplain reforestation include greater stream stability, reduced soil erosion, greater infiltration of storm water, and removal of stormwater pollutants. Forest soils actively promote greater infiltration rates through surface organic matter and macropores created by tree roots. Forests also intercept rainfall in their canopy, reducing the amount of rain that reaches the ground. Evapotranspiration by trees increases potential water storage in the soil.

Potentially eminent failure of present SOCWA sewage infrastructure along Aliso Creek will impact the Laguna State Marine Conservation Area and adjacent Laguna State Marine Reserve with biosolid sludge and secondary sewage contaminants. The Laguna Beach economy will be severely impacted as well as the health and welfare of visitors from throughout the region to Aliso Beach.

O-39

Laguna Beach has a long history of ocean stewardship as an integral part of the economy.

▽ O-40



City of Laguna Beach Logo - 1927

Fiscal Considerations, Impacts and Sustainable Opportunities

According to SOCWA documents, the City of Laguna Beach owns 37.91% of Coastal Treatment Plant. Emerald Bay owns 2.99% and South Coast Water District owns 30%. Note South Laguna is 20% of the SCWD ratepayer population or 6% of SCWD's total 30% portion.

<http://www.socwa.com/About/documents/SOCWABudgetFY2012-2013.pdf>

Laguna Beach is therefore the principal owner of the Coastal Treatment Plant and most impacted environmentally by the present and proposed infrastructure repairs. Most ratepayers throughout Laguna Beach and portions of Dana Point likely support improvements and upgrades at the Coastal Treatment Plant especially if multiple community benefits in improved water and energy security are incorporated in future project alternative designs.

Throughout the Draft EIR, there is no discussion of a budgetary line item for income generated by recycled water sales, imported water subsidies or cost savings from the use of biogas co-generation, fuel cell or other potential revenue streams. SOCWA use of co-generation to heat the Laguna Niguel Community Pool creates revenue by saving purchases of natural gas.

Recycled water generally sells for \$1000 per Acre Foot (326,000 gallons). South Coast Water District sells about 1 million gallons of recycled per day (about 3 AF). Potential revenues are:

$$1 \text{ MGD} = 3 \text{ AF} @ \$1000/\text{AF} = \$3000/\text{day} \times 9 \text{ month dry season (300 days/yr)} = \\ \$900,000/\text{year} \times 30 \text{ year facility life cycle} = \$27,000,000.$$

Since recycled water is sold more than 300 days per year, the above figures represent conservative estimates.

O-40
Cont.

O-41

O-42

The Aliso Creek Golf Course continues to use drinking water for irrigation. As all of Laguna Beach incrementally adds recycled water, new water revenues increase while ocean discharges are reduced.

Electricity and natural gas revenues from improved sewage systems remains is a well established wastewater industry practice. The City of San Diego estimates their sewage to energy project will generate \$2.6 million of revenue over ten years from payments made by BioFuels Energy for the biogas. In addition, the City expects to save \$780,000 in electricity costs to power the South Bay Water Reclamation Plant under a ten year power purchase agreement with BioFuels Energy.

"This project is a perfect example of far-sighted government working with industry to creatively solve waste problems for the City of San Diego in an economically compelling manner," said R. Daniel Brdar, Chairman and CEO of FuelCell Energy, Inc. "The use of directed biogas allows customers at distant locations to generate clean power while decreasing their carbon footprint and reducing pollutants."

The San Diego project is being financed by the issuance of bonds authorized by the California Pollution Control Authority, equity and debt investments from the New Energy Capital Cleantech Infrastructure Fund and the North Sky Capital CleanTech Alliance fund, and grants under both the California Self-Generation Incentive Program (SGIP), which promotes the installation of clean distributed generation power sources, and the U.S. Treasury investment tax credit.

BioFuels Energy LLC will own all three of the fuel cell power plants. FuelCell Energy will service the power plants under a long term service contract and the units are expected to be operational by the summer of 2011.

Comprehensive Planning

SOCWA managers need to carefully consider the many elements associated with the proposed Sludge Line Export Pipeline. The project is intended to affect wastewater management for the next 30 years at a \$4 to \$5 million (or more) investment by the ratepayer community. Without a comprehensive plan, we will have missed an important opportunity to save money with wise use of all water resources.

Given recent activities by inland water districts, changes to the NPDES Permit are not a major obstacle as asserted by SOCWA staff. The Irvine Ranch Water District (IRWD) was able to build a new 4 mile long wastewater line from the Santa Ana watershed to the Aliso Watershed to discharge 2 million gallons per day into the Aliso Creek Ocean Outfall. Without regard to neighborhood communities like Laguna Beach or the health and welfare of local coastal receiving waters, IRWD added almost 20% more wastewater to the ACOO through surreptitious amendments to the previous 2006 NPDES permit in the middle of the five year permit cycle.

"SOCWA, hereinafter referred to as Discharger, is currently discharging pursuant to Order No. R9-2006-0055 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0107611. The Discharger submitted a Report of Waste Discharge and two amendments (dated March 31, 2011, January 26, 2012, and January 31, 2012)"

Obviously it is possible to move wastewater from one watershed to another in the middle of an NPDES permit cycle with ease if properly motivated without regard to impacts to neighboring communities. In

O-43

O-44

O-45

fact, if inland neighbors responsibly manage their wastewater for beneficial reuse for hydrogen fuel cells, steam turbines, wave parks, fish growing ponds and increased recycled water distribution, the flows to the ACOO and Laguna Beach would diminish significantly.

↑ O-45
Cont.

The Draft EIR requires greater consideration of costs and potential revenues. Laguna Beach is underserved in terms of recycled water despite a mandated fuel modification requirement by the Fire Department for irrigated rear yard and public easement zones surrounding the 20,000 acre Laguna Greenbelt. The 1992 Laguna Wildfire destroyed 400 homes at an average replacement cost of over \$1 million per residence. Firefighting expenses and related disaster costs brought the total to \$1/2 Billion dollars. A comprehensive irrigated Fuel Modification Zone System can save ratepayers from the next costly wildfire and recycled water lines can be installed on the surface without digging trenches as commonly practiced among most South County cities.

↑ O-46

The 73 Toll Road should have a full recycled water line for routine irrigation and regional wildfire protection.

↑ O-47

Recycled water, properly managed, means less ocean discharges. Recycled water is also an important source of revenues. A recycled water line from the IRWD/El Toro Treatment Plant can gravity feed all of Laguna Canyon for routine irrigation and fire suppression. All municipal buildings, art festival grounds, the Art Institute and similar facilities with water needs for irrigation, toilets, fire protection, street maintenance and air conditioning can be serviced by recycled water. The planted medians at the entrance to the City can be irrigated by recycled water. Sales of 1 MGD to this one region at \$1000/Acre Foot (AF) during the long nine month dry weather season will yield \$1 million each year in revenues to IRWD/ETWD/MNWD or \$30 million over a 30 year pipeline life cycle. New sources of revenues can fund incremental pipe installation and dramatically increase regional disaster preparedness with a gravity fed supply of water.

↑ O-48

Multiple community benefits can also be provided with a recycled water system in Aliso Canyon to irrigate critical restoration of native trees and vegetation required to stabilize the area from decades of ranching impacts and systematic defoliation. Once tree and vegetative canopies are established, the system can insure fire suppression during annual wildfire seasons. Sales of 1 MGD of recycled water to this area during the dry season will yield \$1 million annually to Moulton Niguel Water District over the next 30 years with this gravity fed system.

Recycled water, filtered to potable standards in emergencies, will sustain Laguna Beach and the huge summer tourist populations in the event of major earthquakes, power grid failures or similar catastrophes.

Water security is a major preoccupation in Laguna Beach and, if the Coastal Treatment Plant is to remain in Aliso Canyon, then it should also provide co-generation for electrical power security. Stated objections relate to unexplained "potential" air quality emissions. However, surrounding sewage treatment plants have operated with co-generation for decades without this obstacle. Research reveals biofiltration of exhaust through water percolation systems can address air quality concerns. Likewise hydrogen fuel cell technology deployed at dozens of sites in California can utilize wastewater for power

↑ O-49
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generation without any significant air emission impacts. A local supply of energy will insure Laguna Beach has sufficient power and water to sustain the community through disasters while saving millions of dollars annually by replacing imported water and producing electrical energy.

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O-49
Cont.

A “can do” spirit can be invigorated by partnering with private sector innovators and academic leaders. UC Irvine is now a leader in urban water management, fuel cell use and related technologies. The Director of the UC Irvine National Fuel Cell Research Center indicates an interest in participating in a fuel cell application at the Coastal Treatment Plant. Private water companies are also willing to design, permit and even fund sewage treatment systems simply because all water is a valuable, non discretionary commodity and one of the safest long term investments. As much as \$50 million is available through the State Revolving Fund exclusively for improving sewage treatment plants and expanding recycled water systems.

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O-50

SOCWA staff express concerns about impacts to “neighbor communities” while ignoring the impacts from neighbors in El Toro, Santa Margarita, Aliso Viejo and Laguna Niguel over the past 30 years to Laguna Beach. Polluted urban runoff from inland neighbors often originating from discharges of SOCWA recycled water throughout the summer at a rate of 3 to 5 million gallons per day (MGD) continues to contaminate our community and protected local tidepools, kelp forests and sea life. Our inland neighbors such as the City of Irvine are not the least concerned about pumping additional wastewater through Aliso Canyon to the ACOO only 1.2 miles offshore. If inland neighboring communities responsibly manage their wastewater, we must only re-purpose about 3 million gallons of secondary sewage locally rather than the additional 10 MGD from inland cities.

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O-51

In the Draft EIR, a conclusion was reached that a modern CTP will cost \$100 million. The revised Draft EIR must clarify in some detail how this cost was developed since it is well outside estimates for even larger Publically Owned Treatment Works (POTWs). The budget should not only estimate permit and construction costs. Income revenues from energy co-generation production, sales of excess electrical and natural gas to the grid, sales of new water in an expanded, comprehensive regional recycled program will yield millions of dollars annually to offset CTP improvements. Numerous low and no interest loans available exclusively to POTWs can be leveraged with special State Water Proposition Grants. A Request for Proposals will illicit partnership funding from private equity groups such as Alinda Partners and others seeking new secure investment opportunities.

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O-52

South Orange County communities can enjoy increased property values as creek, canyon and coastal habitats are improved and thriving as genuine natural reserves. Studies have confirmed an increase in property values of as much as 19% for those homes adjacent to natural reserves with similar benefits extending to surrounding neighborhoods. Although SOCWA often insists their responsibilities are limited to water and sewage, everyone realizes these services are the backbone of the region’s economy and, as far as ratepayers are concerned, we must bear all of the costs for infrastructure success, failures and shortcomings.

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O-53

A pipe by pipe replacement approach will not reveal the multiple community benefits inherent in a comprehensive plan. Piecemeal repairs are very expensive and time consuming for all stakeholders.

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O-54

Recommended Actions

As communities become more aware of the connections between water use, energy demands, wastewater management, ocean pollution and the local economy, comprehensive planning becomes a priority.

O-55

The Draft EIR is deficient in several key areas and should be re-opened to develop economic and technical details for alternatives including fuel cell power generation, increased recycled water for Laguna Beach and mitigation measures to protect existing sewage infrastructure in Aliso & Wood Canyon Wilderness Park.

O-56

1. Identify alternatives for improvements and upgrades at the Coastal Treatment Plant to address biosolids handling, energy production, recycled water opportunities and ocean discharge reduction measures identified as having the least overall impacts.

O-57

2. Develop a Laguna Beach Wise Water Task Force with representatives of all key stakeholders and agencies to develop a comprehensive plan for solids handling and co-generation alternative with similar or less impacts than the proposed pipeline replacement project.

O-58

3. Identify and secure funding from local new water and energy revenues, grants and special water district/wastewater loan programs.

O-59

4. As an interim measure, implement Trucking Alternative 2 utilizing Compressed Natural Gas (CNG) vehicles recognized in the Draft EIR as having fewer overall impacts (Table ES-2).

O-60

5. To motivate increased use of recycled water, educate the public about wastewater impacts to ocean upwelling dynamics as they relate to secondary sewage discharges at the Aliso Creek Ocean Outfall, likely, triggering unseasonal Harmful Algae Blooms and transporting sewage discharges to shore.

O-61

The South Laguna Civic Association, representing the community most impacted by wastewater discharges, has a long history of proactively working for sustainable solutions to creek and ocean pollution. Protection and restoration of Aliso Wood Canyon Wilderness Park is essential for a healthy watershed. The EIR process encourages incorporation of industry-wide innovations to improve operations at the Coastal Treatment Plant.

Teamwork among all stakeholders continues to yield progress in addressing many of today's most pressing wastewater issues. Thank you for your favorable review of comments and recommended actions.

O-62

Michael Beanan
Vice President
South Laguna Civic Association

Response to Letter O

South Laguna Civic Association

February 7, 2013

- O-1** Comment noted regarding CEQA and its discussion of alternatives. SOCWA has solicited public input regarding the impacts of the project and alternatives in accordance with CEQA. Alternatives that were suggested by the commenter during the public scoping period were considered as part of the EIR alternatives analysis, as presented in Chapter 8 of the Draft EIR.
- O-2** Comment regarding teamwork with stakeholders is acknowledged. Also refer to response to comment O-1.
- O-3** SOCWA appreciates the commenter’s review and comment on the Draft EIR.
- O-4** These general comments about incorporating public/private partnerships and other potential stated benefits are introduced here with more specific details offered later in the comment letter. Refer to more detailed responses later such as in response to comments O-28 and O-52.
- O-5** The commenter’s support for the Solids Handling Alternative and Elimination of Coastal Treatment Plant alternatives is noted and will be made available to SOCWA decision makers prior to consideration of the project. While the commenter requests that the Draft EIR be recirculated for public review, no reason is provided for such a request. Since none of the conditions presented in the CEQA Guidelines Section 15088.5 triggering recirculation have been met, recirculation of the Draft EIR is not required. In addition, a reasonable range of alternatives has been provided in the Draft EIR in compliance with the CEQA Guidelines Section 15126.6(a).
- O-6** The “regional context” has been duly considered as part of the Draft EIR as indicated in Section 2.1 of the document. Additionally, as stated on Page 2-10 of the Draft EIR, replacement of the export sludge force main requires immediate action.
- O-7** The background information regarding the origination and distribution of sewage and map provided by the commenter are noted.
- O-8** The Draft EIR does recognize the environmental setting of the project as indicated in Chapter 2 and throughout the existing conditions sections found in Chapter 4.

SOCWA, as CEQA lead agency, has determined the project objectives stated in Section 3.4 of the Draft EIR, to be appropriate. Per the CEQA Guidelines Section

15124(b), the statement of objectives should include the underlying purpose of the project. In this case, the purpose of the project is move sludge from the CTP to the RTP. Also refer to Section 3.3 of the Draft EIR.

The issue of modernization of SOCWA's treatment facilities is beyond the objectives identified for the replacement of the Export Sludge System. However, it is an essential issue to SOCWA's overall mission. SOCWA operates four wastewater treatment plants [J. B. Latham Treatment Plant (JBLTP), Plant 3A (3A), Coastal Treatment Plant (CTP), Regional Treatment Plant (RTP)]. These plants vary in size but operate in similar modes centering on conventional activated sludge technology. Three plants have tertiary treatment facilities that produce recycled water (3A, CTP, RTP). Three of the plants have solids handling facilities (JBLTP, 3A, RTP). The RTP also handle the solids from the CTP (Export Sludge) and from the El Toro Water Recycling Facility. Two of SOCWA's plants (JBLTP, RTP) generate electricity from biogas derived from the solids through co-generation. SOCWA's treatment plants were constructed in various stages from 1965 to 1993. All four treatment plants produce effluent that consistently meets standards for ocean discharge.

SOCWA continues to review overall technologies as a means of either meeting new regulations or for making the operation of the treatment plants more cost effective.

In January 2012, SOCWA completed the Facility Plan for the J. B. Latham Treatment Plant in Dana Point. This plan included review of evolving technologies which might be implemented at the plant. Discussed technologies included submerged membrane bioreactors, biological nitrogen removal, IFAS and waste activated technologies. However, it was noted that implementing the new technologies would not result in any operational cost savings sufficient to offset the cost of installing the technologies. The use of these technologies remains an option to meet future changes in regulation, changes in effluent use or, ultimately, to replace the existing plants as they draw near to the end of their useful lives.

SOCWA appreciates the opportunity to explore new technologies. During the development of the DEIR it was suggested that the Santa Paula Water Recycling Facility offered a potential solution to the Export Sludge System Replacement. SOCWA staff toured the facility with the Santa Paula staff. This facility is an excellent example of the use of a public-private partnership to replace a wastewater treatment facility that had fallen out of regulatory compliance. However, the main function of the membrane bioreactor facility would not address the issues of the Export Sludge System replacement. There were several design features of the Santa Paula facility that could

be used within the Solids Handling Alternative although the Santa Paula facility did not have provisions for energy recovery through co-generation.

The modernization of SOCWA's treatment plants for enhanced effluent reuse remains a potential future objective. SOCWA's member agencies were recently asked to financially support research in direct and indirect potable effluent reuse in South Orange County. The ultimate implementation of direct and indirect potable reuse could have a dramatic impact on the form of SOCWA's treatment facilities. However, the sponsors of this research believe that implementation in the best case would be at least ten years in the future. Therefore, this does not offer any benefit to the replacement of the Export Sludge System.

O-9 The areas of controversy stated in Section ES-3 of the Draft EIR have been revised to include the commenter's request. Revisions made to the Final EIR are for clarification purposes only and do not result in any changes to the significance conclusions presented in the document.

O-10 Refer to response to comment O-8; SOCWA notes the commenter's preference for a more "comprehensive, cost-effective" operation at the CTP.

It is noted that the project site is within the jurisdiction of the California Coastal Commission as presented on Page 1-6 of the Draft EIR.

O-11 The Draft EIR adequately discloses the project's relationship to the SUPER project, refer to Sections 2.6 and 5.2 of the document discussing the Ecosystem Restoration Project (ERP), which was the SUPER project's successor. The stabilization and other project components put forth by the ACOE's SUPER/ERP project are not part of the SOCWA project evaluated in the Draft EIR. SOCWA intends to participate with the County of Orange and ACOE for their future comprehensive plan for Aliso Creek erosion and related issues, and to ensure compatibility with the SOCWA Force Main. The alignment of the proposed pipeline on the east side of the creek was located as far east as possible to allow for the future implementation of Aliso Creek restoration.

O-12 Cost benefit considerations for cogeneration are not included in the alternatives analysis presented in Chapter 8 of the Draft EIR. Per the CEQA Guidelines Section 15126.6(b), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project. Cogeneration is presented for the Solids Handling Alternative in Section 8.3.5 of the Draft EIR. The Export Sludge generated by the CTP has undergone cogeneration at the RTP. Therefore alternatives such as the Solids Handling Alternative that would include cogeneration at the CTP do not offer any energy recovery benefit that does not

already exist. A reasonable range of alternatives has been provided in the Draft EIR in compliance with the CEQA Guidelines Section 15126.6(a).

- O-13** The Draft EIR does indeed provide qualifying data regarding the Solids Handling Alternative's potential environmental impacts. Refer to Section 8.3.5, particularly Pages 8-22 through 8-24. Additional information is presented in the Carollo Engineers 2012 *Greenhouse Gas Projections* report cited in Section 8.3.5. In compliance with the CEQA Guidelines Section 15126.6 (d), the EIR includes sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project, as presented in the Draft EIR.
- O-14** Aesthetics impacts of the Solids Handling Alternative are duly addressed in Section 8.3.5 of the Draft EIR. While the visual impacts would be isolated at the CTP site as indicated by the commenter, when compared to the proposed project, impacts would be greater due to the need to construction taller structures, as stated therein. It should also be noted that the proposed project's visual impacts would be short-term, during the construction period and regrowth period only, as disclosed in the Draft EIR in Section 4.2.4; impacts would not occur over the long-term, as would be the case with the Solids Handling Alternative.
- O-15** SOCWA disagrees that air quality impacts of the Solids Handling Alternative are not identified in the Draft EIR, as stated by the commenter. Refer to Page 8-22 of the Draft EIR which contains a comparative analysis of air quality effects as required by the CEQA Guidelines Section 15126.6 (d). While fuel cell technology with no air quality emissions may exist, the Draft EIR already adequately identifies the Solids Handling Alternative as the environmentally superior alternative in Section 8.4. Energy effects are disclosed on Page 8-22. A reasonable range of alternatives has been provided in the Draft EIR in compliance with the CEQA Guidelines Section 15126.6(a).
- O-16** Comments regarding the potential benefits of cogeneration are noted and acknowledged. The Solids Handling Alternative analyzed in Section 8.3.5 of the Draft EIR includes such a facility. The Export Sludge generated by the CTP has undergone cogeneration at the RTP. Therefore alternatives such as the Solids Handling Alternative that would include cogeneration at the CTP do not offer any energy recovery benefit that does not already exist.
- O-17** The force main alternatives (proposed project and FM-2) would not increase pumping, or associated greenhouse gas (GHG) emissions from electrical generation, compared to existing conditions, as described in Section 8.3.2 of the Draft EIR. The new force main will be larger in diameter. This will reduce electrical usage and GHG

emissions as compared to the current condition. The force main alternatives do not involve an increase in the volume of sludge being pumped.. As noted in Section 8.3.3, the trucking alternatives would result in a small decrease in GHG emissions due to an increase in truck exhaust emissions, but less electrical usage than pumping. As stated in Section 8.3.5, the overall GHG emissions from sludge handling alternative would be greater than those for the proposed project. The sludge handling alternative would not change the GHG emissions associated with cogeneration, assuming a similar technology to that at the RTP were used. According to a GHG study prepared for the project (Carollo 2012), this alternative would require additional electricity for sludge processing resulting in an estimated 51 metric tons carbon dioxide equivalent relative to the proposed project. See also response to Comment O-49.

With respect to the energy costs, the commenter does not provide any evidence that pumping costs could escalate to \$5 million over the life of the project.

- O-18** Refer to response to comment O-15; the comparative noise impacts are clearly presented in Section 8.3.5 of the Draft EIR, Page 8-24.
- O-19** SOCWA disagrees with the commenter’s assertion that a comprehensive analysis of alternatives was not included in the Draft EIR; rather, the alternatives analysis is adequate as presented and meets all requirements of the CEQA Guidelines Section 15126.6. Also, a reasonable range of alternatives has been provided in the Draft EIR in compliance with the CEQA Guidelines Section 15126.6(a).
- O-20** Comment regarding potential cost savings is noted and acknowledged. Comments do not pertain to the content or adequacy of the Draft EIR.
- O-21** A reasonable range of alternatives has been provided in the Draft EIR in compliance with the CEQA Guidelines Section 15126.6(a).

Relining is not feasible as disclosed in Section 8.2.2 of the Draft EIR. There is no viable option for relining the existing force mains. The pressures that are experienced in the pumping of sludge are very high. As a result, the lining material would have to be capable of withstanding the high pressures.

The relining materials would need to be a plastic or other type of liner material. These materials require increased thickness to be capable of handling the pressures involved. Therefore, to line the 4-inch force mains with materials that would be strong enough to handle the pressures, there would be substantially reduced area within the force mains to convey the sludge.

Also, as the force main diameter is reduced, the pressure also increases to convey the sludge through the reduced internal pipe diameter. This, in turn, results in the need to strengthen the liner. A liner with the strength to convey the sludge at the pressures anticipated would not leave sufficient conveyance capacity in the existing force mains. A third pipeline might need to be added to maintain the required conveyance capacity at the reduced force main internal diameter.

Reduction in the internal pipeline diameter increases pressure, increasing the hydraulic conditions for the Export Sludge pumping equipment. As the hydraulic grade to be overcome increases, the energy needed increases proportionately. Therefore, slip lining of the force mains would substantially increase the overall energy cost for the Export Sludge operation, as well as greenhouse gas production needed to produce the electricity powering the pumping equipment.

Slip lining of existing pipe facilities involves the insertion of a smaller pipeline (typically of plastic material) within the existing pipeline. In the case of the existing 4-inch ductile iron Export Sludge force mains, deterioration of the ductile iron pipe materials involves both internal and external impacts. The internal deterioration of ductile iron pipelines produces tuberculation of the internal pipe wall. Tuberculation is exhibited by the formation of small mounds of corrosion products, or tuberculation, on the inside pipe wall that roughen the pipe, increasing its resistance to water flow and to the insertion of the proposed lining pipe. Any tuberculation within the existing force mains would require removal before the lining operation could be completed.

Methods for removing pipe tuberculation includes the initial step of preparing an access point in the existing pipe by digging to the pipe and sawing a section from the pipe or creating an access port. The section of the pipeline to have its tuberculation removed is isolated by closing valves or creating another access point and sealing the end. Then, a reaming tool is introduced to the interior of the pipe. The reaming tool is attached to a hollow rod string capable of producing moderate thrust and pullback force, and must also produce sufficient torque when rotated. A horizontal directional drilling or “HDD” machine on the surface or in a pit dug out for this purpose typically applies the aforementioned force to the rod string. In the case of the existing Export Sludge force mains, it would be necessary to construct access locations approximately every 500 to 1,000 feet along the pipeline alignment, depending on the severity of the deterioration, resulting in a total of between 18 to 33 access locations. It is also likely that the HDD drill string could penetrate the wall of a highly deteriorated existing pipe resulting in the possibility of the slip lining pipe exiting the existing pipe during liner insertion, causing the need for additional excavation. As the existing force mains alignment is within habitat of significant quality, excavation along the existing

alignment would be more impactful than that of the proposed new Export Sludge force main alignment that is confined to areas of previous disturbance where possible.

As such, a lined system is not considered to be viable, would have a higher potential to fail prematurely, and have more potential for impact to the environment than what is current proposed in the Draft EIR.

- O-22** Comment regarding the location of the existing CTP is noted. Comments do not pertain to the content or adequacy of the Draft EIR.
- O-23** The commenter’s support for the Elimination of the CTP Alternative is noted and will be made available to SOCWA decision makers prior to consideration of the project.
- O-24** SOCWA disagrees with the commenter’s assertion that the Elimination of the CTP Alternative is environmentally superior to the proposed project, for the rationale disclosed in Section 8.2.3 of the Draft EIR. Rather, this alternative would result in greater environmental impact when compared to the proposed project. Potential benefits to the Laguna State Marine Reserve are noted.
- O-25** The commenter’s ideas for expanding recycled water service are noted; a recycled water service component is beyond the scope of the proposed project as defined in the Draft EIR.
- O-26** The Draft EIR focuses on the proposed project as delineated in Sections 3.3 and 3.4. The commenter’s opposition to the project is noted and will be made available to SOCWA decision makers prior to consideration of the project.
- O-27** While long-term economic benefits potentially realized under the Elimination of the CTP Alternative may exist, this alternative was also rejected due to its inability to reduce or avoid the significant environmental impacts of the proposed project, and also due to the length of time to implement, as disclosed in Page 8-4 of the Draft EIR. Also refer to response to comment O-24.

Several comments have expressed a desire for the relocation of utilities out of Aliso Canyon. This goal is complicated the number of different utilities and the owners for those utilities. These are summarized below:

SOCWA

- Effluent Transmission Main (east side of Aliso Creek)
- Export Sludge Force Mains (east side of Aliso Creek)

- AWMA Road (paved, access road, west side of Aliso Creek)
- AMWA Road Access Bridge
- Coastal Treatment Plant (east side of Aliso Creek)

Moulton Niguel Water District

- 18-inch Diameter Sewer (east side of Aliso Creek)

South Coast Water District

- Recycled Water Storage Tank, Pump Station, Maintenance Facility (on Coastal Treatment Plant site, west side of Aliso Creek)
- Aliso Creek Water Harvesting Facility (under development, on Coastal Treatment Plant site, west side of Aliso Creek)

The location of these facilities has raised periodic questions since the establishment of the Aliso and Wood Canyon Wilderness Park (AWCWP) in the mid-1980's. However, the removal of these facilities has not been identified as a goal by OC Parks within the AWCWP Resources Management Plan. OC Parks and SOCWA are currently working together to implement long term goals such as the proposed extension of the Aliso Creek Trail as part of a 'mountains to the ocean' trail system.

SOCWA is currently developing a Facility Plan for the both the Coastal and the Regional Treatment Plants. One of the tasks of this facility plan is to develop a conceptual level cost estimate of relocation the capacity of the Coastal Treatment Plant to the Regional Treatment Plant. This cost estimate will be used as supporting information in discussion regarding long term planning for SOCWA facilities. SOCWA recognizes that future changes in regulation, changes in effluent use or, ultimately, the end of the useful life of the Coastal Treatment Plant may spur the agency to consider the relocation of the treatment plant. However, this does not fall within the project objectives of the Draft EIR.

- O-28** Funding provisions identified by the commenter are acknowledged and appreciated. The Solids Handling Alternative described in Section 8.3.5 of the Draft EIR does disclose the possibility of a public/private partnership. Fuel cell technology is addressed in response to comment O-15. A reasonable range of alternatives has been provided in the Draft EIR in compliance with the CEQA Guidelines Section 15126.6(a).
- O-29** Comments regarding the No Project alternative and proposed project are noted. The information presented is a summarization of information provided in the Draft EIR.

- O-30** SOCWA is grateful to the commenter for restating the need for the proposed project. The information presented by the commenter is a summarization of information provided in the Draft EIR.
- O-31** The commenter is correct in that no improvements to the existing force mains are assumed under the No Project Alternative. It is noted that the City of Laguna Beach Climate Protection Action Plan requires improvements to energy consumption among projects within its jurisdiction. As set forth in Government Code Section 53091(d), however, the City’s ordinances do not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of wastewater by SOCWA.
- O-32** Information regarding the City of Laguna Beach Climate Protection Action Plan (CPAP) is acknowledged. Comments do not pertain to the content or adequacy of the Draft EIR.
- O-33** The commenter’s objection to the proposed project on the basis that it would not comply with the CPAP is noted and will be made available to SOCWA decision makers prior to consideration of the project. Otherwise, please refer to response to comment O-31.
- O-34** The commenter’s assertion that the project is designed in response to heavy erosion along Aliso Creek is noted; however, it is important to understand that as stated in Section 3.3, the purpose and need for the project is due to aging infrastructure conditions, and not in response to potential risk from creek erosion. Also refer to response to comment O-11.
- O-35** Comments and background regarding the history of erosion in Aliso Creek are noted and acknowledged. Also refer to response to comment O-34.
- O-36** Comments regarding the designation of the AWCWP as a regional wilderness park are consistent with information provided in the Draft EIR, such as in Sections 2.4 and 4.1. The commenter’s definition of “primeval character” is noted but appears to be the opinion of the commenter; the definition is not presented as such in the County’s General Plan Recreation Element or RMP.
- O-37** The commenter’s ideas for easing regional water demands, beneficial reuse, and revegetation are noted. Comments do not pertain to the content or adequacy of the Draft EIR.
- O-38** Refer to response to comment O-34.

- The commenter's ideas for revegetation and restoration are noted. Commenter asserts that the court case discussed supports that SOCWA would be responsible for restoration of Aliso Creek. It does not appear, however, that the Mono Lake and related cases, which relate to the appropriation of water in California, have any bearing on the current project considered by SOCWA. The Draft EIR, in Section 4.4.7 (especially mitigation measures BIO-4 and BIO-6), identifies restoration for project-related impacts as required under CEQA. Beyond that, however, CEQA does not mandate that SOCWA mitigate the conditions of the existing environment, but rather requires only that SOCWA consider and, to the extent feasible, mitigate the impacts of its proposed project on the environment.
- O-39** Comments regarding the potential impacts of failure of the existing force mains are noted and acknowledged. The purpose and need of the proposed project, as stated in Section 3.3 of the Draft EIR, is to replace aging and deteriorating infrastructure, to reduce the potential for infrastructure failure.
- O-40** Comments and logo regarding the City of Laguna Beach's ocean stewardship are acknowledged. Comments do not pertain to the content or adequacy of the Draft EIR.
- O-41** Comments regarding Laguna Beach and Dana Point ratepayer support for CTP improvements are noted and acknowledged and will be made available to SOCWA decision makers prior to consideration of the project.
- O-42** The commenter's request for the EIR to contain information on the budgetary line item for income generated by recycled water sales, imported water subsidies, or cost savings from the use of biogas cogeneration is noted. Cogeneration is considered as part of the Solids Handling Alternative presented in Section 8.3.5 of the Draft EIR. Cogeneration is not included in the project description of the proposed project because such a component is beyond the scope of the proposed project as defined in the Draft EIR.
- O-43** Comments regarding Aliso Creek Golf Course and City of San Diego sewage to energy project are noted. The commenter's support for biogas cogeneration is acknowledged and will be made available to SOCWA decision makers prior to consideration of the project.
- O-44** Comment regarding comprehensive wastewater planning is noted.
- O-45** The other Orange County projects summarized by the commenter are noted. The past two SOCWA NPDES Permit amendments are unrelated to the currently proposed project presented in the Draft EIR.

O-46 Costs and revenues generated by the commenter's request for recycled water service to Laguna Beach are not required contents of an EIR.

SOCWA notes the commenter's request for recycled water service to Laguna Beach for fire protection purposes.

O-47 SOCWA notes the commenter's request for recycled water service to the 73 Toll Road.

O-48 SOCWA notes the commenter's request for recycled water service to Laguna Beach, and the relationship of recycled water to ocean discharge. The potential for restoration is also noted.

O-49 The commenter's support for cogeneration at the CTP for the purpose of electrical power and water security is noted. Air quality impacts are adequately explained for the Solids Handling Alternative presented in Section 8.3.5 of the Draft EIR; also refer to response to comment O-15.

Whether the sludge is processed, including anaerobic digestion to produce digester gas to fuel a cogeneration facility, at the CTP or RTP is immaterial assuming a similar power generation technology were used at either treatment plant. The current cogeneration facility at the RTP uses internal combustion engines, which are regulated by the South Coast Air Quality Management District (SCAQMD). A new cogeneration facility at the CTP would also be subject to SCAQMD permitting regulations. Furthermore, there is an economy of scale in having one cogeneration facility rather than two, including more cost-effective emission controls. In addition, as stated in Section 8.3.5 of the Draft EIR, there would be a substantial cost associated with duplicating the sludge processing and cogeneration capability at the CTP. That is, a cogeneration facility, whether internal combustion engines or fuel cells, could not be installed without a substantial investment in sludge processing to produce digester gas fuel, above and beyond that already provided at the RTP.

The proposed project's operational impacts to air quality were determined to be less than significant as presented in Section 4.3.5 of the Draft EIR, and therefore, no mitigation or alternatives that would reduce air quality impacts are identified in the document.

O-50 Refer to responses to comments O-4 and O-28. The leadership provided by UCI is noted and acknowledged. State Revolving Fund loans possibilities for funding the project are also acknowledged.

O-51 Comments related to impacts from neighboring communities on Laguna Beach are noted.

- O-52** Refer to responses to comments O-16, O-25, and O-42.
- O-53** Comments regarding property values are noted and will be made available to SOCWA decision makers prior to consideration of the project. Comments do not pertain to the content or adequacy of the Draft EIR.
- O-54** Comments regarding “pipe by pipe replacement approach” are noted and will be made available to SOCWA decision makers prior to consideration of the project.
- O-55** Comments regarding comprehensive planning are noted and will be made available to SOCWA decision makers prior to consideration of the project.
- O-56** SOCWA disagrees with the commenter’s assertion that the Draft EIR is deficient and should be recirculated. Since none of the conditions presented in the CEQA Guidelines Section 15088.5 triggering recirculation have been met, recirculation of the Draft EIR is not required.
- A reasonable range of alternatives has been provided in the Draft EIR in compliance with the CEQA Guidelines Section 15126.6(a).
- Technical details regarding alternatives have been provided in the above responses to comments. The commenter’s request for mitigation measures to protect existing sewage infrastructure in the AWCWP is noted; however, mitigation for potential existing environmental impacts is not required in the Draft EIR as provided in the CEQA Guidelines Section 15126.4(a)(4)(A) and (B).
- O-57** Alternatives are adequately presented in the Draft EIR in Chapter 8; a reasonable range of alternatives has been provided in compliance with the CEQA Guidelines Section 15126.6(a).
- O-58** Comment requesting the development of a Laguna Beach Wise Water Task Force is noted. Comment regarding comprehensive wastewater planning is noted.
- O-59** Funding recommendations provided by the commenter are noted and acknowledged.
- O-60** Comment regarding the use of CNG trucks under Trucking Alternative 2 is noted and will be made available to SOCWA decision makers prior to consideration of the project.
- O-61** Comment requesting public education of wastewater impacts to Aliso Creek and Pacific Ocean is noted and will be made available to SOCWA decision makers prior to consideration of the project. Comments do not pertain to the content or adequacy of the Draft EIR.
- O-62** SOCWA appreciates the commenter’s review and comment on the Draft EIR.

CHAPTER 12.0

MITIGATION MONITORING AND REPORTING PROGRAM

The Mitigation, Monitoring, and Reporting Program (MMRP) will be used by the South Orange County Wastewater District (SOCWA) as Lead Agency to ensure the compliance with adopted mitigation measures and project design features associated with the development of the proposed project. SOCWA, as Lead Agency pursuant to the State CEQA Guidelines, will ensure that all mitigation measures and project design features are carried out.

The MMRP consists of a checklist that identifies the mitigation measures, project design features and construction measures associated with the proposed project. The table identifies the mitigation, monitoring, and reporting requirements, including the person(s) responsible for verifying implementation of the mitigation measure/project design feature/construction measure, timing of verification (prior to, during, or after construction) and responsible party. Space is provided for sign-off following completion/implementation of the design feature or mitigation measure.

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Mitigation Measure/ PDF No.	Mitigation Measures/ Design Features	Timing of Mitigation			Monitoring Reporting Agency	Completed		Comments
		Pre Const.	During Const.	Post Const.		Initials	Date	
<i>Air Quality</i>								
<i>Project Design Features</i>								
Air Emissions/ Construction Equipment Operation	<p>The following measures shall be implemented to reduce air quality and greenhouse gas (GHG) emission impacts from construction equipment:</p> <ul style="list-style-type: none"> • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum • Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in use. 		X		SOCWA			
Air Emissions/ Fugitive Dust	<p>The following measures shall be implemented during construction to control fugitive dust and reduce impacts to air quality:</p> <ul style="list-style-type: none"> • All disturbed areas, including bulk material storage which is not being actively utilized, shall be effectively stabilized, and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material such as vegetative ground cover. • All on-site and off-site unpaved roads shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering. • The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material. • All track-out or carry-out shall be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a 		X		SOCWA			

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	<p>paved road within an urban area.</p> <ul style="list-style-type: none"> • Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line. • Water exposed soil with adequate frequency for continued moist soil. • Replace ground cover in disturbed areas as quickly as possible. • Vehicle speed for all construction vehicles shall not exceed 15 miles per hour (mph) on any unpaved surface at the construction site. 							
<i>Mitigation Measures</i>								
none								
<i>Biology</i>								
<i>Project Design Features</i>								
Biological Resources	Prior to ground disturbance, a qualified biologist shall conduct focused surveys for thread-leaved brodiaea.	X			SOCWA			
<i>Mitigation Measures</i>								
MM BIO-1	<p>The following avoidance measures shall be implemented prior to construction to prevent direct and indirect impacts to special-status birds:</p> <ul style="list-style-type: none"> • Pre-construction breeding bird surveys shall be conducted by an appropriately qualified biologist beginning 30 days prior to initiation of project activities, and recurring weekly, if construction occurs during the nesting season (February 1 through September 15) of species known or with potential to nest in the study area. Surveys shall be conducted to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). The last survey shall be conducted no more than 10 days 	X			SOCWA			

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	<p>prior to the initiation of project activities.</p> <ul style="list-style-type: none"> • If a protected native bird is found, appropriate no-work buffers shall be established, including 300-foot buffers for listed species such as California gnatcatcher and least Bell's vireo, 500 feet for special-status raptors, and 50-foot buffers for non-listed passerine species until August 31. Alternatively, the qualified biologist could continue the surveys in order to locate any nests. If an active nest is located, project activities within 300 feet of the nest (within 500 feet for raptor nests), or as determined by the qualified biologist, must be postponed until the nest is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Flagging, stakes, and/or construction fencing may be appropriate to demarcate the inside boundary of the buffer of 300 feet (or 500 feet) between the project activities and the nest. The qualified biologist shall provide SOCWA the results of the protective measures to document compliance with applicable State and Federal laws pertaining to the protection of native birds. • SOCWA and its biologist shall coordinate the procedures for minimizing harm to or harassment of wildlife encountered during construction with the SOCWA contractor and other key construction personnel prior to clearing, grubbing, or grading. • SOCWA's biologist and contractor shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas during the non-breeding season immediately prior to brush-clearing and earth-moving activities. 							
MM BIO-2	To prevent inadvertent impacts to western pond turtle, pre-construction surveys and exclusionary fencing shall be implemented. Starting in mid-March prior to scheduled construction, a qualified turtle biologist, specializing in pond	X			SOCWA			

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	<p>turtle “nesting” behavior, shall survey the project footprint and adjacent areas within the study area in order to assess the areas for possible nesting sites and to map the limits of those potential habitats. Potential nesting areas shall be excluded with fencing material that is regularly monitored for integrity (i.e., no damage, breeches or gaps). This shall be accomplished through one of two alternative methods:</p> <ul style="list-style-type: none"> • Exclude the entire Aliso Creek riparian zone from the pipeline modification study area. This shall consist of a single line of exclusion fencing (i.e., several segments of silt fence attached to one another), uninterrupted from the upstream portion of the study area to the downstream portion and deflected back from the creek a sufficient distance to prevent end-runs. This shall prevent turtles from moving into the project zone. The fence shall be maintained with no breaks and/or openings throughout the project duration. The fence shall be placed before the nesting season begins (i.e., before March 1), even if the pipeline construction does not begin until summer and/or fall. The fencing material shall be at least 24 inches tall, with 6 inches keyed into the soil (buried) and 18 inches above ground. <p align="center">-OR-</p> <ul style="list-style-type: none"> • Exclude only those areas deemed by the turtle biologist as possible nesting areas. This shall include completely surrounding those areas with an exclusion fence. The size of the exclusion areas shall depend on available nesting habitat (could be small and/or large, and could be many). The exclusion fence(s) shall be maintained at all times with no breaks and installed as directed above. 							
MM BIO-3	A biological monitor with turtle experience shall be onsite during all construction activities. The monitor shall periodically survey the modification zone and exclusion fence to make sure that there are no openings and that no		X		SOCWA			

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Mitigation Measure/ PDF No.	Mitigation Measures/ Design Features	Timing of Mitigation			Monitoring Reporting Agency	Completed		Comments
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	turtles have entered the study area. If a turtle is observed, it shall be captured, processed, its reproductive status determined (palpating for eggs), and either relocated back to Aliso Creek out of harm's way or redirected to an area that is unencumbered by silt fencing. The monitor palpating ensure that female turtles attempting to return to same area to nest later that day or over the next few days are relocated out of the construction area.							
MM BIO-4	Temporary, direct impacts to 11.3 acres of special-status vegetation communities shall be mitigated through on-site restoration at a 2:1 ratio (for California sagebrush scrub, coyote brush scrub, and Menzies' goldenbrush scrub) and a 1:1 ratio (for other vegetation communities) to restore impacted special-status vegetation communities to pre-construction conditions. A revegetation plan shall be developed, and all revegetation efforts shall be consistent with the management plan developed for the Central-Coastal Subregion NCCP/HCP for this particular reserve area. The revegetation plan shall include a monitoring program, clearly defined success criteria, and contingency measures, and shall be submitted to OC Parks prior to commencement of grading or trenching activities.			X	SOCWA			
MM BIO-5	To prevent inadvertent disturbance to special-status vegetation communities, including riparian communities, outside the limits of the construction easement, vegetation removal shall be monitored by a biologist and standard best management practices (BMPs) (see measures listed in <i>Table 3-1</i> related to the minimization of fugitive dust, the containment of accidental spills of hazardous materials, and water quality protection) shall be implemented. A biologist shall be contracted to perform biological monitoring during all clearing activities. The following duties shall be carried out by the biological	X	X		SOCWA			

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	monitor: <ul style="list-style-type: none"> • Review and/or designate the vegetation removal area in the field with the contractor in accordance with the final plan; • Be present during initial vegetation clearing, grubbing, and grading; and • Record any advertent impacts to vegetation communities outside the designated construction easement in daily monitoring reports. 							
MM BIO-6	To reduce temporary impacts to 2.94 acres of jurisdictional waters / wetlands, the following shall be required of SOCWA: <ul style="list-style-type: none"> • Prior to construction, the following agency permits shall be obtained, or verification that they are not required shall be obtained: • SOCWA shall obtain a CWA, Section 401/404 permit issued by the California RWQCB and the ACOE for all project-related disturbances of water of the United States and/or associated wetlands. • A Section 1602 Streambed Alteration Agreement shall be obtained from CDFG for all project-related disturbances of any streambed. These permits will specify the mitigation requirements for impacts to jurisdictional waters / wetlands. • For temporary impacts resulting from the proposed project, restoration in place is typically required at a 1:1 ratio, but may be as high as 2:1. The permits will also likely stipulate standard construction best management practices that will be required by SOCWA to ensure that adjacent preserved wetlands will not be impacted by the project. • As part of the permit conditions, SOCWA will be required to enter into a minimum 5-year maintenance and monitoring agreement in which the restoration areas are 	X		X	SOCWA			

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	monitored by a qualified biologist to ensure they are meeting success criteria and performance standards. These criteria and standards will be established and defined during the permit process period. The plan shall be prepared and submitted to the regulatory agencies for approval.							
<i>Cultural</i>								
<i>Project Design Features</i>								
none								
<i>Mitigation Measures</i>								
MM CUL-1	<p>A pre-construction workshop shall be conducted by a qualified archaeologist and a local Native American representative. Attendees will include SOCWA representatives, an archaeologist, local Native American representative(s), construction supervisors, and equipment operators to ensure that all parties understand the cultural resources monitoring program and their respective roles and responsibilities. All construction personnel who will work within the CA-ORA-582 site boundary, and 100-foot buffer around the boundary, shall be required to attend the workshop. The names of all personnel who attended shall be recorded.</p> <p>The workshop will review the following: types of archaeological materials that may be uncovered; examples of common archaeological artifacts and other cultural materials to examine; describe why monitoring is required; describe what makes an archaeological resource significant; identify monitoring procedures; identify what would temporarily halt construction and for how long; describe a reasonable worst-case resource discovery scenario (i.e., discovery of intact human remains or an unknown, intact, substantial midden deposit); and describe reporting requirements and the responsibilities of the construction</p>	X			SOCWA			

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Mitigation Measure/ PDF No.	Mitigation Measures/ Design Features	Timing of Mitigation			Monitoring Reporting Agency	Completed		Comments
		Pre Const.	During Const.	Post Const.		Initials	Date	
	supervisor and crew. The workshop shall make attendees aware of prohibited activities and educate construction workers about the inappropriateness of unauthorized collecting of artifacts that can result in impacts on cultural resources.							
MM CUL-2	<p>All ground disturbances within the defined CA-ORA-582 site boundary, and a 100-foot buffer around the boundary, shall be monitored by a qualified archaeologist and a local Native American representative.</p> <p>A construction monitoring treatment plan will be developed by a qualified archaeologist and implemented to ensure that unexpected features or artifact concentrations are adequately recorded, evaluated, and, if significant, mitigated. The plan will describe the following:</p> <ul style="list-style-type: none"> a. procedures for notifying SOCWA and other involved or interested parties in case of an unexpected discovery b. procedures that would be used to record, evaluate, and mitigate an unexpected discovery with a minimum of delay c. procedures that would be followed in case of discovery of disturbed, as well as intact, human burials and burial-associated artifacts specifications that all ground disturbances within the recorded CA-ORA-582 site boundary and a 100-foot buffer around the boundary will be monitored by a qualified archaeologist and a Native American representative. The monitors shall have the authority to temporarily halt or redirect construction in the vicinity of any potentially significant discovery to allow for adequate recordation, evaluation, and mitigation. 		X		SOCWA			
MM CUL-3	In the event that cultural materials are encountered during construction of the proposed pipeline, trenching shall be temporarily redirected and/or suspended until a qualified		X		SOCWA			

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Mitigation Measure/ PDF No.	Mitigation Measures/ Design Features	Timing of Mitigation			Monitoring Reporting Agency	Completed		Comments
		Pre Const.	During Const.	Post Const.		Initials	Date	
	archaeologist and local Native American representative are retained to evaluate the find, including mapping and collecting any diagnostic (time-sensitive) artifacts.							
<i>Geology and Soils</i>								
<i>Project Design Features</i>								
none								
<i>Mitigation Measures</i>								
MM GEO-1	Prior to construction, SOCWA shall conduct a design-level geotechnical investigation to evaluate the potential for unstable geologic conditions that may affect the approved project. If subsurface exploration presents the possibility for unstable conditions, the force main design shall be modified to limit excavations and fills, and to implement suitable drainage provisions. Excavations in areas near mapped landslides shall be less than 5 feet. Alternatives to trench excavations could also be employed to avoid landslide deposits. The geotechnical investigation shall be prepared by a certified geologist prior to construction of the proposed pipeline.	X			SOCWA			

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Mitigation Measure/ PDF No.	Mitigation Measures/ Design Features	Timing of Mitigation			Monitoring Reporting Agency	Completed		Comments
		Pre Const.	During Const.	Post Const.		Initials	Date	
<i>Hazardous Materials</i>								
<i>Project Design Features</i>								
Hazardous Materials	SOCWA shall ensure that all equipment required for construction and short-term trucking activities shall be refueled or maintained within designated staging areas (adjacent parking lots). Best Management Practices (BMPs) to contain accidental spills of hazardous materials shall be utilized when performing vehicle maintenance or refueling. Such BMPs may include the following: <ul style="list-style-type: none"> • When equipment is being utilized along the access road, drip pans shall be placed under all potential discharge conduits or leaks. • “Spot clean” leaks and drips routinely to prevent runoff of spillage. • Post signs to remind employees not to top off the fuel tank when filling and signs that ban employees from changing engine oil or other fluids at the project location. • Report leaking vehicles to fleet maintenance. 	X			SOCWA			
<i>Mitigation Measures</i>								
MM HAZ-1	Prior to construction, SOCWA shall develop a Traffic Management Plan to identify alternative routes which will enable emergency access in the case of an emergency situation. Traffic congestion and road blockages shall be minimized to the maximum extent possible. The Plan shall be submitted to the Orange County Fire Authority for review and approval prior to commencement of construction.	X			SOCWA			

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		Pre Const.	During Const.	Post Const.		Initials	Date	
<i>Hydrology and Water Quality</i>								
<i>Project Design Features</i>								
Water Quality Protection and Erosion and Sedimentation Control	<p>In compliance with the National Pollution Discharge Elimination System (NPDES), the applicant will prepare a storm water pollution prevention plan (SWPPP) that specifies best management practices (BMPs) to be implemented during project construction to prevent pollutants from contacting stormwater and control erosion and sedimentation. The SWPPP will be prepared and submitted to the Regional Water Quality Control Board (RWQCB) for review and approval prior to the start of construction. Project construction will implement the following BMPs to protect water quality and reduce erosion and sedimentation:</p> <ul style="list-style-type: none"> • Physical and/or vegetation stabilization BMPs such as hydroseeding, soil binders, straw mulch, and/or geotextiles, plastic covers and erosion control blankets/mats are required to prevent erosion from exposed slopes. • Sediment control BMPs such as silt fences, fiber rolls, gravel bag berms, sand bag barriers, or straw bale barriers shall be used along the perimeter of the construction site or adjacent to sensitive areas and water bodies to trap soil particles and prevent sedimentation. • Waste and materials management BMPs such as spill prevention and control plans, contaminated soil management, liquid waste management, vehicle equipment cleaning, fueling and maintenance plans, material use, and stockpile management shall be implemented to prevent contaminated runoff to adjacent areas. 		X		SOCWA			

12 – MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure/ PDF No.	Mitigation Measures/ Design Features	Timing of Mitigation			Monitoring Reporting Agency	Completed		Comments
		Pre Const.	During Const.	Post Const.		Initials	Date	
<i>Mitigation Measures</i>								
MM HYD-1a	If groundwater is encountered during grading/trenching and is proposed to be discharged to surface waters, SOCWA shall obtain a General Waste Discharge Requirements for Discharges of Extracted Groundwater to Surface Waters within the San Diego Region Except for San Diego Bay (RWQCB Order No. R9-2008-0002) and shall comply with all requirements of the waste discharge requirements.		X		SOCWA			
MM HYD-1b	As an alternative to obtaining a waste discharge requirements permit, groundwater could be discharged to the sanitary sewer or to an upland area where it does not enter back into the stream or other surface waters, or can be used for dust control.		X		SOCWA			
<i>Noise</i>								
<i>Project Design Features</i>								
Noise	Construction activities would generally occur Monday through Saturday from 7:00 a.m. to 3:30 p.m. and would not occur after 8 p.m. (in compliance with the County Municipal Code, Section 4.6.7, which requires that construction equipment shall not be operated from 8:00 p.m. to 7:00 a.m. on weekdays or Saturday, or at any time on Sunday or a federal holiday).		X		SOCWA			
<i>Mitigation Measures</i>								
none								
<i>Paleontological Resources</i>								
<i>Project Design Features</i>								
none								

12 – MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure/ PDF No.	Mitigation Measures/ Design Features	Timing of Mitigation			Monitoring Reporting Agency	Completed		Comments
		Pre Const.	During Const.	Post Const.		Initials	Date	
<i>Mitigation Measures</i>								
MM PAL-1	<p>SOCWA shall retain an Orange County-certified paleontologist to monitor all ground-disturbing activities associated with construction of the proposed project. Prior to construction, the paleontologist shall prepare a Paleontological Monitoring and Discovery Plan that indicates the treatments recommended for the area of the proposed disturbance, the methods of fossil and data recovery, the level of monitoring, the types of field personnel, the post-field treatment of recovered paleontological resources, the designated specimen repository, and the format of the final mitigation report.</p> <p>In the event that paleontological resources are discovered during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by the qualified paleontologist. The paleontologist shall notify the appropriate agencies to determine procedures that should be followed before construction is allowed to resume at the location of the find. If the project applicant determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the proposed project on the qualities that make the resource important. The plan shall be submitted to the County for review and approval prior to implementation.</p>		X		SOCWA			