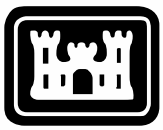
SANTA ANA RIVER MAINSTEM PROJECT:
LOWER NORCO BLUFFS TOE PROTECTION

County of Riverside, California

FINAL
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND
ENVIRONMENTAL IMPACT REPORT ADDENDUM



US Army Corps of Engineers

Los Angeles District

October 2021

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)

SANTA ANA RIVER MAINSTEM PROJECT
LOWER NORCO BLUFFS TOE PROTECTION
CITY OF NORCO, RIVERSIDE COUNTY, CALIFORNIA

The U.S. Army Corps of Engineers, Los Angeles District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended, for proposed design modifications to the Santa Ana River Mainstem Project (SARMP): Lower Norco Bluffs Toe Protection, a feature of the Prado Dam Separable Element of the SARMP. The Supplemental Environmental Assessment and Environmental Impact Report Addendum (SEA/EIR Addendum), dated April 2021, addresses proposed modifications and refinements to the toe protection design and construction methods. This SEA/EIR Addendum has been prepared by the Corps as a supplement to the Final Supplemental Environmental Impact Statement/EIR (SEIS/EIR) for Prado Basin and Vicinity, dated November 2001.

Proposed modifications to the 2001 design include changes to the composition of the embankment structure, location and length of access roads, addition of drainage features, and installation of temporary sheet pile and berms during construction to control flow of water within the Temporary Construction Easement (TCE).

- The embankment structure would be comprised of launchable rock, rip-rap and fill rather than soil cement.
- A system of v-ditches, catch basins, side drains, and culverts have been added to the design to facilitate drainage.
- A new staging area would be located south of and adjacent to the previously identified staging area, off of Corydon Avenue.
- The TCE was expanded and would extend from approximately 450 ft. downstream of Hamner Avenue to the Corydon Equestrian Staging Area.
- Temporary sheet pile shoring, or similar diversion structure, would be installed on top of the riverbank within the TCE. Additionally, a temporary earthen berm, or similar structure, will be placed along the boundary of the TCE (within the TCE) in areas where flood-risk is the highest.

The modified design would result in approximately 37.1 acres of permanent impacts and 61.7 acres of temporary impacts, an increase of 16.6 acres and 14.8 of permanent and temporary impacts, respectively, compared to the Previously Approved Design. Temporary and permanent impacts to 58 acres of riparian and floodplain habitats will be offset by a total of 187.3 acres of habitat restoration in other locations within Prado Basin.

Construction associated with the Proposed Action is tentatively scheduled to start in Summer or Fall 2021 and would continue for approximately thirty-six (36) months.

The Final Lower Norco Bluffs SEA/EIR Addendum, incorporated herein by reference, evaluates two alternatives: The No Action Alternative, under which construction of Lower Norco Bluffs as described in the 2001 Final SEIS/EIR would occur, with no modifications or additions as described in this SEA/EIR Addendum; and the Proposed Action, in which the proposed design and construction modifications would be implemented.

An electronic public Draft Lower Norco Bluffs SEA/EIR Addendum was made available on the Los Angeles District homepage and was distributed to known interested parties in April 2020, with a request for comments from April 22, 2020 to May 27, 2020. Comments received on that public Draft are included in Appendix H of the SEA/EIR Addendum, along with the Corps' response. None of the comments received changed the description of the Proposed Action or the analysis contained in this Phase II SEA/EIR Addendum.

For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table-1 below:

Table-1: Summary of Potential Effects of the Recommended Plan (including proposed minimization and avoidance measures)

	Insignificant effects	Insignificant effects as a result of mitigation	Resource unaffected by action
Water Resources and Hydrology	☒	☐	☐
Air quality	☒	☐	☐
Earth Resources	☒	☐	☐
Biological Resources	☐	☒	☐
Cultural Resources	☒	☐	☐
Land Use	☒	☐	☐
Aesthetics	☒	☐	☐
Recreation	☒	☐	☐
Noise	☒	☐	☐
Socioeconomics	☒	☐	☐
Public Services and Utilities	☒	☐	☐
Transportation	☒	☐	☐
Hazardous Materials	☒	☐	☐

Avoidance and minimization measures to be implemented as part of the action are included in the SEA/EIR Addendum in Section 6.0. With the implementation of these measures, all potential impacts to environmental and human resources in and adjacent to the project area would be less than significant.

Biological, cultural, and environmental resources surveys were conducted at the Lower Norco Bluffs Project Area, and potential impacts or effects of the project were analyzed in the Final SEA/EIR Addendum. Endangered Species Act compliance was initially addressed through a biological opinion from the U.S. Fish and Wildlife Service (USFWS) dated December 5, 2001 (FWS-SB-909.6). Another biological opinion was provided by the USFWS on March 15, 2020 (FWS-WRIV-08B0408-20F1), addressing effects from the modified project description to three federally listed species and, or their designated critical habitats. The USFWS determined that the least Bell's vireo (*Vireo bellii pusillus*) and its designated critical habitat would be adversely affected; southwestern willow flycatcher (*Epidonax trailii extimus*) and its designated critical habitat may be affected, but are not likely be adversely affected; and Santa Ana sucker (*Catostomus santaanae*) would be adversely affected, while its designated critical habitat may be affected but is not likely to be adversely affected. The USFWS determined that the Proposed Action is not likely to jeopardize the continued existence of the least Bell's vireo or Santa Ana sucker, nor result in the destruction or adverse modification of designated critical habitat for the vireo.

A Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) for the Lower Norco Bluffs Project was provided by the Santa Ana Regional Water Quality Control Board on August 31, 2020. To offset the temporary and permanent effects of the Proposed Action on riparian habitat and Waters of the U.S., the Corps will conduct onsite and offsite restoration activities in accordance with 401 WQC requirements, biological opinion requirements and SEA/EIR Addendum commitments.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, a programmatic agreement (PA) was executed for the SARMP in 1993 by the Corps, State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation. The PA details the procedures to be followed for each feature of the project. In accordance with the PA, the Corps contracted with Aspen Environmental Group (Aspen) to complete a record search and pedestrian survey of the Lower Norco Bluffs project area. The Corps has submitted the report to the SHPO for their review and acceptance and has consulted with the SHPO about the eligibility of the singular cultural resource located within the Lower Norco Bluffs area of potential effect. This resource consists of a portion of a pipeline that extends westward from an abandoned wastewater treatment facility located outside the project area. The Corps has determined that the pipeline is not eligible for the National Register of Historic Places. The SHPO concurred with the Corps' determination in a letter dated March 24, 2020.

The Corps also notified the following non-Federally recognized Tribes about the project and requested their input on any issues related to the undertaking's potential effects on historic properties and sought their assistance in identifying any properties which are of religious or cultural significance that may be affected by the project: Gabrieleno Band of Mission Indians - Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, Gabrielino /Tongva Nation, Gabrielino Tongva Indians of California Tribal Council, Gabrielino-Tongva Tribe, Juaneno Band of Mission Indians Acjachemen Nation –Belardes, and San Fernando Band of Mission Indians.

The Proposed Action is in compliance with all federal regulations and California Environmental Quality Act requirements and rules, and in compliance with all state of California statutes.

Based on the analyses in the SEA/EIR Addendum, implementation of the Proposed Action would result in short term and long-term impacts to environmental resources including, but not limited to, biological resources, air quality, and water quality. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on the Final SEA/EIR Addendum, the reviews by other Federal, State and local agencies, and the review by my staff, it is my determination that the Proposed Action would not have a significant effect on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

06-May-2021

Date

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Julie A. Balten
Colonel, U.S. Army
Commanding

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ACS	American Community Survey
APE	Area of Potential Effect
ASTM	American Society for Testing of Materials
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe
BO	Biological Opinion
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQ	Center for Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Cleanup and Liability Act
CESA	California Endangered Species Act
CNPS	California Native Plant Society
DG	Decomposed Granite
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ER	Engineering Regulation
GDM	General Design Memorandum
GHG	Green House Gas
GSA	U.S. General Services Administration
HTRW	Hazardous, Toxic, Radioactive Waste
I-15	Interstate 15
LADUSACE	U.S. Army Corps of Engineers, Los Angeles District
LRR	Limited Reevaluation Report
MSHCP	Multi-Species Habitat Conservation Plan
NED	National Economic Development
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
OCFCD	Orange County Flood Control District
OCPW	Orange County Public Works
OCWD	Orange County Water District
OHWM	Ordinary High Water Mark
OMRRR	Operation, Maintenance, Repair, Replacement, Rehabilitation
PBF	Physical and Biological Features
PCA	Project Cooperation Agreement
RCFC&WCD	Riverside County Flood Control and Water Conservation District
RCRA	Resource Conservation and Recovery Act
RCRCD	Riverside-Corona Resource Conservation District
RDF	Reservoir Design Flood
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SEA	Supplemental Environmental Assessment
SEIS	Supplemental Environmental Impact Statement

SARMP	Santa Ana River Mainstem Project
SAWA	Santa Ana Watershed Association
SAWPA	Santa Ana Watershed Project Authority
SBCFCD	San Bernardino County Flood Control District
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SR-91	State Route 91
SWPPP	Stormwater Pollution Prevention Plan
TCE	Temporary Construction Easement
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WRDA	Water Resources Development Act

1 INTRODUCTION

This Final Supplemental Environmental Assessment (SEA) and Environmental Impact Report (EIR) Addendum for the Lower Norco Bluffs Toe Protection (Lower Norco Bluffs) portion of the Santa Ana River Mainstem Flood Control Project (SARMP) has been prepared by the U.S. Army Corps of Engineers (Corps) as a supplement to the Final Supplemental Environmental Impact Statement (SEIS)/EIR for Prado Basin Vicinity, dated November 2001 (hereinafter referred to as the 2001 SEIS/EIR). The 2001 SEIS/EIR addressed several components of the SARMP within the downstream of Prado Basin, and including toe protection at Lower Norco Bluffs, and assessed impacts to environmental resources related to both implementation and future maintenance. Alternatives were described in Chapter 4 of the 2001 SEIS/EIR, which is incorporated here by reference. This current Final SEA includes the preferred alternative described in the 2001 SEIS/EIR, which is now considered the "No Action" alternative, and proposed modifications (the Proposed Action). The "No Construction" alternative was also evaluated in the 2001 SEIS/EIR. This SEA/EIR Addendum satisfies requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) documentation.

The purpose of the SARMP is to provide flood risk reduction to areas susceptible to flooding within the counties of San Bernardino, Riverside, and Orange. The Corps is the lead agency for compliance with NEPA, and Orange County Public Works (OCPW) (referred to as Orange County Flood Control District [OCFCD] in previous USACE SARMP documents[1]), one of the three SARMP local sponsors, is the lead agency for compliance with CEQA. The other local sponsors for the SARMP are the Riverside County Flood Control and Water Conservation District (RCFC&WCD) and San Bernardino County Flood Control District (SBCFCD). The OCPW will be responsible for operation, maintenance, repair, replacement, and rehabilitation of the Lower Norco Bluffs Toe Protection Project feature. Other agencies (i.e., cooperating, responsible, and trustee agencies) that may use this SEA/EIR Addendum in the decision-making or permit process will consider the information in this combined document along with other information that may be presented during the NEPA/CEQA process. Other responsible and trustee agencies were identified in the 2001 Final SEIS/EIR and are listed as follows:

- California Department of Fish and Game (now California Department of Fish and Wildlife),
- California Department of Parks and Recreation,
- Orange County Water District,
- Santa Ana Regional Water Quality Control Board, and
- United States Fish and Wildlife Service

Major flood control improvements, including raising Prado Dam, have been approved as part of the SARMP. In conjunction with raising Prado Dam, the OCPW is responsible for providing the project all required interests in lands located between the 556-ft. and the 566-ft. elevation lines. This elevation band represents the added area that is susceptible to inundation during the Reservoir Design Flood (RDF). Within the Norco Bluffs area, directly upstream of Prado Basin, the 566-ft elevation line has been continually migrating due to erosion of the south bank of the Santa Ana River. The greatest amount of erosion has occurred during storm events when lateral migration of the Santa Ana River has caused erosional undercutting of the toe of the bluffs, resulting in sloughing of the bluff top.

After the storms of 1969, USACE constructed 2,100 ft. of pile, rock, and rubble revetment upstream of

[1] The agency department underwent a name change and is no longer referred to as OCFCD in recent documents

Interstate 15 (I-15) (within Zone 2 of Norco Bluffs) to keep smaller, more frequent floods from undercutting the toe of the bluffs. By 1974, the revetment was no longer controlling the migration of the Santa Ana River. Undercutting of the bluff was occurring behind the revetment, leaving it ineffective and isolated within the channel bed. In 2004, the USACE completed stabilization of the bank within Zones 1 and 2 of Norco Bluffs. This was not part of the SARMP, but was separately authorized and funded as a stand-alone project. Potential erosion is now limited to the area between Prado Basin and I-15 (Zones 3-5).

Under a 190-year flood event, storm water could inundate areas behind Prado Dam up to elevation 566-ft., subsequent to the proposed raising of the dam and spillway. As stated above, the OCPW was required to acquire all property rights within the Prado Basin up to elevation 566-ft to accommodate the inundation. Since the Lower Norco Bluffs have historically retreated, and the 566-ft elevation contour is located along the toe of the bluffs, this elevation line could extend farther south. If the 566-ft elevation contour extends farther south, the acquisition requirements for operation of the Prado Dam could change over time during the operational phase of the SARMP. The erosion and subsequent acquisition requirements could involve numerous homes and properties (at least 80 residences). Therefore, the Corps needs to stabilize the bluff toe at the Lower Norco Bluffs so that the 566-ft elevation contour is stabilized in its current location within the existing riverbed.

The SEA/EIR addendum is necessary to document and evaluate the impacts of design refinements on environmental resources, and to document changed conditions in the project area. The changes to the Lower Norco Bluffs Project design, include modifications to the composition of the embankment structure, location and length of access roads, and addition of drainage features.

1.1 PROJECT LOCATION

The Lower Norco Bluffs Project is located in the city of Norco, Riverside County (**Figure 1.1-1**), adjacent to the Santa Ana River. The Santa Ana River is an approximately 100-mile long waterway that runs from the San Bernardino Mountains to Huntington Beach in southern California. The Lower Norco Bluffs Project construction would occur along an approximate 1.54-mile reach of the Santa Ana River near the northwest boundary of the City of Norco. The project area is approximately 8 miles north of Prado Dam Embankment and about 40 miles southeast of Los Angeles. The site of the Proposed Action is located along the southern bank of the Santa Ana River, southwest of I-15, and comprises three reaches. The three reaches are classified as Zones 3, 4, and 5 for design reference purposes. Zone 3 is located downstream of Hammer Avenue Bridge. Zones 4 and 5 are located immediately downstream of Zone 3, in succession. The borrow area is located in the city of Chino off of Cucamonga Avenue and Chino Corona Road.

Figure 1.1-2 shows the entire watershed of the Santa Ana River, and **Figure 1.1-3** shows the vicinity of the subject Lower Norco Bluffs Project along with the estimated implementation schedule.

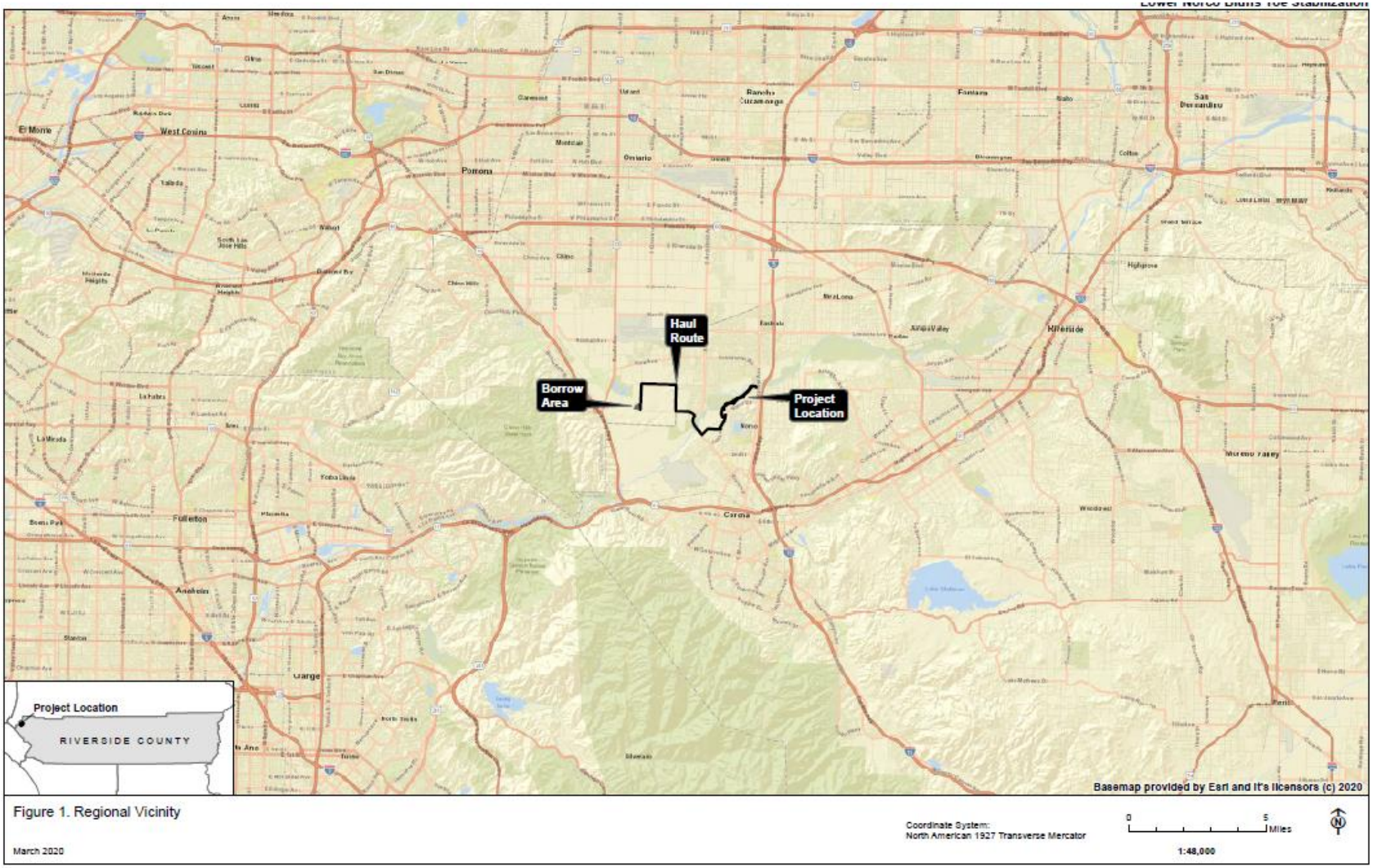

Figure 1.1-1 Lower Norco Bluffs Regional Map

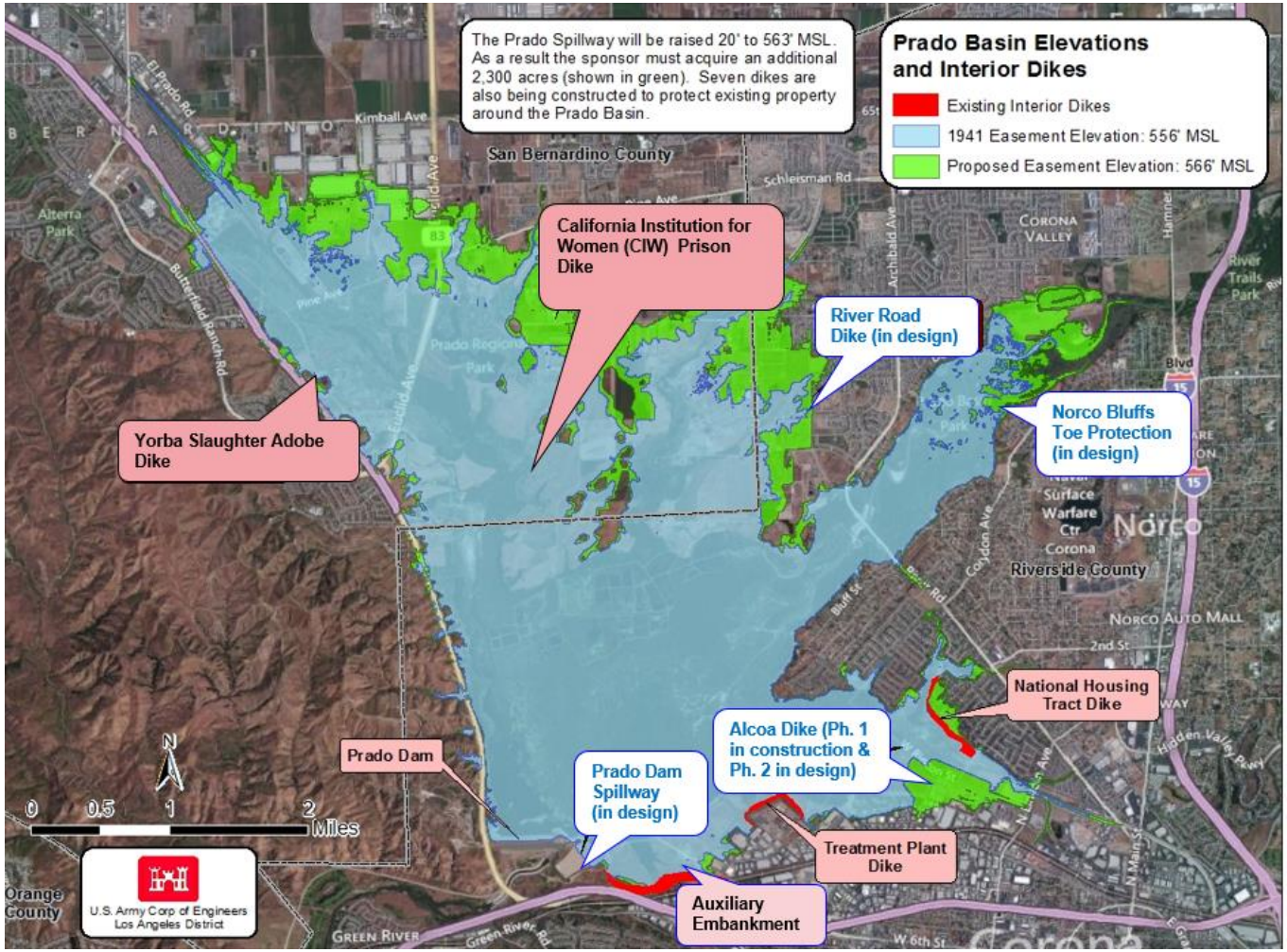

Figure 1.1-2 Existing and Proposed Projects in Project Vicinity

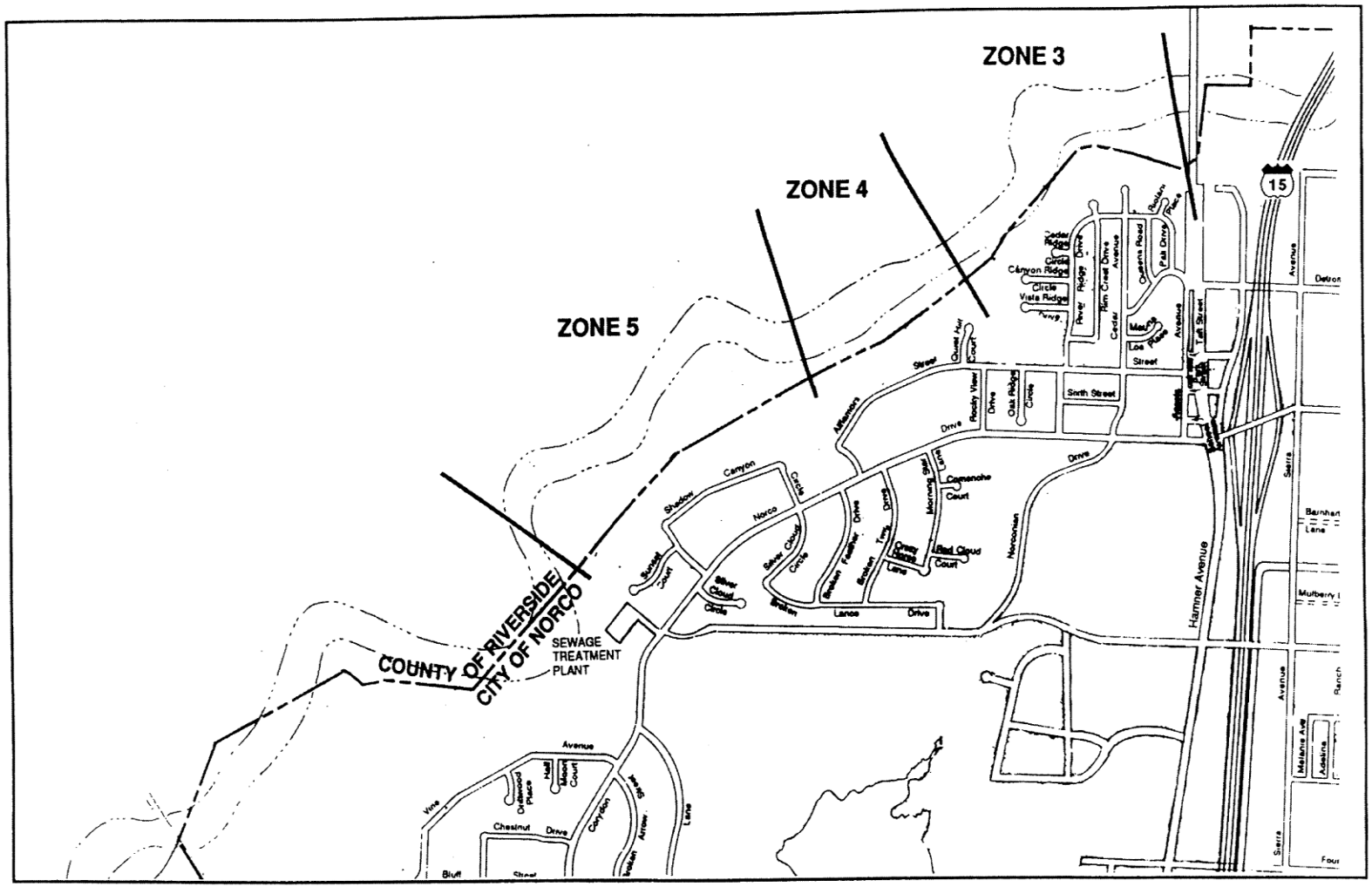

Figure 1.1-3 Lower Norco Bluffs Vicinity Map

1.2 PROJECT AUTHORITY

The SARMP is located along a 75-mile reach of the Santa Ana River in Orange, Riverside, and San Bernardino Counties, California. The SARMP is a comprehensive flood risk management system that was authorized for construction by Section 401(a) of the Water Resources Development Act (WRDA) of 1986.

The recommended plan for the SARMP is contained in the Phase I General Design Memorandum (GDM) for the SARMP (Corps 1980) and included eight elements, which were subsequently reevaluated in the Phase II GDM (Corps 1988). The Phase II GDM modified the SARMP by redefining the authorized SARMP features and clarifying that the Standard Project Flood term referred in most cases to the 190- year flood event. Construction of the SARMP commenced in fiscal year 1989.

In 2001, the Corps prepared an SEIS/EIR that addressed additional and modified features or elements in the vicinity of Prado Dam, including the addition of the Norco Bluffs stabilization feature. The Corps also prepared a Limited Reevaluation Report (LRR) entitled Prado Dam Separable Element, Prado Basin & Vicinity, including Stabilization of Bluff Toe at Norco Bluffs Santa Ana River Basin, California, dated September 2001 pursuant to Section 309(a) of WRDA of 1996. The LRR recognized, consistent with the Phase I GDM and Phase II GDM, that the purpose of the proposed Prado Dam improvements was to increase the reservoir storage capacity from 217,000 acre-feet to 362,000 acre-feet and to be able to release 30,000 cubic feet per second (cfs) flows from Prado Dam into the downstream channels. In accordance with the determination in the LRR to construct Prado Dam as a separable element, the Prado Dam component was removed from the definition of the project in the Project Cooperation Agreement (PCA) by a second modification to the PCA dated February 24, 2003. A PCA for the Prado Dam feature as a separable element was signed on February 11, 2003, with OCPW as the non-Federal sponsor.

1.3 PREVIOUSLY PREPARED DOCUMENTS

Below is a list of the relevant environmental documents that have been completed for the SARMP. Throughout the analysis of this SEA/EIR Addendum, the following documents may be referenced:

- Phase I General Design Memorandum and Supplemental Environmental Impact Statement, United States Army Corps of Engineers, Los Angeles District, 1980.
- Santa Ana River Mainstem including Santiago Creek. Phase II General Design Memorandum and Supplemental Environmental Impact Statement (GDM/SEIS), United States Army Corps of Engineers, Los Angeles District, 1988.
- Final Environmental Assessment for Norco Bluffs Stabilization. United States Army Corps of Engineers, Los Angeles District, February 1999.
- Prado Basin and Vicinity, Including Reach 9 and Stabilization of the Bluff Toe at Norco Bluffs SEIS/EIR, United States Army Corps of Engineers, Los Angeles District, 2001.
- Reinitiation of Formal Section 7 Consultation on the Prado Mainstem and Santa Ana River Reach 9 Flood Control Projects and Norco Bluffs Stabilization Project, Orange, Riverside, and San Bernardino Counties, 2012 Biological Opinion (BO) Amendment (FWS-SB/WRIV/OR-08B0408-11F0551). The Service has issued a series of BOs (including, but not limited to, Service 1980, 1989, 2001, 2004, 2005, 2012, 2013, 2015, 2017) addressing the effects of constructing, operating, and maintaining the SARMP on federally listed species and their designated critical habitat.

1.4 SUMMARY OF CHANGES FROM THE 2001 SEIS/EIR

- The embankment structure will be comprised of launchable rock, rip-rap and fill rather than soil cement. Effects of this modification on environmental resources have been analyzed.
- A system of v-ditches, catch basins, side drains, and culverts have been added to the design to facilitate drainage. Effects of this modification on environmental resources have been analyzed.
- A new staging area would be located south of and adjacent to the previous staging area, off of Corydon Avenue. Effects of this modification on environmental resources have been analyzed.
- The Temporary Construction Easement was modified to include the Corydon Equestrian Staging Area. The resulting temporary construction easement (TCE) would extend from approximately 450 ft. downstream of Hamner Avenue to the Corydon Equestrian Staging Area off of Corydon Avenue. Effects of this modification on environmental resources have been analyzed.

1.5 OBJECTIVES, PURPOSE, AND NEED

In accordance with 40 CFR 1502.13, this section provides an explanation of the "underlying purpose and need to which the [Corps] is responding in proposing the alternatives including the Proposed Action."

The federal objective of water and related land resources project planning is to contribute to national economic development (NED). Such contributions are considered increases in the net value of the national output of goods and services expressed in monetary units. These contributions are to be consistent with the protection of the nation's environment, pursuant to applicable executive orders and other federal planning programs, including the consideration of state and local concerns. The NED objective of the approved SARMP is to provide flood risk management for portions of Orange, Riverside, San Bernardino Counties, while maximizing contributions to NED.

The Lower Norco Bluffs Project is part of the Prado Basin flood control improvement separable element of the SARMP. The project was analyzed in the 2001 Final SEIS/EIR. During preparation of the project's Plans and Specifications, the design of the Lower Norco Bluffs Project (Proposed Action or proposed project) was further refined.

In conjunction with raising Prado Dam, the OCPW is responsible for acquiring all property rights located between the 556-ft and the 566-ft elevation lines. This elevation band represents the added area that is susceptible to inundation during the RDF. Within the area of Norco Bluffs, the 566-ft elevation line has been continually migrating due to erosion of the south bank of the Santa Ana River (**Figure 1.5-1**). The talus is a slope in which debris piles up to a characteristic angle of repose. The talus is removed when the river is at flood stage.

The main objective of the Proposed Action would be the same as the previously approved Lower Norco Bluffs Project, which is to prevent further erosion of the bluff toe and, thus, preventing the movement of the Prado Dam 566-ft elevation line. Impinging river flow causes undercutting of the toe of the bluffs, which leads to destabilization of the bluff face. Without a toe protection project, there is potential for the bluff erosion to affect the location of the 566-ft elevation line, which would require additional real estate acquisition involving numerous homes and properties.

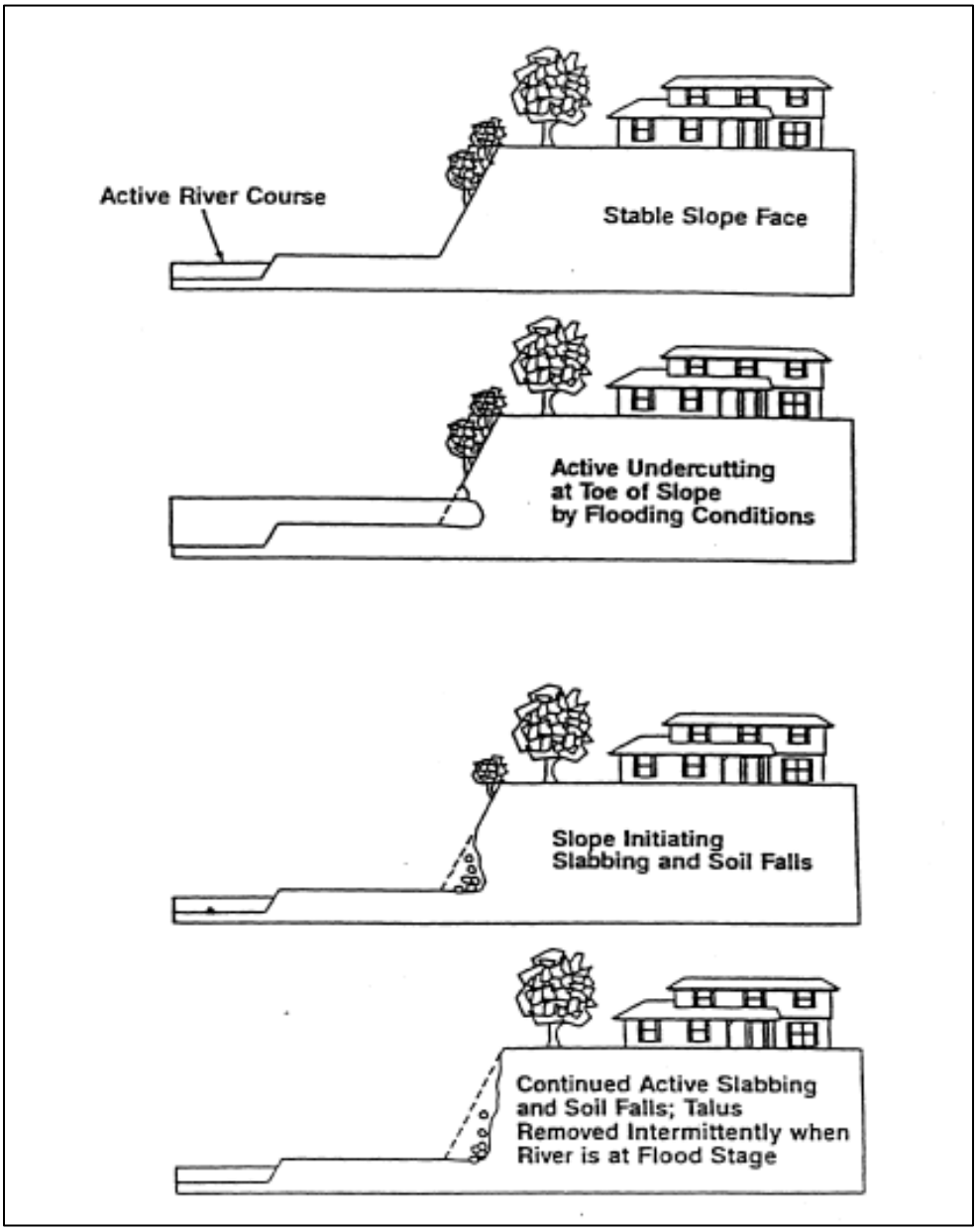

Figure 1.5-1 Schematic of Bluff Erosion Process

Statement of Need

As discussed in the 2001 SEIS/EIR, previous Corps investigation have focused on stabilization of the toe bluff, which has been subject to erosion during storm events that cause lateral migration of the river and results in sloughing of the bluff top. Impinging flows of the Santa Ana River directly causes the retreat of the bluffs. The impinging river flow causes undercutting of the toe of the bluffs, which leads to destabilization of the bluff face. The purpose of this project is to stabilize the toe of the bluff.

This document addresses design refinements and other changes made to the temporary and permanent construction footprint since the 2001 SEIS/EIR. Modifications to the 2001 design were deemed necessary

to avoid environmental, cost, and timing consequences associated with temporarily diverting and dewatering the primary stream flow of the Santa Ana River and constructing an embankment comprised of soil cement.

Statement of Purpose

The purpose of the Proposed Action is to stabilize the toe of the bluff within the project area so that the 566-ft elevation line is stabilized, thereby avoiding the need for additional real estate acquisition.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 COMPARISON OF PREVIOUSLY APPROVED DESIGN AND PROPOSED ACTION

A comparison of the Previously Approved Design and the Proposed Action is shown below in **Table 2-1**.

Table 2-1 Differences between Previously Approved Design and Proposed Action

PREVIOUSLY APPROVED DESIGN	PROPOSED ACTION
Construction Duration	
Approximately 9 months	Approximately 2 years
Project Feature	
An approximately 1.5-mile long embankment structure comprised of soil cement and extending about 15 ft. below the riverbed to the 100-year flood level at a 1:1 angle (project feature)	An approximately 1.5-mile long embankment structure comprised of launchable rock, riprap, bedding material, and fill measuring and extending about 2.5 – 4.5 ft. below the riverbed to the top of bank protection of 100-year water surface elevation at a 2:1 angle (project feature)
Drainage	
Filling of four side canyon areas along the project length to ensure proper drainage	Filling of one side canyon and a system of v-ditches, catch basins, side drains, and culverts at 3 canyon areas.
Staging Areas	
An approximately 1-acre staging area would be located within an abandoned wastewater treatment plant site, located off of Corydon Avenue	An approximately 1.5-acre staging area would be located just south of abandoned wastewater treatment plant site, located off of Corydon Avenue.
Project Access	
A permanent maintenance road would be placed in the vicinity to allow for periodic maintenance of the structural enhancements.	A permanent maintenance road would be constructed on top of the project access road off of Shadow Canyon Circle and extend along the top of the embankment. In addition, a temporary access ramp would be constructed at the toe of the bluff and adjacent to the staging area at the southern end of the project area.
Construction Methods	
No diversion or dewatering of the primary stream flow of the Santa Ana River	Temporary sheet pile shoring, or similar diversion structure, installed on top of the riverbank. Additionally, a temporary earthen berm, or similar structure, will run adjacent to the TCE in areas where flood-risk is the highest. No structure would be constructed in the low-flow channel
Temporary Construction Easement (TCE)	
The TCE would include approximately 75 acres and extend from approximately 450 ft. downstream of Hamner Avenue to the abandoned wastewater treatment plant off of Corydon Avenue.	The modified TCE would also measure approximately 75 acres, however the Corydon Equestrian Staging Area would be included instead of the abandoned wastewater treatment plant. The resulting TCE would extend from approximately 450 ft. downstream of Hamner Avenue to the Corydon Equestrian Staging Area off of Corydon Avenue.

2.2 ALTERNATIVES EVALUATED AND ELIMINATED

No Construction Alternative

The No Construction Alternative was addressed in the 2001 SEIS/EIR, along with the Preferred Alternative (the previously approved design) and one other design alternative. Therefore, the No Construction Alternative is not carried forward for further analysis in this SEA/EIR Addendum.

2.3 PROJECT ALTERNATIVES (ALTERNATIVES CONSIDERED FOR ENVIRONMENTAL ANALYSIS)

Two alternatives have been carried forward for detailed analysis in this Final SEA ad EIR addendum. These alternatives are:

- Previously Approved Design Alternative, i.e. the No Action Alternative.
- Proposed Action

2.3.1 PREVIOUSLY APPROVED DESIGN ALTERNATIVE

The Previously Approved Design Alternative is defined as constructing the Lower Norco Bluffs Project according to the plan presented in the 2001 SEIS/EIR and adopted by the Corps. The alternative would provide approximately 1.5 miles of bluff stabilization along the Santa Ana River, downstream of the I-15 bridge in Norco, California. The area had been designed as zones, 3, 4, 5 in the 1996 Feasibility Report for Norco Bluffs, but is included in Phase II of the Prado Dam project in order to stabilize the 566- ft. elevation line of the dam. The design consists of soil cement toe protection with a top elevation equal to the 100-year water surface elevation. The soil cement embankment structure would be located between the toe and the riverbed. The structure would be approximately 8 ft. thick and extend from approximately 15 ft. below the riverbed to the 100-year flood level at a 1:1 angle. The soil cement would be formed through a mixture of soil and cement with water, and it dries to a concrete-like hardness. Compacted fill would be located between the soil cement structure and bluff slope at the 100-year flood elevation. The majority of the toe stabilization structure below the riverbed is expected to require dewatering of the Santa Ana River. In Zone 3, dewatering and diversion of the primary stream flow of the Santa Ana River would be required. In addition, fill would be placed within four side canyon areas along the project length in order to ensure proper drainage from these areas. A permanent maintenance road would be on top of the embankment to allow for periodic maintenance of the structural enhancements. A permanent project access road would extend from Shadow Canyon Circle to the top of the embankment.

A staging area for construction equipment would be located within an abandoned wastewater treatment plant site that is located approximately 1440 ft. downstream of the toe stabilization improvements for Zone 5. A temporary access road and construction easement would extend from the staging area along the river bed adjacent to the bluff toe in Zones 3, 4, and 5.

This alternative would require approximately 300,000 cubic yard (cy) of soil fill and soil cement for the toe stabilization structure. Any offsite fill material would be obtained from the northern portion of the Prado Basin, referred to as Borrow Area No. 2. in the 2001 SEIS/EIR, which is located at the confluence of Mill Creek and Chino Creek near the southern terminus of Cucamonga Avenue. The environmental effects

related to utilization of Borrow Area No. 2 were previously analyzed by the USACE in the Final Environmental Assessment for Norco Bluffs Stabilization, prepared in February 1999, and in the 2001 Final SEIS/EIR.

The total construction time for this alternative was estimated to be approximately 18 months. Subsequent to construction activities, periodic maintenance would be required within the river channel to ensure continued integrity of the structural enhancements. Anticipated maintenance activity would involve:

- Periodic weed abatement of soil cement and access road areas
- Repair of access roads, as required
- Repair of soil cement structure and associated fill, as required
- Maintenance of access road gate and fencing
- Any emergency activities, as may be required

2.3.2 PROPOSED ACTION ALTERNATIVE

The Proposed Action Alternative is similar to the previously approved design alternative and associated local sponsor real estate actions of road and utility relocations except for the changes identified in Table 2-2 above. Environmental commitments associated with the Proposed Action are described in Section 6 of this SEA/EIR addendum. The impact evaluation is based on inclusion of these minimization, avoidance, and offsetting measures.

Similar to the previously approved design alternative, the Proposed Action would be located on federal, city and county land, and would be adjacent to the Santa Ana River downstream of the I-15 bridge in Norco, California. Design modifications including the incorporation of launchable rock and riprap rather than soil cement would eliminate the need for diversion or dewatering of the primary stream flow of the Santa Ana River. Some dewatering within the floodplain, outside of the primary stream flow, may be required. However, operations are expected to be minimal, should they occur. The Proposed Action consists of constructing an approximately 1.5-mile long bluff scour protection feature (embankment) along the toe and bluff slope (Figure 2.3-1). Excavation would occur, on average, between 2.5 and 4.5 feet of the existing grade. The toe of the embankment would be approximately 2.5 to 4.5 ft. from the existing grade and would be comprised of existing fill (excavation bottom). Additional excavation (more than 4.5 ft.) may be needed if large tree roots are encountered during the excavation. The slope face of the embankment would be lined with bedding material (1.5 ft. thick) and riprap (3.5 ft. thick). Launchable stone (riprap with widths varying between 5 ft. – 25 ft., measured horizontally from the riprap slope face and able to fall into scour hole) would be placed at the toe of the embankment, in front of the riprap slope, to provide scour protection. The average width from the face of the bluff fill line to the toe of the launchable rock would be average 120 ft. The fill and riprap protection would start at the excavation bottom and extend at a 2H:1V slope to the top of bank protection of 100-year water surface elevation. Launchable stone would start at the excavation bottom and extend at a 2H:1V from the riprap toe to a vertical height of 9 ft. (**Figure 2.3-2**).

Because the project TCE runs adjacent to the Santa Ana River, some flood-risk reduction measures have been included during construction to prevent further migration of the river into the TCE. This includes temporary sheet pile shoring, or similar diversion structure, installed on top of the riverbank. Based on analyses, it is expected that the structure could measure approximately 1,000 ft. from station 30+00 to 40+00. The actual diversion structure will be described in a diversion workplan, which will be developed

by the construction contractor and will need to be approved by the Corps. Additionally, a temporary earthen berm, or similar structure, will run adjacent to the TCE in areas where flood-risk is the highest. If the berm runs the entire TCE, it will measure approximately 6,832 ft (See **Figure 2.3-3** and **Figure 2.3-4)**. The berm will be lined with straw wattles and lined with a hardened material such as gravel bags or riprap to reduce erosion. Following construction, the sheet pile shoring and earthen berm would be removed. The earthen berm would be deconstructed and the materials comprising it would be used for grading the site.

For maintenance purposes, a permanent, asphalt maintenance road would run the length of the embankment. Five asphalt turnaround areas would be located on top of the embankment along the permanent maintenance road. A permanent ramp would also be constructed at the downstream end of the project from the top of the embankment to the river channel to allow access to the toe of the structure (**Figure 2.3-5**).

One small, natural side drainage would be graded and filled to facilitate runoff from the top of the bluff. There will be up to three detention basins constructed on the landside of the embankment to drain water from several gullies along the bluff. A network of concrete v-ditches and side drains would also be constructed on top of the embankment (Figure 2.3-6).

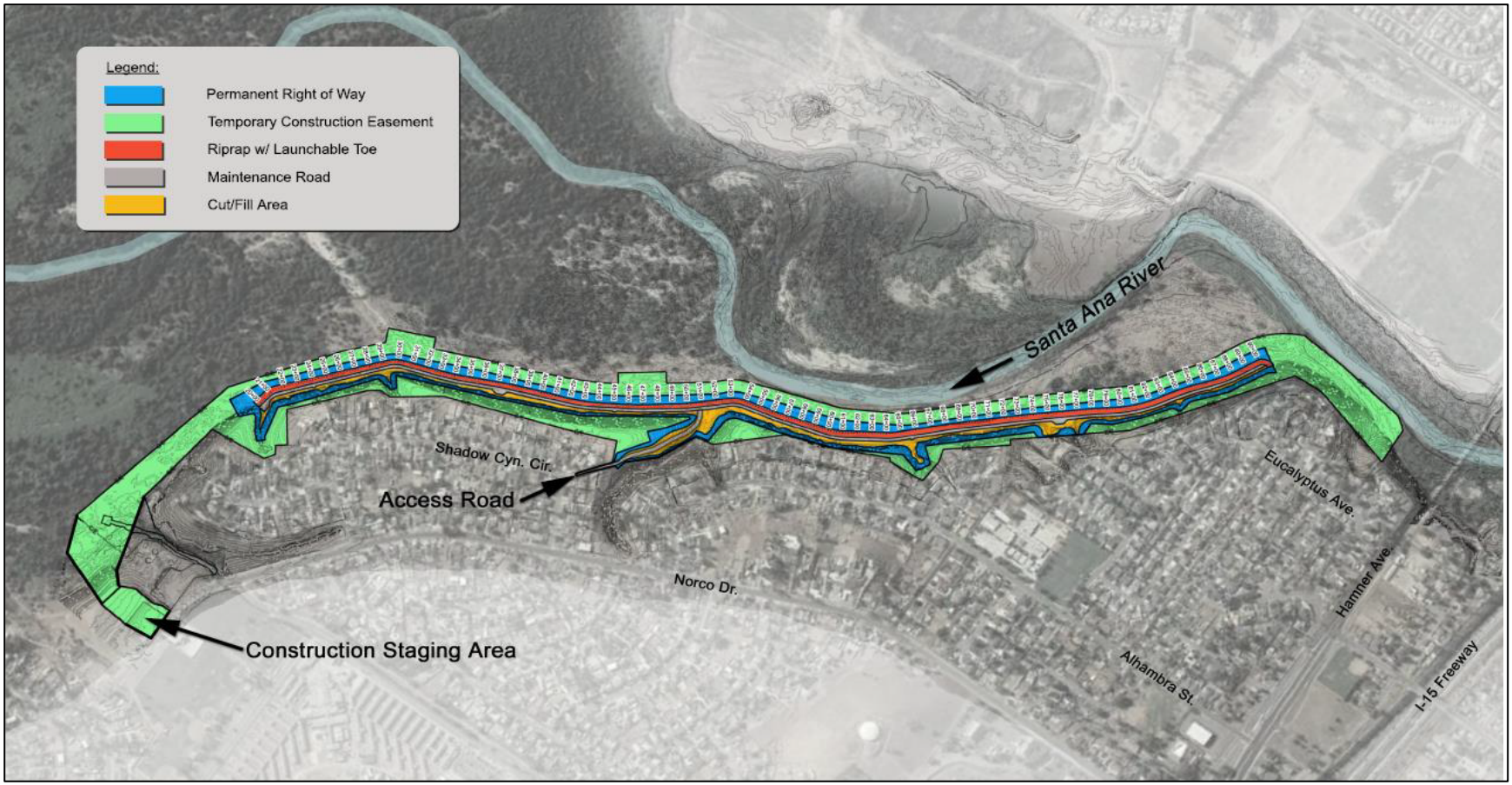

Figure 2.3-1. Lower Norco Bluffs Project Map and TCE Boundary

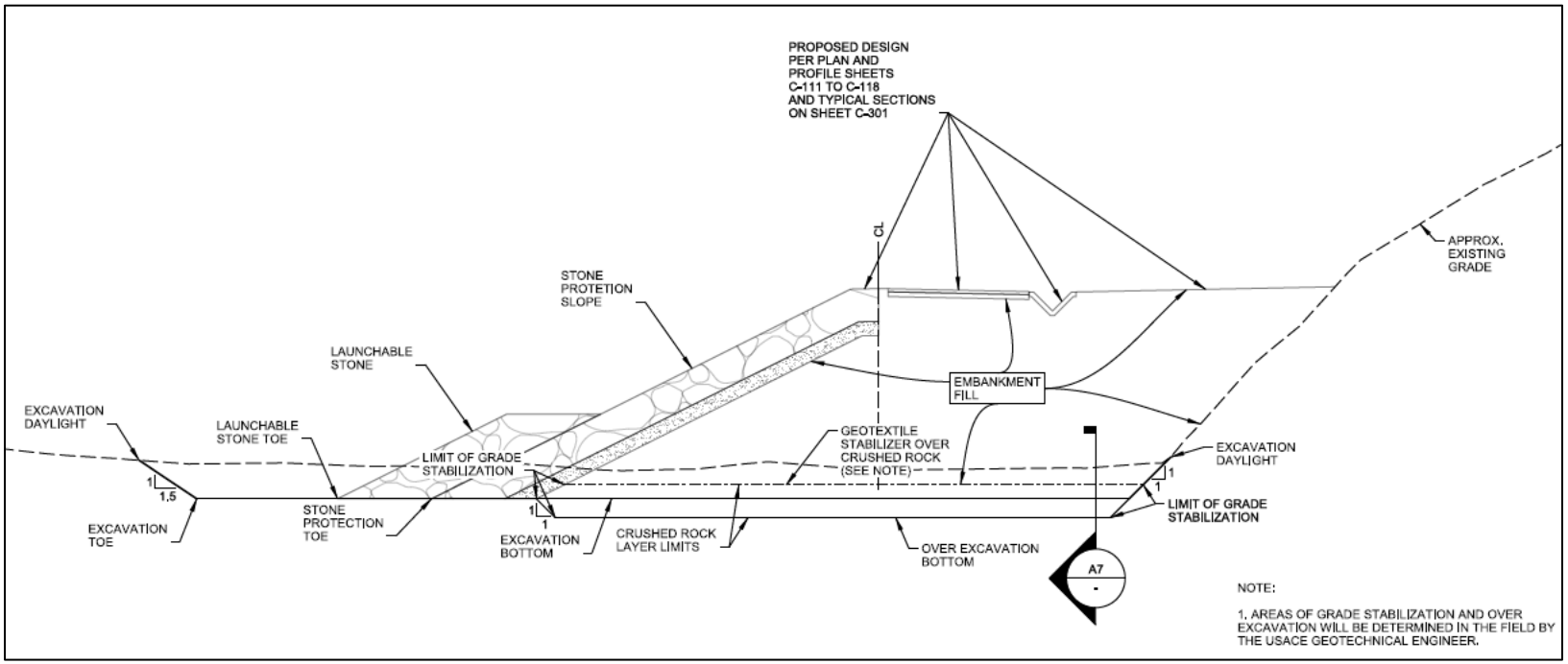

Figure 2.3-2 Typical Cross-Section of Project Feature

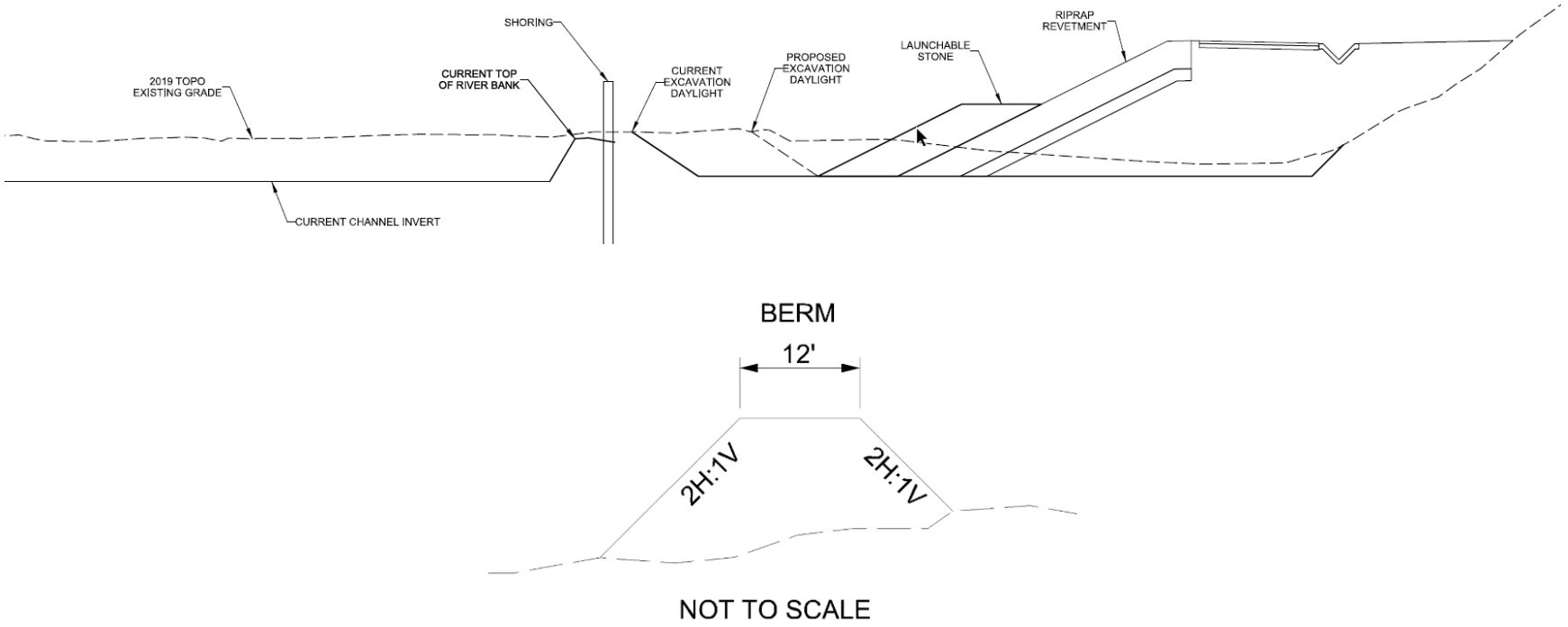

Figure 2.3-3 Conceptual features for control of surface water. Actual design may vary pending contractor's final designs

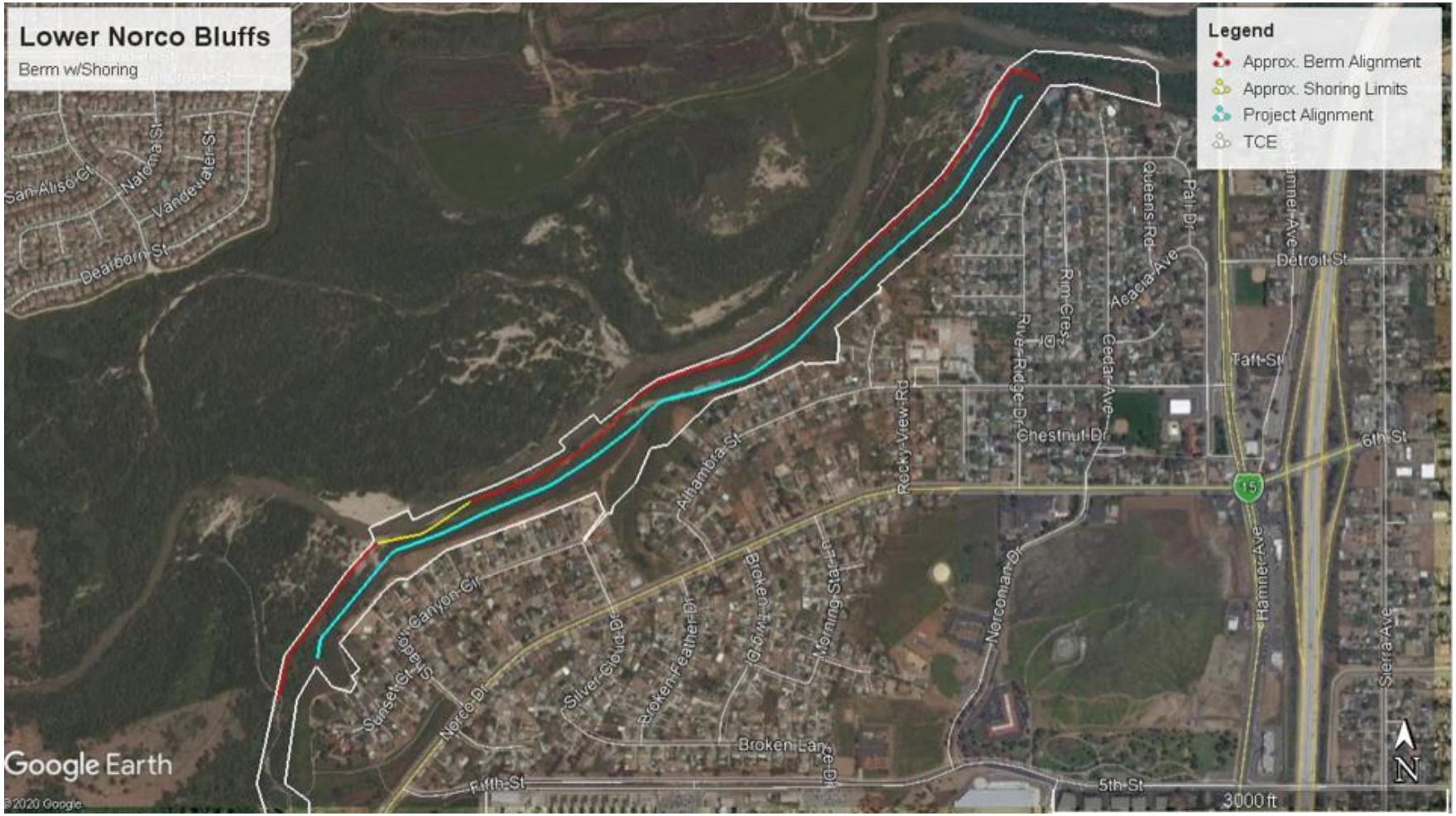

Figure 2.3-4 Conceptual features for diversion and control of surface water. Actual design may vary pending contractor's final designs

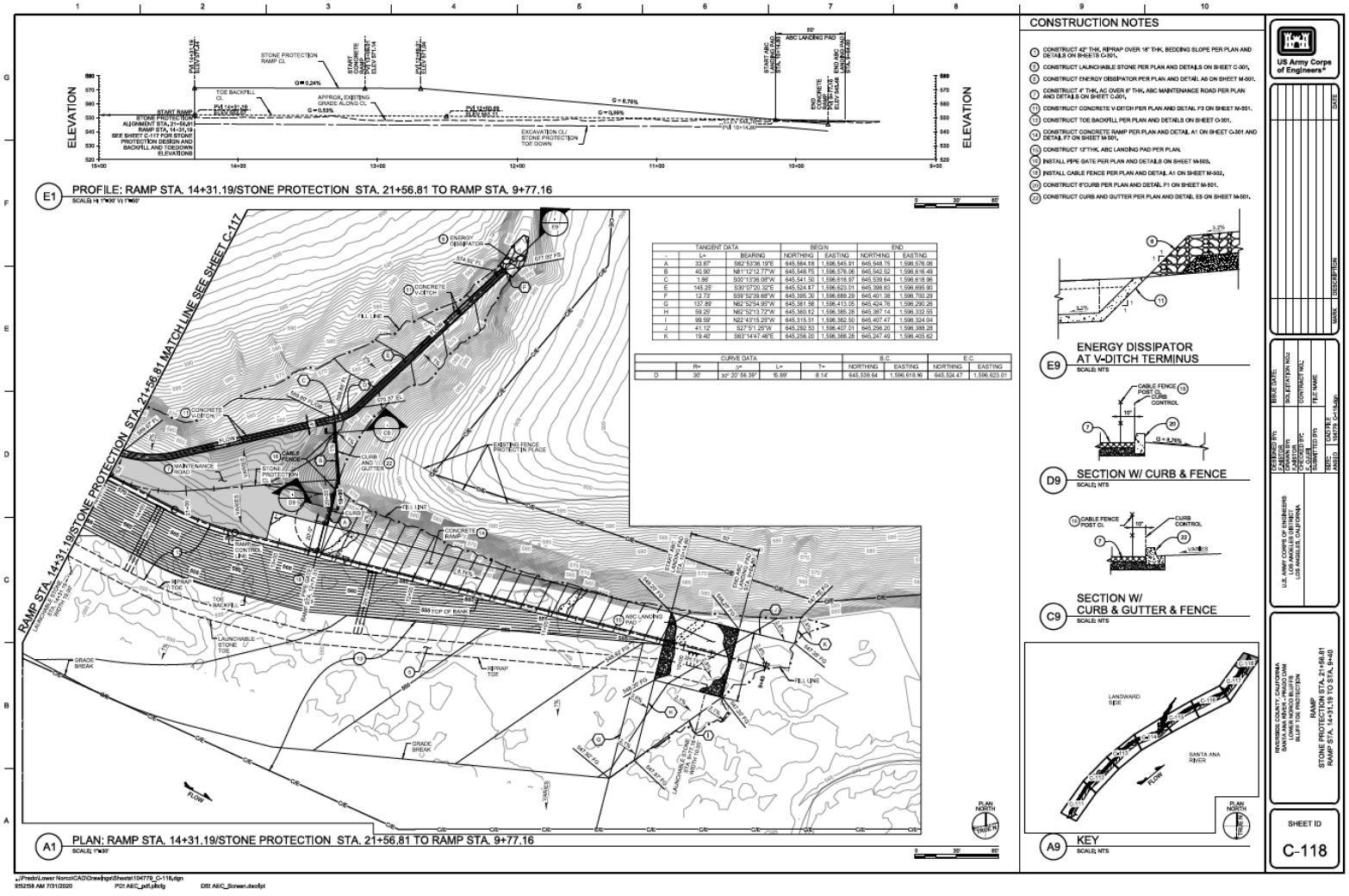

Figure 2.3-5 Location and design of permanent ramp at south tie-in

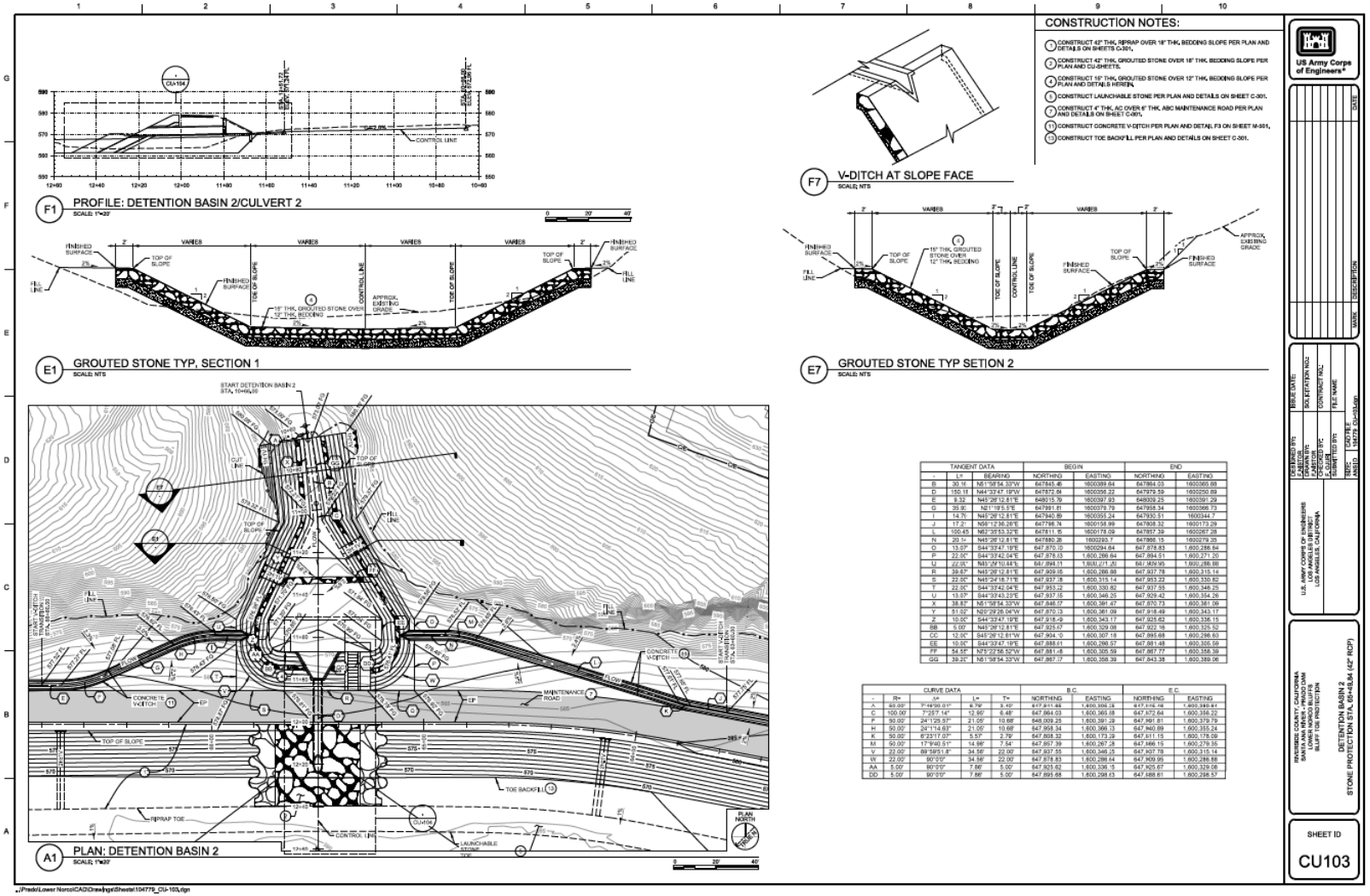

Figure 2.3-6 Example of drainage system design, including detention basin and v-ditch

2.3.2.1 *Staging Areas*

One staging area is proposed and located off of Corydon Avenue at the southern end of the project site within the Corydon Equestrian staging area. The staging area measures approximately 1.5 acres. The staging area is currently owned by the city of Norco and is used as an equestrian staging area, trailhead, and overflow parking lot for the adjacent Wayne-Makin Shearer Sports Complex (**Figure 2.3-7**).

Figure 2.3-7. Proposed Staging Area

2.3.2.2 *Project Access*

Construction vehicles would access the site from the staging area and Shadow Canyon Circle. The access road from Shadow Canyon Circle would extend to the top of the project feature.

From the staging area, a temporary access ramp comprised of fill would be constructed to join the staging area and temporary construction haul road. The contractor would submit the design of the temporary ramp to the Corps for review. **Figure 2.3-8** shows an example of a potential footprint for the temporary ramp.

From Shadow Canyon Circle, one 15-ft wide permanent project access road would be constructed and extend to the top of the embankment (**Figure 2.3-9**). The permanent project access road would be comprised of a 12-ft. wide Asphalt Concrete (AC) road and 10 ft. decomposed granite (DG) path. The AC permanent project access road and DG trail will be separated by a 6-inch concrete mow curb. A 6-ft. chainlink fence will line the perimeter of the permanent project access road along the bluff slope and extend to the top of the embankment. A ramp would also be constructed at the downstream tie-in from the top of the embankment and run to the toe of the slope to allow for emergency maintenance. There

will not be an access road that runs along the length of the toe of the embankment as this area will be restored to native habitat following construction. The maintenance road and ramp will be protected by a series of gates and feces to separate use for public access and maintenance access. **Figure 2.3-10** shows a typical cross-section of the permanent project access road.

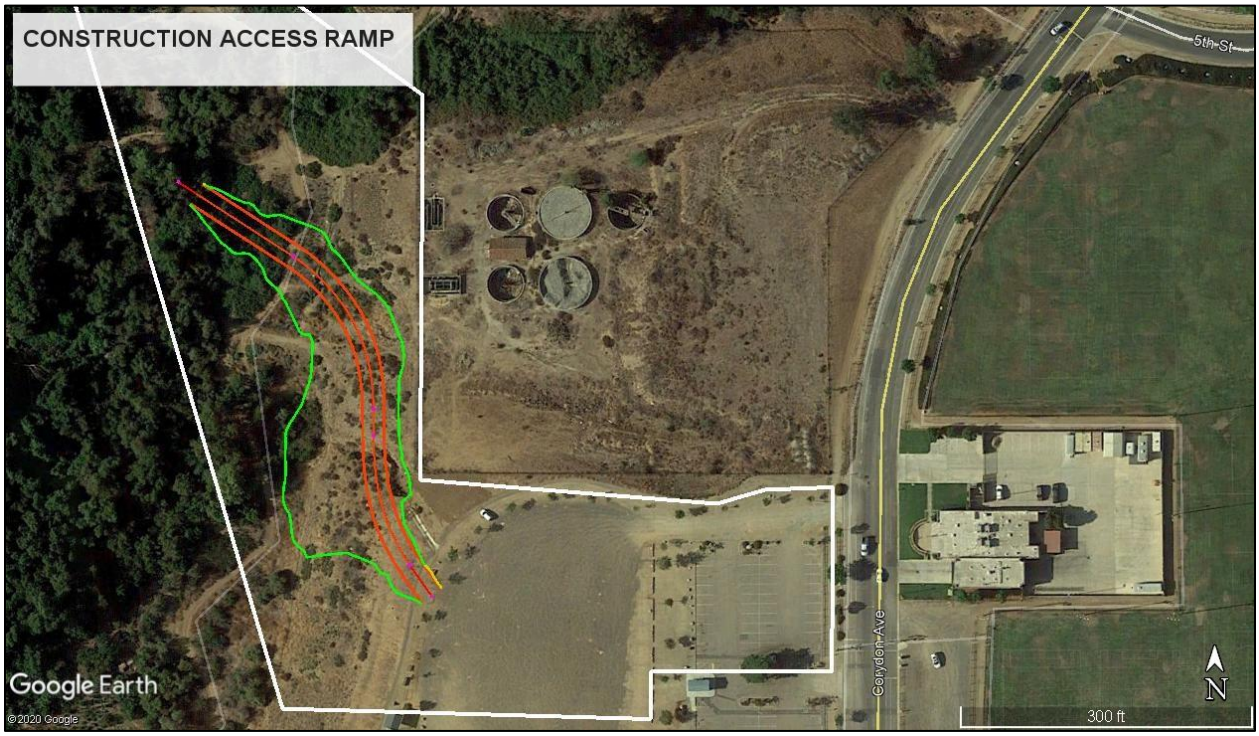

Figure 2.3-8. Example of a design for the temporary construction access ramp. Green lines indicate the width of the toe of the ramp. Orange lines indicate the footprint of the top of the ramp. The red line indicates footprint the temporary access road. White lines indicate the TCE.

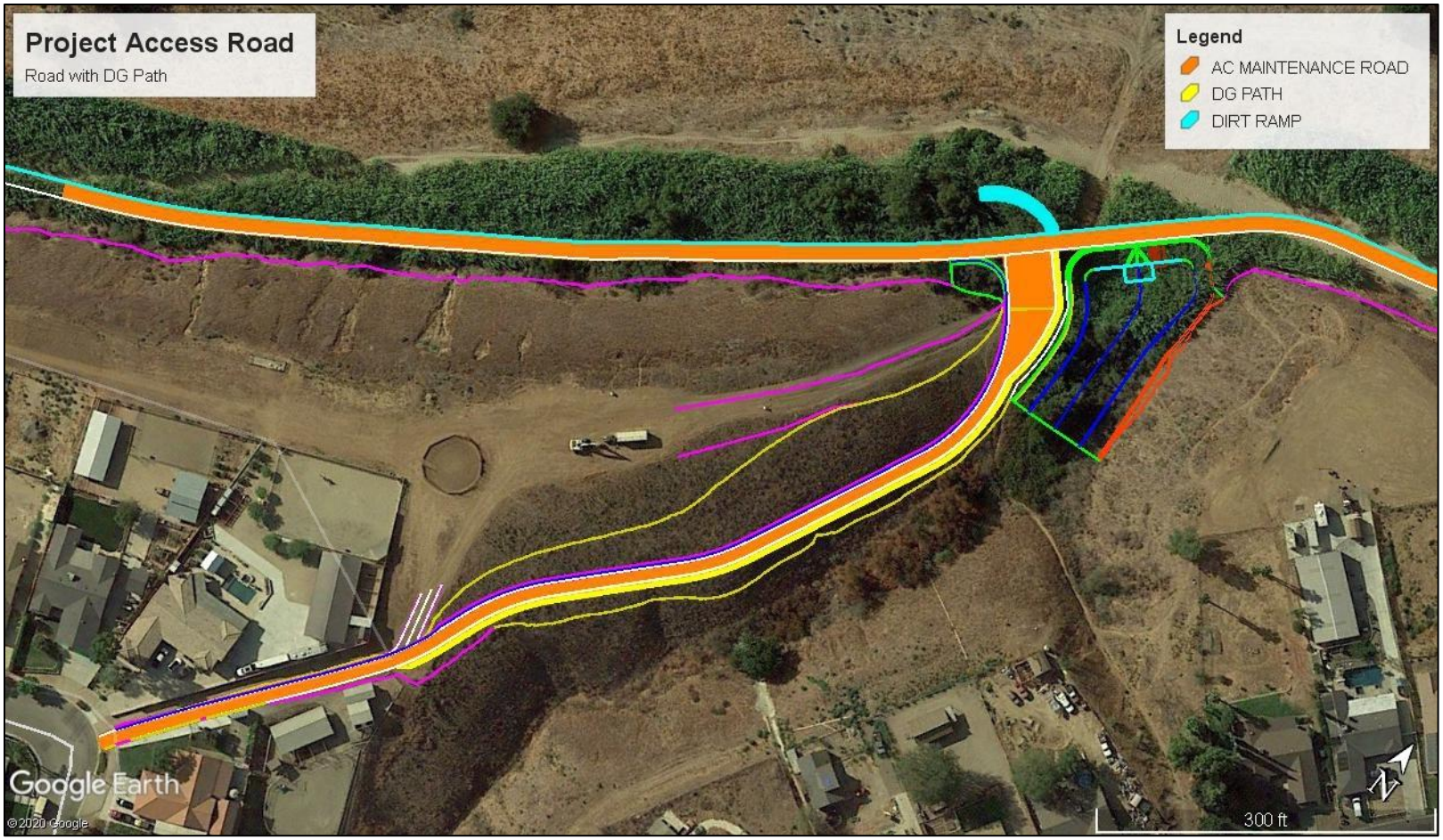

Figure 2.3-9. Footprint of Permanent Project Access Road

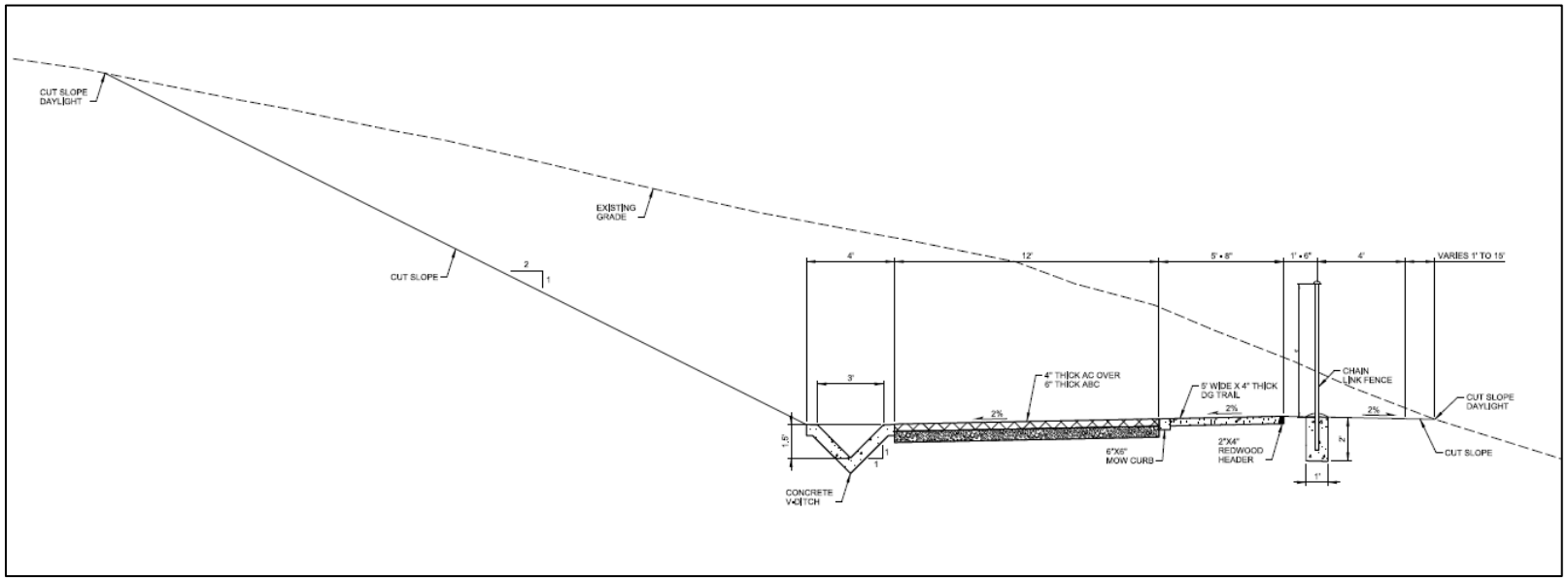

Figure 2.3-10. Cross-Section of Permanent Project Access Road

2.3.2.3 *Haul Routes*

Haul roads and vehicular access roads would be needed during construction of the embankment. The haul route would be used to transport equipment, stone, fill material, and other construction materials from the borrow site, commercial quarries, or the staging area. The primary haul route to the project site begins at the borrow area located approximately 3 miles west of the project site. The route moves from west to east and consists of an approximately two-mile segment that includes a portion of Sixth Street, Hamner Avenue, Fifth Street, and Corydon Street leading to the Corydon Staging Area (**Figure 2.3-11**).

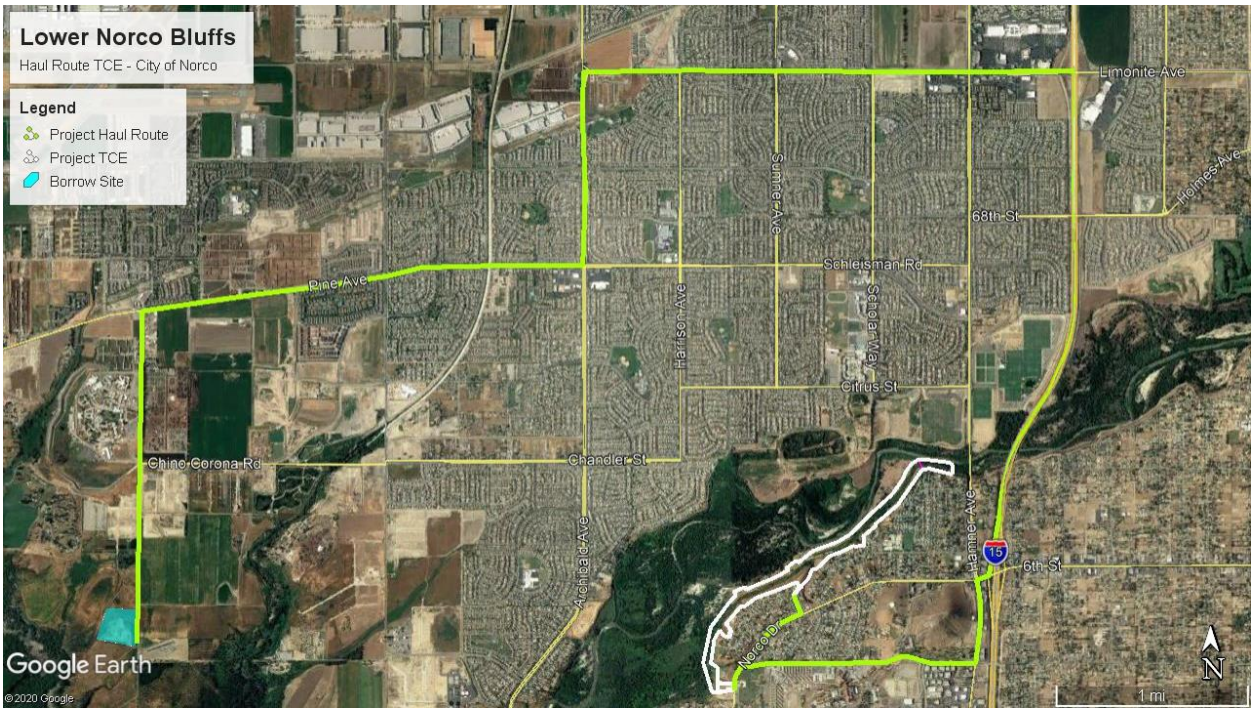

Figure 2.3-11 Haul Route from Proposed Borrow Area to Proposed Action Site

The primary haul route will be used to access the southern portion of the project site and the bottom of the embankment, construction equipment and haul trucks would utilize existing roadways and traverse a temporary construction access road that would extend approximately 2,100 feet from a staging area to the start of the project footprint.

Haul routes from Shadow Canyon Circle would be used less frequently and would primarily occur during construction of the permanent project access road. To access the northern portion of the project site and the top of the embankment, construction equipment and haul trucks would utilize existing roadways and traverse an approximately 12-ft wide permanent access road that would extend from the access point located on Shadow Canyon Circle to the top of the embankment.

2.3.2.4 *Disposal Sites*

Construction of the Proposed Action would produce organic, inorganic, and unsuitable construction materials which must be disposed of in the manner and areas specified below so that the project site would be restored after completion of construction.

Organic materials, trees, shrubs, and abandoned timber structures would be disposed of by hauling to a local commercial site. Topsoil containing organic material may not be disposed of at a commercial site, but may be stockpiled and spread on embankment slopes or borrow areas as a part of site restoration. Disposal of these materials by burning or burying at the project site would not be permitted. Inorganic materials would include, but are not limited to, broken concrete, rubble, asphaltic concrete, metal, and other types of construction materials. These materials would also be taken to a commercial landfill.

2.3.2.5 *Source of Material*

Approximately 107, 600 tons of rip rap would be required for the construction of the embankment, and approximately 4,680 tons of aggregate base course would be required for the access roads, maintenance roads, concrete ramps, and other miscellaneous features. Riprap would be imported from a local quarry. For the purposes of this analysis, it is assumed that the nearest quarry would likely be used.

Approximately 116,000 cy of onsite excavation, approximately 250,000 cy of imported fill would be required for the temporary and permanent fill features. Approximately 290,000 cy of fill will be imported from a borrow site located approximately 3 miles west of the project site in the City of Chino (**Figure 2.3-11**). The borrow area was previously identified in the 2001 SEIS/EIR as part of Borrow Site 2. It is located south of McCarty Road and west of Cucamonga Avenue. Only a portion of the borrow area will be used, and it has been used previously for various other SARMP projects and restored with native vegetation between uses.

2.3.2.6 *Water Source*

The construction contractor would determine and acquire a water source for construction of the proposed project.

2.3.2.7 *Construction Equipment*

Construction equipment would likely include a combination of water trucks, waste trucks, haul trucks, scrapers, excavators, front end loaders, medium and light dozers, skip loaders, vegetation chipper, vibratory rollers and pickup trucks.

2.3.2.8 *Construction Duration and Phasing*

Construction is scheduled to commence in July 2021 and last approximately 36 months, including a one-year restoration and maintenance period. It is possible that the proposed project would be built in stages, with multiple start dates and construction periods for various sections of the proposed project depending on land acquisition and utility relocations schedule, environmental windows and weather delays. Construction phasing may result in an extension of the overall project duration beyond Summer 2023, i.e. beyond the approximate duration of 18 months (9 months construction and one year post construction onsite restoration).

Proposed construction hours would be 7:00 a.m. to 6:00 p.m., Monday through Friday. Occasional overtime work may be required to maintain the construction schedule but would be in compliance with local noise ordinances.

2.3.2.9 *Utilities*

The project area is served by utility and service systems located in Riverside County and within the City of Norco. A variety of local purveyors in these areas provide and maintain utility and service system facilities associated with electricity, water, stormwater and wastewater, solid waste, and natural gas. Data on location of utilities within the project vicinity was collected by the Corps in 2019 (**Figure 2.3-12**). Any utilities within and vicinity of project limits would either be relocated or removed prior to or during construction (by the utility owner or local sponsor) or protected in place.

Figure 2.3-12. Known Utilities within the Project Vicinity

2.4 FUTURE OPERATION, MAINTENACE, REPAIR, REPLACEMENT, AND REHABILITATION

Maintenance, including routine inspections and minor repairs, of the Lower Norco Bluffs embankment would be required after construction is completed. The following activities may occur:

- Routine and special inspection and patrol with pickup trucks and sport utility vehicles, as

needed, and up to daily during flood events;

- Mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones along eroded areas of the embankment to protect and reinforce the embankment, as necessary, during flood fight activities;
- Periodic weeding and patching stone and asphalt maintenance road pavement;
- Periodic clearing of debris around drainage structures; and
- Periodic mending of fencing and painting metal gates.

Following very large and erosive flood flows, larger-scale maintenance and repairs may be required along the toe of the bluffs, requiring access and use of heavy equipment within the floodplain adjacent to the structure. If repairs are needed at the toe of the slope, it is likely equipment would not be able to conduct the repair form the access road at the top of the embankment. Therefore, equipment will need to use the ramp from the embankment leading to the floodplain and establish a temporary work area around repair sites. It is likely that a storm event large enough to damage the embankment structure would also have removed vegetation in the immediate area, but specific impacts cannot be evaluated until or unless damage occurs, and repair work is defined. The non-federal sponsor would be required to obtain all applicable permits and approvals for such work. Therefore, this scenario is not evaluated further within this document.

3 AFFECTED ENVIRONMENT

The affected environment and existing conditions within the Lower Norco Bluffs Project area remain similar to that described in the 2001 SEIS/EIR, with a few exceptions that will be described further in this document. This applies to all resource categories.

Below is a list of the relevant environmental documents that have been completed for the SARMP. Throughout the analysis of this SEA/EIR Addendum, the following documents may be referenced:

- Santa Ana River Mainstem including Santiago Creek. Phase II General Design Memorandum and Supplemental Environmental Impact Statement (GDM/SEIS), United States Army Corps of Engineers, Los Angeles District, 1988.
- Prado Basin and Vicinity, Including Reach 9 and Stabilization of the Bluff Toe at Norco Bluffs SEIS/EIR, United States Army Corps of Engineers, Los Angeles District, 2001.
- Re-initiation of Formal Section 7 Consultation on the Prado Mainstem and Santa Ana River Reach 9 Flood Control Projects and Norco Bluffs Stabilization Project, Orange, Riverside, and San Bernardino Counties, 2012 BO Amendment (FWS-SB/WRIV/OR-08B0408-11F0551). The Service has issued a series of BOs (including, but not limited to, Service 1980, 1989, 2001, 2004, 2005, 2012, 2013, 2015, 2017) addressing the effects of constructing, operating, and maintaining the SARMP on federally listed species and their designated critical habitat.

3.1 WATER RESOURCES AND HYDROLOGY

As described in the 2001 SEIS/EIR, the Corps and the OCPW previously determined that the Lower Norco

Bluffs component of the SARMP would have no significant effects related to water resources and hydrology. For the purposes of this SEA/EIR Addendum, this section provides updated information on the affected environment for water resources and hydrology in the project area. This discussion is based on the 2001 SEIS/EIR, as well as other relevant resources and agency materials, and updated information and data, where applicable.

The project area is located entirely along the Santa Ana River, just north of the Prado Flood Control Basin. The Prado Flood Control Basin is a flood improvement project on the mainstem of the Santa Ana River. The Prado Basin is located within the Santa Ana River Basin, which encompasses parts of Orange, San Bernardino, and Riverside Counties (the project area is located in Riverside County). This area is within the jurisdiction of the Santa Ana Regional Water Quality Control Board (RWQCB) and is included in the Water Quality Control Plan (Basin Plan) for the Santa Ana Region.

The climate in this area is Mediterranean with hot, dry summers, and cooler, wetter winters. Most precipitation occurs between November and March and is characteristically in the form of rainfall, although snow may occur at higher elevations. Under natural conditions, much of the Santa Ana River and its tributaries would be intermittent with little or no flow in the summer months, except in areas with high groundwater. The urbanization of the valley areas of the Santa Ana River Basin has significantly increased runoff into the river and tributaries. Rainfall occurring over an urbanized part of the basin generates higher peak discharges with a shorter peaking time and a greater volume than if it occurred over the natural basin. Water from the upper Santa Ana River contributes to municipal and domestic supply, agriculture, groundwater recharge, hydropower generation, water contact and noncontact recreation, as well as fresh water and associated habitats.

3.1.1 HYDROLOGY

The Santa Ana River Basin is the largest watershed in southern California, with a drainage area of about 2,670 square miles. The watershed is separated into an upper and a lower basin divided by Prado Dam and Reservoir. The project area is located primarily along the Santa Ana River, just north of the Prado Basin Reservoir upstream of the Prado Dam embankment. Prado Dam was constructed at the convergence of Chino Creek, Cucamonga Creek, Temescal Wash, and the Santa Ana River. The basin behind Prado Dam includes these watercourses and storage capacity upstream of the dam to the current elevation of 556 ft., comprising an overall area of approximately 11,600 acres. The Santa Ana River, downstream of Prado Dam, is currently being prepared to allow for release of up to 30,000 cfs.

The Santa Ana River originates in the San Bernardino Mountains and travels southwest approximately 60 miles where it reaches the Pacific Ocean near Huntington Beach. Urban runoff and effluent from wastewater treatment plants, as well as naturally occurring high groundwater levels, contribute substantially to the perennial flow that occurs in the Prado Basin and in the project area.

The Santa Ana River serves several major purposes to the economic well-being and environmental values of the region. It provides extremely important wildlife habitat and supports aquatic organisms and several endangered species. All of these beneficial uses have influenced the design of projects that have been planned and constructed to manage the flows in the river.

Approximately half of the base flow of the Santa Ana River receives treatment using artificial wetlands upstream from Prado Dam to remove nitrogen and other contaminants. On average, approximately

200,000 acre- feet per year of natural stream flow passes through Prado Dam into Orange County. Historically, the Santa Ana River has been considered one of the greatest flood hazards in the west due to the potential property damage that would occur in response to a levee breach. New flood protection improvements recently constructed and underway have aimed at reducing the risk of flooding.

Upstream of the Lower Norco Bluffs project area, the Santa Ana River has a drainage area of approximately 870 mi2. The majority of the watershed draining to the Norco Bluffs area lies within the San Gabriel and San Bernardino Mountains.

Since 2001, average stream-flows near Norco Bluffs have been approximately 182 cfs from October through February and approximately 113 cfs from March through May. Flows during the summer months (June through September), averaging around 60 cfs, are usually unconstrained base flows (average based on flow records from USGS). These values are averages and do not fully represent the maximum range of flows. The channel capacity allows for higher flows. The maximum flow, since 2001, was >40,000 cfs in December 2010.

3.1.2 SURFACE WATER QUALITY

Surface water quality within and downstream of Prado Basin is determined by various contributors, including: Cucamonga Creek, Chino Creek, Temescal Creek, Santa Ana River, rising groundwater, municipal wastewater treatment plant effluent, mountain and lowland runoff, storm discharge, State Water Project discharges, and non-point sources such as urban and agricultural runoff. Per the National Water Quality Assessment (NWQA) Program, administered by the U.S. Geological Survey (USGS), the quality of surface and ground water in the Santa Ana Basin becomes progressively poorer as water moves along "hydraulic flow-paths," with the highest quality water associated with tributaries flowing from surrounding mountains and ground water recharged by these streams. Water quality may be altered by a variety of factors including but not limited to: consumptive use, importation of water high in dissolved solids, run-off from urban and agricultural areas, and the recycling of water within the basin.

Waterways in the Santa Ana River Basin are listed on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments Requiring Total Maximum Daily Loads for the following pollutants: pathogens (Chino Creek, Reach 1 and Reach 2; Mill Creek, Prado Area; Santa Ana River, Reach 3; Prado Park Lake), high coliform count (Chino Creek, Reach 2; Cucamonga Creek, Valley Reach), and nitrate (Santa Ana River, Reach 3). These pollutants most likely originate from non- point agricultural and urban sources that commonly occur throughout the watershed.

3.1.3 GROUNDWATER

Groundwater is the main source of water supply in the Santa Ana River watershed, providing about 66 percent of the consumptive water demand. Inland aquifers underlie roughly 1,200 square miles of the watershed upstream of Prado Dam, which coastal aquifers underlie roughly 400 square miles downstream of Prado Dam. Thickness of these aquifers ranges from several hundred to more than 1,000 feet. Depth to ground water ranges from several hundred feet below ground surface near the mountains to near land surface along rivers, wetlands, and in the coastal plain.

The project area is underlain by the Inland Santa Ana Basin Subunit (Inland Basin). This area contains upwards of 1,000 ft. of mostly recent alluvial deposits covering the irregular bedrock floor. In the region

around the City of Norco, where the project area is located, alluvium has been derived mostly from the Santa Ana Mountains. The sediments were laid down on alluvial fans and plains by streams draining the highland areas and consist generally of stringers and lenses of sand and gravel separated by layers of silt and clay.

The Inland Basin is characterized by an unconfined aquifer system in which high- quality recharge is distributed over a broad area near the mountain front. As groundwater moves toward areas of discharge, water quality is determined by overlying land use activities. Other factors that influence groundwater quality in this area include interaction with the Santa Ana River, discharge of recycled wastewater to the river, and use of imported water in the basin.

Groundwater levels in the stream channel of the Santa Ana River are at or near the surface of the streambed. Based on studies completed by USACE, groundwater is also within a 10-m (35 ft.) depth at some locations along the bluff top; however, this may represent perched intervals. Groundwater resources contribute to the water supply of the City of Norco. There are several wells within the City boundaries, all of which meet federal and state drinking water standards.

3.1.4 JURISDICTIONAL WATERS AND WETLANDS

A jurisdictional delineation was conducted in the project area by Aspen Environmental Group on November 27, 2018. The project area is located within the floodplain of the upper Santa Ana River and is comprised of alluvial deposits that have eroded from the surrounding mountain ranges over time. Results of the delineation determined both wetland and non-wetland “waters of the U.S.” as well as “waters of the State” and CDFW jurisdictional waters present. Several small ephemeral drainages are also present near the bluff that meet the criteria for non-wetland “waters of the U.S.” as well as “waters of the State” and CDFW jurisdictional waters.

For the purposes of this document, the limits of the ordinary high water mark (OHWM), as determined by changes in physical and biological features such as bank erosion, deposited vegetation or debris, and vegetative characteristics, have been used to describe non-wetland waters of the U.S.

“Waters of the U.S.”

Section 404 of the Clean Water Act provides the U.S. Environmental Protection Agency (EPA) and the Corps regulatory and permitting authority over activities that result in the discharge of dredged of fill material into “navigable Waters of the United States.” “Waters of the U.S.” are defined by the Clean Water Act as “rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands.” The limits of Corps jurisdiction under Section 404, as defined in 33 CFR Section 328.4 are as follows: (a) Territorial seas: three nautical miles in a seaward direction from the baseline; (b) Tidal waters of the U.S.: high tide line or to the limit of adjacent non-tidal waters; (c) Non-tidal waters of the U.S.: OHWM or to the limit of adjacent wetlands; (d) Wetlands: to the limit of the wetland.

“Waters of the State”

The Dickey Water Pollution Act of 1949 and Porter Cologne Act of 1969 established the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCB) in the State of California. The SWRCB and each RWQCB regulate activities in “Waters of the State” which include “Waters of the U.S.” “Waters of the State” are defined by the Porter-Cologne Act as “any surface water

or groundwater, including saline waters, within the boundaries of the state."

"**Wetlands**"

The USACE has defined the term "wetlands" as follows:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (33 CFR 328.3)

The three parameters listed in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (U.S. Army Corps of Engineers 2006) that are used to determine the presence of wetlands are: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Manual:

"….Evidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order California Department of Fish and Wildlife (CDFW) to make a positive wetland delineation."

"**CDFW Jurisdictional Waters**"

The CDFW jurisdiction is defined as the bed, bank and channel of rivers, lakes and streams to the landward edge of riparian vegetation. These waters are not wetlands. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation.

In the project area, the total jurisdictional non-wetland waters is 4.86 acres, and the total jurisdictional wetland waters is 1.63 acres.

3.2 AIR QUALITY

The 2001 SEIS/EIR is a reference for historical air emission in the project area. This report is hereby incorporated by reference, as per 40 CFR 1502.21.

The project area is entirely within the larger Prado Dam Reservoir basin area and is located in the central part of the South Coast Air Basin (SCAB) of California, an approximate 6,600 square mile (mi^2) area encompassing Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east.

Air quality in the SCAB is regulated by Federal, state, and regional control authorities, including the EPA; the California Air Resources Board (CARB), which is part of the California Environmental Protection Agency (Cal EPA); the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG).

3.2.1 NATIONAL AMBIENT AIR QUALITY STANDARDS

To protect the public health and welfare, the Federal government identified a number of criteria air pollutants and established ambient air quality standards through the Federal Clean Air Act for each. The air pollutants for which Federal standards have been promulgated via the National Ambient Air Quality Standards (NAAQS) include ozone (O3), carbon monoxide (CO), suspended particulate matter (PM), sulfur dioxide (SO2), nitrogen dioxide (NO2), and lead (Pb). PM emissions are regulated in two size classes: Particulates up to 10 microns in diameter (PM10) and particulates up to 2.5 microns in diameter (PM2.5). A region is given the status of "attainment" or "unclassified" if the NAAQS have not been exceeded. A status of "nonattainment" for particular criteria pollutants is assigned if the NAAQS have been exceeded. Once designated as nonattainment, attainment status may be achieved after three years of data showing non-exceedance of the standard. When an area is reclassified from nonattainment to attainment, it is designated as a "maintenance area," indicating the requirement to establish and enforce a plan to maintain attainment of the standard. Federal attainment status designations for the SCAB are summarized in **Table 3-1**.

3.2.1.1 *GENERAL CONFORMITY RULE*

Section 176(c) of the federal Clean Air Act states that a federal agency cannot issue a permit for, or support an activity within, a nonattainment or maintenance area unless the agency determines it will conform to the most recent U.S. Environmental Protection Agency-approved State Implementation Plan (SIP). Thus, a federal action must not:

- Cause or contribute to any new violation of a NAAQS.
- Increase the frequency or severity of any existing violation.
- Delay the timely attainment of any standard, interim emission reduction, or other milestone.

A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by the federal action would equal or exceed rates specified in 40 C.F.R. 93.153.

Table 3-1. NAAQS Attainment Designation and General Conformity Applicability Rates

Pollutant	NAAQS Attainment Designation	Applicable Emission Rates (tons/year)
Ozone (VOC as precursor)	Nonattainment (Extreme)	10
Ozone (NOx as precursor)	Nonattainment (Extreme)	10
Carbon Monoxide (CO)	Maintenance	100
Nitrogen Dioxide (NO2)	Maintenance	100
Particulate Matter (PM10)	Maintenance	100
Particulate Matter (PM2.5)	Nonattainment (Moderate)	100
Lead (Pb)	Nonattainment	25
Sources: 40 CFR 93.53(b)(1) and 40 CFR 93.53(b)(2) VOC = Volatile Organic Chemical		

The SCAB is currently in extreme nonattainment for ozone (precursors: VOC or NOx); nonattainment for PM2.5; attainment/maintenance for PM10; attainment/maintenance for NO2; and attainment/maintenance for CO; and nonattainment for lead. Based on the present attainment

designation for the SCAB, a Federal action would conform to the SIP if annual emissions are below 100 tons of PM2.5, 10 tons of VOC or NOx, or 25 tons of lead.

GREENHOUSE GAS EMISSIONS

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). GHGs are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). Currently, there are no Federal standards for GHG emissions and no Federal regulations have been set at this time. The CEQ issued guidance on the consideration of GHG emissions, entitled Final Guidance for Federal Departments and Agencies on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, dated August 1, 2016, which established a recommended reference point of 25,000 metric tons of annual CO2 emissions as warranting further review. Pursuant to Executive Order 13783, Promoting Energy Independence and Economic Growth, signed on March 28, 2017, the CEQ withdrew its guidance on April 5, 2017.

There are currently no Federal GHG emission thresholds. Therefore, a GHG significance threshold to assess impacts is not proposed. Rather, in compliance with NEPA implementing regulations, the anticipated emissions are disclosed for each alternative without expressing a judgment as to their significance.

3.2.2 SCAQMD Daily Construction Thresholds

The SCAQMD has developed mass daily emission rates of criteria pollutants for construction (**Table 3-2**). The daily construction emission thresholds represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable Federal or state ambient air quality standard in the SCAB.

Table 3-2. SCAQMD Daily Emission Construction Thresholds

Pollutant	NAAQS Attainment Designation	Construction Emission Rates (lb./day)
Nitrogen Oxide (NOx)	Nonattainment (Extreme)	100
Reactive Organic Gas (ROG or VOC)	Nonattainment (Extreme)	75
Particle Pollution (PM10)	Maintenance	150
Particle Pollution (PM2.5)	Maintenance	55
Sulfur Oxides (SOx)	Maintenance	150
Carbon Monoxide (CO)	Nonattainment (Moderate)	550
Lead	Nonattainment	3
1. Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2 2. ROG and VOC are used interchangeably for the purpose of comparing to significance thresholds.		

Baseline air quality in the project area can be determined from ambient air quality measurements conducted by the SCAQMD at the Pomona and Rubidoux stations, which are the closest monitoring stations to the Prado Dam Reservoir. While both federal and state air quality standards for several air pollutants continue to be exceeded, recent data indicates overall improving air quality.

Criteria pollutants and the levels at which they occur in the project area include:

- **Ozone (O3) and O3 precursors [Reactive Organic Gases (ROG)].** The project area is within a non-attainment area for state and national ozone standards.

- **Carbon Monoxide (CO).** Prado basin is within an area classified as a non-attainment area for the national and state carbon monoxide standards. Riverside and San Bernardino Counties are in attainment for Federal CO standards.

- **Nitrogen Dioxide (NO2).** The state nitrogen dioxide standards were exceeded only once in 1993 and the Federal standards were not exceeded on any occasion. However, until the SCAQMD requests a re-designation, the Prado basin area is still in non-attainment of the Federal nitrogen dioxide air quality standard. The area surrounding Prado basin is designated as a non-attainment area for both state and national nitrogen dioxide standards.

- **Suspended Particulate Matter (PM) 10 and 2.5.** PM10 and PM2.5 levels regularly exceed the national standard in Los Angeles, Riverside, San Bernardino, and Orange counties. The more stringent state PM10 standard is exceeded in all four counties. The area surrounding Prado basin is designated as non-attainment for PM10 and PM2.5 standards.

- **Sulfur Dioxide (SO2) and Lead (Pb).** Sulfur dioxide and lead levels in areas surrounding Prado basin are below national and state standards. The entire Prado basin region is in attainment for these pollutants.

- **Greenhouse Gases and Climate Change.** Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These gases are emitted as a result of natural processes and human activities. The accumulation of GHGs in the atmosphere regulates Earth's temperature and scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHGs.

3.3 EARTH RESOURCES

For the purposes of this SEA/EIR Addendum, the following section provides information on the affected environment for earth resources (including geology, soils, and seismicity), with respect to the project area.

The Corps has conducted numerous geotechnical and field investigations in the Prado Basin since the 1930s and as recent as 2019, including mapping of the various geologic formations and exploring the subsurface to determine the nature and extent of soil and bedrock materials, as well as the character of local faults. Prado Basin is situated at the southwestern edge of the Upper Santa Ana Valley, a broad inland alluvial plain which is part of the larger South Coastal Basin of Southern California. This area is bounded to the north and northeast by the San Gabriel and San Bernardino Mountains, to the south by the San Timoteo Badlands, a series of granitic hills, and a low bedrock plateau, and to the west and southwest by the Chino Hills and Santa Ana Mountains.

The project area is located entirely within the Prado Flood Control Basin of Riverside County, California. The proposed borrow area is located approximately 2 miles west of the project area. Bedrock does not outcrop within the limits of the borrow areas.

Soils in the Prado Basin are largely derived from the alluvial materials that dominate the valley floor and slopes. Consequently, they are generally light, sandy, highly permeable, and easily eroded. As such, the alluvium which characterizes the streambed of the Santa Ana River has been laid down over periods of river meandering and floodplain functions. The upper portions of the Santa Ana River streambed are rocky, with soils consisting of finer sands and silts throughout the middle and lower portions of the river. Soils of the coastal plain are similar to those of the middle and lower portions of the Santa Ana River. Soils in the project area are derived from the alluvial materials that dominate the valley floor and slopes. These soils are not considered prime farmland within the project area (USACE 2001).

The Norco Bluffs are composed of non-marine river terrace sediment deposited by the ancient Santa Ana River. These sediments consist mainly of clay, silt, sand, and gravel, with occasional cobbles and boulders. At depths of 100 ft. or more, they are underlain by igneous rock (mostly granite). The granite is occasionally exposed at river-level (near Hamner Avenue Bridge), and protects the toe of the slope from erosion at this point.

Groundwater is within a 35-ft. depth at some locations, but this may represent perched intervals. The groundwater table plunges downward towards the toe of the slopes and does not affect the sloughing or calving of the bluff. However, some surface water that is conveyed to the bluffs may percolate dowered through the sediments, dissolving some of the cementing materials and, thus, accelerate sloughing. The geomorphic prominence in the most upstream 1,000 ft. of the project footprint is characterized by crystalline bedrock, known locally as the La Sierra Tonalite. Bank protection is not needed in this area since bedrock will continue to impede bank-cutting scour erosion.

Seismic faults are plane-like surfaces on which movement of the earth's rock formations and soils can occur. Faults generally cut through multiple stratigraphic formations at angles. When movement occurs, fault planes propagation of seismic waves occurs; such seismic events introduce a certain risk of infrastructure damage due to earthquakes that are caused by the fault movements.

The seismic environment in southern California is largely defined by the San Andreas Fault, which trends in a northwest-southeast alignment. Land to the west of the San Andreas Fault is drifting north, which builds stresses throughout the region. These stresses are eventually relieved by movement along the San Andreas and other southern California faults. The regional stress accumulated is not equally distributed among faults, as some move more frequently than others. Other major northwest-southeast trending faults in the area include the San Jacinto, Whittier-Elsinore, and Newport-Inglewood. Many smaller and considerably less active or apparently inactive faults exist among the aforementioned larger faults. The seismic environment relevant to the Proposed Action is dominated by two fault zones, the San Andreas and the Whittier-Elsinore. The project area is located within a zone of potential surface fault offsets and ground cracking that could be triggered by an event along the Whittier-Elsinore fault zone.

Research into earthquake probabilities by the Corps determined that important seismic characteristics of the Whittier fault zone the following:

- Maximum probable earthquake is 6.9 M (earthquake magnitude);
- Could cause up to 19 feet of horizontal offset;
- Maximum site acceleration from an earthquake estimated is 0.55 g (g is the force of gravity; an acceleration of 1 g is equal to a force of 32 feet/second/second); and
- Maximum measured site acceleration was 0.08 g (USACE 2001).

Overall, the project area has a 10 percent probability in 50 years of exceedance of 0.5 to 0.6 g from an earthquake event of M 6.8. Such an event most likely would occur on either the Whittier or Chino-Central Avenue Faults.

Although the project is located in a seismically active region, this area is generally characterized by diffuse and non-significant, low-magnitude seismicity. The *1988 Phase II GDM/SEIS* describes that four ancient landslides have been identified along the eastern slopes of the Chino Hills, located at the western edge of Prado Basin. These landslides are fairly limited in size, varying from 200 – 800 ft. in width and 300 – 800 ft. in length (USACE 2008 [Appendix B]).

3.4 BIOLOGICAL RESOURCES

This section includes information on biological resources, including descriptions of plant and animal species, natural communities, and special- status species that have been observed or have the potential to occur within the project area. This discussion is based on the 2001 SEIS/EIR, as well as other relevant resources and agency materials and updated information obtained from recent surveys, literature reviews, and coordination with regulatory agencies and technical experts.

The project area and adjacent habitat have been surveyed by biologists from the Santa Ana Watershed Association (SAWA), Orange County Water District (OCWD), and Aspen Environmental Group to document the presence and locations of biological resources and sensitive species. Sensitive species occurrences in the project area were determined by reviewing CDFW, USFWS, and California Native Plant Society (CNPS) databases. United States Geological Service (USGS) quads, Corona North 7.5' quadrangle and Prado Dam 7.5' quadrangle, were used for database searches. Potential special-status species and habitats within the project area were classified as "Not Expected," "Low," "Moderate," "High," or "Detected." These classifications were determined by comparing existing habitats within and near the project and borrow area to the habitat preferred by the species. This section summarizes results from database searches and field surveys in order to present an updated description of the existing conditions.

3.4.1 VEGETATION COMMUNITIES AND COVER TYPES

Past vegetation surveys within the project area were described in the 2001 SEIS/EIR. Supplemental surveys were conducted in spring and fall of 2019, and in January 2020 within the project area. Results from recent vegetation mapping were consistent with the previous findings. *Arundo donax* has been managed for several years within and adjacent to the project area. Since the 2001 SEIS/EIR, the river has changed course, damaging some riparian habitat. These areas have since regrown to early successional riparian woodland and are comprised of several willow species. The native and nonnative vegetation communities are interspersed amongst each other, therefore breaks in community type are determined based on dominant species type and professional judgment of the biologist. There are a total of 10 cover and broad vegetation types within the project area, including the borrow site (**Figure 3.4-1** to **Figure 3.4-5**). Ornamental landscape, trails, and parks have been included in the developed/disturbed cover type. The vegetation types were referenced in the Manual of California Vegetation (Sawyer et al. 2020), and the map was created using ArcGIS with recent basemap imagery. The project area lies within the riparian habitat of the Santa Ana River floodplain, and the upland habitat of the Norco bluffs. The borrow area is located in a disturbed grassland area that has been used as a borrow area for previous SARM projects in the last several years. **Table 3-3** provides the acreage of the vegetation and cover types for the project area and borrow area

Table 3-3 Vegetation and Cover Types in the Project and Borrow Area

Vegetation and Cover Type	Total Acres	Percent of Total Acres
Project Area		
Southern riparian woodland	10.12	13.3%
Disturbed southern riparian woodland (enhancement)	15.11	19.8%
Disturbed mulefat scrub	1.50	2.0%
Arundo Riparian Scrub	21.20	27.8%
Ruderal	20.60	27.0%
Nonnative Woodland	0.82	1.1%
Sandy Wash	1.59	2.1%
Disturbed coastal sage scrub	1.27	1.6%
Developed or Disturbed	4.06	5.3%
Total	**76.26***	**100%**
Borrow Area		
Disturbed Annual Grassland	22.45	100%
Total	22.45	100%
*rounding each type causes 0.01 difference in total		

Southern Riparian Woodland

Southern riparian woodland is comprised of winter-deciduous trees that require water near the soil surface. Black willow (*Salix goodingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*) and Fremont cottonwood (*Populus fremontii*) form a dense, medium height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp. *holosericea*), and wild grape (*Vitis girdiana*).

Disturbed Southern Riparian Woodland (Mitigation Area)

This vegetation type contains the same species composition as southern riparian woodland, except that there is recent disturbance from restoration activities. Nonnative vegetation removal and treatment has led to patches of sparsely vegetated areas. Mature riparian trees are well-established in this habitat type, but the full canopy cover has not recovered. Recent observations of the establishment of native vegetation throughout areas once occupied by nonnative species suggest the mitigation area is returning to southern riparian woodland. The mitigation site is currently being maintained, and it is receiving focused treatment for nonnative regrowth, as needed. **Figure 3.4-6** shows the overlap of the TCE and the mitigation areas.

Disturbed Mulefat Scrub

This vegetation type is described as a shrubby riparian scrub community comprised of mulefat (*Baccaris salicifolia*), elderberry (*Sambucus nigra*), small willows and palms, and is commonly found near intermittent drainages and along floodplains. The community is sustained by seasonal flooding followed by dry periods, but relies on a shallow water table. The community is considered disturbed because of the high presence of nonnative species. Dominant, nonnative species include poison hemlock (*Conium maculatum*), bristly ox-tongue (*Helminthotheca echioides*) and shortpod mustard (*Hirschfeldia incana*).

Arundo Riparian

This vegetation type is dominated by giant reed (*Arundo donax*). Within the Action Area large patches or swaths of mature giant reed mixed with native riparian species such as willows and cottonwood. Where giant reed patches occur, there is little to no understory. In areas where open space occurs species such as wild grape, poison oak (*Toxicodendron diversilobum*) and wild rose (*Rosa californica*) are typically present.

Disturbed Coastal Sage Scrub

This vegetation type contains typical coastal sage species such as buckwheat (*Eriogonum fasciculatum*), California sage (*Artemisia californica*), goldenbush (*Isocoma menziesii*), California encelia (*Encelia californica)* and brittlebush (*Encelia farinosa*). Annual native species include fiddleneck (*Amsinckia menziesii*) and horseweed (*Erigeron canadensis*). The level of disturbance in this vegetation community is high. Nonnative weed cover is made up of many species such as mustards, nonnative grasses (*Bromus madritensis*, *Bromus diandrus* and *Hordeum* sp.), tocalote (*Centaurea melitensis*) and tree tobacco (*Nicotiana glauca*). This vegetation community takes place along the less steep southern portion of the Action Area. Moving north within the Action Area this community transitions to almost all nonnative grasses and ruderal species.

Ruderal

This cover type is found on top of the steep bluff near the residential housing and adjacent horse trail. Weedy annuals and grasses dominate the community and there is regular disturbance from recreational use. Species commonly observed include mustards, tree tobacco, horseweed (*Erigeron bonariensis*), sow thistle (*Sonchus* sp.), brome (*Bromus* sp.), tocalote, Russian thistle (*Salsola* sp.), and various ornamental species.

Nonnative Woodland

This vegetation type represents the areas that are dominated by nonnative and ornamental trees. Eucalyptus (*Eucalyptus* sp.) is the dominant species in this cover type, which is generally found on the edge of the residential area located on the top of the bluff. Other species observed include Peruvian pepper tree (*Schinus molle*) and bougainvillea (*Bougainvillea* sp.). The understory is mostly ruderal or ornamental grasses and forbs.

Sandy Wash

This vegetation type is found in dry, secondary stream channels that have recently been scoured by floods or avulsion flows. Sandy wash runs along the bottom of the bluff and may carry flows through small canyons that drain from the top of the bluff. This cover type typically supports low densities of plant cover; however, in the absence of scouring flows or inundation, these areas may develop more complex vegetation communities.

Developed / Disturbed

This cover type represents the areas that have been developed by buildings, or other similar developments, and landscaped vegetation for residential and recreational purposes. There are numerous

developed areas in the Project area including roads, parking lots, residential areas, and areas cleared of vegetation, such as horse trails.

Disturbed Annual Grassland

This vegetation type is located at the borrow area. This borrow area has been recently used for other projects within Prado Basin, and it has been seeded with native species by the contractor. The land surrounding the borrow area is very disturbed with nonnative grasses and ruderal species, such as Russian thistle (*Salsola* sp.) and sowthistle (*Sonchus* sp.). Although native seed was applied to the site in fall 2019, the existing, nonnative seed bank is expected to cause high cover of exotic species onsite.

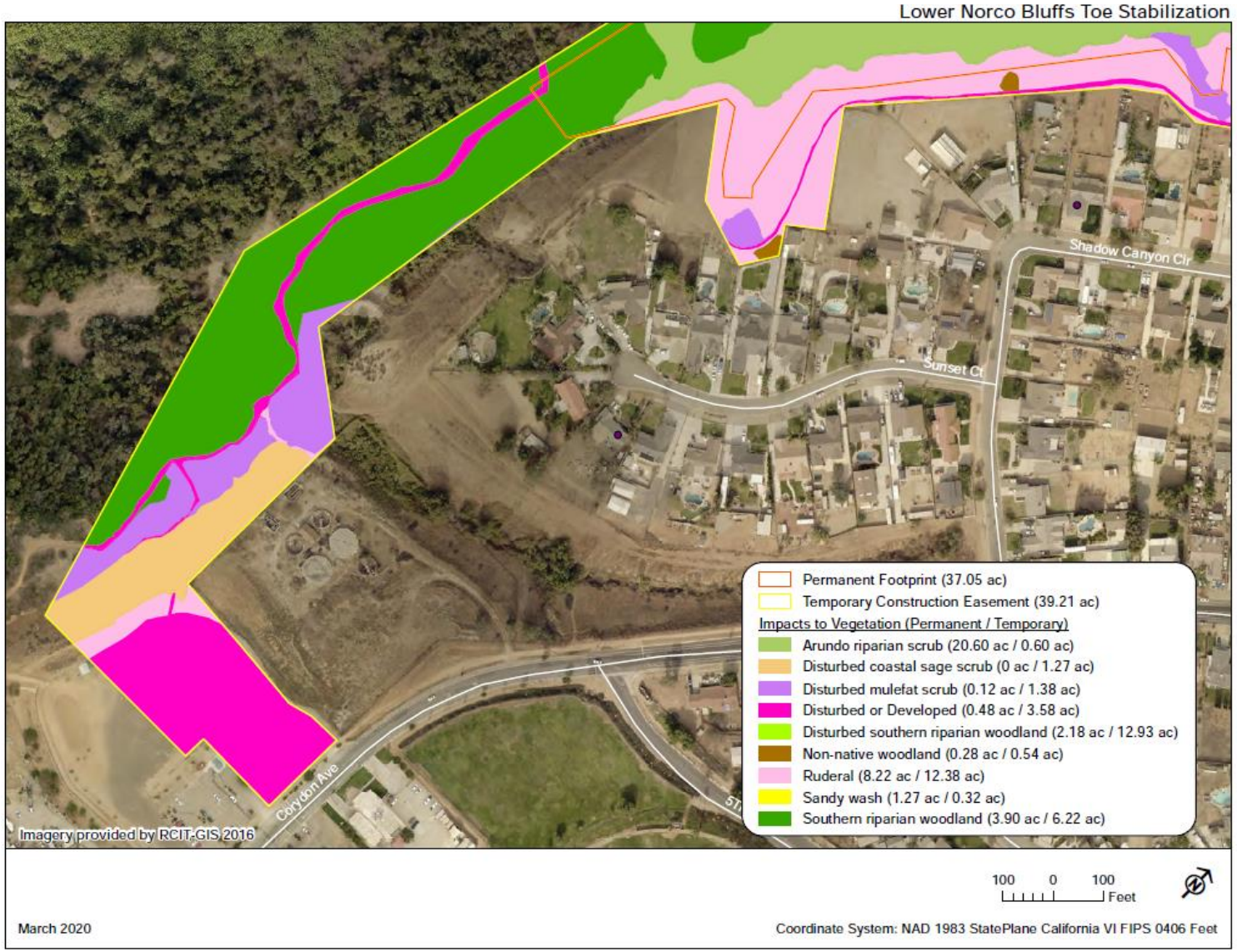

Figure 3.4-1 Vegetation Cover within Project Area

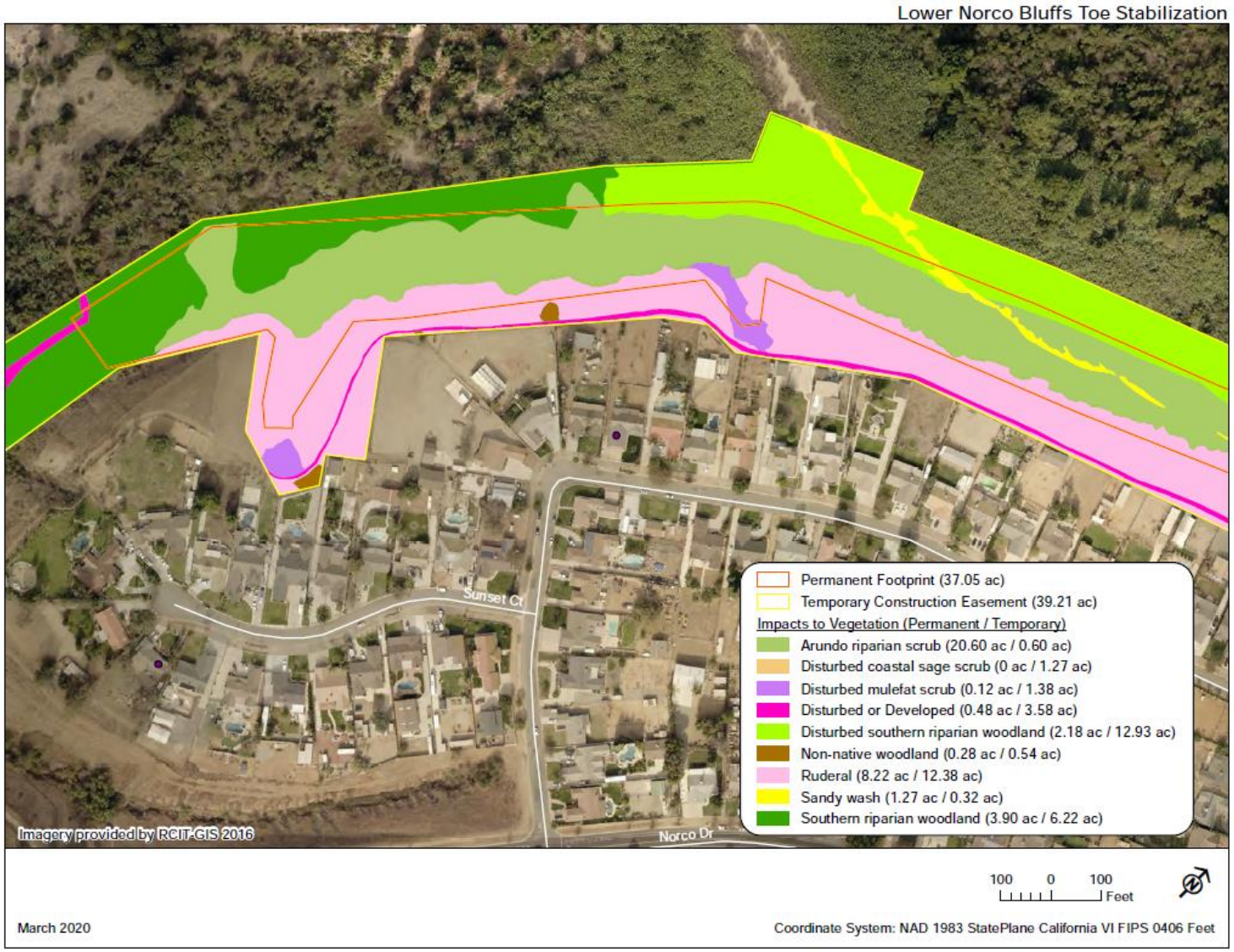

Figure 3.4-2 Vegetation Cover within Project Area

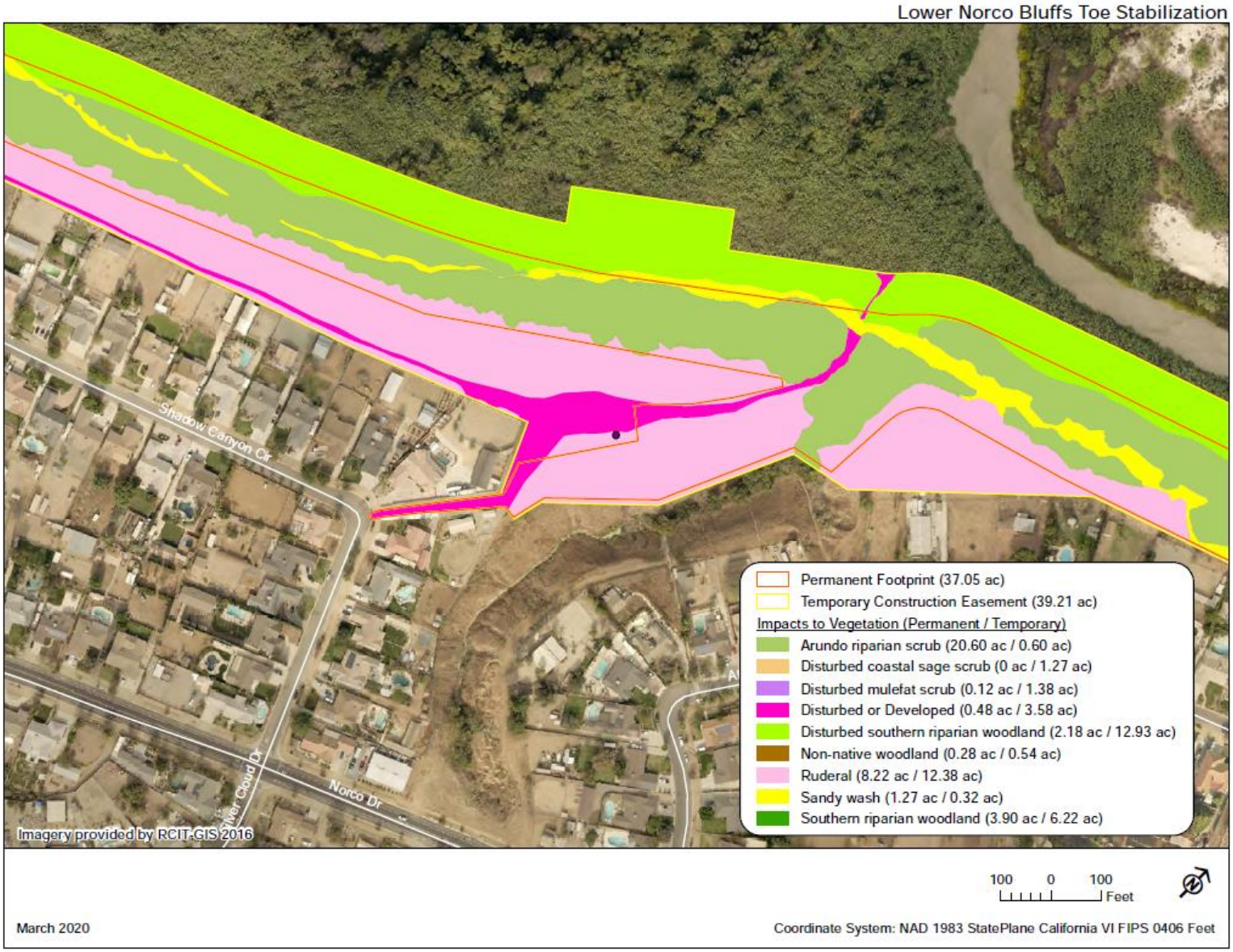

Figure 3.4-3 Vegetation Cover within Project Area

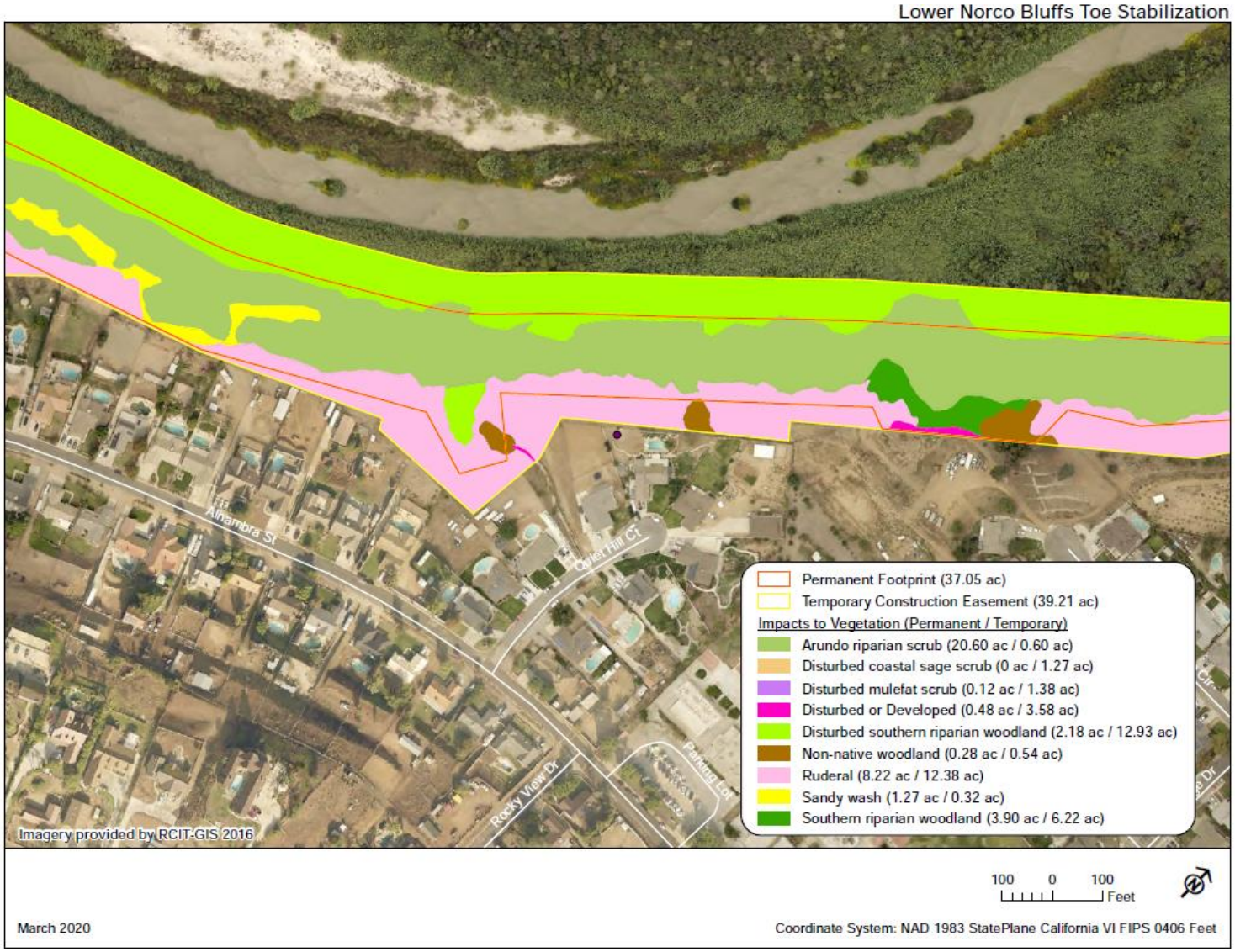

Figure 3.4-4 Vegetation Cover within Project Area

Figure 3.4-5 Vegetation Cover within Project Area

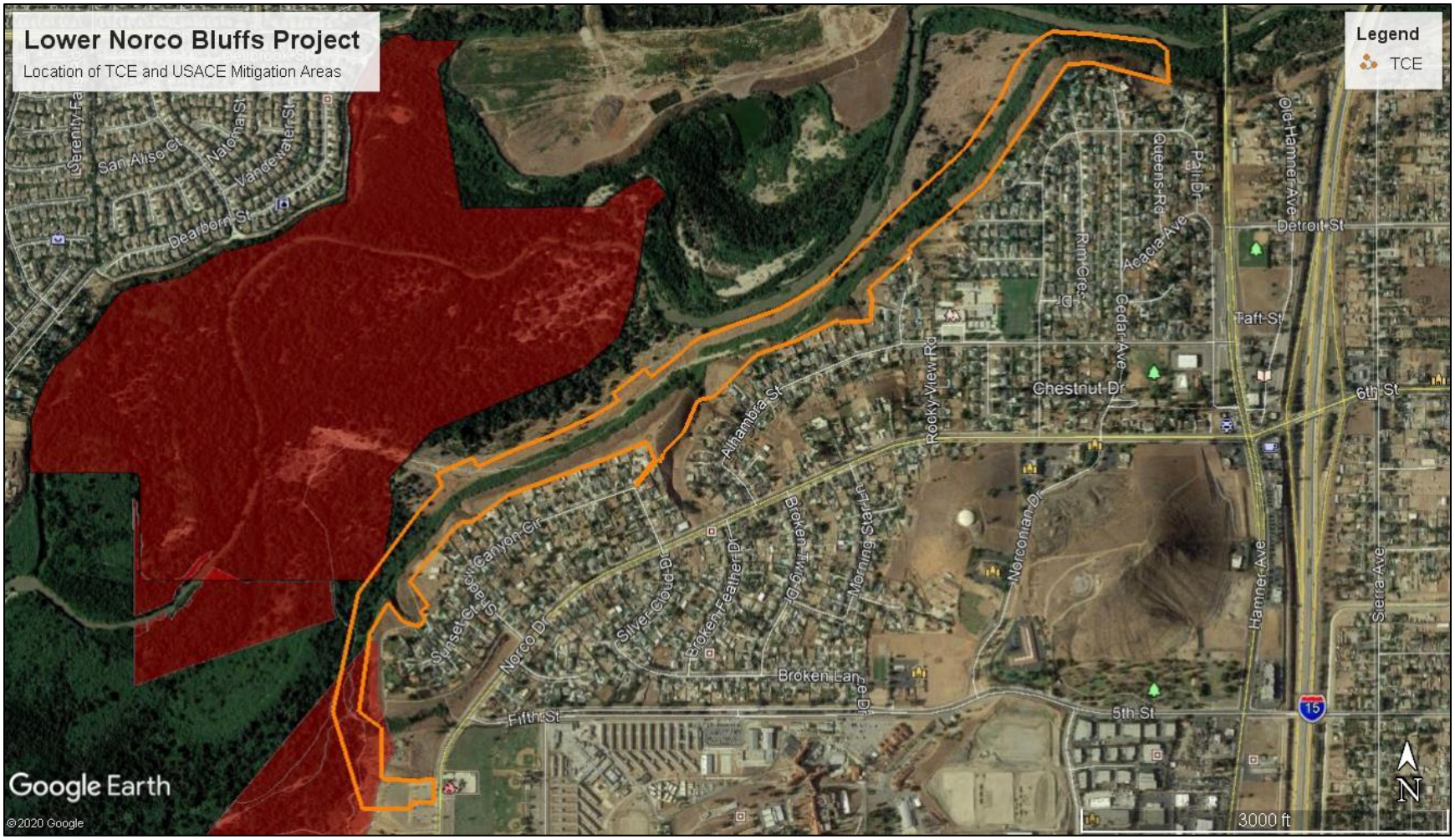

Figure 3.4-6 Overlap of TCE and USACE Mitigation Sites

3.4.1.1 *SPECIAL-STATUS PLANT SPECIES*

A complete list of the special-status plant communities with the potential to occur in the project area is provided in **Table 3-4**. The table includes scientific nomenclature, regulatory status, habitat requirements, and the potential to occur. To ensure the most up-to-date data was obtained, CNDDB and CNPS queries were run in February 2020 (CDFW 2020). In addition, species lists were obtained from the USFWS Information for Planning and Consultation (IPaC) website. Aerial imagery was also reviewed at varying scales on Google Earth (2018) to determine the potential vegetation communities and land cover types that may be encountered.

Special-status plants considered in this Final SEA/EIR addendum include species listed as threatened or endangered under the Federal or California Endangered Species Acts, species proposed for listing, species included in the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), and other unique and rare species identified by the USFWS, CDFW, or local jurisdictions. The CNPS listing is sanctioned by CDFW and serves as the list of candidate plant species for state-listing. CNPS's California Rare Plant Ranks (CRPR) (formerly CNPS List) 1B and 2 species are considered eligible for state -listing as endangered or threatened. Species were assessed for their potential to occur within the proposed project area, and species that were determined not likely to occur are not discussed further in this document.

Table 3-4 Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
Abronia villosa var. *aurita*	Chaparral sand verbena	Fed: none Calif: none MSHCP: none CRPR: 1B.1	Perennial herb; sand, mostly alluvial fans and benches below about 5000 ft. elev.; San Jacinto Mtns., Inland Empire, adj. Colorado Des., Orange & San Diego cos.	Feb - Jul	**Moderate.** Habitat present.
Astragalus brauntonii	Braunton's milk vetch	Fed: **END** Calif: none MSHCP none CRPR:1B.1	Subshrub or perennial herb; scattered patches in Ventura, LA, & Orange cos.; foothills below about 2100 ft. elev.; chaparral, often on carbonate soils; often follows fire or soil disturbance	Jan - Aug	**Not Like to Occur.** No suitable habitat
Atriplex coulteri	Coulter's saltbush	Fed: none Calif: none MSHCP: none CRPR: 1B.2	Perennial herb; coastal dunes, bluffs, alkaline flats; coastal S Calif and Baja Calif, inland to Encinitas area; sea level to about 1500 ft. elev.	Mar - Aug	**Not Likely to Occur.** No suitable habitat
Brodiae filifolia	Thread-leaved brodiae	Fed: **END** Calif: **END** MSHCP: covered CRPR: 1B.1	Bulb; chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay soils; about 80 – 4000 ft. elev.	Mar - Jun	**Not Likely to Occur.** No suitable habitat
Calochortus catalinae	Catalina mariposa lily	Fed: none Calif: none MSHCP: none CRPR: 4.2	Bulb; chaparral, valley grassland, foothill woodland and coastal sage scrub; Ventura to Orange Cos., inland to Riverside and San Bernardino Cos.; about 65-2400 ft. elev.	Feb - Jun	**Not Likely to Occur.** No suitable habitat
Calochortus weedii var. *intermedius*	Weed's mariposa lily	Fed: none Calif: none MSHCP: covered CRPR: 1B.2	Perennial herb; shrublands, grassland, various soils, about 600 - 2800 ft. elev.; coastal southern Calif., inland to western Riverside Co.	May - Jul	**Not Likely to Occur.** No suitable habitat
Calystegia felix	Lucky morning-glory	Fed: none Calif: none MSHCP: none CRPR: 1B.1	Annual rhizomatous herb; historically associated with wetland and marshy places, but also can be found in drier areas; meadows, seeps and riparian scrub.	May - Jul	**Low.** Riparian scrub present, not found during surveys.
Camissonia lewisii	Lewis' evening-primrose	Fed: none Calif: none MSHCP: none CRPR: 3	Annual herb found in sandy or clay soils from 0 – 250 feet within coastal bluff scrub, cismontane woodland, coastal dune, coastal scrub, or valley and foothill grassland.	Mar – May	**Not Likely to Occur.** No suitable habitat; outside elevation range.

Centromadia pungens ssp. laevis	Smooth tarplant	Fed: none Calif: none MSHCP: covered CRPR: 1B.1	Annual herb; found in alkaline soils at 330 – 2000 feet elev. within chenopod scrub, meadows, seeps, playas, riparian woodlands, valley and foothill grassland.	Apr - Sep	**Moderate.** Habitat present, not found during surveys but previously found near the project.
Convolvulus simulans	Small-flowered morning-glory	Fed: none Calif: none MSHCP: none CRPR: 4.2	Annual herb; clay and serpentine seeps within open chaparral, coastal scrub and valley and foothill grassland at 115 – 2820 feet elev.	Mar - Jul	**Not Likely to Occur.** No suitable habitat.
Deinandra paniculata	Paniculate tarplant	Fed: none Calif: none MSHCP: none CRPR: 4.2	Annual herb; coastal scrub, vernal pools, and grasslands about 50 – 3000 feet elev.	Mar - Dec	**Moderate.** Habitat present, not found during surveys.
Dodecahema leptoceras	Slender-horned spineflower	Fed: **END** Calif: **END** MSHCP: covered CRPR: 1B.1	Annual herb; mature chaparral, cismontane woodland, coastal scrub; about 650 – 2500 feet elev.	Apr - Jun	**Not Likely to Occur.** No suitable habitat.
Dudleya multicaulis	Many-stemmed dudleya	Fed: none Calif: none MSHCP: covered CRPR: 1B.2	Perennial herb; heavy soils or sandstone outcrops; grassland or shrubland below about 2600 ft. elev.; LA to SD Co, inland to San Gabriel Mtn foothills and W Riv Co.	Apr - Jul	**Not Likely to Occur.** No suitable habitat.
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Fed: **END** Calif: **END** MSHCP: covered CRPR: 1B.1	Subhrub; alluvial fans and plains; endemic to Santa Ana River watershed (mainly San Bern. Co. but rarely in Riverside & Orange cos.), below about 2000 ft. elev.	May - Sep	**Moderate.** Habitat present but rare for this area, not found during surveys.
Juglans californica var. *californica*	So. California black walnut	Fed: none Calif: none MSHCP: covered CRPR: 4.2	Tree or large shrub; woodland, coastal sage scrub, chaparral, below about 3000 ft. elev.; Ventura, LA, Orange, San Bernardino cos.	Mar - Aug	**Moderate.** Habitat present, but not found during surveys.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	Fed: none Calif: none MSHCP: none CRPR: 4.3	Ephemeral spring annual; shrublands; sea level to about 2900 ft. elev.; LA Co, most Channel Islands, inland to W Riv & San Bern cos, S to Baja Calif	Jan - Jul	**Low.** Habitat present, but not found during surveys.
Monardella australis ssp. jokerstii	Jokerst's monardella	Fed: none Calif: none MSHCP: none	Perennial rhizomatous herb; lower montane coniferous forest, meadows and seeps, vernal pools; about 4000 – 5000 ft. elev.	Jul - Sep	**Not Likely to Occur.** (no suitable habitat; outside elevation

		CRPR: 1B.1			range)
Pseudognaphalium leucocephalum	White rabbit-tobacco	Fed: none Calif: none MSHCP: none CRPR: 2.2	Perennial herb; 100 - 7000 ft. elev.; sandy and gravelly chaparral, cismontane woodland, coastal scrub and riparian woodland	Jul - Dec	**Moderate**. Habitat present but not found during surveys.
Romneya coulteri	Coulter's matilija poppy	Fed: none Calif: none MSHCP: covered CRPR: 4.2	Perennial rhizomatous herb; Chaparral, coastal scrub; often in burns; 30 - 4500 ft. elev.	Mar – Aug	**Not Likely to Occur.** No suitable habitat.
Sidalcea neomexicana	Salt spring checkerbloom	Fed: none Calif: none MSHCP: none CRPR: 2B.2	Perennial her; alkaline or mesic soils in chaparral, coastal scrub, lower montane coniferous forest, mojavean desert scrub or playas at 50 – 3000 ft. elev.	Mar – Jun	**Not Likely to Occur.** No suitable habitat.
Symphyotrichum defoliatum	San Bernardino Aster	Fed: none Calif: none MSHCP: covered CRPR: 1B.2	Perennial rhizomatous herb; near ditches, streams, springs, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows, seeps, marshes, swamps and valley and foothill grassland; 1500 – 5800 ft. elev.	Jul – Dec	**Not Likely to Occur.** Outside of elevation range.
VEGETATION COMMUNITIES					
Southern Sycamore Alder Riparian Woodland		CNDDB	Tall deciduous streamside woodland that is dominated by western sycamore and occasional white alders. Seldom form closed canopies and appear as scattered trees.		**Not present.**
Southern California arroyo chub/Santa Ana sucker stream		CNDDB	Streams ranging in size and flow but containing suitable spawning or sheltering habitat for both or one native fish species found in southern California.		**Present just outside of the TCE. Sandy wash exists within TCE.**
Southern Willow Scrub		CNDDB	Consists of dense, broadleaved, winter-deciduous stands of trees dominated by willows, mulefat and scattered emergent cottonwood and sycamore trees. Typically experiencing periodic flooding.		**Present.**
California Walnut Woodland		CNDDB	Consists of mainly California walnut trees with a semi open canopy that allows for a grassy understory. Typically occurs in relatively moist areas with fine textured soils near slopes.		**Not present.**

Federal- and State-Listed Plant Species

Four federal- and/or state-listed species were identified. These species are: slender-horned spineflower (*Dodecahema leptoceras*), thread-leaved brodiae (*Brodiae filifolia*) and Braunton's milk vetch (*Astragalus brauntonii*) and Santa Ana River woollystar (Eriastrum densifolium ssp. sanctorum). Of these species, only Santa Ana River woollystar had the potential to occur.

Santa Ana River Woollystar

The Santa Ana River Woollystar (*Eriastrum densifolium* ssp. *sanctorum*) is a federal- and state-listed endangered plant that has moderate potential to occur in the proposed project. This species is a sub-shrub plant that typically grows to a maximum of 3 feet in height. Santa Ana River woollystar has funnel shaped bright blue flower and grey-green pointed leaves and stems. This species is endemic to California and thrives in open areas that receive large amounts of sunlight. It prefers sandy soils and periodic flooding for germination and seed dispersal. While the project lies partly within the active floodplain of the Santa Ana River, the sandy areas are minimal and are often shaded by large trees and stands of giant reed. It is more common in San Bernardino County, but some populations have been found in Riverside County.

California Rare Plant Ranked Species, and MSHCP-Covered Species

Seven special-status plants have a potential to occur in the project area based on suitable habitat, soil types, and known ranges. These include:

- paniculate tarplant (*Deinandra paniculata*) – Moderate
- lucky morning-glory (*Calystegia felix*) – Low
- smooth tarplant (*Centromadia pungens* ssp. *laevis*) – Moderate
- chaparral sand verbena (*Abronia villosa var. aurita*) – Moderate
- southern California black walnut (*Juglans californica* var. *californica*) – Moderate
- Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) – Low
- white-rabbit tobacco (Pseudognaphalium leucocephalum) – Moderate

Paniculate tarplant

Paniculate tarplant has a CRPR ranking of 4.2 and has a limited distribution in California. This species is common in open, grasslands (including weedy annual grasslands) in much of western Riverside County and in parts of Orange and San Diego Counties. This species is known to occur within the vicinity, but has not been detected in the project area. Given the suitable habitat present within the borrow area, this species has a moderate potential to occur within the project area.

Lucky morning-glory

Lucky morning-glory has a CRPR ranking of 1B.1 and is considered endangered in California. This species is known to exist in both wetland and marshy areas, as well as drier habitats. Several observations have been made in the city of Chino, but none are within 5 miles of the project area or borrow area. Given the known occurrences of the species and habitat present within the project areas, this species has a low potential to occur.

Smooth tarplant

Smooth tarplant has a CRPR ranking of 1B.1 and is considered endangered in California. This species is covered under the Western Riverside County MSHCP. This species can occupy riparian woodlands and grasslands. A recent observation was documented near the project site, therefore this species has a moderate potential to occur.

Chaparral sand verbena

Chaparral sand verbena has a CRPR ranking of 1B.1 and is considered rare in California. This verbena generally occurs in sandy, alluvial soils in western Riverside County, in the vicinity of Whitewater in the Banning Pass, and in Garner Valley within the San Jacinto Mountains. The most recent observation occurred in 2019 and was within a mile of the project area. The project area supports suitable habitat and is downstream of historic occurrences; therefore, this species has a moderate potential to occur.

Southern California black walnut

The southern California black walnut has a CRPR ranking of 4.2, has a limited range in California, and is covered under the Western Riverside County MSHCP. This species is a low-growing hardwood tree that is endemic to southern California. The range for southern California black walnut extends from San Luis Obispo County to the southeast along the Santa Ana River, and eastward through Riverside County. With the exception of a few areas where walnut-dominated woodlands occur, this species is generally associated with a mixture of other trees, particularly oaks and riparian vegetation. In riparian corridors, this species prefers dryer slopes that are rarely prone to flooding and erosional activity, yet are in proximity to ground water and/or seasonal surface water. Given the habitat present within the project area and the proximity to known occurrences this species has a moderate potential to occur.

Robinson's pepper-grass

Robinson’s pepper-grass has a CRPR/CNPS ranking of 4.3 and has a limited distribution in California. This species is an annual herb that typically blooms in early spring and generally occurs in chaparral and coastal sage scrub. It can be found in western California, from Santa Cruz County to Baja California, and inland to western Riverside and San Bernardino Counties. Its primary habitat includes slightly sheltered, open soils in shrublands. It is often located on south-facing slopes and around cobble-sized rocks or at the margins of shrubs, which may provide some moisture runoff. This pepper-grass does not compete well with other annual herbs. It is generally not found in annual grasslands, dense mustard stands, or north-facing slopes, which tend to support a denser herb cover. Due to habitat being present within the project area, this species has a low potential to occur.

White rabbit-tobacco

White rabbit-tobacco has a CRPR ranking of 2.2. This species is distributed along coastal habitats of southern California, from southwestern Riverside County north to San Luis Obispo County. White rabbit-tobacco is a perennial herb that typically occurs in sandy to gravelly soils within chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Although white rabbit-tobacco has not been reported near the project area, suitable habitat exists within the project area, and the project area is within the known distribution for this species. Therefore, there is a low potential for white rabbit-tobacco to occur.

Survey Results

Surveys for special-status plant species were conducted in spring and fall of 2019. No Federal- or State-listed or rare species were identified during the surveys. **Table 3-5** provides a list of the species observed within the project area. The borrow area is currently being used as the borrow area for an ongoing project. Therefore, the area was mostly vegetation free and subject to daily construction disturbance making it inaccessible for surveys. However, previous surveys have described the borrow area as a disturbed grassland mixed with many weedy species. Hydroseeding for site restoration took place in winter of 2019. In 2019, patchy vegetation that contained a mix of ruderal species from the existing seed bank and native grasses was observed. Considering the hydroseeding that occurred in 2019, the area is expected to contain more native grasses in the future as weeding and other maintenance activities continue and until success criteria are achieved.

Table 3-5 Observed Plants Species List

Eudicots	
Muskroot Family	Adoxaceae
blue elderberry	*Sambucus nigra* ssp. *Caerulea*
Fig-Marigold Family	Aizoaceae
small-flowered iceplant	*Mesembryanthemum nodiflorum**
Amaranth Family	Amaranthaceae
tumbling pigweed	*Amaranthus* sp.* (dried)
Sumac Family	Anacardiaceae
Peruvian pepper tree	*Schinus molle**
poison oak	*Toxicodendron diversilobum*
Carrot Family	Apiaceae
common celery	*Apium graveolens**
common poison hemlock	*Conium maculatum**
Sunflower Family	Asteraceae
bur-sage	*Ambrosia acanthicarpa* (seedling on bluff)
California sagebrush	*Artemisia californica*
Douglas' or California mugwort	*Artemisia douglasiana*
coyote brush or chaparral broom	*Baccharis pilularis*
mule fat	*Baccharis salicifolia ssp. salicifolia*
California brickellbush	*Brickellia californica*
Calendula	*Calendula officinalis**
Italian thistle	*Carduus pycnocephalus* var. *pycnocephalus**
tocalote/Maltese star thistle	*Centaurea melitensis**
common horseweed	*Erigeron canadensis*
Australian brass-buttons	*Cotula australis**
California encilia	*Encelia californica*
grassland goldenbush	*Ericameria palmeri* var. *pachylepis*
Gazania	*Gazania linearis**
western sunflower	*Helianthus annuus*
bristly ox-tongue	*Helminthotheca echioides**
coastal goldenbush	*Isocoma menziesii*
white everlasting	*Pseudognaphalium microcephalum*
Spanish sunflower	*Pulicaria paludosa**
common groundsel	*Senecio vulgaris**
common sow thistle	*Sonchus oleraceus**
common dandelion	*Taraxacum officinale**
earless crown beard	*Verbesina encelioides* ssp. *exauriculata**
spiny clotbur	*Xanthium spinosum*
Borage Family	Boraginaceae
common fiddleneck	*Amsinckia intermedia*
rigid fiddleneck	*Amsinckia menziesii*
slender pectocarya	*Pectocarya linearis* ssp. *ferocula*
common phacelia	*Phacelia distans*
Mustard Family	Brassicaceae
sahara mustard	*Brassica tournefortii**
shepherd's purse	*Capsella bursa-pastoris**

shortpod mustard	*Hirschfeldia incana**
white water cress	*Nasturtium officinale**
London rocket	*Sisymbrium irio**
Cactus Family	Cactaceae
Indian fig	*Opuntia ficus-indica**
Goosefoot Family	Chenopodiaceae
Australian saltbush	*Atriplex semibaccata**
Russian thistle	*Salsola tragus**
Morning-Glory Family	Convolvulaceae
common morning-glory	*Ipomoea purpurea**
Stonecrop Family	Crassulaceae
sand pigmy-stonescrop/pygmy-weed	*Crassula connata*
Gourd Family	Cucurbitaceae
chilicothe/wild cucumber	*Marah macrocarpa*
Watermelon	*Citrullus lanatus*
Spurge Family	Euphorbiaceae
rattlesnake spurge	*Euphorbia albomarginata*
California croton	*Croton californicus*
doveweed / turkey mullein	*Croton setiger*
castor bean	*Ricinus communis**
Legume Family	Fabaceae
coastal deerweed	*Acmispon glaber*
arroyo lupine	*Lupinus succulentus*
California burclover	*Medicago polymorpha**
white sweetclover	*Melilotus albus**
Geranium Family	Geraniaceae
red-stemmed filaree	*Erodium cicutarium**
Mint Family	Lamiaceae
common horehound	*Marrubium vulgare**
Mallow Family	Malvaceae
Cheeseweed	*Malva parviflora**
Montia Family	Montiaceae
red maids	*Calandrinia ciliata*
Figwort Family	Scrophulariaceae
prostrate myoporum	*Myoporum parvifolium**
Myrtle Family	Myrtaceae
Gum	*Eucalyptus* sp.*
Four-O'clock Family	Nyctaginaceae
Bougainvillea	*Bougainvillea* sp.*
Olive Family	Oleaceae
velvet ash/Arizona flowering-ash	*Fraxinus* sp.
Lopseed Family	Phrymaceae
seep monkeyflower	*Erythranthe guttata*
Buckwheat Family	Polygonaceae
California buckwheat	*Eriogonum fasciculatum*
willow smartweed	*Persicaria lapathifolia*
sheep sorrel	*Rumex acetosella**

willow dock	*Rumex sp. (seedling)*
Rose Family	Rosaceae
toyon / christmas berry	*Heteromeles arbutifolia*
California rose	*Rosa californica*
California blackberry	*Rubus ursinus*
Willow Family	Salicaceae
Fremont cottonwood	*Populus fremontii* ssp. *fremontii*
red willow	*Salix laevigata*
arroyo willow	*Salix lasiolepis*
Nightshade Family	Solanaceae
tree tobacco	*Nicotiana glauca**
white horse-nettle	*Solanum elaeagnifolium**
Tamarisk Family	Tamaricaceae
Mediterranean tamarix	*Tamarix ramosissima**
Nettle Family	Urticaceae
hoary nettle	*Urtica dioica* ssp. *holosericea*
dwarf nettle	*Urtica urens**
Vervain Family	Verbenaceae
Lantana	*Lantana* sp.*
Mistletoe Family	Viscaceae
big leaf mistletoe	*Phoradendron leucarpum* ssp. *macrophyllum*
Grape Family	Vitaceae
desert wild grape	*Vitis girdiana*
Monocots	
Palm Family	Arecaceae
Canary Island palm	*Phoenix canariensis**
Mexican fan palm	*Washingtonia robusta**
Sedge Family	Cyperaceae
tall umbrella-sedge	*Cyperus eragrostis* (? No inflorescence)
Sedge	*Scirpus* sp. (seedling)
Iris Family	Iridaceae
fortnight lily	*Dietes* sp.*
Grass Family	Poaceae
giant reed	*Arundo donax**
slender wild oat	*Avena* spp.*
ripgut grass	*Bromus* spp.*
bermuda grass	*Cynodon dactylon**
smilo grass / millett ricegrass	*Stipa miliacea* var. *miliacea [Piptatherum miliaceum]**
Cattail Family	Typhaceae
broad-leaved cattail	*Typha latifolia*

*Non-native species
**Special-status species
Other species may have been overlooked or inactive/absent because of the season. Plants were identified using keys, descriptions, and illustrations in Baldwin et al (2012) and other regional references. Wildlife taxonomy and nomenclature generally follow Stebbins (2003) for amphibians and reptiles, AOU (1998) for birds, and Wilson and Ruff (1999) for mammals.

3.4.2 WILDLIFE

Riparian communities support diverse assemblages of wildlife because they provide access to water, shade, and cover. Riparian systems and wetlands are frequently considered one of the most productive forms of wildlife habitat in North America. The Prado Basin, which occurs adjacent to the project area, supports extensive riparian and aquatic habitat. Many bird species are wholly, or at least partially, dependent on riparian plant communities (Warner et.al., 1984). Riparian vegetation provides necessary foraging and nesting habitat for many bird species (Rottenborn 1999, Bolger et al 1997); even relatively disturbed areas that are adjacent to existing riparian vegetation can be important to a suite of common and sensitive wildlife. The adjacent floodplain and upland vegetation is also critical to many wildlife species as many aquatic and semi-aquatic species rely on adjacent terrestrial habitats to complete their life cycles (Semlitsch and Bodie 2003, Spinks et al. 2003, Burke and Gibbons 1995). Wildlife that occur at or adjacent to existing mitigation sites in the area may periodically use these areas for foraging, dispersal, or other important behaviors.

The riparian and upland community types that occur in the Santa Ana River watershed provide habitat for a variety of resident and migratory wildlife species including several special-status species. Of particular importance are riparian and streambed areas that provide potential habitat for the federally-threatened Santa Ana sucker (*Catostomus santaannae*), federally- and state-endangered least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii exitmus*), and various raptor species.

The project lies almost entirely within the Santa Ana River floodplain, but only on the south side of the main perennial channel. Due to development surrounding the majority of the project, the Santa Ana River's riparian and upland habitats function as a movement corridor and/or dispersal habitat for a number of wildlife species. Continuous riparian riverine habitat is upstream and downstream from the project alignment, increasing the likelihood of wildlife presence within and adjacent to the project area. Some species, such as mourning dove and northern mockingbird, are positively-correlated with urbanization, but most species are negatively-correlated with urbanization and prefer to inhabit undeveloped spaces. Factors associated with urbanization that are expected to contribute to lower species richness and densities in riparian zones near developed areas include an increase in the number of domestic cats (Rottenborn 1997), an increase in people recreating in riparian areas, noise, collisions on roads, and movement of people and domestic animals (Rottenborn 1999). The frequency of human visitation on the bluffs and in the Santa Ana River floodplain may adversely affect wildlife use in the project area to some degree. Several studies have documented the effects of pedestrian traffic on birds (Nowakowski 1994, Fernandez-Juricic 2000, Miller and Hobbs 2000), but, as with development generally, species vary in their sensitivity to this type of disturbance.

Table 3-6 includes all wildlife species listed in the state and federal database searches and covered under the Western Riverside MSHCP. Only those species that have potential to occur and are federally-or state-listed are discussed in further detail in the document. A complete list of the wildlife species identified during surveys is presented in **Table 3-7**. Special-status species are indicated by an asterisk. This list includes only species detected on the site during surveys.

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
INVERTEBRATES				
Bombus crotchii	Crotch bumble bee	Fed: none Calif: **Candidate END** MSHCP: none	Inhabits open grassland and scrub habitats in CA. nesting occurs underground.	**Low.** Habitat quality is less than ideal for this species to occur.
Rhaphiomidas terminatus abdominalis	Delhi sands flower-loving fly	Fed: **END** Calif: none MSHCP: covered	Remnant sandy soils (Delhi series) with sparse native vegetation including buckwheat, telegraph weed, croton; endemic to Colton and surrounding area. Summer	**Not Likely to Occur:** Endemic to the Colton Dunes. Inhabits areas with Delhi soil series. No suitable habitat occurs within the Project area.
FISH				
Catostomus santaanae	Santa Ana sucker	Fed: **THR** Calif: none MSHCP: covered	Major cismontane stream systems in S Calif. incl. Sta Ana Riv., formerly below 3000 ft. elev.; extant populations near Riverside and downstream. Year-round	**Low.** This species is known to inhabit (spawn and forage in) portions of the Santa Ana River where suitable habitat occurs above the Prado Dam, and non-breeding individuals have the potential to occur within the Basin or downstream. Species is not expected to inhabit the area immediately adjacent to the project area. Potentially could be present during times of heavy flows if washed downstream from occupied habitat; however, perennial flows are not present within the project area.
Gila orcutti	Arroyo chub	Fed: none Calif: SSC MSHCP: covered	Slow-flowing sections or backwaters, cismontane stream systems in S Calif. incl. Sta Ana Riv.; extant populations near Riverside and down-stream; introduced populations occur outside historic native range Year-round	**Low.** Known from Corona North USGS quad in isolated sections of the **Santa Ana River** from Riverside and San Bernardino county line downstream to the Prado Dam. Historical record exists from the pool located within Temescal Wash which is over two miles as the crow flies from the project.
Oncorhynchus mykiss irideus pop. 10	Steelhead	Fed: **END** Calif: SSC MSHCP: covered	Occurs in rivers with good coastal access, and able to tolerate warmer temperatures. Once was found throughout California.	**Not Likely to Occur.** Considered possibly extirpated from the area due to development, channelization and dams.
AMPHIBIANS				
Spea hammondii	Western spadefoot	Fed: none Calif: SSC MSHCP: covered	Breeds in quiet streams, temporary ponds, vernal pools, burrows in sand during dry season; sea level to about 4500 ft. elev.; Central Val to N Baja. October-April	**Moderate.** Ponded water, such as vernal pools or road pools, or slow moving streams are required for breeding. Ponding within the floodplain could provide suitable habitat, sandy areas for shelter are present.

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
REPTILES				
Aniella stebbinsi	California legless lizard	Fed: none CA: SSC MSHCP: none	Sandy or loose loamy soils under sparse vegetation; soil moisture is essential; prefer soils with high moisture content.	**Moderate.** Although scattered records occur for this subspecies throughout western Riverside County, the project area supports only marginal habitat, at best due to its isolation, frequent flooding and surrounding disturbance; not identified during surveys.
Aspidoscelis hyperythra	Orange-throated whiptail	Fed: none Calif: SSC MSHCP: covered	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats; prefers washes and other sandy areas with patches of brush and rocks; perennial plants necessary to support major food source of termites.	**Low:** Habitat is marginal for this species within the Project area. Known occurrences nearby have been in upland habitat.
Coleonyx variegatus abbotti	San Diego banded gecko	Fed: none Calif: SSC MSHCP: none	Found in rocky outcrops or granitic soils in coastal scrub or chaparral habitats	**Not likely to occur**: The project area does not support suitable habitat.
Crotalus ruber ruber	Red diamond rattlesnake	Fed: none Calif: SSC MSHCP: covered	Coastal sage scrub, chaparral, desert scrub; SW Calif, Baja Calif.; sea level to about 5000 ft. elev.	**Not likely to occur.** The project area is located within the known geographic distribution for this species, but does not contain habitat preferred by this species.
Emys marmorata	Western pond turtle	Fed: none Calif: SSC MSHCP: covered	Perennial ponds, streams; breed & overwinter in adjacent uplands; coastal S and cent. Calif., NW Baja Calif., below about 4800 ft. elev.	**Not likely to occur.** This species was not observed during surveys and the site does not provide deep pools or basking sites.
Phrynosoma blainvillii"	Coast horned lizard	Fed: none CA: SSC MSHCP: covered	Sandy soils, forest, shrubland or grassland; W Calif. from LA Co through Baja Calif., below about 6000 ft. elev.	**Not likely to occur:** This species has been known to occur in a variety of habitats but is known in this region to be near foothills and open areas, which are lacking within the project area.
BIRDS				
Accipiter cooperii	Cooper's hawk	Fed: none Calif: SSC MSHCP: covered	Nests and hunts in forest & woodland, also forages in open areas; most of US, Central and S America.	**Present:** This species was last observed flying over and foraging in the project area during surveys. Nesting habitat is available within and near the project area; however, no active nests have been found or reported.
Accipiter striatus	Sharp-shinned hawk	Fed: none Calif: SSC MSHCP: covered	Nests in conifer and riparian forests, preferably on north facing slopes near water. Forages in many habitats in winter and migration.	**Moderate:** This species was observed flying over and foraging in the project area during the recent surveys. Breeding habitat does not occur in the project area.

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
Aechmophorus clarkii	Clark's grebe	Fed: none CA: none MSHCP: none	Forage and nest on large freshwater lakes and marshes and are found on the coast during non-breeding season.	**Not Likely to Occur.** No suitable habitat.
Agelaius tricolor	Tricolored blackbird	Fed: none Calif: **THR** MSHCP: covered	Nests in conifer and riparian forests, preferably on north facing slopes near water. Forages in many habitats in winter and migration.	**Not Likely to Occur.** No suitable habitat.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	Fed: none Calif: SSC MSHCP: covered	Valley foothill-hardwood, hardwood conifer forest, chaparral, valley-foothill riparian forest, coniferous forest, wet meadows	**Not Likely to Occur.** No suitable habitat.
Ammodramus savannarum	Grasshopper sparrow	Fed: none Calif: SSC MSHCP: covered with specific objectives	Dense grasslands on rolling hills, lowland plains; in valleys and on hillsides on lower mountain slopes; favors native grasslands with a mix of grasses, forbs, and scattered shrubs.	**Not Likely to Occur.** No suitable habitat.
Aquila chrysaetos	Golden eagle	Fed: none Calif: FP, CSC MSHCP: covered	Uncommon resident in southern California; nests primarily located in rugged, isolated mountain areas	**Low.** No suitable habitat within project area, the borrow area is closer to Prado wetlands and open space that it more suitable for this species to forage.
Artemisiospiza belli belli	Bell's sage sparrow	Fed: none Calif: SSC MSHCP: covered	Uncommon to fairly common localized breeder in dry chaparral and coastal sage scrub habitats.	**Not Likely to Occur.** No suitable habitat.
Ardea Herodias	Great blue heron	Fed: none Calif: none MSHCP: covered	Rookery sites typically occur in groves of large trees within proximity to aquatic foraging areas of streams, wetlands, and grasslands	**Moderate.** Nesting site habitat does not occur; however, this species may utilize the project area for foraging opportunities.
Asio otus	Long-eared owl	Fed: none Calif: SSC MSHCP: none	Dense, riparian and live oak vegetation often adjacent to grasslands or meadows. Forages in grassland, open areas and agriculture fields.	**Not Likely to Occur.** No suitable habitat.
Athene cunicularia)	Burrowing owl	Fed: none Calif: SSC (burrow sites) MSHCP: covered (addl. survey)	Open, dry perennial or annual grasslands, deserts, and scrublands characterized by low-growing vegetation; subterranean nester, dependent upon burrowing mammals, particularly California ground squirrels	**Present.** Permanent resident is known within 300 feet of borrow area, staging area contains rubble and old concrete opening that could be used for shelter.
Botaurus lentiginosus	American bittern	Fed: none Calif: SA	Found almost exclusively in emergent habitat of freshwater marshes and vegetated borders	**Not Likely to Occur**. No suitable habitat.

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
		MSHCP: covered	of ponds and lakes	
Buteo swainsoni	Swainson's hawk	Fed: none Calif: **THR** MSHCP: covered	Breeds in interior valleys and high desert with scattered large trees or riparian woodland corridors surrounded by open fields, desert scrub or agriculture.	**Low:** Although this species was formerly common in southern California, it no longer breeds in the region; this species has been reported from the Prado Basin, where it likely occurs during spring migrations.
Carduelis lawrencei	*Lawrence's goldfinch*	Fed: none Calif: none MSHCP: covered	Nests in open oak or other arid woodland and chaparral near water; nearby herbaceous habitats used for foraging; closely associated with oaks	**Low.** Although streamside this species is associated with the presence of oaks which are not present in or near the project area.
Cathartes aura	Turkey vulture	Fed: none Calif: none MSHCP: covered	Throughout US and Cent. America; forages widely over many habitats; roosts communally in open trees; nests on cliffs or steep mountainsides in sheltered shrubby or rocky sites.	**Present:** Common in the region; the project area does not support suitable nesting habitat; however, this species is known to fly through and forage in the project area.
Campylorhynchus brunneicapillus sandiegensis	Cactus wren	Fed: none Calif: SSC MSHCP: covered	Species require tall opuntia cactus for nesting and roosting.	**Not Likely to Occur**. No suitable habitat.
Circus cyaneus	Northern harrier	Fed: none Calif: SSC (nesting only) MSHCP: covered	Prefer open country, grasslands, steppes, wetlands, meadows, agriculture fields; roost and nest on ground in shrubby vegetation often at edge of marshes	**Present.** Species was observed during surveys, it has been recently recorded in project area; this species does not nest in the project area but may utilize the area for foraging.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	Fed: **THR** Calif: **END** MSHCP: covered	Strongly associated with large complex riparian woodlands.	**Low.** This species was not detected during surveys of the proposed project area, it has been previously recorded in the Prado Basin in 2011; this species is not expected to use the project area as it is not as continuous as the species prefers.
Coturnicops noveboracensis	Yellow rail	Fed: none Calif: SSC MSHCP: none	Prefer open country, grasslands, steppes, wetlands, meadows, agriculture fields; roost and nest on ground in shrubby vegetation often at edge of marshes	**Not Likely to Occur**. No suitable habitat.
Elanus leucurus	White-tailed kite	Fed: none Calif: FP	Typically nests at lower elevations in riparian trees, including oaks, willows, and	**Present.** This species was observed during surveys; breeding habitat is present as well as foraging habitat at

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
		MSHCP: covered	cottonwoods; forages over open country	both the project site and borrow area.
Empidonax traillii extimus	Southwestern willow flycatcher	Fed: **END** Calif: **END** (nesting) MSHCP: covered	Riparian obligate. Breeds in willow riparian forests & shrublands at scattered locations in SW US and N Baja; winters in Cent. Amer.; threatened by habitat loss and cowbird parasitism.	**Low.** Known from three surrounding USGS quads. Successful nesting was documented in the Prado Basin from 1988 to 2007; not detected in the project area during previous annual surveys.
Icteria virens	Yellow-breasted chat	Fed: none Calif: SSC (nesting) MSHCP: covered	Summer resident; inhabits riparian thickets of willow and other brushy tangles near water courses; nests in low, dense riparian vegetation; nests and forages within 10 feet of ground	**High.** Although not observed within the project area this species is known to occur in and near riparian habitat; project area supports suitable nesting habitat.
Falco columbaris	Merlin	Fed: none Calif: SSC (wintering) MSHCP: covered	Seacoasts, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches; require clumps of trees or windbreaks for roosting in open country.	**Not Likely to Occur.** No suitable habitat.
Falco mexicanus	Prairie falcon	Fed: none Calif: SSC (nesting) MSHCP: covered	Rare in southern California; nests along cliff faces or rocky outcrops; forages over open spaces, agricultural fields	**Not Likely to Occur.** No suitable habitat.
Falco peregrines	American peregrine falcon	Fed: none Calif: FP MSHCP: covered	Prefers coastal estuaries and other wetlands; occurs in S. California as a rare migrant	**Not Likely to Occur.** No suitable habitat.
Haliaeetus leucocephalus	Bald eagle	Fed: none Calif: FP MSHCP: covered	Breed in large trees, usually near major rivers or lakes; winters more widely; wide but scattered distribution in N America; esp. coastal regions. Winter	**Not Likely to Occur.** No suitable habitat.
Laterallus jamaicensis coturniculus	California black rail	Fed: none Calif: THR MSHCP: none	In California this species is found in wet meadows and marshes with shallow water with bulrush, American glasswort and alkali seaheath.	**Not Likely to Occur.** No suitable habitat
Melospiza lincolnii	Lincoln's sparrow	Fed: none Calif: none	Breeds in montane wetlands, meadows, and riparian scrub; fairly common and widespread	**Moderate:** Known from the surrounding riparian forests. Suitable habitat exists within the project area. May be an

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
		MSHCP: specific obj (breeding)	in winter at lower elev. winter	uncommon winter visitor.
Pandion haliaetus	Osprey	Fed: none Calif: SSC MSHCP: covered	Breeds in variety of habitats with shallow water and large fish, including boreal forest ponds, desert salt-flat lagoons, temperate lakes, and tropical coasts. Winters along large bodies of water containing fish.	**Not Likely to Occur.** May fly over the project area, although foraging opportunities are extremely limited. No suitable nesting habitat exists within the project area.
Phalacrocorax auritus	Double-crested cormorant	Fed: none Calif: SSC MSHCP: covered	Require lakes, rivers, reservoirs, estuaries, or ocean for foraging; nests in tall trees, wide rock ledges on cliffs, or rugged slopes near aquatic environments	**Present.** Observed during surveys as a fly over; the project area does not support suitable nesting or foraging habitat.
Picoides pubescens	Downy woodpecker	Fed: none Calif: none MSHCP: covered	Forests and woodlands, esp. riparian areas in So. Calif; also wooded suburbs and parks; builds nests in dead trees. year-around	**Present.** This species was observed within the project area. Suitable breeding habitat occurs in the project area.
Polioptila californica californica	Coastal California gnatcatcher	Fed: **THR** Calif: SSC MSHCP: covered	Obligate, permanent resident of coastal sage scrub below 2500 ft in southern California; low scrub in arid washes, on mesas and slopes	**Low:** This species was not observed during surveys, only small patches of disturbed coastal sage scrub occur within the project site, but some scrub habitat is present that could be used for foraging. Not observed during ongoing surveys.
Pyrocephalus rubinus	Vermillion flycatcher	Fed: none Calif: SSC MSHCP: none	Scrub, desert, cultivated lands and riparian woodlands.	**Moderate.** Although not observed within the project area this species is known to occur in the Prado Basin. Suitable habitat occurs in the project area.
Setophaga petechia	Yellow warbler	Fed: none Calif: SSC (nesting) MSHCP: covered	Riparian plant associations; prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging	**High.** Species was not detected in the project area. The project area supports suitable foraging and nesting habitat.
Vireo bellii pusillus	Least Bell's vireo	Fed: **END** Calif: **END** MSHCP: covered	Summer resident of southern California in low riparian habitats in vicinity of water or dry river bottoms; found below 2000 ft; nests placed along margins of bushes or on twigs projecting into pathways, usually willow, mesquite, baccharis	**Present.** This species has been documented breeding in and adjacent to the project area (SAWA, 2019).
MAMMALS				

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
Canis latrans	Coyote	Fed: none Calif: none MSHCP: covered	Opportunistic predators; many habitats throughout US, Mexico & S Canada, where cover & prey available.	**Present.** Coyotes are regularly observed on the project site; project area is located in the vicinity of known movement corridors.
Dipodomys stephensi	Stephens kangaroo rat	Fed: **END** Calif: **THR** MSHCP: covered	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover; prefers buckwheat, chamise, brome grass, and filaree; will burrow into firm soil	**Not Likely to Occur.** This species is only likely to occur in transience. There has been no recent recorded evidence (i.e. inter-related burrows, runways, sufficient open forb-rich habitat) in the project area.
Eumops perotis californicus	Western mastiff bat	Fed: none Calif: SSC MSHCP: none	Prefers deciduous and coniferous woodlands; primarily roosts in tree foliage	**High.** This subspecies was identified in the nearby the Project. Suitable habitat occurs nearby and foraging habitat is within the project areas.
Lasiurus xanthinus	Western yellow bat	Fed: none Calif: SSC MSHCP: none	Prefers riparian woodland habitat, particularly where palm trees are found.	**High.** There is suitable foraging and roosting habitat within the project area.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Fed: none Calif: SSC MSHCP: covered	Intermediate canopy stages of shrub habitats and shrub, tree, herbaceous edges; primarily coastal sage scrub habitats	**Moderate.** This subspecies is known from the Prado Basin; project area supports suitable habitat.
Lynx rufus	Bobcat	Fed: none Calif: none MSHCP: covered	Opportunistic predators; many habitats throughout US, Mexico & S Canada, where cover & prey available.	**High:** Species is relatively common within riparian corridors, but rarely observed
Mustela frenata	Long-tailed weasel	Fed: none Calif: none MSHCP: covered	Generalist predator, mainly on small mammals; many habitats, US, Mexico, S Canada (excl. deserts).	**High:** Species is relatively common within riparian corridors, but rarely observed.
Felis concolor	Mountain lion	Fed: none Calif: none MSHCP: covered	Large areas where prey (mainly deer) is available; throughout W N Amer; vulnerable to habitat fragmentation.	**Moderate:** Known from the nearby Prado Basin and Chino Hills State Park. Cover is sparse for this species in the project area but species likely uses the project area as a movement corridor and possibly even for foraging.
Neotoma lepida intermedia	San Diego desert woodrat	Fed: none Calif: SSC MSHCP: covered	Arid shrublands, esp. around rocky outctops & crevices; cismontane Calif from San Luis Obispo to San Diego Co, and NW Baja Calif. Year-around	**Not Likely to Occur.** No suitable habitat.

Table 3-6 Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
Nyctinomops femorosaccus	*Pocketed free-tailed bat*	Fed: none Calif: SSC MSHCP: none	Variety of arid areas in southern California, including pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian; rocky areas with high cliffs	**Moderate.** This is a rare species in CA, but suitable roosting is found in a nearby bridge and foraging habitat is present within the project area.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	Fed: none Calif: SSC MSHCP: covered	Open shrublands, grasslands; often sandy alluvial benches; S Calif. valleys, LA, SW San Bernardino and W Riverside Cos.	**Low.** No records exist for the area but suitable occurs within the project area.
Sylvilagus bachmani	Brush rabbit	Fed: none Calif: none MSHCP: covered	Dense shrublands (as cover); largely feeds on grasses; West coast (W Washington through Baja Calif.). Year-around	**Low:** Although this species was observed in the city of Chino, the project area supports only marginal habitat.

3.4.2.1 *SPECIAL-STATUS WILDLIFE SPECIES*

Special-status wildlife for this SEA include those listed as threatened or endangered under the federal or California Endangered Species Acts, species proposed for listing, species of special concern and other species which have been identified by the USFWS, CDFW. Each of these species was assessed for its potential to occur within the Lower Norco Bluffs feature area. Updated survey efforts, occurrence information, distribution maps, literature, and correspondence with local experts have been utilized to refine the list of special-status species either present or with a potential to occur in the proposed project area. Twenty-four special-status species have potential to occur within the project area. Other species that are present or have potential to occur within the project area include Crotch bumble bee, coyote, bobcat, long-tailed weasel, mountain lion, and brush rabbit.

The 2001 SEIS/EIR identified a number of special-status wildlife that occur or potentially could occur in the project area. However, the 2001 SEIS/SEIR documented the presence of mostly bird species with few native fish, reptiles, amphibians or mammals. Special-status species observed were Santa Ana sucker, arroyo chub, white-tailed, red-shouldered hawk, Cooper's hawk, yellow-breasted chat, least Bell's vireo and southwester willow flycatcher. The least Bell's vireo was listed as endangered in 1986. It is a common summer breeding resident in the Santa Ana River Watershed and the project area. As such, this species has been a major focus in previous documents. The southwestern willow flycatcher, another summer breeding resident in the greater Prado Basin, is much less common. It was afforded protection under the federal Endangered Species Act nine years later in 1995. The bald eagle was formally listed in 1978 however it was delisted in 2007. This species is an occasional winter visitor to the Prado Basin, but is not known to breed Norco Bluffs area. In 2000, the Santa Ana sucker was listed as a federal Threatened Species. The arroyo southwestern toad was listed as Endangered in 1995; however, it has never been recorded in the project area. The California red-legged frog was listed as Threatened in 1996 and was formerly a resident in the Prado Basin, but is not expected to occur in the project area. The 2001 SEIS/EIR also analyzed two additional species, western yellow-billed cuckoo (federally threatened and state endangered) and Swainson's hawk (state threatened). The California gnatcatcher was listed as Threatened in 1993. They have been expanding their range in the past several years, however habitat suitability within the project area poor. A small very disturbed coastal sage scrub exists near foraging habitat for this species but during avian and vegetation surveys this species was determined to have a low potential to occur.

Santa Ana Sucker (Catostomus santaanae)

The Santa Ana sucker is federally threatened, a California species of special concern, and a Western Riverside MSHCP covered species. The Santa Ana sucker historically occurred in small, shallow, low-elevation streams in the Los Angeles, San Gabriel, and Santa Ana River systems (Swift et al., 1993). They also historically occurred in the upper Santa Ana River, on Cajon and City Creeks in the foothills of the San Bernardino Mountains, and in Santiago Creek in the foothills of the Santa Ana Mountains (Moyle, 1995). Currently, the Santa Ana sucker is restricted to 3 noncontiguous populations: the lower Big Tujunga Creek, the East, West and North Forks of the San Gabriel River and the lower and middle Santa Ana River (USFWS 2000, 2010). Introduced populations are present in the Santa Clara River and tributaries (Sespe Creek, Hybridization with the Owens sucker had been a problem in the Sespe Creek and lower Santa Clara River populations. The Santa Ana sucker is known to occur in patches throughout the Santa Ana River where habitat is suitable. Most populations have been found where the substrate is sandy or gravelly. OCWD conducts regular monitoring for sucker around the River Road area, approximately 1.5 miles downstream of the project area. A survey for native fishes was conducted by Aspen Environmental Group on November

19, 2020. Three sucker were detected during the survey and likely colonized the reach during previous high flow events from more favorable upstream habitat. The habitat in the survey area was dominated by sand with less than an estimated one percent gravel being present. Additionally, coarser substrates such as cobbles, boulders, bedrock were not observed. Edge-water habitat for sucker fry was limited, but present within the survey area. The combination of non-native species, poor habitat quality, and increased distance to documented core upstream sucker populations have reduced the potential for a large population of sucker to be present in this lower portion of the Santa Ana River, between Interstate-15 and the Prado Basin. A formal population estimate was not calculated because of the limited number of sucker captured. Regardless, the potential for SAS to be present during Project construction is high (Aspen 2021).

Critical habitat was re-designated for the species in 2010. This most recent modification to designated critical habitat includes a total of approximately 9,331 acres located within three units (Units 1-3). Unit 1 is located along portions of the Santa Ana River and is further divided into three separate units (Subunits A-C). Unit 2 includes portions of the San Gabriel River and Unit 3 encompasses sections of Gold Canyon, Big Tujunga Wash, Delta Canyon, and Stone Canyon. The entire project area falls within critical habitat Subunit 1B (Santa Ana River). A total of 52.96 acres of designated critical habitat is located within the project area. This subunit totals approximately 4,771 acres and is located near the City of Rialto in San Bernardino County and extends to the city of Corona in Riverside County. Approximately 22 miles of the Santa Ana River's main stem is included in this subunit from near Tippecanoe Avenue to the Prado Dam and Flood Control Basin. This subunit also includes sections of the Rialto Drain and Sunnyslope Creek. Although there are numerous impacts such as barriers and altered hydrology which threaten essential features for the species, surveys in during the critical habitat update period found that suckers occupied various locations in the mainstem of the Santa Ana River. Discharges from water treatment plants and groundwater upwelling normally provide stream volume and velocity necessary for the species during the dry season within currently occupied areas. Therefore, the riverine environment essential feature is present in well-established patches within the subunit. However, the flows are not great enough to move coarse sediment downstream. As the project area is outside of the main channel of the Santa Ana River in which the species occurs, there is low potential for sucker to be found within the project area.

Arroyo Chub (Gila orcutti)

The arroyo chub is a CDFW Species of Special Concern and a Western Riverside MSHCP covered species. This species occurs within the coastal streams of Ventura, Los Angeles, Orange and San Diego Counties. It is currently only present in abundant numbers only along the West Fork of the San Gabriel River in Los Angeles County. The arroyo chub occurs in slow-moving or backwater sections of warm to cool streams with mud or sand substrates. Spawning occurs in pools or in quiet edge waters (Moyle, 1995). The arroyo chub is a relatively small, short-lived member of the minnow family (Cyprinidae). This species reaches a maximum length of no more than 3.5 inches and lives no more than four years (McGinnis, 2006). The arroyo chub reaches sexual maturity at one year and spawns more or less continuously from February to August. Algae, insects, and small crustaceans comprise the primary diet of this species. This species is known from Corona North USGS quad in isolated sections of the Santa Ana River from Riverside and San Bernardino county line downstream to the Prado Dam (Swift, 2001). As the project area is outside of the main channel of the Santa Ana River, there is low potential for the species to occur within the project.

Western Spadefoot Toad (Spea hammondii)

The western spadefoot toad is a CDFW Species of Special Concern and a Western Riverside MSHCP covered species. This species is endemic to California and northern Baja California. Although the species

primarily occurs in lowlands, it also occupies foothill and mountain habitats. Within its range, the western spadefoot toad occurs from sea level to 1,219 meters (4,000 feet), but mostly at elevations below 910 meters (3,000 feet) (Stebbins, 2010). Riparian habitats with suitable water resources may also be used.

The western spadefoot toad is almost completely terrestrial, remaining underground eight to 10 months of the year and entering water only to breed (Jennings and Hayes, 1994; Holland and Goodman, 1998). The species aestivates in upland habitats near potential breeding sites in burrows approximately one meter in depth (Stebbins, 2010) and adults emerge from underground burrows during relatively warm rainfall events to breed. While adults typically emerge from burrows from January through March, they may also emerge in any month between October and April if rain thresholds are met (Morey and Guinn, 1992; Jennings and Hayes, 1994; Holland and Goodman, 1998).

Western spadefoot toads likely do not move far from their breeding pool during the year (Zeiner et al., 1988), and it is likely that their entire post-metamorphic home range is situated around a few pools. However, opportunistic field observations indicate that they readily move up to at least several hundred meters from breeding sites. Ponded water, such as vernal pools or road pools, or slow moving streams are required for breeding. Within the project area, habitat is considered suitable for the western spadefoot toad. This species was not observed during recent surveys. As such, they are presumed to be absent from the site, and impacts to the species are not discussed further in this document.

California Legless Lizard (Aniella stebbinsi)

The California legless lizard is a CDFW Species of Special Concern. This species is found in a broader range of habitats that any of the other species in the genus. Often locally abundant, specimens are found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans (Stebbins 2012). Occurs in moist warm loose soil with plant cover. Moisture is essential for this species to survive. Typically occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees. Sometimes found in suburban gardens in Southern California. Within the project area, habitat is considered suitable for the California legless lizard. This species was not observed during recent surveys. As such, they are presumed to be absent from the site, and impacts to the species are not discussed further in this document.

Orange-throated Whiptail (Aspidoscelis hyperythra)

The orange-throat whiptail is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. The geographic range for orange-throat whiptail extends from extreme southern California west of the crest of the Peninsular Ranges to the southern tip of Baja California. Orange-throat whiptail primarily occurs in coastal sage scrub, and to a lesser extent, chaparral communities. Highest densities of this species are typically associated with floodplains and streamside terraces (Jennings and Hayes, 1994). Within the project area, habitat is considered suitable for the western orange-throat whiptail. This species was not observed during recent surveys. As such, they are presumed to be absent from the site, and impacts to the species are not discussed further in this document.

Cooper's Hawk (Accipiter cooperii)

The Cooper's hawk is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. This species is found in variety of habitats including quiet neighborhoods and parks. Their main source of prey are other birds. Cooper's hawks build nests typically 25-50 feet high in trees. This species was observed within the project area.

Sharp-shinned Hawk (Accipiter striatus)

The sharp-shinned hawk is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. In California, sharp-shinned hawks breed throughout the state, including the mountains of southern California, but the majority probably breed in the northern half of the state. Sharp-shinned hawks in California typically nest in coniferous forests, often within riparian areas or on north-facing slopes. Nest stands are typically dense patches of small-diameter trees; these patches are cool, moist, and well shaded with little groundcover. Nest stands often occur near water and are typically in close proximity to open areas (Zeiner et al., 1990).

Sharp-shinned hawks forage in a wide variety of habitats, including forest canopy and subcanopy, shorelines, urban and suburban settings, smaller forest patches, and transitional habitats. This species is known from within the Prado Basin. Both nesting and foraging habitat is available nearby and within the project area, therefore there is a moderate potential for this species to occur.

Burrowing Owl (Athene cunicularia)

The burrowing owl is covered under the Western Riverside MSHCP and is a CDFW Species of Special Concern. This species breeds from southern interior British Columbia, southern Alberta, southern Saskatchewan, and southern Manitoba, south through eastern Washington, central Oregon, and California to Baja California, east to western Minnesota, northwestern Iowa, eastern Nebraska, central Kansas, Oklahoma, eastern Texas, and Louisiana, the southern portion of Florida, and south to central Mexico. The species is also locally distributed throughout suitable habitat in Central and South America to Tierra del Fuego, and in Cuba, Hispaniola, the northern Lesser Antilles, Bahama Islands, and in the Pacific Ocean off the west coast of Mexico (County of Riverside 2008). The western subspecies, western burrowing owl, occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama (County of Riverside 2008). The winter range of the western burrowing owl is much the same as the breeding range, except that most individuals apparently vacate the northern areas of the Great Plains and the Great Basin (County of Riverside 2008). A burrowing owl is present within 300 feet of the borrow area. Within the project area, there is the presence of ground squirrels and grassy ruderal habitat that is considered suitable for this species. However, due to frequent human and domestic animal presence, there is moderate to low potential for this species to occur within the project area.

Golden Eagle (Aquila chrysaetos)

The golden eagle (Aquila chrysaetos) is a CDFW Fully-Protected species and is covered under the Western Riverside MSHCP. The breeding range for golden eagle extends across western North America from Alaska south to northern Baja California and east to central Tennessee, Pennsylvania, and Maine (Johnsgard, 1990). This species winters in North America from southern Alaska south through its western breeding range (Johnsgard, 1990). Throughout California, with the exception of the floor of the Central Valley, golden eagles are an uncommon permanent resident and migrant. It is considered more common in

southern California than in the northern half of the state. This species is known to nest within the Prado Basin and has been observed within the nearby USACE Auxiliary Dike Project area. Marginal nesting habitat exists near the project area and species may fly over or forage within the project area. There is a moderate potential for this species to occur in the project area.

Swainson's Hawk *(Buteo swainsoni)*

The Swainson's hawk is listed as State threatened and is a Western Riverside MSHCP covered species. Swainson's hawk inhabits grasslands, sage-steppe plains, and agricultural regions of western North America during the breeding season, and winters in grassland and agricultural regions from Central Mexico to southern South America (England, 1997; Woodbridge, 1995). The North American breeding range extends north from California to British Columbia east of the Sierra Nevada and Cascade Ranges, east to Saskatchewan, and south to northern Mexico. Several disjunct populations occur throughout the breeding range, including populations in Alaska, western Missouri, and the Sacramento and San Joaquin Valleys of California (England, 1997). This species occurs in southern California as a rare to uncommon transient with breeding mostly confined to valleys in the northern interior of the state. Along the coast, the Swainson's hawk is a rare spring and fall migrant. Swainson's hawks have been observed on several occasions in the Prado Basin during spring migration and can reasonably be expected to forage within the project area. Nesting habitat is present throughout the Prado Bain and in the Project area but they have not nesting in the region in recent years and are not expected to in the future. There is a low potential for this species to occur in the project area.

Northern Harrier (Circus cyaneus)

The northern harrier is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. This species is found throughout the northern hemisphere. In the North America, they breed from Alaska and the southern Canadian provinces south to Baja California, New Mexico, Texas, Kansas, and North Carolina (Dechant, 2002). The northern harrier breeds and forages in emergent wetlands and nearby open grasslands, and fallow fields. It also forages in agricultural fields and desert scrub. Northern harriers primarily feed on small mammals, but will also take reptiles, amphibians, birds, and invertebrates. Predation on adults is rare; most predation occurs on nestlings and eggs. Predators include mammals such as coyotes, foxes, skunks, minks, raccoons, squirrels, and crows; birds such as ravens, crows, and owls; and reptiles such as snakes. The species was observed within the project area during recent surveys. Nesting habitat does not occur within the project area, however there is foraging habitat present.

Southwestern Willow Flycatcher (Empidonax traillii extimus)

The southwestern willow flycatcher is both federally and state endangered and is a Western Riverside MSHCP covered species. The willow flycatcher species is a riparian obligate that is present in the United States only during the summer months. The historic breeding range for southwestern willow flycatcher included southern California, much of Arizona and New Mexico, western Texas, southwestern Colorado, southern Nevada and Utah, and northern portions of Sonora and Baja California, Mexico. Currently, breeding is only known from southern California, extreme southern Nevada, Arizona, New Mexico, and western Texas (Browning, 1993; Hubbard, 1987; Sedgwick, 2000; Unitt, 1987). This subspecies typically requires a relatively complex vegetative structure that includes flowing or open water (occasionally very moist soils that support insect breeding may suffice), a moderate to tall canopy (i.e. young, regenerating vegetation is not favored), open areas for foraging (especially for males), and areas where the canopy is separated from an understory (the shaded, open region favored by females for foraging). The study area

includes lands that are designated critical habitat for the flycatcher. The primary constituent elements for the flycatcher are thickets of riparian shrubs and small trees with adjacent surface water such as willows, cottonwoods, mulefat, and other wetland plants. The surface water must be available from May to September during breeding season.

In southern California, this subspecies is a very rare and local summer resident that is known to breed at very few locations. Documented breeding sites in the general region include the San Bernardino Mountains to the east, the Mojave River to the northeast, and the Santa Clara River to the northwest (USFWS, 2002). On a more local scale, the nearby Prado Basin has in recent years harbored the species in small numbers and nesting has been documented as recently as 2007. Since the species was first recorded in the Prado Basin in 1987, up to nine territorial (i.e. adult male) southwestern willow flycatchers have been reported between 1992 through 2006 (Pike, 1992). Individuals have been observed in the Prado Basin as early as late April and early May. Willow flycatchers were observed at four locations along the edge of Prado Basin by Lynn Stafford of Aspen Environmental Group while monitoring construction activities in 2005. Nesting flycatchers were also observed by Stafford in 2007 north of the borrow site for the nearby Auxiliary Dike Project, located near the Prado Spillway. This is likely the same nesting location documented by OCWD in 2007. Subsequent surveys along the Santa Ana River conducted annually by OCWD did not result in positive detections. All known flycatcher territories within or near the Prado Basin have been located in proximity to surface water, which is consistent with the biology of the species. Additionally, there are report that territories in the Prado Basin have incorporated overgrown clearings with at least a few moderately tall, often dense willow trees. These habitat features, as mentioned above, are thought to be favored for foraging. Breeding willow flycatchers have been documented primarily in the southern portions of the Prado Basin, where 19 of 29 nests occurring throughout the basin were documented between 1996 and 2004. 4.72 acres of critical habitat for southwestern willow flycatcher is within the project area.

Several factors contribute to the limited potential for willow flycatcher breeding and nesting activities in the project area, including the narrow breadth of the riparian corridor through the area, patchiness of optimal breeding habitat, narrow or absent buffer, and proximity to human development. However, the nearby (historical) presence of southwestern willow flycatchers makes the project area a potential location for transient use, including more focused use for foraging and/or dispersal. If the Prado Basin continues to harbor a breeding population of the subspecies, it is probable that the project area will occasionally support individuals; however, breeding potential would remain limited. Therefore, there is a low potential for this species to occur.

Yellow-breasted Chat (Icteria virens)

Yellow-breasted chat is a CDFW species of special concern and is a Western Riverside MSHCP covered species. This species is found throughout the United State and Mexico but is an uncommon breeder in Southern California. This species is typically found in dense riparian scrub along the edges of streams or ponds. This species is commonly found in the area and potential for it to be present within and adjacent to the project area is high

Coastal California Gnatcatcher (Polioptila californica californica)

The coastal California gnatcatcher is listed as federally threatened and is a Western Riverside MSHCP covered species. The coastal California gnatcatcher is primarily restricted to coastal sage scrub habitats of coastal Southern California and northern Baja California. This subspecies sometimes occurs in other

habitats adjacent to coastal sage scrub, including grasslands, chaparral, and riparian habitat. Although breeding territories have been reported in non-sage scrub habitats, these habitats are most commonly used during nonbreeding seasons for foraging and/or dispersal (Atwood, 1990; Campbell et al., 1998; Rotenberry and Scott, 1998). The project site is near a few patches of very disturbed coastal sage scrub. This species was not detected during several surveys within the project area and habitat suitability is low, therefore there is a low potential for this species to occur.

Yellow Warbler (Setophaga petechial)

The yellow warbler is a CDFW Species of Special Concern and is a Western Riverside MSHCP covered species. In southern California, this species breeds in riparian woodlands situated within the lowlands and canyons (Garrett and Dunn, 1981). Suitable habitat typically consists of riparian forests containing sycamores, cottonwoods, willows, and/or alders. This species was not observed during project area surveys, but due to suitable habitat there is a moderate potential for the species to occur.

Western Yellow-billed Cuckoo (Coccyzus americanus occidentalis)

The western yellow-billed cuckoo is federally-listed as threatened (Western DPS) and state-listed as endangered. This species is also covered under the Western Riverside MSHCP. It inhabits extensive riparian woodlands, especially those dominated by cottonwood and willow. It is a very rare and localized summer resident in California with only a few breeding stations for this species in the state are currently known. From one to several territorial cuckoos have been present in the Prado Basin in most years (as of the preparation of the 2001 SEIS/EIR) since 1983 (USACE, 2001). Historically pairs have been occasionally observed in the Basin. No western yellow-billed cuckoos have been observed in the project area, however they were observed as recently as 2011 within Prado Basin (CDFW 2017). Marginally suitable habitat is present within and adjacent to the project area.

Critical habitat for the western yellow-billed cuckoo was proposed in 2014 (USFWS 2014). Presently, the USFWS revised critical habitat for the species on February 27th, which does not include the Prado Basin. Therefore, no critical habitat is within the project area and as the species hasn't been observed is several years. Surveys in 2019 did not detect the species, therefore yellow-billed cuckoo is considered absent from the project area and is not discussed further in this document.

White-tailed kite (Elanus leucurus)

The white-tailed kite is a CDFW Fully Protected Species and is covered under the Western Riverside MSHCP. The white-tailed kite is a resident in California, southern Texas, Washington, Oregon, and Florida. It also occurs as a resident from Mexico into parts of South America (Dunk, 1995). In California, this species inhabits coastal and valley lowlands and is typically found in agricultural areas. It has increased population numbers and range in recent decades (Zeiner et al, 1990). This species occurs regularly in habitat of the nearby USACE Auxiliary Dike Project area. Breeding is strongly suspected though not confirmed in the area. The white-tailed kite is a known year round visitor. There is a high potential for this species to occur in the project area.

Double-crested Cormorant (Phalacrocorax auritus)

The double-crested cormorant is on the CDFW Species of Special Concern and is a Western Riverside MSHCP covered species. This species is a yearlong resident along the entire coast of California and on inland lakes and estuarine waters. Double-crested cormorants require lakes, rivers, reservoirs, estuaries, or ocean environments for foraging. This species nests in tall trees, wide rock ledges on cliffs, or rugged slopes near aquatic habitats.

Although observed during surveys, this species likely occurs in transience only and the project area does not support suitable nesting or foraging habitat.

Vermillion Flycatcher (Pyrocephalus rubinus)

The vermilion flycatcher is a California Species of Special Concern and is known as a common breeder in southern Arizona, New Mexico, and Texas (Wolf and Jones 2000). In California, the vermilion flycatcher was formerly considered a more common and widespread breeder along the lower Colorado River, Imperial Valley, Coachella Valley, upper Mojave River drainage, and San Diego County (Garrett and Dunn 1981), but its breeding range has declined throughout this area. Currently, in California, there are some isolated breeding populations in the lowlands in the south central and southeast portions of the state, including San Bernardino, Riverside, San Diego, Santa Barbara, Ventura, and Kern counties. Although not observed within the project area this species is known to occur in the Prado Basin. Suitable breeding habitat occurs in the project area, therefore there is moderate potential for the species to occur.

San Diego Black-tailed Jack Rabbit (Lepus californicus bennettii)

The San Diego black-tailed jackrabbit is a CDFW Species of Special Concern and is covered under the Western Riverside MSHCP. The San Diego black-tailed jackrabbit occurs on the coastal side of the southern California Mountains. This subspecies has been recorded on Mt. Pinos and well as in Ventura, Los Angeles, Orange, and San Diego Counties, and into Baja California, Mexico (Hall, 1981). The black-tailed jackrabbit occurs in a variety of open habitats including grasslands, agricultural fields, or sparse coastal sage scrub.

This subspecies is known from the Prado Basin and was recently observed within the nearby USACE Auxiliary Dike project. The project area supports suitable habitat, and therefore there is a moderate potential for the species to occur.

Los Angeles Pocket Mouse (Perognathus longimembris)

The Los Angeles pocket mouse is a California Species of Special Concern and is covered under the Western Riverside MSHCP. This species is a subspecies of the little pocket mouse that historically occurred in the Los Angeles Basin. Historic records of this species occur from San Fernando (Los Angeles County) east to the City of San Bernardino (San Bernardino County) and the San Gorgonio Pass (Riverside County), and southeast to Hemet and Temecula.

The Los Angeles pocket mouse is small-bodied and soft-furred with grayish yellow hairs (Ingles, 1965). It inhabits open habitats with fine, sandy soils and is restricted to lower elevation grassland and coastal sage scrub habitats (Patten et al. 1992). In the San Bernardino Valley, this species was captured in sandy areas of chaparral, coastal sage scrub, alluvial fan sage scrub, desert scrub, and washes. This species is noted for its close association with sandy soils, particularly those associated with intermittent washes and dune formations. No records exist for the area but suitable occurs within the project area. There is low potential for this species to occur.

Western Mastiff Bat (Eumops perotis californicus)

The western mastiff bat is a CDFW Species of Special Concern. The western mastiff bat occurs in two populations; one from the southwestern United States to central Mexico and the other from the northern and central portions of South America (Harvey et al., 1999). The western or California mastiff bat subspecies primarily occurs from low to mid elevations in southern and central California southeast to Texas and south to central Mexico.

The western mastiff bat utilizes a variety of habitat types including desert scrub, chaparral, mixed conifer forest, giant sequoia forests, and montane meadows (Philpott, 1997). In southern California this bat typically roosts in semiarid areas with low-growing chaparral that does not obstruct cliffs or rock outcrops (Best et al., 1996). Because of its large wingspan, this bat requires roosts that have at least 2 m of free space to drop from to initiate flight. These bats utilize natural crevices in granitic and sandstone cliffs as well as crevices in buildings for roosting. The western mastiff bat is the largest bat in the United States. Colonies typically consist of less than 100 individuals (NatureServe, 2009). Western mastiff bats are primarily insectivorous, and the diet contains a high proportion of moths. Suitable habitat occurs throughout the project area. There is a high potential this species would forage within the project area.

Pocketed Free-tailed Bat (Nyctinomops femorosaccus)

The pocketed free-tailed bat is a CDFW species of special concern found in Riverside, San Diego, and Imperial Counties. It is rare in California, but more common in Mexico. Pocketed free-tailed bats typically occur in a variety of habitats, including pinyon-juniper woodlands, desert scrub, desert succulent scrub, desert riparian, desert wash, and palm oases. The pocketed free-tailed bat is a swift, high-flying species that feeds on insects that are detected by echolocation over ponds, streams, or desert habitats. Moths are the principal prey source. This species prefers rock crevices in cliffs for roosting sites, where it typically gathers in small groups. Reproduction, usually occurring in July and consisting of one young per year, takes place in rock crevices, caverns, or buildings. Foraging bouts occur well after sunset, after solar radiation has ceased. Suitable foraging habitat is present within the project area. There is a high potential for the species to forage within the project area.

Western Yellow Bat (Lasiurus xanthinus)

The western yellow bat is a CDFW Species of Special Concern. This species is known to occur throughout southern California and is believed to have expanded its range as with the spread of Mexican fan palms. This species prefers to roost in dead palm fronds near riparian areas with running water. Considered a medium sized bat, the species is known to have yellowish to light brown fur and shorter than typical ears. The coloring may be the reason why the species prefers to roost in palm trees. There are palms within the project area and surrounding vicinity. There is a high potential for the species to occur due to the presence of roosting and foraging habitat.

Survey Results

Special-status wildlife species habitat assessment surveys were conducted in 2019. **Table 3-7** provides a full list of the species observed within the project area by Aspen Environmental. The borrow area has currently been in use for borrow for an ongoing project. Previous surveys have identified a resident burrowing owl within 300 feet of the borrow site. Raptors are also known to forage in the area. The current

condition of the borrow area is considered highly disturbed with patchy vegetation and ongoing disturbance.

Table 3-7 Observed Wildlife Species List

COMMON NAME	SCIENTIFIC NAME
VERTEBRATE ANIMALS	
AMPHIBIANS	**AMPHIBIA**
Treefrogs and Allies	**Hylidae**
California treefrog	*Pseudacris cadaverine*
REPTILES	**REPTILIA**
Spiny Lizards, Horned Lizards, etc.	**Phrynosomatidae**
Western fence lizard	*Sceloporus occidentalis*
BIRDS	**AVES**
Cormorants	**Phalacrocoracidae**
** double-crested cormorant	*Phalacrocorax auritus*
Herons and Bitterns	**Ardeidae**
** great egret	*Ardea alba*
Vultures	**Cathartidae**
** turkey vulture	*Cathartes aura*
Geese and Ducks	**Anatidae**
Mallard	*Anas platyrhynchos*
Hawks, Eagles and Kites	**Accipitridae**
** white-tailed kite	*Elanus leucurus*
** northern harrier	*Circus hudsonius*
** Cooper's hawk	*Accipiter cooperii*
red-shouldered hawk	*Buteo lineatus*
red-tailed hawk	*Buteo jamaicensis*
Falcons	**Falconidae**
American kestrel	*Falco sparverius*
Gulls and Terns	**Laridae**
California gull	*Larus californicus*
Pidgeons and Doves	**Columbidae**
mourning dove	*Zenaida macroura*
Cuckoos and Roadrunners	**Cuculidae**
greater roadrunner	*Geococcyx californianus*
Owls	**Strigidae**
great horned owl	*Bubo virginianus*
Hummingbirds	**Trochilidae**
Anna's hummingbird	*Calypte anna*
Woodpeckers	**Picidae**
Nuttall's woodpecker	*Dryobates nuttallii*
downy woodpecker	*Dryobates pubescens*
Northern flicker	*Colaptes auratus*
Tyrant Flycatchers	**Tyrannidae**
black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*
Cassin's kingbird	*Tyrannus vociferans*
Vireos	**Vireonidae**

**	least Bell's vireo	*Vireo bellii pusillus*
Jays and Crows		**Corvidae**
	California scrub-jay	*Aphelocoma californica*
	American crow	*Corvus brachyrhynchos*
	common raven	*Corvus corax*
Bushtits		**Aegithalidae**
	bushtit	*Psaltriparus minimus*
Wrens		**Troglodytidae**
	Bewick's wren	*Thryomanes bewickii*
	house wren	*Troglodytes aedon*
Kinglets		**Regulidae**
	ruby-crowned kinglet	*Regulus calendula*
Bluebirds and Thrushes		**Turdidae**
	Western bluebird	*Sialia mexicana*
Wrentits		**Timaliidae**
	wrentit	*Chamaea fasciata*
Mockingbirds and Thrashers		**Mimidae**
	Northern mockingbird	*Mimus polyglottos*
	California thrasher	*Toxostoma redivivum*
Wood Warblers		**Parulidae**
	orange-crowned warbler	*Oreothlypis celata*
	yellow-rumped warbler	*Setophaga coronata*
	common yellowthroat	*Geothlypis trichas*
Towhees and Sparrows		**Emberizidae**
	spotted towhee	*Pipilo maculatus*
	California towhee	*Melozone crissalis*
	song sparrow	*Melospiza melodia*
	white-crowned sparrow	*Zonotrichia leucophrys*
	golden-crowned sparrow	*Zonotrichia atricapilla*
Blackbirds and Orioles		**Icteridae**
	hooded oriole	*Icterus cucullatus*
Finches		**Fringillidae**
	house finch	*Haemorhous mexicanus*
	lesser goldfinch	*Spinus psaltria*
MAMMALS		**MAMMALIA**
Hares and Rabbits		**Leporidae**
	desert cottontail	*Sylvilagus audubonii*
Squirrels		**Sciuridae**
	California ground squirrel	*Ostospermophilus beecheyi*
Pocket Gophers		**Geomyidae**
	Botta's pocket gopher (burrows)	*Thomomys bottae*
Dogs, Wolves and Foxes		**Canidae**
*	domestic dog	*Canis familiaris*
	coyote (scat, tracks)	*Canis latrans*
Raccoons		**Procyonidae**
	common raccoon (tracks)	*Procyon lotor*
Skunks		**Mephitidae**
	striped skunk	*Mephitis mephitis*

Horses		**Equidea**
*	domestic horse	*Equus caballus*
Pigs		**Suidae**
	feral pig	*Sus scrofa*

* Non-native species

**Special-status species

Other species may have been undetected or inactive/absent because of the season (amphibians are more active during/after rains, reptiles during summer, some birds (and bats) migrate out of the area for summer or winter, some mammals hibernate etc.), or because of the time of the survey (some species are strictly nocturnal). Wildlife taxonomy and nomenclature generally follow Stebbins (2003) for amphibians and reptiles, AOU (1998) for birds, and Wilson and Ruff (1999) for mammals.

3.4.3 WILDLIFE MOVEMENT

Habitat linkages and movement corridors facilitate regional animal movement and are generally centered near waterways, riparian corridors, flood control channels, contiguous habitat, and upland habitat. Drainage ways generally serve as movement corridors because they are natural elements in the landscape that guide animal movement (Noss, 1991; Ndubisi et al., 1995; R. Walker and Craighead, 1997, in Hilty et al., 2006). Larger river and stream riparian corridors provide the best remaining option for sustaining and improving ecological connectivity in much of the state, and in particular southern California (Spencer 2010). Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals. It is also necessary to consider spatial and temporal scales when analyzing potential corridors. Species may require varying spatial scales to fulfill their life history requirements and use of corridors can be important on temporal scales ranging from time periods as short as hours to as long as generations, depending on the desired use of the corridor.

Undisturbed landscapes contain a variety of movement corridors, habitat linkages, travel routes, wildlife crossings and other features that facilitate wildlife movement through the landscape and contribute to population stability. The relative size and characteristics of these features are different for each species that uses them. When human activities fragment landscapes, movement corridors, habitat linkages, travel routes, and wildlife crossings may be altered or eliminated. Continued use of these features by wildlife depends on their ability to find adequate space, cover, food, and water, in the absence of obstacles or distractions (e.g., man-made noise, lighting) that might interfere with wildlife movements.

Impacts to wildlife movement have been analyzed in areas west of the project area (primarily downstream of Prado Basin and in areas closer to the Prado Dam Embankment). The analysis primarily considered movement to/from the Cleveland National Forest and Chino Hills State Park. There has been no known analysis conducted within the Lower Norco Bluffs project area to assess whether it is a corridor for wildlife movement. However, the Santa Ana River, and its associated uplands, are recognized as vital pathways for wildlife movement. Several migratory songbirds utilize the riparian vegetation within the Santa Ana River corridor for breeding, nesting, and foraging, or, at a minimum, as transient rest sites during migration. In addition, large, wide-ranging animals, such as mountain lion, bobcat, and coyote have been documented within the Santa Ana River watershed and may utilize the Santa Ana River corridor in search of prey, water resources, or cover.

Habitat fragmentation is also an important issue impacting wildlife. At both small and large scales, several studies have documented the negative effects on population structure, home range size, and genetic connectivity resulting from seemingly innocuous features traversing formerly undisturbed habitat (Mader 1984; Swihart and Slade 1984; Dunning et al. 1992). Within the Prado Basin, very little habitat remains

undisturbed by anthropogenic activities. For example, historically suitable native fish habitat has been fragmented by barriers, changes in substrate and introduction of predators that has caused populations to be genetically isolated from one another. However, even singular habitat types restored or preserved as only minimally disturbed can serve as corridors in the present and future.

No known anthropogenic barriers to dispersal for ground-dwelling wildlife and plants were observed within the project area.

3.5 CULTURAL RESOURCES

Cultural resources are locations of past human activities on the landscape. The term generally includes any material remains that are at least 50 years old and are of archaeological or historical interest. Examples include archaeological sites such as lithic scatters, villages, procurement areas, resource extractions sites, rock shelters, rock art, shell middens; and historic era sites such as trash scatters, homesteads, railroads, ranches, and any structures that are over 50 years old. Under the National Historic Preservation Act (NHPA), federal agencies must consider the effects of federal undertakings on cultural resources that are listed in or eligible for listing in the National Register of Historic Places (National Register). Cultural resources that are listed in or eligible for listing in the National Register are referred to as historic properties.

The NHPA also requires that federal agencies define the area of potential effect (APE) for an undertaking. The APE is the geographic area within which historic properties may be directly or indirectly affected by an undertaking. In this case, the Corps in consultation with the California State Historic Preservation Officer has defined the APE for the Lower Norco Bluffs project feature as the temporary construction easement. The APE includes all lands where construction would occur, where equipment would be stored and staged, and access routes. The APE extends from approximately 450 ft. downstream of Hamner Avenue to the Corydon Equestrian Staging Area (Appendix G).

Previous Studies and Existing Conditions

In 1985, the Lower Norco Bluffs APE was surveyed for the presence of cultural resources via a pedestrian survey with 10-meter transect spacing as part of the cultural resource survey for the entire SARMP (Langenwalter and Brock). Two archaeological sites, P-33-1042 and P-33-1043, that had been recorded in 1975 were mapped within the Norco Bluffs APE. Neither site was relocated during the 1985 survey. According to the 2001 SEIS/EIR, an archeologist from the Corps resurveyed the Lower Norco Bluffs' project area in October 1998, including recorded locations of sites P-33-1042 and P-33-1043. No artifacts were observed at the alleged site locales or anywhere else within the project's APE. Substantial development has taken place since the sites were first recorded. A copy of a report documenting this 1998 survey or consultation letters with the State Historic Preservation Office have not been located.

In 2020, the Corps contracted with Aspen Environmental Group (Aspen) to complete a record search and pedestrian survey of the Lower Norco Bluffs APE, the results of which are detailed in the cultural resources report entitled, *Santa Ana River Mainstem Project: Lower Norco Bluffs Toe Protection Archaeological Resources Report,* which is on file at the Los Angeles District Office. The record search identified one of the same resources, P-33-1043, as being partially within the APE. Design changes since 1998, have resulted in an altered APE and the other site, P-33-1042 is no longer in the project area/APE. Site P-33-1043 was recorded in 1975 as a sparse, basalt debitage scatter consisting of six flakes. Aspen was unable

to locate the site during their survey. The mapped site boundary for P-33-001043 extends about 210 feet into the APE, however, a majority of that portion of the site is mapped in such a way that it is recorded onto the cliff, with a slope well over 60 degrees. It is likely that the site boundary for P-33-001043 is incorrectly mapped, and it is only located on the bluff top. The site record states the resource is located on the 620-foot topographic contour line, which would place it above the cliff-face. Additionally, the portion of site P-33-001043 that is outside the APE has likely been destroyed by construction of homes along Shadow Canyon Circle, and highly disturbed by a dirt road atop the bluff's edge.

Aspen conducted an intensive pedestrian archaeological survey of the APE on April 27 and 28, 2020. The surveyors utilized 20 meter transects where possible. The entire length of Lower Norco Bluffs could not be examined because the APE is largely covered with dense riparian vegetation, primarily Arundo, but also with nettle, milk thistle, wild mustard plant, poison oak, willow, and cottonwood, that impeded survey efforts. Four shovel test pits (STPs) were excavated along the Lower Norco Bluffs to examine the stratified profile and determine if there is any potential for buried cultural deposits. Dense Arundo growing at the base of the bluffs prevented access to intensively examine the profile. No buried cultural resources were discovered in the four STPs excavated. The STPs and the exposed bluff surface demonstrate that the soils are composed of unsorted sand, gravel, and cobbles of a granitic nature, indicating a low likelihood that buried cultural resources are present.

Aspen located one cultural resource during the survey. This resource consists of a portion of a pipeline that extends westward from an abandoned wastewater treatment facility located outside the APE. The wastewater treatment facility is associated with the Naval Hospital Corona/Lake Norconian Club Historic District. The District has previously been determined eligible for the National Register of Historic Places (NRHP) under criteria A and C. The wastewater treatment plant was documented as part of the district but was determined to be a non-contributing element because it is located well outside the district boundary. Because the wastewater treatment plant has been found to not contribute to the Naval Hospital Corona/Lake Norconian Club Historic District, the Corps has determined that the pipeline, which is a feature of the wastewater treatment plant, is not eligible as a contributing feature of the district. The Corps has further determined that the pipeline is not individually eligible for NRHP. The SHPO concurred with the Corps' determination in a letter dated March 24, 2020 (Appendix G).

Pursuant to 36 C.F.R 800.4(a), the Corps also notified the following non-Federally recognized Tribes about the project and requested their input on any issues related to the undertaking's potential effects on historic properties and sought their assistance in identifying any properties which are of religious or cultural significance that may be affected by the project: Gabrieleno Band of Mission Indians - Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, Gabrielino /Tongva Nation, Gabrielino Tongva Indians of California Tribal Council, Gabrielino-Tongva Tribe, Juaneno Band of Mission Indians Acjachemen Nation –Belardes, and San Fernando Band of Mission Indians (Appendix G)

3.6 LAND USE

The Lower Norco Bluffs are located at the northwestern limits of the City of Norco, south of I-15 and Hamner Avenue and directly adjacent to the Santa Ana River. Upstream of the project area, the Santa Ana River has a drainage area of approximately 870 mi2 and thus provide important flood control uses for the local and regional area. The Santa Ana River corridor north of the bluffs contains significant areas of open

space, wildlife habitat, and recreation, mainly in the form of informal equestrian trails.

Immediately surrounding land uses directly south of the Lower Norco Bluffs Project area consist mainly of single-family residential, recreational sports fields, and passive open space uses. There are approximately 70 dwelling units along the bluffs within the project area. This equates to a population of approximately 224 along the bluff, based on an average of 3.2 persons per household. Thirty-one dwelling units along Reach 4 (Quiet Hill court along Alhambra Street to Norco Drive), and 39 dwelling units along Reach 5 (along Norco Drive and Shadow Canyon Circle). In portion of the project area along Reach 4, property lines are within a few feet of the edge of the bluff face. An elementary school is located on Alhambra Street between Rocky View Drive and Oak Ridge Circle.

Land uses in the City of Norco are summarized in the Land Use Element of the City of Norco General Plan. The zoning designations in the project vicinity are shown in **Figure 3.6-1.** Current land uses are consistent with the designated land uses. Adjacent to the project area, land is zoned as follows: Open Space (OS); Agricultural Estate (AE); Agricultural Low Density (A1-1-20) with a 20,000-square-foot minimum lot size requirement; and Residential Single Family (R-1-10) with a 10-acre minimum lot size requirement.

The Open Space land use comprises a majority of the project area. According to the City of Norco's Land Use Plan, Open Space within the project area is characterized as lands for the preservation of resources, which possess significant natural or man-made value. The Santa Ana River and bluffs area typifies the type of open space for natural resources. Significant man-made resources include areas that contain significant archeological or historical aspects of the City's past.

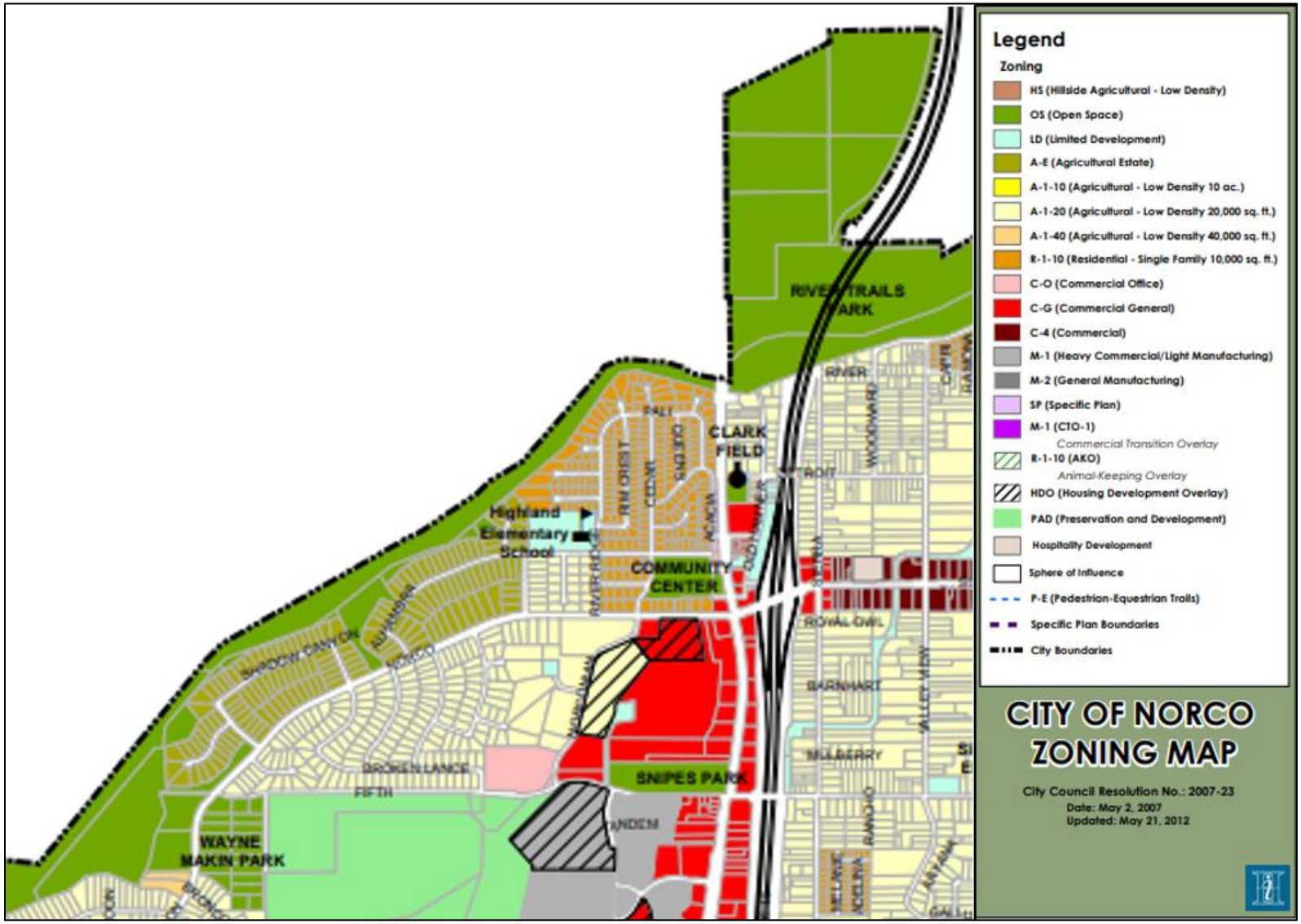

Figure 3.6-1 Norco Bluffs Zoning Designations

3.7 AESTHETICS

The project lies within the Santa Ana River corridor, which is comprised of open space recreational land uses and bordered by residential development to the south. The northern boundary of the project encompasses a scenic vista of undeveloped riparian areas along the Santa Ana River and the surrounding open space areas that feature varying topography and prominent ridgelines. The northern terminus of the project lies about 1,000 ft. from Hamner Avenue and about 2,000 ft. from I-15.

3.8 RECREATION

Recreational uses within the project area include formal and informal equestrian and bike trails, sports complexes, and parks. Non-designated equestrian trails within an unimproved open space area of the City of Norco connect with existing designated equestrian trails that are located along Alhambra Street, Shadow Canyon Circle, and Norco Drive (**Table 3-8**) These existing designated trails connect with the Santa Ana River Trail regional system. This system is currently continuous in the immediate project vicinity, but not continuous through the City of Norco. Recreational uses within 2 miles of the Proposed Action area (project vicinity) include Wayne-Makin Shearer Sports Complex, Corydon Equestrian Staging Area, Norco Community Center Complex, SilverLakes Equestrian and Sports Park, and Eastvale Community Park.

Table 3-8 lists the amenities available at each of the parks and recreation facilities listed above in the vicinity of the project area.

Table 3-8 Recreation Facilities and Amenities in Project Vicinity

Facility	Amenities
Wayne-Makin Shearer Sports Complex	Athletic fields and snack bar
Corydon Equestrian Staging Area	Equestrian staging, parking, benches, trails, and restrooms
Community Center Complex	Gym, baseball field, the Norco Children's Center, meeting halls, classrooms, and banquet facilities
SilverLakes Equestrian and Sports Park	Sports Complex
Eastvale Community Park	Trails, soccer field, and green space
Clark Field	Baseball field
Neil Snipes Park	Playground, benches, and green space
Riverwalk Park	Disc golf course, playground, walking paths, and picnic pavilion

Equestrian Trail System

The City of Norco was incorporated to preserve an equestrian and animal-keeping lifestyle. The City of Norco has worked to facilitate this lifestyle through the development of a nearly 104-mile trail system, improving trail segments to form a large recreational and transportation network. **Figure 3.8-1** shows known, existing formal and informal equestrian trails and amenities within the project area.

The Corydon Equestrian Staging Area falls within the project area and part of the facility is proposed for staging equipment and supplies during Lower Norco Bluffs Project construction.

Sports Complexes

A number of sports fields and complexes are located within the project vicinity. The Makin/Shearer sport

complex is the closest park to the project area and is located on the corner of Fifth Street and Corydon Avenue and is the youth sports center for the city of Norco. Parking for the complex is available on the eastern side of the athletic fields off of Western Avenue and at an overflow parking lot located on the western side of the fields off of Corydon Avenue.

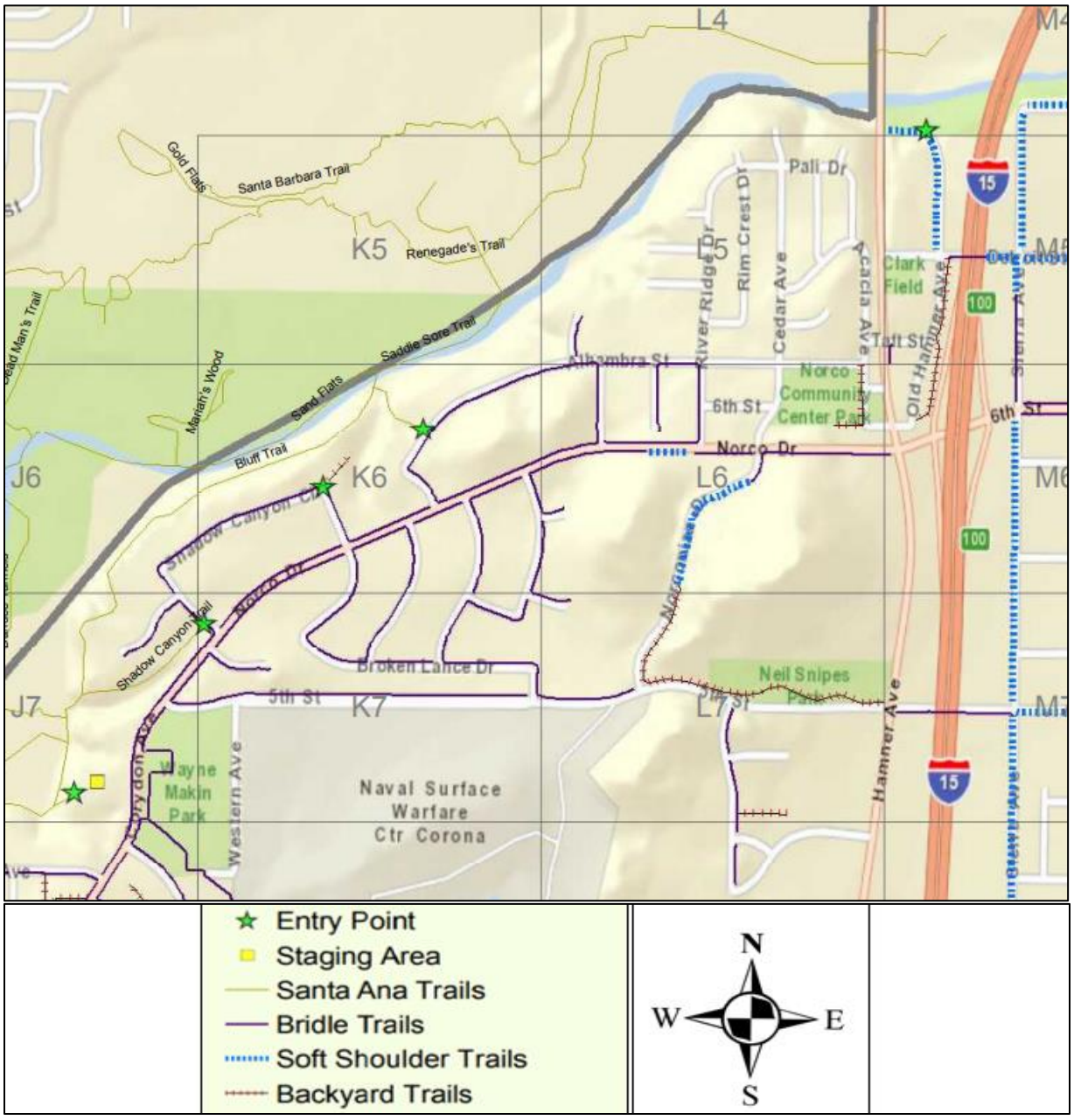

Figure 3.8-1. Known Existing Equestrian Trails within Project Area (2018 City of Norco Comprehensive Trail Master Plan). Both formal and informal equestrian trails are represented.

3.9 NOISE

The area surrounding the project site is characterized by a wide variety of ambient noise sources. Just

east of the project site is the I-15 freeway where noise levels are generally high. These levels drop off substantially towards western side of the Lower Norco Bluffs site, which is open space. Residential use to the north and south is expected to typically generate noise levels associated with personal vehicle and outdoor use activities. The primary noise sources within the Lower Norco Bluffs project area includes: traffic on I-15 to the south and traffic on Hamner Avenue to the east and Corydon Avenue to the south.

Sensitive Receptors in the Proposed Action Area

Some land uses are considered more sensitive to elevated noise levels because of the purpose and intent of the use. Places where people are meant to sleep, or places where a quiet environment is necessary for the function of the land use, are normally considered sensitive. For instance, residential areas, schools, places of worship, and hospitals are more sensitive to noise than are commercial and industrial land uses. Areas with animal keeping can also be considered as a sensitive receptor. Horses can be easily scared by sudden, loud noises.

The nearest sensitive receptors to the Lower Norco Bluffs site include residential development (with and without animal keeping) located adjacent to the southeast side of the project site. Additional sensitive receptors are located south of this residential area, including Highland Elementary School, which are located approximately 800 ft. south of the project site.

3.10 SOCIOECONOMICS

Socioeconomics were not explicitly described in the 2001 EIR/EIS, however an environmental justice analysis was conducted (see Appendix O in USACE 2001). The analysis included information similar to what is described in this section. An updated Environmental Justice Analysis is provided in Appendix E.

The Proposed Action area would be located within the City of Norco. For the purposes of this discussion of Socioeconomics, demographic data for the City is presented below, in **Table 3-9.**

Table 3-9 Demographic Data for the City of Norco

	Subject	2020 Estimate
Population	Total Population	26,610 (2010-2016 US Census Bureau)
	Families	5,733
	Median Age	39.8
Housing	Total Housing Units	7,198
	Average Household Size	3.24
Employment and Income	Average Household Income	$121,138
	Median Household Income	$95,441 (ACS 2018, 5-year estimate)
	Persons in Poverty (%)	7.6% (ACS 2018, 5-year estimate)
Ethnicity	White	78.8% (ACS 2018, 5-year estimate)
	Black or African American	4.2% (ACS 2018, 5-year estimate)
	American Indian and Alaska Native	0.5% (ACS 2018, 5-year estimate)
	Asian	3.9% (ACS 2018, 5-year estimate)
	Native Hawaiian and Other Pacific Islander	0.1% (ACS 2018, 5-year estimate)
	Two or more races	4.7% (ACS 2018, 5-year estimate)
	Persons of Hispanic or Latino Origin (Any Race)	31.2% (ACS 2018, 5-year estimate)

Source: City of Norco website, unless otherwise noted

The data presented above is based on ESRI forecasts for 2020 and was informed by data collected by the U.S. Census Bureau in 2010. Data from the American Community Survey (ACS) performed by the U.S. Census Bureau was also referenced. These estimates are based on data collected between 2013 and 2018, and do not represent a single point in time.

Population

The City of Norco has an estimated population of 26,610, representing 1.1 percent of the Riverside County population. In addition, the median age in the City is 39.8, which is slightly higher than the County median age of 35.3 (2016 American Community Survey 1-year estimate). This difference may be attributable to the lower number of persons under 18 years residing in the City of Norco.

Housing

The 2020 ESRI forecasts estimated that 7,198 housing units were located in the City of Norco, while a total of 7,019 housing units were noted in the 2000 Census. This represents a 2.6 percent increase in housing units since 2000.

Income and Poverty

The median household income is $72,309 in the City, as opposed to the County's median which is $63,948.

The poverty rate for the City of Norco is estimated to be 7.6 percent. In comparison, the Riverside County unemployment rate is 12.7 percent (ACS, 5-year estimate). The Census Bureau's definition for poverty uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The

higher median income and lower poverty rate suggest that the City of Norco is more affluent than Riverside County as a whole (US Census, 2010).

Ethnicity

According to the 2018 ACS 5-year estimate, the ethnic makeup of the City of Norco consists of Whites at 78.8 percent and Hispanics at 31.2 percent. These totals are greater than 100 percent because Hispanics may be of any race, and therefore, are also included in other applicable race categories. Otherwise, the ethnic makeup of the City of Norco consists of African-Americans at 4.2 percent, Asians at 3.9 percent, American Indian and Alaskan Native at 0.5 percent, and Native Hawaiian and Other Pacific Islander at 0.1 percent.

3.11 PUBLIC SERVICES AND UTILITIES

Due to the project's location in the City of Norco, the project area includes the typical array of municipal public services and utilities that support residential, commercial, and industrial uses. Public services and utilities serving the area include:

- Fire protection
- Police protection
- Electricity
- Waste water
- Schools
- Natural gas
- Water
- Waste disposal and recycling

Public Services

Fire Protection

The City of Norco contracts with the Riverside County Fire Dept./Cal Fire for all city fire services, and it provides a full range of fire protection services to the citizens of Norco. There are currently 3 fire stations located within the City of Norco. Norco Fire Station #57, located at 3367 Corydon Avenue is the closest to the project area.

Police Protection

The City of Norco contracts with the Riverside County Sheriff's Department for city sheriff services, which provide complete law enforcement services to the city population. The City of Norco Sheriff Department is commanded by a Lieutenant and supported by the Norco Citizens Patrol, a trained volunteer group.

Schools

The Corona-Norco Unified School District serves the school needs for the City of Norco. The School District has 47 schools (K-12) and has over 53,000 students enrolled. None of these schools are located within the project area.

Utilities and Service Systems

The project area is served by utility and service systems located in Riverside County and within the City of

Norco. A variety of local purveyors in these areas provide and maintain utility and service system facilities associated with electricity, water, stormwater and wastewater, solid waste, and natural gas. Municipally-operated lines provide sewer services in the area. Similarly, stormwater flows are conveyed by the flood control facilities within the City of Norco. Underground Service Alert (also known as USA or "Dig Alert"), a non-profit organization supported by utility firms, provides specific information on the location of underground utilities to contractors upon request, prior to construction. **Table 3-10** summarizes the utilities providers serving the project area.

Table 3-10. Utility and Service Providers by Jurisdiction

Jurisdiction	Utility or Service System Provider
City of Norco	**Natural Gas**– Southern California Gas Company **Electricity**–Southern California Edison **Water** – City of Norco Public Works – Water Utilities Division **Wastewater** – City of Norco Public Works – Sewer Maintenance Division **Solid Waste and Recycling** – Waste Management **Landfills Used** – El Sobrante Landfill

Data on location of utilities within the project vicinity was collected by the Corps in 2019. Several entities were coordinated with, including Southern California Edison, Jurupa Community Services, SoCal Gas, and AT&T. Any utilities within project limits will either need to be relocated prior to or during construction, or protected in place.

3.12 TRANSPORTATION

Major roadways providing regional access to the Lower Norco Bluffs Project area include State Route 91 (SR-91) and I-15. These roadways are maintained by Caltrans. Local access to the site would be provided by Corydon Avenue and Norco Drive, which has on/off ramps to I-15 directly east of the Lower Norco Bluffs area. Construction vehicles would access the site from Corydon Avenue from the south and Norco Drive from the north. These local roadways are maintained by the City of Norco Public Works Department. The following summarizes the lane configurations and directional configuration of roadways providing both regional and local access to the Lower Norco Bluffs Project area:

- **SR-91** is a fourteen lane east-west freeway south of the project site.
- **I-15** is an eight lane north-south freeway merging with SR-91 to the east of the project site. It will be used for regional access and as part of the primary haul route.
- **Norco Drive** is a two-lane east-west roadway connecting with Hamner Avenue and eventually transitioning to Corydon Drive. From the north, it provides access to the southern portion of the site and access to the toe of the bluff.
- **Corydon Avenue** is a two-lane north-south roadway connecting with Bluff Street and eventually transitioning to Norco Drive. From the south, it provides access to the southern portion of the site and access to the toe of the bluff.
- **Shadow Canyon Circle** is a residential street that connects to Norco Drive. It provides access to the top of the project and central access to the site.

- **Cucamonga Avenue, Pine Avenue, Archibold Avenue, Limonite Avenue, Sixth Street, Hamner Avenue, and Fifth Street** are two-lane roadways that will be used as the primary haul route to transport material from the Borrow Site to the construction site via Corydon Avenue.

Average daily traffic (ADT) and Annual average daily traffic (AADT) volumes measured for State Routes and local roadways in the vicinity of the Lower Norco Bluffs Project area are presented in Error! Reference source not found..

Table 3-11 Annual Average Daily Traffic on Selected Roadways in the Project Area

Location	1998 ADT
SR-91 west of I-15	233,000[1]
Corydon Avenue, River Road to Norco Drive	1,435
Norco Drive, Bluff Street to Fifth Street	5,085
Norco Drive, Fifth Street to Hamner Avenue	2,800
River Road, South of city boundary	7,230

[1] Year 2010 AADT
Source: City of Norco 2000, Caltrans 2016

Other transportation related land uses in the vicinity include Corona Municipal Airport, located approximately 2.5 miles southwest of the site, and the BNSF Railroad lines aligned east-west 3 miles south of the site. Besides freight operations, Metrolink commuter trains also utilize this rail line. The Proposed Action is located 3.5 miles from the Metrolink North Main Corona Station at 250 East Blaine Street. This rail line is also currently used by Amtrak commuter carrier's Southwest Chief train, although the train does not stop at this station. The Riverside Transit Agency is a bus service in the vicinity responsible for providing transit service to all citizens in western Riverside County.

According to the Riverside County General Plan, one regional trail is currently being proposed north of the project area (Riverside County 2015). The City of Corona is currently planning a 22-mile multi-use recreational trail segment of the regional "crest to coast" Santa Ana River Trail in the Lower Norco Bluffs Project vicinity.

3.13 HAZARDOUS MATERIALS

This section focuses on existing public health and safety issues with regard to hazardous materials. A hazardous, toxic, radioactive wastes (HTRW) report was prepared by the USACE in March 2020 (Appendix F). The purpose of the report was to identify and list potential HTRW impacts to the Proposed Action.

The analysis was based on the summarized environmental pollutant information found and gathered only from the California State Water Resources Control Board (SWRCB) internet "Geotracker" environmental database and from the USACE Los Angeles District (LADUSACE) Real Estate Division's disclosure of HTRW distressed property. The analysis only considered known project-area HTRW impacts from HTRW releases onto those properties/sites listed on the Geotracker database and from the real estate HTRW disclosure that may pose a threat to human health or the environment. It is important to note that there may be unknown HTRW or pollutant impacts to the study area, which were not fully disclosed and listed from Geotracker database or the LADUSACE.

The HTRW analysis focused on the known residual and active releases of HTRW into the adjacent property and environment within a ¼ mile distance of the study area. The analysis does not include evaluation of hazardous materials stored or used at or near the study area. Generally, hazardous materials are not considered part of HTRW impacts, unless or until they have been released to the environment, at which point they would be considered a hazardous substance or waste, according to CERCLA and Resource Conservation and Recovery Act (RCRA). Further details on how hazardous materials, hazardous waste and hazardous substances are regulated by law and addressed in Federal and State or Local environmental regulations and laws.

The current land use is a flood impoundment basin behind Prado Dam, a river floodplain and an open natural drainage basin of the Santa Ana River. The eastern perimeter of the river is bounded by medium to light industrial land use and heavy residential use and California State Highway 91 and U.S. Interstate 15 and the large properties of the CDC Rehabilitation and U.S. Navy Norco Sea Systems Command. The land use history of the study area indicates that HTRW impacts would be moderate primarily because of the light industrial activities.

A cursory review of the Geotracker environmental database and LADUSACE Real Estate Division HTRW disclosure was performed, and listed HTRW sites (properties) of potential concern were evaluated for significance according to type of HTRW active/residual releases and their impacts to human health and the environment.

The listed sites/properties of concern were moved forward for recommendation for either a follow up American Society for Testing of Materials (ASTM) Phase I or Phase II Environmental Site Assessment HTRW survey. The Phase I Environmental Site Assessment would include the full commercial environmental database review; historical topographic map and aerial map review; Sanborn Map and City Directory review; land/title search and could include a property owner interview and site visit as applicable. Low to medium impact RECs properties are typically not recommended for follow up Phase II Environmental Site Assessment survey, but may require some additional monitoring, inspection and/or site visit or property owner survey.

The Phase II Environmental Site Assessment site investigation is typically reserved only after conducting a full Phase I Environmental Site Assessment. However, it could be implemented if RECs from the AAI screening are conclusively evident enough to preclude or skip the use of a Phase I Environmental Site Assessment. In such case, the Phase II would involve additional steps of providing a field work plan and performing an actual environmental HTRW field site assessment. A Phase II site assessment would involve the collection and laboratory analysis of environmental samples to confirm the presence, extent and concentration of hazardous substances believed to have been released into the environmental media such as soil, sediment, groundwater, air and surface water.

The following table below shows the Geotracker listings and LADUSACE Real Estate Division's disclosures of all known CERCLA/RCRA type environmental records and data from potential HTRW sites or properties, with addresses that could be mapped within approximately ¼ mile distance of the project study area (**Table 3-12**). It contains only those listings that have HTRW impact to the project.

This search yielded a list of approximately two properties that are considered as having a potential HTRW impact to the project. Both of these properties have had releases of hazardous substances or other pollutants into the environment and were being managed as contaminated properties by environmental regulatory agencies of either the CA DTSC and/or RWQCB. Both of these properties have undergone previous HTRW investigations equal to either an ASTM Phase II or Phase I Environmental Site Assessment. Both of the properties have also undergone some form of remedial action to reduce or remove the pollutants from the environment. Analysis of the releases, past and present and future property use indicates that one of the sites has more of a potential HTRW impact to the study project than the other site. One of the two is of low HTRW impact and the other is of high impact. The low HTRW impact property is the California Department of Corrections Rehabilitation Center. The high HTRW impact property is the U.S. General Service Administration open lot property. Both impacted HTRW properties are shown on Map Figure 1 in the HTRW report.

Table 3-12 Results of the Geotracker Database and LADUSACE Real Estate Division Disclosure/Search

Database	Brief Database and/or Disclosure Description	Records Found
SWRCB and DTSC Geotracker	California Department of Toxic Substances Control and Santa Ana Regional Water Control Board Listed: □ California Department of Corrections Rehabilitation Center, at the southwest corner of 5th Street and Western Avenue, Norco, CA 91760. includes 6 LUST sites) (**Low Impact**)	1
LADUSACE Real Estate Divsion	□ U.S. General Services Administration open lot property at the west side corner of Corydon Avenue and 5th Street, Norco Ca 91760 (**High Impact**)	1
	Total Mapped and Listed Records Found	**2**

4 ENVIRONMENTAL CONSEQUENCES

The Proposed Action is similar to the previously approved design alternative and associated sponsor real estate actions, except for the changes identified in **Table 2-1.** Therefore, a new impact would only occur if it is associated with the project modifications, or as a result of a changed environmental conditions. Effects to various environmental aspects are addressed more specifically to provide an updated accounting of potential effects. The information is based on recent surveys, literature review, and coordination with regulatory agencies and technical experts.

4.1 WATER RESOURCES AND HYDROLOGY

The affected environment for water resources and hydrology is presented in Section 3.1 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was

previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to water resources and hydrology: reduced extension of the embankment below the riverbed of approximately 12.5 ft.; modified composition of the embankment to include launchable rock instead of soil cement; filling of one side canyon and construction of a system of v-ditches, catch basins, side drains, and culverts to assist drainage; and no diversion or dewatering of the primary stream flow of the Santa Ana River is required. Instead, temporary sheet pile shoring and a berm, or similar structure would be constructed outside of the low flow channel. For the purposes of the SEA/EIR Addendum, analysis of potential water resources and hydrology impacts associated with project modification under the Proposed Action is provided below.

4.1.1 HYDROLOGY

This section evaluates the potential for the Proposed Action to affect hydrological characteristics within the floodplain, including surface water elevation, flow velocity, channel capacity and configuration.

SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative caused:

- Substantial changes to the capacity or characteristics of the main flow path(s) of the river or capacity of the overall floodplain
- Changes in velocity that could affect existing erosional/depositional patterns, or the ability of the river to move across the floodplain.

4.1.1.1 *ENVIRONMENTAL CONSEQUENCES*

Proposed Action Alternative

<u>During Construction</u>

Under the Proposed Action Alternative, the embankment would retain the approximate location, configuration, and aboveground dimension of the Previously Approved Design. However, unlike the Previously Approved Design, the Proposed Action would establish a shallower toe and not require diversion or dewatering of the primary stream flow of the Santa Ana River. Because excavation of approximately 2.5 – 4.5 ft. below the existing grade would be required and because groundwater in the floodplain is known to occur starting at depths between 2-5 feet, some dewatering in the floodplain (outside of the main channel) may be required. However, the operation, if any, would be expected to be minimal in comparison to what would be required for the Previously Approved Design, and water encountered would be discharged within the floodplain for percolation or evaporation. Because the project TCE runs adjacent to the Santa Ana River some flood-risk reduction measures have been included during construction to prevent further migration of the river into the TCE. This includes temporary sheet pile shoring, or similar diversion structure, installed on top of the riverbank and a temporary earthen berm, or similar structure, that would run adjacent to the TCE in areas where flood-risk is the highest. These structures would not be constructed in the low-flow channel and only be utilized during high-flow events that cause the active river channel to substantially shift into the TCE. The sheet pile shoring and earthen berm would be removed after construction. The earthen berm would be deconstructed and the

materials comprising it would be used for grading the site.

Post-Construction

The addition of the structure in the river channel would decrease the existing capacity of the Santa Ana River channel, however the decrease would be nominal due to the extensive width of the channel (approximately 1300 ft.) and capacity of the river channel. Even in the narrowest part of the floodplain (approximately 500 ft. across) in the upstream portion of the project, the permanent structure would encroach on approximately 100 ft., or 20% of the available floodplain. The permanent structure would be located outside of the current, primary channel of the Santa Ana River. It would be expected that, primarily during large storm events, the primary channel would expand to include part of the permanent structure. The permanent structure would encompass approximately 37 acres of the 380 acres available within the floodplain of the immediate project area. For perspective, the entire Santa Ana River watershed is approximately 1,696,000 acres. No work is proposed within the currently active, low flow channel. Additionally, the Proposed Action would not alter the velocity or location of flows, except flows would no longer be able to undercut the toe of the south bank. The Proposed Action would also reduce bluff face sloughing or erosion. Although bluff face sloughing would likely have a nominal contribution to the existing sediment that is carried downstream deposited within Prado Basin, it could still reduce the likelihood of impacts to water storage capacity in Prado Basin.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Periodic emergency repairs may be required and would entail the discharge of launchable rocks to replace those that have been dislodged. Given the extensive width of the Santa Ana River floodplain through the project area, it is unlikely that the discharge of rocks to stabilize portions of the embankment would significantly affect river hydrology.

No Action Alternative (Previously Approved Design)

Effects of the No Action Alternative were analyzed and disclosed in the 2001 SEIS/EIR. Effects related to hydrology, including the diversion of water flow and dewatering, would be temporary and, therefore, considered less than significant. Additionally, potential effects to the channel capacity would be considered less than significant given the large width of the floodplain.

4.1.1.2 *SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION*

The Proposed Action would not affect a vast majority of the floodplain or reduce flow or channel capacity since the permanent structure would occupy a small area compared to what is available in the floodplain immediately within the project area and in the larger Santa Ana River watershed. Additionally, no work is being proposed in the currently active low flow river channel. Therefore, impacts on hydrology are considered less than significant.

4.1.2 SURFACE WATER QUALITY

SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative results in:

- Substantial increases in the rate or amount of surface runoff resulting in flooding on-site or off-site, or contributing to runoff water that would exceed the capacity of an existing or planned stormwater drainage system;
- An increase in the demand for surface water in areas with existing shortages; and/or
- Long-term violation of RWQCB water quality standards or objectives or impairment of beneficial uses of water

4.1.2.1 *ENVIRONMENTAL CONSEQUENCES*

Proposed Action Alternative

Compared to the Previously Approved Design, the Proposed Action Alternative would increase permanent impacts by 16.7 acres, and temporary impacts would increase by 14.8 acres (**Table 4-1**).

Table 4-1 Temporary and Permanent Impacts Comparison between the Proposed Action Alternative and the No Action Alternative (Previously Approved Design).

	Proposed Action Alternative (acres)	Previously Approved Design (acres)	Difference in Impacts (acres)
Temporary Impacts (Easements)	39.2	24.4	14.8
Permanent Impacts (Impermeable surfaces)	37.1	20.4	16.7

During Construction

Construction activities that occur during the winter months would be subject to runoff from the drainage areas coming from the top of the bluffs, east of the project area. The contractor would be responsible for protecting the worksite from flooding. Protective measures could include the installation of culverts and construction of berms to provide sufficient protection against adverse flooding effects. The installation of sheet pile shoring is also proposed to address the migration of the river into the TCE. The contractor would also be responsible for securing their own water source and there would be no increase in the demand for surface water in the area. Although no activities are planned to occur within the active river channel, construction activities include soil-disturbing activities that could result in soil erosion and sedimentation that may subsequently cause and/or contribute to water quality degradation, particularly if a precipitation event occurs while soils are actively disturbed. The potential also exists for impacts to surface water quality to result from accidental leaks or spills of potentially hazardous materials, including fuels and lubricants required for operation of construction vehicles and equipment.

To protect against potential negative effects to water quality, there are several design criteria and environmental measures in place that the contractor will be required to adhere to, including:

- Human waste and other pollutant or hazardous material discovered during construction would be removed from the site.
- Temporary impact areas would be actively restored through vegetation plantings after construction.

- Permanent impact areas with drains, such as maintenance roads, would be designed to avoid or minimize the potential of the drain to increase fine-grained sediment delivery to nearby water bodies.
- As stated in the 2001 SEIS/EIR, the contractor would be required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which would include Best Management Practices (BMPs), and an Erosion and Sedimentation Control Plan to reduce impacts to water quality during project construction. The temporary berm would be lined with straw wattles and lined with a hardened material such as gravel bags or riprap to reduce erosion
- Sound walls would be designed to not block streamflow and, therefore, avoid causing local scour or breaking during a storm event and colliding with downstream infrastructure. The walls would also be designed to be easily removed prior to a forecasted storm event.

Additionally, the increase in disturbed and impermeable area relative to the total area of disturbed and impermeable surface in the watershed would be nominal, and the effect of pollutant transport would be immeasurable with BMPs implemented.

Post-Construction

The Proposed Action includes a system of v-ditches, catch basins, side drains, and culverts at three canyon areas. Additionally, vegetation would be planted on the existing earthen ramp behind Shadow Canyon Circle, which would minimize erosion from surface water runoff. These features would collectively facilitate drainage from the top of the bluff and the embankment. The project area would also be re-vegetated after construction, which would minimize erosion from surface water runoff throughout the project area. Therefore, the Proposed Action would not cause or result in substantial flooding.

Future Operations and Maintenance

Future maintenance of the Proposed Action would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Future maintenance activities would not alter the overall surface water and drainage patterns. Although future maintenance may introduce potential water quality impacts associated with the use of motorized vehicles and equipment and soil-disturbing activities, potential impacts would be avoided or minimized through the implementation of the BMPs and design criteria described above.

No Action Alternative (Previously Approved Design)

Effects of the No Action Alternative were analyzed and disclosed in the 2001 SEIS/EIR. The Proposed Action differs from this alternative primarily in the design modifications related to drainages, including the reduction in side canyons being filled (from four to one) and the addition of a system of v-ditches, catch basins, side drains, and culverts in the side three remaining side canyons. Short-term impacts to surface water quality were found to be potentially significant primarily because of the construction activities required within the river channel, including dewatering and channel diversion. A number of mitigation measures were proposed to address the impacts. Long-term potential impacts to surface water quality during construction and future maintenance were found to be less than significant.

4.1.2.1 *SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION*

The Proposed Action would include implementation of BMPs and measures to minimize or avoid potential short- or long-term effects related to flooding, surface runoff, and water quality. Additionally, the drainage system design and planting of vegetation during the site restoration phase would minimize the amount of surface runoff and risk of on- and off-site flooding. There will be no increase for surface water in areas within existing shortages. Therefore, potential effects on surface water are considered less than significant.

4.1.3 GROUNDWATER

Interference with groundwater recharge could occur if project implementation withdraws groundwater in quantities that cause the underlying basin to be affected by overdraft conditions, and/or if the project reduces infiltration rates in the area by introducing substantial, new impermeable areas.

SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative caused a:

- Substantial reduction in the ability to recharge the underlying aquifer, or causes substantial groundwater contamination or substantial groundwater depletion

4.1.3.1 *ENVIRONMENTAL CONSEQUENCES*

Proposed Action Alternative

<u>During Construction</u>

Under the Proposed Action Alternative, a water source would be secured by the contractor, and no new groundwater well(s) would be installed. The Proposed Action would require excavation of approximately 2.5 – 4.5 ft. deep from the existing grade, and depths to groundwater within the project area have been found to occur between two and five feet. Therefore, it is possible construction activities could come into contact with some groundwater, but likely not enough to require substantial dewatering. If groundwater is encountered the contractor would pump it to another area within the floodplain for percolation or evaporation. Additionally, the contractor would be required to obtain the appropriate discharging permits from the RWQCB and conduct any required monitoring and testing. Upon the completion of construction, the excavated site would be backfilled with previously excavated native material, and groundwater recharge would not be compromised. The potential exists for impacts to groundwater quality to result from accidental leaks or spills of potentially hazardous materials, including fuels and lubricants required for operation of construction vehicles and equipment. However, BMPs would be implemented to reduce the risk of accidental leaks and spills, and appropriate clean up protocol would be developed to minimize potential impacts.

<u>Post-construction</u>

The Proposed Action would introduce new, impervious surfaces to the project area; however, this would not substantially affect groundwater recharge, which predominantly occurs through natural infiltration and managed groundwater recharge by the OCWD and other agencies that comprise the Santa Ana

Watershed Project Authority (SAWPA). The concrete maintenance road on top of the embankment would not be permeable. However, since the embankment would not encroach a substantial distance into the floodplain, impacts to groundwater recharge would be less than significant.

Future Operations and Maintenance

Future maintenance of the Proposed Action would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Future maintenance activities would not alter groundwater, but may introduce potential water quality impacts associated with the use of motorized vehicles and equipment and activities that require excavation into the riverbed. BMPs would be implemented to reduce the risk of accidental leaks, spills, and groundwater contamination.

No Action Alternative (Previously Approved Design)

Effects of the No Action Alternative were analyzed and disclosed in the 2001 SEIS/EIR. Under the Previously Approved Design, the embankment would be comprised of fill and soil cement, and construction would be requiring deep dewatering and river diversion. Construction activities, including dewatering efforts, have the potential to introduce contaminants into the groundwater system. Similarly, maintenance activities may require excavation into the riverbed, which would create the potential for groundwater contamination. Best Management Practices (BMPs) would be implemented to reduce the risk of accident leaks, spills, and groundwater contamination. Additionally, effects related to the diversion of water flow and dewatering would be temporary, and, therefore, long-term effects were considered less than significant.

4.1.3.1 *SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION*

The Proposed Action would not substantially reduce the ability to recharge the underlying aquifer since the area of new, impermeable surfaces would only account for a small proportion of the floodplain and other areas impacted would be backfilled with native material. Implementation BMPs and environmental commitments would allow for the avoidance or minimization of potential effects to groundwater quality. Therefore, potential effects on groundwater were considered less than significant.

4.1.4 JURISDICTIONAL HABITATS AND WETLANDS

The discussion below describes how the proposed modifications would impact jurisdictional wetlands and waters within the project area. This SEA/EIR Addendum provides an updated accounting and description of impacts on and identifies avoidance/minimization measures for riparian and wetland areas. An updated 404(b)(1) evaluation can be found in Appendix B. An updated 401 certification permit pursuant to the Corps' Clean Water Act implementing regulations (33 CFR 336.1[a][1]) was provided by the Santa Ana Regional Water Quality Control Board on August 31, 2020 and can be found in Appendix B.

SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative caused a:

- Violation of any applicable toxic effluent standard or prohibition (under section 307 of the Clean Water Act and NPDES) in Waters of the U.S.

- Jeopardizes the continued existence of endangered or threatened species under ESA or results in likelihood destruction or adverse modification of designated critical habitat
- Violation of any applicable water quality standard (federal water quality standards and Section 401 Water Quality Certification state standards) in Waters of the U.S.

4.1.4.1 *ENVIRONMENTAL CONSEQUENCES*

Proposed Action

Potential impacts to jurisdictional resources were assessed in the 2001 SEIS/EIR. However, the specific acreages that would be subject to direct and indirect effects were not identified at that time, to the current level of detail. The modified design differs from the previously approved design in that it no longer requires diversion or dewatering of the primary stream flow of the Santa Ana River. The modified design also employs the use of launchable rock extending 10-20 feet out from the hardened embankment structure on the toe of the slope (**Figure 2.3-2**). The design would require excavation of approximately 2.5 - 4.5 ft. below the existing grade.

Implementation of the Proposed Action would result in approximately 3.18 acres of permanent impacts and 1.68 acres of temporary impacts to Waters of the U.S. (federal waters) and 1.68 acres of permanent impacts 0.59 acres of temporary impacts to jurisdictional wetlands (**Table 4-2**).

Table 4-2 Total Impact Acreage of Jurisdictional Wetlands/Waters

USACE, RWQCB/CDFW Jurisdictional Habitat (Joint Jurisdiction)						
	USACE/RWQCB Potential Jurisdictional Non-wetland Waters of the U.S.		USACE/RWQCB Total Potential Jurisdictional Wetland Waters of the U.S.		CDFW Potential Jurisdictional Waters of the State (Riparian)	
	Permanent Impacts (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)
Total	3.18	1.68	1.04	0.59	27.13	20.64

The Proposed Action would result in potential effects to wetland vegetation through vegetation clearing and ground-disturbing activities. Vegetation clearing and grading activities are expected to occur throughout the TCE to prepare the site for construction of the embankment structure, site access, and drainage systems. Areas would also be cleared to create room for stockpiles of material.

To reduce potential effects related to ground disturbance, grading activities would be kept at a minimum, and root structures would be left intact to allow regrowth. To limit the effects of vegetation removal and ground-disturbing, construction activities would be limited to the TCE and delineated by visible boundaries. Additionally, dust control measures would be implemented to reduce excessive dust emissions. Excessive dust can decrease or limit plant survivorship by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success. Additionally, erosion control measures, such as berms and silt fences, would be implemented to prevent potential effects to existing topography and hydrological regimes that could impact the health of vegetation communities. Upon construction completion, the site would be restored to pre-project conditions, and areas temporarily disturbed would be revegetated with native species. The construction contractor would also be required to develop and implement a SWPPP. Adherence to identified environmental commitments, including

BMPs, would reduce potential impacts.

A series of offsetting measures were assessed and included in the 2001 SEIS/EIR to address potential impacts to riparian and wetland habitats. Requirements for remaining SARMP features, including the Lower Norco Bluffs Project, were updated in the 2012 BO. Although specific acreages of jurisdictional habitat were not identified or delineated by jurisdiction in the previous documents, the riparian habitats were assumed to fall within Waters of the U.S. and Waters of the State. Offsite mitigation is occurring in advance of impacts, as required by the 2012 BO, and will compensate for impacts to wetlands and waters of the U.S.

Effects related to violations of applicable toxic effluent standard or prohibition are analyzed and discussed in Section 4.13. There will be no violations as a result of the Proposed Action. Effects related to federally listed species and designated critical habitat are discussed in Section 4.4 and summarized in the Biological Assessment in Appendix D. Effects are expected to be considered less than significant considering measures implemented and mitigation proposed.

Future Operations and Maintenance

Future maintenance of the Proposed Action would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Periodic emergency repairs may be required and would entail the discharge of launchable rocks to replace those that have been dislodged. Activities associated with emergency repairs may have potential effects on jurisdictional habitats and wetlands, however they would be temporary and site-specific, depending on the extent of the damage. Therefore, potential effects were considered less than significant.

No Action Alternative (Previously Approved Design)

Under the Previously Approved Design, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as described in the 2001 SEIS/EIR. Effects of the Previously Approved Design were analyzed and disclosed in the 2001 SEIS/EIR. Potential impacts of the No Action Alternative on jurisdictional habitats and wetlands were considered to be temporary and, therefore would be less than significant.

4.1.4.1 *SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION*

As described in previous sections, the Proposed Action would include implementation of BMPs and measures to minimize or avoid potential short- or long-term effects related to water quality. Therefore, avoiding violations of any applicable water quality standard in Waters of the U.S. Additionally, the drainage system design and planting of vegetation during the site restoration phase would minimize the amount of surface runoff and risk of on- and off-site flooding. There would be no violation of any applicable toxic effluent standard or prohibition, as further discussed in Section 4.13. The proposed action would not jeopardize the continued existence of federally listed species or result in significant destruction or adverse modification of designated critical habitat, as further discussed in Section 4.4. Therefore, potential effects on jurisdictional habitats and wetlands are considered less than significant.

4.2 AIR QUALITY

The affected environment for air quality is presented in Section 3.2 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to air quality: an increase in construction duration from nine months to two years; reduced extension of the structure below the riverbed of approximately 12.5 ft.; modified composition of the embankment to include launchable rock instead of soil cement; filling of one side canyon and construction of a system of v-ditches, catch basins, side drains, and culverts to assist drainage; and no diversion or dewatering of the primary stream flow of the Santa Ana River is required. For the purposes of the SEA/EIR Addendum, analysis of potential air quality impacts associated with project modification under the Proposed Action is provided below.

4.2.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative:

- Exceeds General Conformity Rule de minimis thresholds; and
- Exceeds SCAQMD daily construction thresholds

4.2.2 ENVIRONMENTAL CONSEQUENCES

4.2.2.1 *Proposed Action Alternative*

<u>During Construction</u>

Emissions were estimated based on both on-road and off-road equipment using EMFAC 2007 emission factors. The daily emissions were based on the 52 week (252 days) work duration. However, since the General Conformity Applicability Rates are calculated on an annual basis, the total estimated emissions for the project were equally divided by three years (estimated duration for project construction and site restoration) and compared to the General Conformity Applicability Rates.

- Construction is scheduled to begin in July 2021 and end in June 2024. Proposed hours of operation for the processing phase are from 7 a.m. to 6 p.m., Monday through Friday.

The Proposed Action would require a variety of equipment for each construction activity. Estimated number of equipment for each construction activity is summarized in **Table 4-3**.

Table 4-3 Construction Equipment for Proposed Action

Construction Activity	Equipment	Quantity	Hours/Day	Total Work Days1	Emission Type
Clearing and Grubbing	Loader	1	8	14	Off-road
	Dozer	1	8	14	Off-road
	Chipper	1	8	13	Off-road
	Water Truck	1	8	1	On-road
	Pickup Trucks	1	8	1	On-road
	16 CY Dump Truck	2	8	14	On-road
Sound Wall	Loader	1	8	4	Off-road
	Dozer	1	8	14	Off-road
	Manlift	1	8	11	Off-road
Excavation	Dozer	1	8	182	Off-road
	Grader	1	8	182	Off-road
	Excavator	2	8	32	Off-road
	16 CY Dump Truck	20	8	288	On-road
Backfill	Dozer	2	8	150	Off-road
	Loader	2	8	73	Off-road
	Scrapers	2	8	128	Off-road
	Excavator	2	8	228	Off-road
	Roller	1	8	228	Off-road
	Grader	1	8	58	Off-road
	Water Truck	1	8	228	On-road
	16 CY Dump Truck	20	8	172	On-road
Riprap	Loader	1	8	120	Off-road
	Dozer	1	8	12	Off-road
	Roller	1	8	17	Off-road
	Grader	1	8	22	Off-road
	Water Truck	1	8	17	On-road
	Excavator	1	8	144	Off-road
Grouted Stone	Concrete Pump	1	8	3	Off-road
	Excavator	1	8	2	Off-road
	Loader	1	8	2	Off-road
Concrete V-Ditch	Excavator	1	8	3	Off-road
	Concrete Vibrator	1	8	10	Off-road
	Grader	1	8	5	Off-road
6' Chain Link Fence	Manlift	1	8	22	Off-road
	Concrete Pump	1	8	39	Off-road
Maintenance Road	Vibratory Roller	1	8	24	Off-road
	Grader	1	8	8	Off-road
	Asphalt Paver	1	8	16	Off-road
	Water Truck	1	8	5	On-road
Concrete Ramp and	Concrete Pump	1	8	1	Off-road

Inlet Structure Access	Concrete Vibrator	1	8	1	Off-road
	Vibratory Roller	1	8	1	Off-road
	Grader	1	8	1	Off-road
Catch Basins	Concrete Vibrator	1	8	4	Off-road
	Concrete Pump	1	8	4	Off-road
	Skid Steer	1	8	4	Off-road
	Excavator	1	8	8	Off-road
	Dozer	1	8	4	Off-road
	Loader	1	8	4	Off-road
	Water Truck	1	8	4	On-road
	Vibratory Roller	1	8	8	Off-road
	Crane	1	8	4	Off-road
	16 CY Dump Truck	1	8	4	On-road
Culvert, Inlet and Outlet	Loader	1	8	3	Off-road
	Crane	1	8	1	Off-road
	Skid Steer	1	8	1	Off-road
	16 CY Dump Truck	1	8	1	On-road
Project Access Road	Vibratory Roller	1	8	5	Off-road
	Grader	1	8	4	Off-road
	Dozer	1	8	11	Off-road
	Excavator	1	8	12	Off-road
	Asphalt Paver	1	8	2	Off-road
	Water Truck	1	8	3	On-road
	16 CY Dump Truck	5	8	12	On-road
Construction Access Road	Vibratory Roller	1	8	1	Off-road
	Grader	1	8	1	Off-road
	Dozer	1	8	1	Off-road
	Loader	1	8	1	Off-road
	Water Truck	1	8	1	On-road
	16 CY Dump Truck	5	8	1	On-road
Borrow Area Restoration	Grader	1	8	10	Off-road
Landscape, Irrigation and Maintenance	Tractor	1	8	1	Off-road
	Water Truck	1	8	1	On-road
Geotechnical Instrumentation	Drill, Rotary	1	8	4	Off-road
Shoring	Dozer	1	8	4	Off-road
	Grader	1	8	20	Off-road
	Loader	1	8	2	Off-road
	Scrapers	1	8	4	Off-road
	Excavator	1	8	2	Off-road
	Crane	1	8	44	Off-road
	Vibratory Roller	1	8	12	Off-road
	Water Truck	1	8	14	On-road

	16 CY Dump Truck	10	8	20	On-road
Berm Construction	Dozer	2	8	58	Off-road
	Loader	2	8	10	Off-road
	Scraper	2	8	18	Off-road
	Excavator	2	8	72	Off-road
	Roller	2	8	16	Off-road
	Grader	1	8	20	Off-road
	Water Truck	1	8	16	On-road
	16 CY Dump Truck	20	8	24	On-road
For Duration of Project	Pickup Trucks	5	3	1095	On-road

[1] Total work days was based on the assumption of an 8-hour work day, 5-day work week.

Emissions from equipment that generally stays on-site would constitute off-road emissions. On-road emissions would include emissions from haul trucks and water trucks as well as the workers' vehicles (pickup trucks).

The following assumptions were used to calculate on-road emissions: a maximum of 79,874 round trips at 42 miles per round trip for dump trucks, a maximum of 850 round trips at 20 miles per round trip for pickup trucks commuting, 8,388 on-site worker (pickup truck) round trips at 4 miles per round trip, and 3,849 on-site water truck round trips at 4 miles per round trip.

Estimates of lead emissions were not calculated. Lead emissions from mobile sources have significantly decreased due to the near elimination of lead in fuels. Thus, EMFAC 2007 does not provide estimated emissions for lead. Little to no quantifiable and foreseeable lead emissions would be generated by any of the alternatives.

Ozone (O3) formation is driven by two major classes of directly emitted precursors: nitrogen oxides (NOx) and volatile organic compounds (VOC). The relation between O3, NOx and VOC is driven by complex nonlinear photochemistry. Due to the variability in rates of ozone formation, EMFAC2007 does not provide estimates for ozone. Instead, the emissions associated with ozone precursors (i.e., VOC and NOx) are calculated and used as a surrogate for reporting ozone emissions.

General Conformity Rule makes a distinction between NOx as an ozone precursor and NO2 for reporting purposes. EMFAC2007 has emission factors for NOx, but not for NO2. Because NO2, a form of NOx, forms the majority of NOx emission from internal combustion engines, estimated emissions of NOx are used as a surrogate for NO_2 emissions.

Under the Proposed Action, on-road and off-road emissions would include equipment summarized in **Table 4-3**. The equipment will operate 8 hours per day for approximately 783 days over three years. Operations may not be continuous. Fugitive emissions of PM2.5 and PM10 would occur from use of unpaved roads and material handling. Fugitive emissions of PM2.5 and PM10 would be minimized through implementation of dust control BMPs described below.

As shown in **Table 4-4**, estimated annual emissions would not exceed any of the Clean Air Act General Conformity de minimis applicability rates, except for NOx in 2022. NOx emissions are estimated to exceed the annual Clean Air Act General Conformity de minimis applicability rates by approximately 4.1 tons in 2022. As a result, applicable mitigation measures AQ-1 through AQ-23 were developed to reduce impacts

to air quality. Pursuant to Clean Air Act regulations at 40 CFR 932.158(a)(5)(v), emissions of ozone (i.e., VOC and NOx – the precursors to ozone) or NO_2 are deemed to be in compliance with applicable SIP for projects where the action involves regional water and/or wastewater projects. Furthermore, as indicated in Section 4.4.4 of the 2001 SEIS/EIR, the project is sized to meet the population projection in the SIP. As a result, emissions of VOC, NOx, and NO_2 are deemed to be in compliance with the SIP and a conformity analysis is not required for these pollutants. Additionally, impacts as a result of the Proposed Action would be temporary and would not result in substantial long-term air quality impacts.

Estimated daily emissions would not exceed the SCAQMD daily construction thresholds (**Table 4-5**). Therefore, the Proposed Action would have less than significant impacts to air quality. Estimated GHG emissions are shown in **Table 4-6**.

Fugitive emissions of PM2.5 and PM10 associated with the use of unpaved roads and material handling would be minimized through implementation of air quality environmental commitments. Air quality emissions calculations and assumptions are provided in **Appendix C**.

Table 4-4. Comparison of Annual Estimated Emissions to Applicable General Conformity Rates

Pollutant	NAAQS Attainment Designation	General Conformity Rates (tons/year)	Estimated Annual Emissions 2021 (tons/year)	Estimated Annual Emissions 2022 (tons/year)	Estimated Annual Emissions 2023 (tons/year)
Ozone (VOC as precursor)	Nonattainment (Extreme)	10	0.40	1.82	0.04
Ozone (NOx as precursor)	Nonattainment (Extreme)	10	2.66	14.11	0.26
Carbon Monoxide (CO)	Maintenance	100	1.76	8.01	0.27
Nitrogen Dioxide (NO_2)	Maintenance	100	0.01	0.05	0.00
Particulate Matter (PM10)	Maintenance	100	0.11	0.62	0.01
Particulate Matter (PM2.5)	Nonattainment (Moderate)	100	0.10	6.28	0.01
Lead (Pb)	Nonattainment	25	not calculated	not calculated	not calculated

Table 4-5 Comparison of Daily Estimated Emissions to SCAQMD Emission Thresholds

Pollutant	Construction Emission Thresholds (lb./day)	Estimated Daily Emissions (lb./day)
Nitrogen Oxide (NOx)	100	43.5
Reactive Organic Gas (ROG or VOC)	75	5.80
Particle Pollution (PM10)	150	1.89
Particle Pollution (PM2.5)	55	16.3
Sulfur Oxides (SOx)	150	0.14
Carbon Monoxide (CO)	550	25.6
Lead	3	not calculated

Table 4-6 Estimated Emission of Green House Gasses

Estimated Annual Emissions 2021 (tons CO_2 e/year)	Estimated Annual Emissions 2022 (tons CO_2 e/year)	Estimated Annual Emissions 2023 (tons CO_2 e/year)
709.6	4718.60	90.86

Post-Construction

Any air quality impacts occurring after construction would be related to future maintenance activities. See section below.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Use of maintenance

vehicles and equipment would impact air quality, however impacts are expected to be nominal given routine inspections would typically occur monthly, except during flood fighting events. During flood fighting events vehicles and equipment may be needed more frequently, and inspections could occur up to daily. During more severe flood events, launch stone may need to be replaced, which would require additional maintenance equipment outside of what would be used for routine inspections and minor repairs. The number and type of maintenance equipment needed during severe flood events would be dependent on repairs needed. Because these events are expected to occur infrequently, effects on air quality from future maintenance activities would be less than significant.

4.2.2.2 *No Action Alternative (Previously Approved Design)*

Under the Previously Approved Design Alternative, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as described in the 2001 SEIS/EIR. Construction-related emissions of NOx were found to be significant for the combination of SARMP features that were included in that "Prado and Vicinity" environmental document, including the Previously Approved Design. Most of those features have since been constructed. For the Norco Bluffs feature, daily NOx emissions were found to be 5 times the threshold level for the SCAB. The construction-related emissions of this pollutant would be significant. As a result, applicable mitigation measures AQ-1 through AQ-23 were developed (see Environmental Commitments in Section 6).

4.2.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would not exceed SCAQMD daily construction thresholds. The Proposed Action would not exceed General Conformity Rule de minimis thresholds, except for NOx in 2022. Pursuant to Clean Air Act regulations at 40 CFR 932.158(a)(5)(v), emissions of ozone (i.e., VOC and NOx – the precursors to ozone) or NO_2 are deemed to be in compliance with applicable SIP for projects where the action involves regional water and/or wastewater projects. Furthermore, the project is sized to meet the population projection in the SIP. As a result, emissions of VOC, NOx, and NO_2 are deemed to be in compliance with the SIP and a conformity analysis is not required for these pollutants. Although NOx emissions would be in compliance with the SIP, mitigation measures would still be implemented to address any potential air quality effects. Potential air quality effects related to future maintenance would be nominal. Any potential air quality effects as a result of the Proposed Action would be temporary and would not result in substantial long-term air quality impacts. Therefore, potential effects to air quality are considered less than significant.

4.3 EARTH RESOURCES

The affected environment for earth resources is presented in Section 3.3 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to earth resources: modified composition of the embankment to include launchable rock instead of soil cement; filling of one side canyon and a system of v-ditches, catch basins, side drains, and culverts to assist drainage; and the addition of a temporary access ramp at the southern end of the project. For the purposes of the SEA an EIR Addendum, analysis of potential earth resources impacts associated with project modification under the Proposed Action is provided below.

4.3.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative:

- Causes substantial flooding, erosion, or siltation
- Exposes people or structures to major geologic hazards; and/or
- Results in unstable earth conditions or changes in geologic substructure.

4.3.2 ENVIRONMENTAL CONSEQUENCES

4.3.2.1 *Proposed Action Alternative*

During Construction

The project area would be prepared for construction by clearing and grubbing, cutting vegetation, and grading. Clearing activities would likely require the use of a loader or bulldozer to scrape topsoil, which would be stockpiled for subsequent project use, including material for backfill or to supplement plantings in areas temporarily impacted by project activities. The removal of topsoil would be temporary, and backfill after construction would replenish topsoil removed during clearing and grubbing operations. The excavation footprint would require approximately 38,500 cy of substrate to be excavated. Excavated material would also be temporarily stored at the project site for later use during construction.

The construction contractor would be responsible for protecting the worksite from adverse flooding effects. Protective measures could include the installation of culverts and the construction of berms. The installation of sheet pile shoring is also proposed to address the migration of the river into the TCE. As described in Section 4.1.2 of this SEA/EIR Addendum, a SWPPP would be prepared and include BMPs and an Erosion and Sedimentation Control Plan would be developed and implemented prior to and during construction. The berm will be lined with straw wattles and lined with a hardened material such as gravel bags or riprap to reduce erosion

Post-Construction

Following construction, some loss of unconsolidated substrate could occur during initial storm flows. However, the borrow area and other temporary construction work areas would be re-seeded and re-vegetated, thereby minimizing and/or avoiding potential erosion- or siltation-related effects associated with soil disturbance. Under the Proposed Action, design aspects would serve to prevent flooding, including a system of v-ditches, catch basins, side drains, and culverts.

In the event of earthquake shaking and high flood pool, failure of the proposed Lower Norco Bluffs Project could re-expose the toe of the bluff to impinging flows and cause bluff erosion. Due to the potentially high groundwater table, as well as alluvial nature of the basin fill, liquefaction potential was also considered in the design of project components. While the embankment materials are not expected to settle due to liquefaction, the alluvial materials the embankment is founded on is expected to settle under seismic loads. The settlement is accounted for in the final design grade elevation. Because the embankment would be highly compacted, the materials used would not substantially lose strength under the design earthquake loading and would not liquefy during strong shaking. In addition, the development of a flood

pool occurring simultaneously with a design earthquake that would introduce the potential for downstream flooding if the embankment were to fail is highly improbable due to the infrequent occurrence of design floods and the relatively short pool duration.

The foundation of the proposed Lower Norco Bluffs Project may exhibit a small amount of settling during the construction period. Total estimated post-construction settlement of the embankment and foundation is expected to be less than 24 inches. The Proposed Action would result in no earth resources and geology impacts associated with landslides.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Any excavation required for the replacement of launch stone would implement the appropriate BMPs to prevent or minimize erosion and/or siltation. Future maintenance activities would not alter the overall geologic characteristics of the area and is not expected to cause substantial flooding, erosion or siltation expose people or structures to major geologic hazards; or result in unstable earth conditions or changes in geologic substructure. Therefore, impacts are expected to be less than significant.

4.3.2.2 *No Action Alternative (Previously Approved Design)*

Under the Previously Approved Design, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as described in the 2001 SEIS/EIR. Effects of the Previously Approved Design were analyzed and disclosed in the 2001 SEIS/EIR. Potential impacts of the No Action Alternative on earth resources would be less than significant, as described in the 2001 SEIS/EIR.

4.3.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would include design aspects and implementation of BMPs and measures that would address potential effects related to flooding, erosion and, siltation. These include, but are not limited, to preparation of a SWPPP, inclusion of drainage features, and planting vegetation for soil stabilization. The design of the Proposed Action also considers impacts related to earthquake shaking. There is a low probability of flooding and earthquake conditions, that cause embankment failure, to occur simultaneously. Therefore, impacts on earth resources are considered less than significant.

4.4 BIOLOGICAL RESOURCES

The affected environment for biological resources is presented in Section 3.4. As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to biological resources: modified composition of the embankment to avoid the need for diverting or dewatering the primary stream flow of the Santa Ana River; and the expansion of the TCE and addition of a temporary access ramp at the southern end of the project.

Impacts can be classified as either temporary or permanent, depending on the duration of the impact. Temporary impacts may be considered to have reversible effects on biological resources. Permanent

impacts are those impacts resulting in the irreversible removal of biological resources such as the permanent removal of habitat.

Impacts to biological resources were compared to impacts that were originally identified and mitigated for in the 2001 Final SEIS/EIR. Any additional impacts or changes, as a result of the project modifications under the Proposed Action, are addressed accordingly. The following analysis considers impacts (both direct and indirect) associated with the construction and future maintenance of the Proposed Action. Impacts are expected to primarily occur at and adjacent to the project site.

4.4.1 SIGNIFICANCE THRESHOLD

An evaluation of significant impacts on biological resources must consider the resource and how it fits into a regional or ecological context. Impacts are sometimes locally important, but not significant because, although they would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

Impacts would be significant if the Proposed Action would cause one or more of the following conditions to occur:

- A direct adverse effect on a population of a threatened, endangered, or candidate species or the unmitigated loss of designated critical habitat for a listed or candidate species, to the extent that the regional population is diminished.
- An unmitigated, net loss in the habitat value of a sensitive biological habitat or area of special biological significance.
- Substantial impedance to the movement or migration of fish or wildlife.
- Substantial loss to the population of any native fish, wildlife, or vegetation.
- Substantial loss in overall diversity of the ecosystem.

4.4.2 ENVIRONMENTAL CONSEQUENCES

Direct impacts could occur when sensitive biological resources are altered, disturbed, destroyed, or removed during construction of the project. Direct impacts would result from activities such as vegetation removal, grading, brushing, or the mechanical crushing of vegetation from equipment and vehicles. Other direct impacts could include loss or degradation of foraging, nesting, or burrowing habitat for wildlife species and habitat disturbance from noise related to activities.

Indirect impacts occur when activities affect biological resources in a manner other than direct impacts. Potential indirect impacts resulting from implementation of the Proposed Action include increased sedimentation, dust, changes to hydrology, or unfavorable substrate conditions that results in the introduction and establishment of exotic invasive species. These changes may in turn affect vegetation communities and sensitive species.

The riparian plant communities in the project area are considered sensitive habitat types for their role in the ecological function of the Santa Ana River corridor. These communities play important roles in the life histories for a broad diversity of both common and special-status wildlife species. In addition, the project area overlaps with designated critical habitat for least Bell’s vireo, southwestern willow flycatcher and

Santa Ana Sucker. While there are impacts to non-sensitive habitats that are not protected, these communities still provide important foraging and refugia habitat for a variety of sensitive plants and wildlife species.

4.4.2.1 *Proposed Action Alternative*

During Construction and Post-Construction

Vegetation Communities

The Proposed Action would result in potential effects to riparian and upland vegetation through vegetation clearing and ground-disturbing activities. Vegetation clearing and grading activities are expected to occur throughout the TCE and construction staging area to prepare the site for construction of the embankment structure, site access, and drainage systems. Areas would also be cleared to create room for stockpiles of material. Estimated vegetation impacts for the Previously Approved Design and Proposed Action are summarized in **Table 4-7** and **Table 4-8**, respectively.

To reduce potential effects related to ground disturbance, grading activities would be kept at a minimum, and root structures would be left intact to allow regrowth. To limit the effects of vegetation removal and ground-disturbing, construction activities would be limited to the TCE and delineated by visible boundaries. Additionally, dust control measures would be implemented to reduce excessive dust emissions. Excessive dust can decrease or limit plant survivorship by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success. Additionally, erosion control measures, such as berms and silt fences, would be implemented to prevent potential effects to existing topography and hydrological regimes that could impact the health of vegetation communities. Upon construction completion, the site would be restored to pre-project conditions and areas temporarily disturbed would be revegetated with native species.

Table 4-7 Vegetation Cover and Impacts under the Previously Approved Design

2001 Previously Approved Design[1]				
Cover Types	**Total Acres**	**Project Component Permanent Impacts (acres)**	**Project Component Temporary Impacts (acres)**	
		Embankment Structure	**Embankment Structure**	**Borrow Area**
Riparian Scrub	0.31	0.30	0.01	-
Willow Riparian	5.88	2.96	2.92	-
Cottonwood-willow Riparian	1.81	0.17	1.64	-
Arundo	27.07	11.45	15.62	-
Perennial Stream	1.41	0.72	0.69	-
Sandy Wash	5.73	2.25	3.48	-
Annual Grassland	24.87	2.37	0.05	22.45
Eucalyptus	0.24	0.22	0.02	-
TOTAL	**67.32**	**20.44**	**24.43**	**22.45**

[1] Acreages based on 2001 SEIS/EIR. Borrow Site and Haul Road estimated impact acreages were assumed at the time to be cumulative for several perimeter dikes and other Prado Embankment construction.

Table 4-8 Vegetation Cover and Impacts under the Proposed Action

2021 Currently Approved Design[1]				
Cover Type	**Total Acres**	**Project Component Permanent Impacts (acres)**	**Project Component Temporary Impacts (acres)**	
		Embankment Structure	**Embankment Structure**	**Borrow Area**
Southern Riparian Woodland	10.12	3.90	6.22	-
Disturbed southern Riparian Woodland	25.23	2.18	12.93	-
Disturbed Mulefat Scrub	1.50	0.12	1.38	-
Arundo Riparian	21.20	20.60	0.60	-
Ruderal	20.60	8.22	12.38	-
Nonnative Woodland	0.82	0.28	0.54	-
Sandy Wash	1.59	1.27	0.32	-
Disturbed Coastal Sage Scrub	1.27	0.0	1.27	-
Developed Disturbed	4.06	0.48	3.58	-
Disturbed Annual grassland	22.45	-	-	22.45
TOTAL	**78.65**	**37.05**	**39.22**	**22.45**

[1] Due to rounding of small number, totals may vary.

There are a number of mitigation and restoration sites located in close proximity to the project area. These sites include Corps mitigation sites and SAWA and Riverside-Corona Resource Conservation District (RCRCD) restoration sites. Temporary impacts would occur within the Corps mitigation site as a result of construction of a temporary ramp that would provide construction access to the floodplain and bluff toe. This location is the only feasible access to the project area that could accommodate large construction equipment and would be used as the primary access during construction. The ramp would angle down to the edge of the slope toe and would cross into the Corps mitigation area. To reduce impacts vegetation, the contractor will be required to remove the minimum amount of vegetation feasible to construct the ramp. Upon completion of construction, the ramp would be removed, and the area would be restored with native habitat. There will be no impacts to the SAWA and RCRCD restoration sites.

The Proposed Action could also facilitate the introduction or establishment of additional weed species, or further spread of existing weeds. As described above, the general area has been subject to habitat restoration efforts, and the project area is currently infested with non-native vegetation. Non-native and invasive species include, the highly invasive arundo/giant reed (*Arundo donax*), sweet clover (*Melilotus ablus*), mustard (*Hirschfeldia sp*.), sow thistle (*Sonchus sp*.) and brome grass (*Bromus sp*.). These invasive plant species can cause a permanent or long-lasting change to the environment by increasing vegetative cover, creating a dense layer that prevents native vegetation from germinating, altering the edaphic and hydrological conditions through nitrogen fixation or may reduce the water table as has been documented with species such as giant reed. To the extent feasible, the contractor would prevent exotic weeds from establishing within the work site Construction equipment would be cleaned of mud or other debris prior to mobilizing and before leaving the site to reduce the potential spread of invasive plants and/or seeds. To prevent the spread of non-native vegetation, during clearing activities, machinery will be used to mulch *Arundo donax* within one week of cutting and before a rain event. All cut vegetation will be kept outside of flowing water.

Fill material for the construction of the embankment would be imported from a borrow site located approximately 3 miles west of the project area. The borrow site was recently used for two other SARM project features (Reach 9 Phase 4 and Women's Prison Dike) and is, therefore, already highly disturbed. Use of the borrow site would not result in any additional impacts to vegetation outside of the existing

area of disturbance.

To reduce the potential effects on plant communities, including special-status plant species, the Corps would implement conservation measures provided in the 2001 SEIS/EIR along with additional measures, as described above and in Section 6 of this document. These measures would ensure less that significant effects of the Proposed Action by minimizing the removal of and impacts to vegetation, to the extent practicable, and by restoring native plant communities at the conclusion of construction. Construction monitoring would be conducted to confirm compliance with commitments. Additionally, temporary and permanent impacts to riparian habitat and permanent impacts to upland habitat would be offset through mitigation, which includes restoration of riparian habitat at mitigation ratios. A total of 58.02 acres of impacts will be offset by a total of 187.3 acres of mitigation (**Table 4-9**). All temporary impacts will be restored onsite through planting and seeding by the contractor and undergo a maintenance period. Detailed information of habitat type mitigation ratios and maintenance commitments are provided in the Environmental Commitments Section 6. Because approximately 20 acres of the TCE is currently occupied by arundo, ancillary habitat benefits are anticipated as a result of the removal of arundo during site preparation and subsequent restoration of the site with native vegetation.

Table 4-9. Required Offsite Mitigation for Project Impacts

Habitat	Impact Type*	Acres Impacted	Mitigation Ratio	Acres of Mitigation
Riparian/Wetland				
Southern Riparian Woodland	**Permanent**	3.90	5:1	19.50
	Temporary	6.22	1:1	6.22
Disturbed Southern Riparian Woodland	**Permanent**	2.18	5:1	10.90
	Temporary	12.93	1:1	12.93
Disturbed Mulefat Scrub	**Permanent**	0.12	5:1	0.60
	Temporary	1.38	1:1	1.38
Arundo Riparian	**Permanent**	20.60	5:1	103.00
	Temporary	0.60	1:1	0.60
Sandy Wash	**Permanent**	1.27	5:1	6.35
	Temporary	0.32	1:1	0.32
Non-Riparian (Upland)				
Ruderal	**Permanent**	8.22	3:1	24.66
	Temporary	NA**	NA**	0
Nonnative Woodland	**Permanent**	0.28	3:1	0.84
	Temporary	NA**	NA**	0
		Total Acres of Mitigation Required		**187.30**

*all temporary impacts will also be restored onsite

** No offsite mitigation is required for temporary impacts to non-riparian habitat

Sensitive Species

Federal- or State- listed plant species were not identified in the 2001 SEIS/EIR nor were they observed during sensitive species surveys conducted in 2019. Therefore, they are presumed to be absent from the project area and are not discussed further in this document.

Wildlife

The 2001 SEIS/EIR and the 2012 BO Amendment included a series of avoidance/minimization or offsetting measures that would be implemented as part of the Proposed Action to compensate for impacts to wildlife, including sensitive species, should they occur. Measures to offset the permanent loss and temporary disturbance of wildlife habitat, include requirements for vegetation clearing to occur outside of the nesting season, restoration and maintenance of areas disturbed on-site (following project construction), and offsite mitigation. The minimization measures described above for vegetation communities would also benefit wildlife in the area. These measures include construction monitoring to ensure that impacts occur only within designated areas, fugitive dust control, and erosion control.

Additional measures to minimize potential effects to wildlife include environmental training for construction personnel, installation of sound barriers to minimize noise and visual impacts, and construction noise monitoring during the nesting season to ensure compliance with applicable noise thresholds (as outlined in the 2012 BO Amendment).

Sensitive Species

Habitat within or in the vicinity of the project area has the potential to support several federally- and state-listed wildlife species. Designated critical habitat for listed species also occurs within the project area. Federally listed species include least Bell's vireo (nesting territories and designated critical habitat), California gnatcatcher (known foraging habitat), southwestern willow flycatcher (designated critical habitat), and yellow-billed cuckoo (low potential to occur based on historical sightings). A complete list of special-status species with potential to occur in the project area is listed in (**Table 3-6**). Species covered under the Western Riverside MSHCP are also listed but are not discussed further in this document.

The following sections discuss special-status wildlife that have the potential to occur within the project area. Environmental commitments include the requirement for surveys to be performed prior to construction, and construction monitoring would include monitoring of these species within the project area. A full list of environmental commitments can be found in Section 5 of this document. Implementation of these environmental commitments would result in less than significant impacts to wildlife. Federal- and state- listed species likely to occur in the project area are discussed below.

Santa Ana Sucker (FT) and Designated Critical Habitat

The Santa Ana sucker (hereinafter referred to as sucker) is known to occur within the Santa Ana River. Designated critical habitat for this species is present in the project footprint as stated previously and shown in **Figure 4.4-1**.

This portion of the Santa Ana River supports a high concentration of non-native fish species, which dominates the aquatic community. These predatory fish feed on all life stages of the sucker and other native species. A survey for native fishes was conducted by Aspen Environmental Group on November 19, 2020. Three sucker were detected during the survey and likely colonized the reach during previous high flow events from more favorable upstream habitat. The habitat in the survey area was dominated by sand with less than an estimated one percent gravel being present. Additionally, coarser substrates such as cobbles, boulders, bedrock were not observed. Edge-water habitat for sucker fry was limited, but present within the survey area. The combination of non-native species, poor habitat quality, and increased distance to documented core upstream sucker populations have reduced the potential for a large population of sucker to be present in this lower portion of the Santa Ana River, between Interstate-15 and the Prado Basin. A formal population estimate was not calculated because of the limited number of sucker captured. Regardless, the potential for SAS to be present during Project construction is high. Using the three sucker captured within the 0.5 mile survey area, it is predicted that approximately five sucker are present in the larger 0.8 mile potential impact area. However, this estimate is likely to shift depending on multiple factors which include, assessment season, time since last large flow event, shifting substrates, control of non-native species in the areas, and other potential factors (Aspen 2021).

The contractor would be required to construct a temporary earthen berm and install temporary sheet pile shoring, bordering the river adjacent project limits, to prevent flows from easily entering the project area and avoid impacts to sucker by exclusion from the Project area. If a major storm event occurs and flows entering the site are unavoidable, a protocol would be developed to avoid potential effects to sucker, including stranding. Protocol would include construction work to be suspended, and a qualified fish biologist would survey the project area to determine presence of sucker. If sucker are detected, they would be safely relocated to the nearest suitable habitat. There is a chance that sucker washing into the project area or being physically relocated could increase stress to the individual and cause mortality. Considering the low presence of sucker in project area, the low likelihood of a storm breaching site protection measures, and the measures in place to address potential sucker stranding, the Proposed Action may affect, but is not likely to adversely affect the sucker.

Critical habitat was re-designated for the Santa Ana sucker in 2010. This most recent modification to designated Critical Habitat includes a total of approximately 9,331 acres located within three units (Units 1-3). Unit 1 is located along portions of the Santa Ana River and is further divided into three separate units (Subunits A-C). Critical habitat was assessed by federal mapping and presence of Physical and Biological Features (PBFs) within the mapped areas. PBFs are features that are essential to the conservation of the species. These features include species needs for life processes and successful reproduction such as: space for growth or individuals and populations, cover and shelter for different life stages of a species, biological and physiological requirements, breeding and rearing sites, germination, seed dispersal and historical habitat or habitat protected from disturbance.

The project area overlaps with approximately 52.96 acres of critical habitat, which is 1% of the 4,771 acres of critical habitat in the subunit. Of that 52.96 acres, approximately 5 acres of open sandy wash and unvegetated floodplain contain some potential PBFs for sucker. The critical habitat potentially impacted by this project is in relatively poor condition but is within the historical range for sucker. The majority of the area is comprised of dense, riparian vegetation. If flow were created in the secondary channel, the intermittent habitat available would still be considered to have low suitability due to disturbance from recreation and giant reed invasion. Most of the 5 acres of critical habitat that could be potentially affected would not be permanently degraded, and the hydrological regime would not be substantially affected by the Proposed Action. The sandy wash (secondary channel) would be altered due to the construction of

the embankment feature, but a new channel would likely develop along the structure, similar to the existing channel paralleling the bluff. Although hardened features along banks are known to cause impacts to native fish by permanently removing vegetation and altering sediment movement, the embankment would be located on the toe of the existing bank for the floodplain. Therefore, it would not significantly alter the hydrologic regime during normal flow conditions. During high floods, the embankment would influence hydrology by preventing impinging flows from contacting the bluff toe. Flows reaching the embankment would likely have flow velocities strong enough to alter vegetation and sediment throughout the floodplain. Therefore, these effects would likely occur with or without the embankment feature present, and potential effects under this infrequent flood scenario would be considered less than significant.

As described in earlier sections, the TCE would be cleared of vegetation and graded to prepare the site for construction, and areas outside of the permanent project footprint would be restored with native vegetation. Site preparation and measures would allow for the removal of giant reed and planting of native vegetation in its place. Therefore, this would create an overall improvement to sucker critical habitat within the project area. Additionally, mitigation measures to offset potential impacts to sucker and critical habitat would include implementation of a sucker predator removal program, which would occur for 5 years (see Section 6 Environmental Commitments). The Proposed Action may affect but is not likely to adversely affect sucker critical habitat.

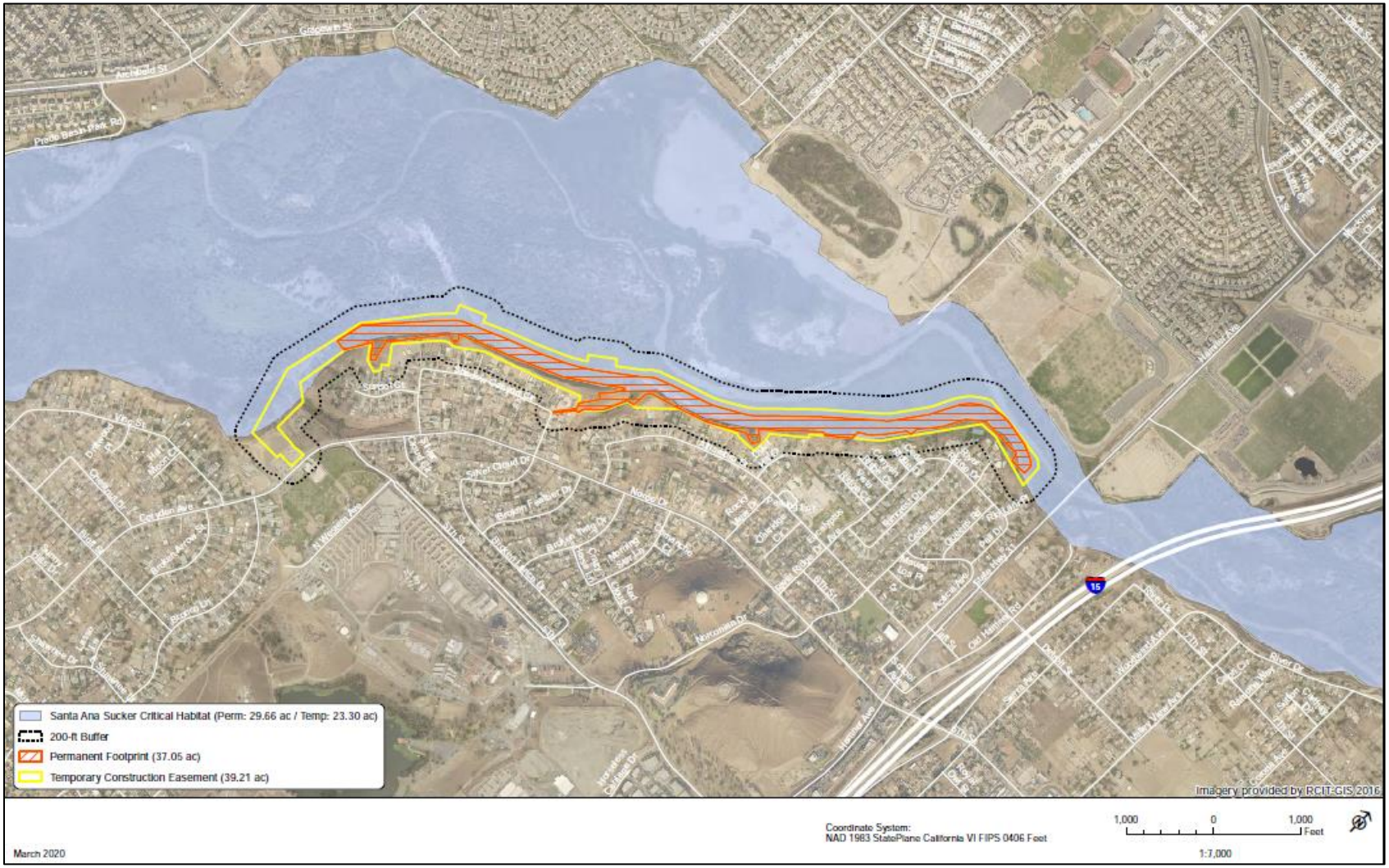

Figure 4.4-1 Santa Ana Sucker Critical Habitat

Other Special-Status Fish Species

Arroyo chub (Species of Special Concern and MSHCP-Covered Species) are likely to occur within the project vicinity, and potentially the project area. No direct effects are expected to occur to arroyo chub as this species would occur within the primary channel of the Santa Ana River, which currently lies outside of the project area. During infrequent, large storm events, native fish could get washed into the project site through avulsion flows. However, given the measures in place to protect the worksite, the low likelihood of such flood events, and protocol implemented response to such events, it is expected that potential effects to arroyo chub would be less than significant.

Least Bell's Vireo (FE, SE) and Designated Critical Habitat

Least Bell's vireo (vireo) are known to currently maintain ten territories within 200 ft of the project area, including the borrow site (**Figure 4.4-2)**. These territories account for approximately 10% of the 101 territories in the area (SAWA 2019). Of the ten known territories occurring within 200 ft. of the project area, two lie within the permanent construction footprint, two lie within the TCE, and six lie within the 200 ft. buffer. This would result in potential permanent displacement of two territories and temporary displacement of eight territories. This is assuming that vireo nesting beyond 200 feet from the project would continue successfully. To avoid potential effects to vireo, vegetation clearing would occur outside of the nesting season, and sensitive species monitoring would occur through the duration of construction activities. Additionally, considering the large width of the floodplain, movement of vireo would not be constricted within the adjacent area. Although increased competition for nest sites and other resources could occur until construction is completed.

Vireo use their sense of hearing to locate their young and mates, to establish and defend territories, and to locate and evade predators (Scherzinger, 1970). The impact of construction noise on nesting vireo is not well understood. Excessive noise levels have the potential to cause behavioral changes, physiological effects, such as temporary or permanent loss of hearing, and can result in masking of important auditory cues, such as predator alert calls. Vireo may also abandon a nest and general territory if they cannot tolerate the loud noises, in which case eggs and/or hatchlings would be abandoned, inhibiting further recruitment to the population at least temporarily. Recent vireo surveys at the SARMP, Reach 9 BNSF Bridge Project revealed vireos did not appear to abandon territories in 2019 due to noise increases during piling driving activities, as evidenced by the number of territories remaining consistent between the 2018 and 2019. However, pile driving activities did not begin until later in the nesting season. Measures to minimize and avoid potential noise effects on vireo include construction of a sound wall around riparian habitat to attenuate construction noise. Noise monitoring would also be conducted to ensure compliance with noise established noise thresholds, as outlined in the 2012 BO. Lastly, the proposed installation of the sheet pile shoring, used to address the migration of the Santa Ana River into the TCE, would occur outside of the nesting season to avoid impacts to vireo.

Fugitive dust emissions from construction activities has the potential to impair the vision of vireo nesting within and adjacent to the project area. Additionally, increased human presence can cause disturbances to vireo, resulting in nest and/or territory abandonment. BMPs would be implemented to minimize fugitive dust emissions. Installation of sound walls would introduce a physical barrier between the project area and riparian habitat, construction activities would be blocked from sight.

A total of 72.42 acres of critical habitat fall within the project area. A total of 36.87 acres of designated critical habitat would be permanently impacted, and 35.55 acres would be temporarily impacted by the

Proposed Action. Of the total 72.42 acres of critical habitat within the project area, approximately 48 acres provide PBFs (i.e., breeding and foraging habitat) required for least Bell's vireo occupation. These acres contain relatively dense riparian and riparian scrub vegetation that are typically dominated by willows, but also contain a dense shrub layer that is mature. The remaining 24.42 acres do not provide PBFs as these areas occur in disturbed, upland communities or are developed areas (i.e. ruderal, grassland and disturbed coastal sage scrub). Critical habitat outside of the permanent construction area would be restored with native riparian vegetation after construction is completed.

As described earlier, nonnative species comprise a large percentage of the project area. Vegetation clearing at the beginning of construction and site restoration after construction would create an overall improvement in riparian habitat within the project area. Additionally, 72.42 acres of critical habitat is a small percentage compared to the 3,338 acres of designated habitat available in Riverside and San Bernardino Counties.

Mitigation to offset impacts to vireo and their critical habitat would also include off-site restoration of riparian habitat through the removal of nonnative species and implementation of a cowbird removal program control. Considering the BMPs, measures, and mitigation described above, the Proposed Action may affect vireo and vireo critical habitat.

Figure 4.4-2 Locations of Least Bell's Vireo Territories within the Project Vicinity

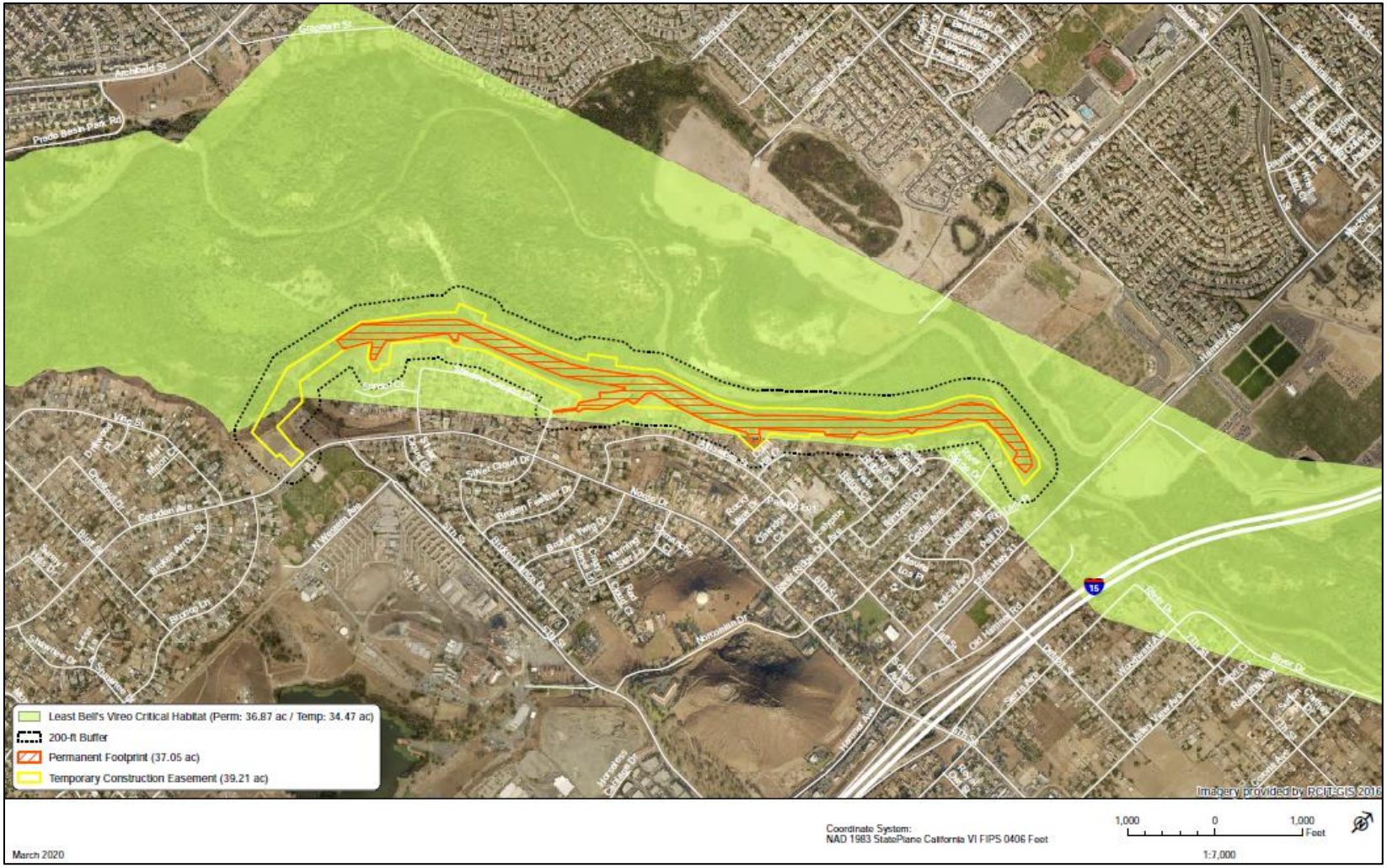

Figure 4.4-3 Least Bell's Vireo Critical Habitat within the Project Area

Figure 4.4-4 Least Bell's Vireo Critical Habitat within the Borrow Area

Southwestern willow flycatcher (FE, SE) and Designated Critical Habitat

The number of recorded flycatchers within Prado Basin peaked at nine territories in 2003. Overtime, there has been a steady decline in flycatcher presence, and no nesting pairs have been detected there since 2013 (Pike et al. 2013). Survey and monitoring activities were conducted by SAWA in 2019, and no flycatchers were not detected. Eight migratory individuals were documented within the larger watershed, and two non-paired individuals passed through the Norco Bluffs area. No breeding pairs were detected (SAWA 2019). This species is not expected to be affected by the Proposed Action.

Approximately 4.72 acres of critical habitat are present within the project area (**Figure 4.4-5**). As a result of the Proposed Action, approximately 0.40 acres would be permanently impacted, and 4.32 acres would be temporarily impacted. While designated critical habitat would be impacted, habitat suitability is relatively low within and around the project area. Much of the riparian habitat is heavily disturbed by giant reed invasion or disturbance from restoration activities that reduced the cover and vegetation layers preferred by this species for both nesting and foraging. There is potential that a transient individual could pass through the area during the construction of the project, however the width of the floodplain would allow the species to pass through the riparian corridor and easily avoid the project area. The measures listed above for minimizing and avoiding impacts to nesting birds, including vireo, would also reduce and mitigate impacts to flycatcher. Project activities are not expected to affect individuals or nests. Upon project completion, native revegetation and long-term maintenance of riparian vegetation would provide an overall improvement in flycatcher habitat for flycatcher. The Proposed Action may affect, but is not likely to adversely affect critical habitat for flycatcher.

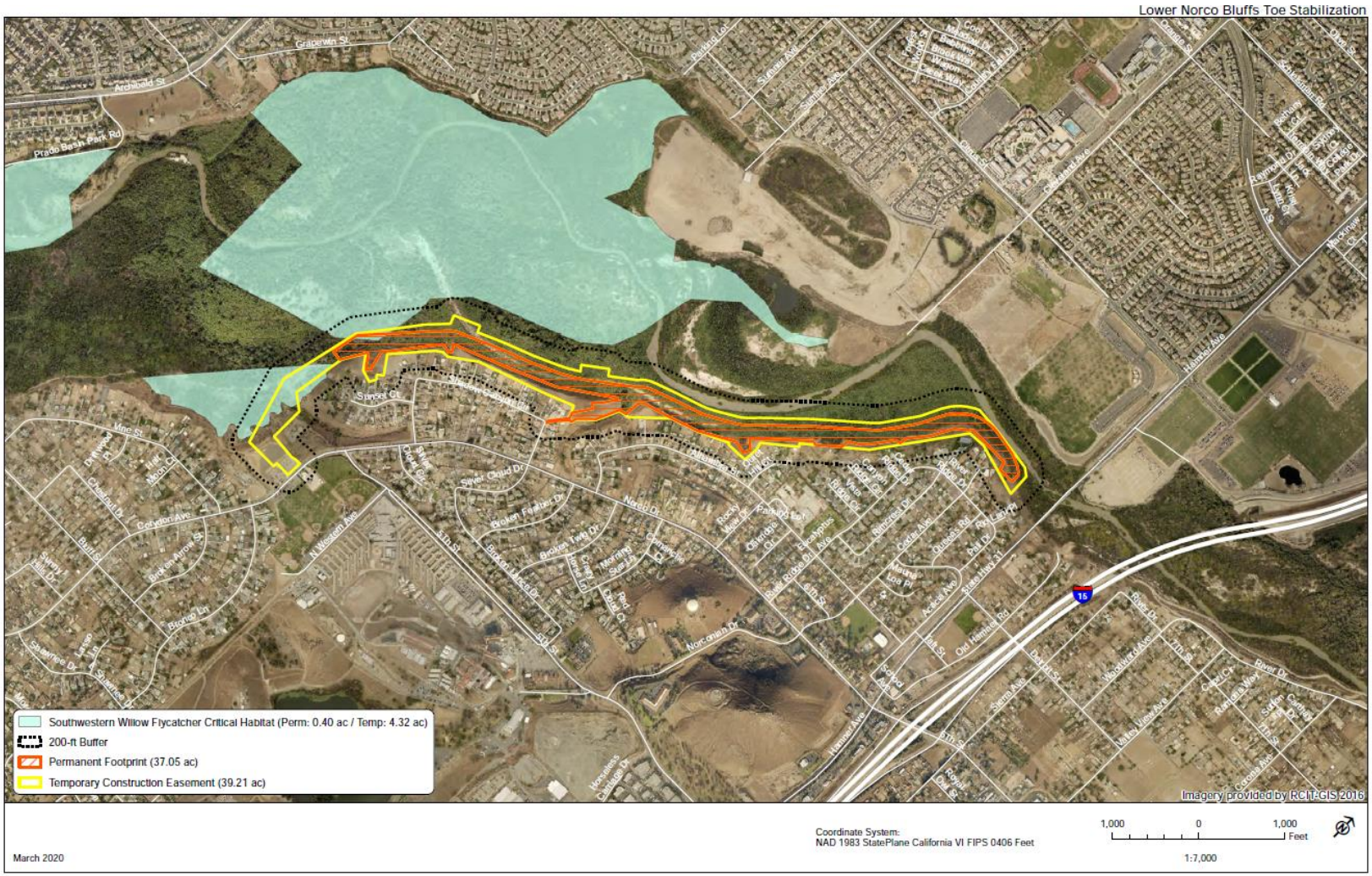

Figure 4.4-5 Southwestern Willow Flycatcher Critical Habitat

Other Special-Status Birds

The Proposed Action would temporarily and permanently impact riparian and upland habitat, as detailed in previous sections. Based on recent surveys, vegetation removal would have the potential to impact breeding and foraging habitat for special-status bird species, including burrowing owl, turkey vulture, downy woodpecker, Cooper's hawk, double crested cormorant, white-tailed kite, northern harrier and great egret.

Burrowing owl is known to occupy a burrow within 300 feet of the borrow site, however the individual has not been disturbed or displaced by previous and ongoing construction activities at the borrow site. Yellow warbler has not been detected during surveys, but habitat for nesting and foraging is present with the project area. Cooper's hawk foraging and nesting habitat is present within and adjacent to the project area and was observed during surveys.

Measures described previously for listed species would also benefit these special-status species. Measures include scheduling vegetation removal activities outside of the nesting bird season, implementing biological monitoring, and requiring construction workers to take an environmental training. Construction noise and increased human presence could potentially deter these species, but the wide floodplain available near the project area and open space surrounding the borrow area would allow these species to avoid these areas and utilize existing resources nearby. Therefore, potential effects to other special-status species are expected to be less than significant.

Special-Status Mammals

No bat surveys have been conducted for the project, however three special-status bat species have potential to occur within the project area, according to database searches and anecdotal evidence. These species include western yellow bat, western mastiff bat and pocketed-free tailed bat. California western mastiff bat have been observed in the project vicinity and may forage and roost in the proposed project vicinity since there is roosting habitat available. Suitable habitat for western yellow bat and pocketed-free tailed bat exists within the project vicinity. Pocketed free-tailed bats are less likely to occur in the project vicinity compared to the other two species because habitat suitability is relatively low.

Bats are known to roost within Hamner Street Bridge and forage over the Santa Ana River. The bridge is approximately 450 feet from the project TCE. Construction hours for the Proposed Action would avoid most night work. However, unique factors at the time of the project could change that proposal. Noise and vibration can negatively affect bats by impairing their ability to forage or roost comfortably. Additionally, increased human presence and fugitive dust emissions could potentially degrade habitat quality. BMPs would be implemented to reduce the presence of fugitive dust, and construction of sound walls would reduce direct sight of human presence from outside of the TCE.

Due to the distance of the project area from the Hamner Bridge and the breadth of the riparian habitat available outside of the project, bats would be able to forage in other areas of the floodplain. Loss of potential roosting habitat due to removal of trees within the project area as the potential to impact individuals. However, potential effects would likely be small and would not adversely affect the bat populations in the region. Other mammals covered in the Western Riverside MSHCP would be deterred from entering the site by fencing or sound wall installation. Only a small portion of the vast floodplain occurring within the project vicinity would be temporarily unavailable during project construction.

Measures to minimize and avoid impacts to special status mammals would include environmental training for crewmembers, pre-construction surveys for sensitive species, biological monitoring during construction, and development and implementation of a lighting plan to reduce potential effects to residents and wildlife. Considering the discussion above, potential effects to special-status mammal species are expected to be less than significant.

Wildlife Movement

As discussed in the 2001 SEIS/EIR, any construction activities within the Santa Ana River watershed that may impede wildlife movement have the potential to impose significant impacts. The Santa Ana River watershed has significant ecological importance for wildlife using the area and provides a transition between fragmented habitats in the region. Past SARM features, such as Prado Dam, State Routes 91 and 71, and Highway 15 have been implemented and consider regional wildlife movement in their design. Additional follow up studies are currently underway to evaluate wildlife movement with projects implemented. The 2001 SEIS/EIR indicated the proposed flood control improvements along Norco Bluffs would contribute little, if any, long-term effects to wildlife movement through the region. The Proposed Action would be a linear feature constructed roughly parallel to the south bank of the Santa Ana River and along the toe of the bluff. It is not anticipated to cause a physical impediment to or block any known movement pathways. As the permanent project footprint ranges between 20-40 feet wide in a floodplain averaging 990 feet wide, the project would not constrict wildlife movement. Furthermore, implementation of avoidance/minimization and offsetting measures developed as part of the Proposed Action would ensure that impacts to wildlife movement corridors and habitat linkages in the project area would not result in significant impacts to wildlife movement. Lighting plans would be developed to avoid impacts to residents and wildlife, if night work is required. Additionally, design of the sound walls would consider wildlife movement and include strategically placed openings to avoid impeding movement. Therefore, potential effects to wildlife movement are considered less than significant.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Most inspections and minor repairs would be confined to paved maintenance and access roads. Therefore, trampling of vegetation by vehicular or foot traffic would be minimized and are not significant. During major flood events, future maintenance activities may require access to the toe of the slope. This circumstance would occur if there is major flood-related damage to the launchable rock that maintains the structure of the embankment. Impacts would be analyzed at the time of the repairs since such repairs would be impossible to predict at this time, and the work needed would depend on the extent of repairs required. It is expected that there would be temporary impacts to riparian vegetation and wildlife if large construction equipment needs to access the floodplain. These events are expected to occur infrequently, and measures would be implemented to minimize impacts to biological resources.

Future maintenance activities may also require removal of vegetation and debris from the embankment, and associated features, to ensure proper function of the feature. Vegetation removal and herbicide application would be conducted at the minimum amount to avoid over-application and minimize impacts to native vegetation. The amount of vegetation removed would be nominal since maintenance would occur at an interval that would prevent habitat for wildlife to establish. Additionally, vegetation would be

removed outside of nesting season to avoid impacts to wildlife, including sensitive species. Under routine maintenance activities, there would be no removal of riparian vegetation required in the floodplain.

Periodic movement of people, vehicles and potentially equipment onsite can introduce the risk of nonnative and invasive plant establishment and eventual degradation of native habitat. Exotic seeds can be transported by vehicles, equipment and on persons. While there is potential for limited exotic seed to be brought onsite and establish within the project area or move into the floodplain, BMPs would be implemented to limit the spread of nonnative seed. BMPs could include checking clothing, vehicles, and equipment before leaving the project area. Therefore, with the limited need for normal O&M activities no adverse effects are expected to occur.

O&M activities would not adversely affect nesting birds. Activities that could take place during nesting bird season are inspections of the embankment structure, minor repairs and vegetation removal from the structure. None of these routine activities are expected to impact nesting bird habitat, and human presence will be minimal compared to existing recreational use within the area.

4.4.2.2 *No Action Alternative (Previously Approved Design)*

Under the Previously Approved Design, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as described in the 2001 SEIS/EIR. Effects of the Previously Approved Design were analyzed and disclosed in the 2001 SEIS/EIR. Potential effects to biological resources included short-term construction impacts and long-term operational impacts. Mitigation measures were proposed to compensate for potential significant effects to wildlife species and movement. Therefore, potential effects to biological resources were considered less than significant.

4.4.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action, including future maintenance, would include design aspects and implementation of BMPs and measures that would address potential effects related to temporary habitat loss, excessive noise, increased human presence, fugitive dust emissions, and habitat movement. Permanent and temporary impacts to habitat would be mitigated as described above in **Table 4-9**. Habitats disturbed within the TCE would be revegetated with native vegetation and maintained to ensure no net loss of habitat value, or sensitive biological habitat. The Proposed Action would not result in a substantial loss to the population of any native fish, wildlife, or vegetation, wildlife movement or in overall diversity of the ecosystem. Therefore, potential effects to biological resources is considered to be less than significant.

4.5 CULTURAL RESOURCES

The affected environment for cultural resources is presented in Section 3.5 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to cultural resources: increased area of the TCE. For the purposes of the SEA an EIR Addendum, analysis of potential cultural resources impacts associated with project modification under the Proposed Action is provided below.

Under NEPA, significance is determined based on 'context' and 'intensity'. For cultural resources, context is often viewed in terms of how important the resource may or may not be, while intensity is viewed in terms of the severity of the impacts to the resource. While cultural resources that are not eligible for the National Register are still considered as part of the NEPA review, once that resource fails to meet the criteria for eligibility for inclusion on the National Register its 'context' is found to be lacking. The phrase "adverse effect" (NHPA) and "significant impact" (used in NEPA) are not equivalent terms but are similar in concept. Under the NHPA, impacts to cultural resources are typically examined in terms of how the project would affect the characteristics that make the property eligible for the National Register. Such impacts are referred to as adverse effects in the NHPA's implementing regulations (36 CFR 800.5).

4.5.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative (or "undertaking") would result in:

- A substantial adverse effect to a historic property such that the implementation of the alternative would result in the destruction of a historic property or the loss of a property's listing in or eligibility for listing in the National Register of Historic Places

4.5.2 ENVIRONMENTAL CONSEQUENCES

4.5.2.1 *Proposed Action*

During Construction

No historic properties are located with the APE. Subsequently, the proposed action would not result in the destruction of, or substantial adverse effect to, a historic property and would be less than significant under NEPA. .

Post-construction

Any potential effects to historic properties post-construction would be related to future operations and maintenance. See section below.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Since there are no historic properties located with the APE, future operations and maintenance would not significantly impact cultural resources.

4.5.2.2 *No Action Alternative (Previously Approved Design)*

Under the No Action Alternative, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as previously approved. Impacts due to this alternative would be the same as described in the 2001 Final SEIS/EIR. As with the proposed project,

construction of this alternative would not affect historic properties and would be less than significant under NEPA.

4.5.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

No historic properties are located with the APE. The Proposed Action would not result in the destruction of a historic property or the loss of a property's listing in or eligibility for listing in the National Register of Historic Places.; Effects on cultural resources would be less than significant.

4.6 LAND USE

The affected environment for land use is presented in Section 3.6 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved. According to the Land Use Element of the City of Norco General Plan, on-site and adjacent land uses designations include passive open space, parks for recreation, agricultural estates, and single-family residences.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to land use: expansion of the TCE in the southern portion of the project and relocation of the construction staging area. For the purposes of the SEA an EIR Addendum, analysis of potential land use impacts associated with project modification under the Proposed Action is provided below.

4.6.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative is:

- Incompatible with existing land uses; or
- Conflict with applicable plans or policies

4.6.2 ENVIRONMENTAL CONSEQUENCES

4.6.2.1 *Proposed Action Alternative*

<u>During Construction</u>

Under the Proposed Action Alternative, construction activities would predominately occur in the Open Space land use zone, which is characterized as lands for the preservation of resources, which possess significant natural value. Construction activities may temporarily affect natural resources, as described in earlier sections, however BMPs and minimization measures would be implemented to avoid or minimize impacts (See Section 4.4 Biological Resources).

Additionally, approximately half of the overflow parking lot for the Wayne-Makin Shearer Sports Complex will be temporarily closed for use as a construction staging area. Reduction of parking availability may impact the parks for recreation land use, however impacts will be temporary and will only occur for the duration of construction (currently estimated for two years). The Corps will also coordinate with the City of Norco to ensure appropriate signage is posted to designate construction-use areas, and other parking

opportunities will be communicated to the public by the City of Norco.

Post-Construction

The Proposed Action would not result in permanent incompatibilities with the aforementioned land uses and would not prevent existing on-site land uses (riparian areas and open green space) from continuing in essentially the same manner. Additionally, the purpose of the Proposed Action is to provide bluff toe stabilization to the City of Norco, which would benefit the residents adjacent to the Norco Bluffs; therefore, the Proposed Action would be beneficial for the other surrounding land uses, including residential development. Implementation of the Proposed Action would be consistent with the goals and objectives of the Land Use Element because the land uses allowed within the General Plan designations would be able to continue after the implementation of this alternative.

To avoid or minimize impacts to species covered under the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP), a series of measures from the 2001 SEIS/EIR and environmental commitments developed for this document would be implemented during and after construction. Refer to Section 4.4 (Biological Resources) for additional details.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Future maintenance activities would not be incompatible with existing on-site or surrounding land uses.

4.6.2.2 *No Action Alternative (Previously Approved Design)*

Under the Previously Approved Design, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as described in the 2001 SEIS/EIR. Construction of this alternative would not be inconsistent with local plans and policies. Therefore, potential effects to land use were considered to be less than significant.

4.6.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would result in short-term impacts to open space and associated biological resources, however BMPs and measures would be implemented to avoid or reduce potential effects (See Section 4.4 Biological Resources). The Proposed Action would not fundamentally alter existing on-site land uses, including riparian areas, open green space, and recreation. Stabilization of the bluff toe could benefit residents on Norco Bluffs by reducing erosion of the bluff and reducing the risk of property loss through acquisition. The Proposed Action would allow for land uses to continue operating in essentially the same manner. Therefore, potential effects on land use are considered less than significant.

4.7 AESTHETICS

The affected environment for aesthetics is presented in Section 3.7 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

The project area contains a variety of views and perspectives, which reflect the diversity of land uses found from the recreation and open space of the Santa Ana River floodplain north of the project site and single family residential development located south, east, and west of the site. Approximate size and configuration of the Proposed Action would be consistent with the Previously Approved Design.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to aesthetics: expansion of the TCE in the southern portion of the project and relocation of the construction staging area. For the purposes of the SEA an EIR Addendum, analysis of potential aesthetics impacts associated with project modification under the Proposed Action is provided below.

4.7.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative results in:

- a substantial adverse effect on a scenic vista;
- substantial degradation of the existing visual character or quality of the site and its surroundings;
- a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.7.2 ENVIRONMENTAL CONSEQUENCES

4.7.2.1 *Proposed Action Alternative*

<u>During Construction</u>

Under the Proposed Action Alternative, development of the project would be visible during the construction. Construction activities and facilities would include construction of the embankment (approximately 1.5 miles in length), one temporary construction ramp and access road, and one permanent project access road; and a borrow area and approximate 6-mile haul route located west of the proposed project site. The staging area would be located adjacent to Corydon Avenue, west of the Wayne-Makin Shearer sports complex, south and east of the open space, and single residences north and south of the area. Therefore, construction activities would be visible to recreationalists, pedestrians, and homeowners. However, given that construction activities are temporary, these impacts would be considered less than significant.

Artificial light may be necessary, rarely, during the construction period since the proposed construction hours would be 7:00 a.m. to 6:00 p.m. Monday through Friday. In addition, the proposed project site is immediately surrounded by open space and at the toe of the bluff, within the Santa Ana River floodplain. The closest residential area to the project area are the residences located along Shadow Canyon Circle. Residents would be located adjacent to the TCE and construction of the permanent project access road. If lighting is required in this area during construction, a Lighting Plan would be developed, and lights would be strategically placed to minimally impact surrounding residents. Therefore, any impacts associated with light and glare would be temporary, and impacts would be considered less than significant.

<u>Post-Construction</u>

The Proposed Action would not permanently impinge on a scenic vista or degrade the visual character of the site since the proposed project site consists of the borderland between open space and residential development and lies within the Santa Ana River floodplain. Most views of the project site are currently limited because of its location at the bluff toe, but viewers may observe undeveloped riparian habitat from the Corydon Equestrian Staging Area and residential developments. This view would not be blocked by the Proposed Action, since most vista points are from on top of the bluff and the structure runs along the toe of the bluff. In addition, the site of the Proposed Action has limited viewing opportunities for local residential communities. As such, although development of the Proposed Action would permanently change the conditions or views of the project site from the existing conditions, the Proposed Action would not substantially degrade the existing visual character or quality of the site and its surroundings. Impacts would be considered less than significant.

The closest officially designated State scenic highway is Route 91 from Route 55 to the east end of the City of Anaheim, which is approximately fourteen miles southwest of the project site. Therefore, the proposed project would not result in impacts on a State scenic highway or other scenic roadway.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Future maintenance activities would not alter aesthetics.

4.7.2.2 *No Action Alternative (Previously Approved Design)*

Under the No Action Alternative, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as previously approved. Impacts due to this alternative would be the same as described in the 2001 Final SEIS/EIR. Implementation of the alternative would result in physical alteration of the bluffs and could be viewed by a limited number of residents on the south side of the river channel and from distant views along the north side of the river channel However, no long-term significant changes to the overall (foreground, middle ground, and background) view would occur on the south side of the river channel because the view at the bottom and along the bluff slope is a nominal portion of the panoramic view from these residences. Due to the distance, views from the north side of the river channel would be minimal. As a result, impacts were considered less than significant.

4.7.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would alter visual character during construction and a permanent structure would be introduced along the bluffs. However, construction would be temporary, and the permanent structure would not degrade the existing visual character or quality of the site given the location of the embankment below the bluff and the location and distance of vista points. During construction, a new source of light could be introduced since construction work hours occur from 7:00 a.m. to 6:00 p.m., however the occurrences would be temporary and infrequent. The contractor would also be required to submit a lighting plan, which would outline lighting locations strategically chosen to minimize impacts to surrounding residences. Therefore, potential effects to aesthetics are considered less than significant.

4.8 RECREATION

The affected environment for recreation is presented in Section 3.8 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved. Approximate size and configuration of the Proposed Action would be consistent with the Previously Approved Design.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to recreation: expansion of the TCE in the southern portion of the project and relocation of the construction staging area. For the purposes of the SEA an EIR Addendum, analysis of potential recreation impacts associated with project modification under the Proposed Action is provided below.

4.8.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative results in:

- increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; and/or
  a substantial or permanent decrease in existing use, quality, or availability of recreational areas

4.8.2 ENVIRONMENTAL CONSEQUENCES

4.8.2.1 *Proposed Action Alternative*

During Construction

As described in Section 3.8, a variety of parks and recreational facilities are located in the vicinity (within 2 miles) of the Lower Norco Bluffs Project. Part of the Corydon Equestrian Staging Area would be located within the temporary work limits of the Proposed Action and approximately half of the area is proposed as a staging area for construction. This would temporarily limit the area for equestrian staging and overflow parking for the adjacent Wayne-Makin Shearer Sports Complex. The Proposed Action would not introduce new recreation impacts to the majority of parks and recreation facilities in the project vicinity.

Similar to the effects described for the Previously Approved Design, the Proposed Action would temporarily preclude access to equestrian and pedestrian trails located along Alhambra Street and Shadow Canyon Circle (on top of the Norco Bluffs) and the informal trails occurring within the Santa Ana River floodplain. The Corps would coordinate with the City of Norco to ensure the appropriate signage is displayed to notify the public of temporary trail closures. The temporary closure of trail access along Alhambra Street, Shadow Canyon Circle, and within the Santa Ana River floodplain would be unavoidable, under the Proposed Action, due to safety reasons. However, it would not be considered significant considering the large number of alternative trail access options available. The Corps would coordinate with the City of Norco to post appropriate signage to indicate the temporary closure of trail access located along the top of Norco Bluffs.

The Proposed Action would also reduce parking availability to the westernmost sports field in the Wayne-Makin Shearer Sports Complex. Temporary, alternative parking areas will be coordinated with the City of Norco to accommodate users of the sports complex. The temporary reduction of parking availability in

the Corydon Equestrian Staging area and overflow parking would be unavoidable under the Proposed Action. However, this would not be considered significant due to the remaining space available for parking and additional parking options coordinated through the City of Norco. In order to facilitate City of Norco's preparation for construction activities and resulting impacts to the park, including recreational facilities, Environmental Commitment EC-LU-1, described above in Section 4.6 (Land Use) has been updated from the 2001 Final SEIS/EIR and would be incorporated into coordination efforts. EC-LU-1 requires coordination with the City of Norco's Parks, Recreation, and Community Services Department prior to and during construction within the Lower Norco Bluffs Project area, including Corydon Equestrian Staging Area. Coordination would include, at a minimum, dates and duration of construction, future maintenance activities and procedures for notifying the city of such, etc.

Since the remaining portion of parking and the park itself would remain as is, with no loss of functionality, the Proposed Action would allow for recreation to continue in essentially the same manner. Therefore, there would be no increase in demand at other facilities such that there would be substantial physical or accelerated deterioration of the facility.

Post-Construction

Once constructed, the Proposed Action would require the permanent closure of some existing trail access points located along Alhambra Street. However, access along Shadow Canyon Circle will be available for continued use, and other access points along Corydon Avenue will remain intact (**Figure 4.8-1**). The Proposed Action would not affect any other recreational activities, including sports-related recreational activities.

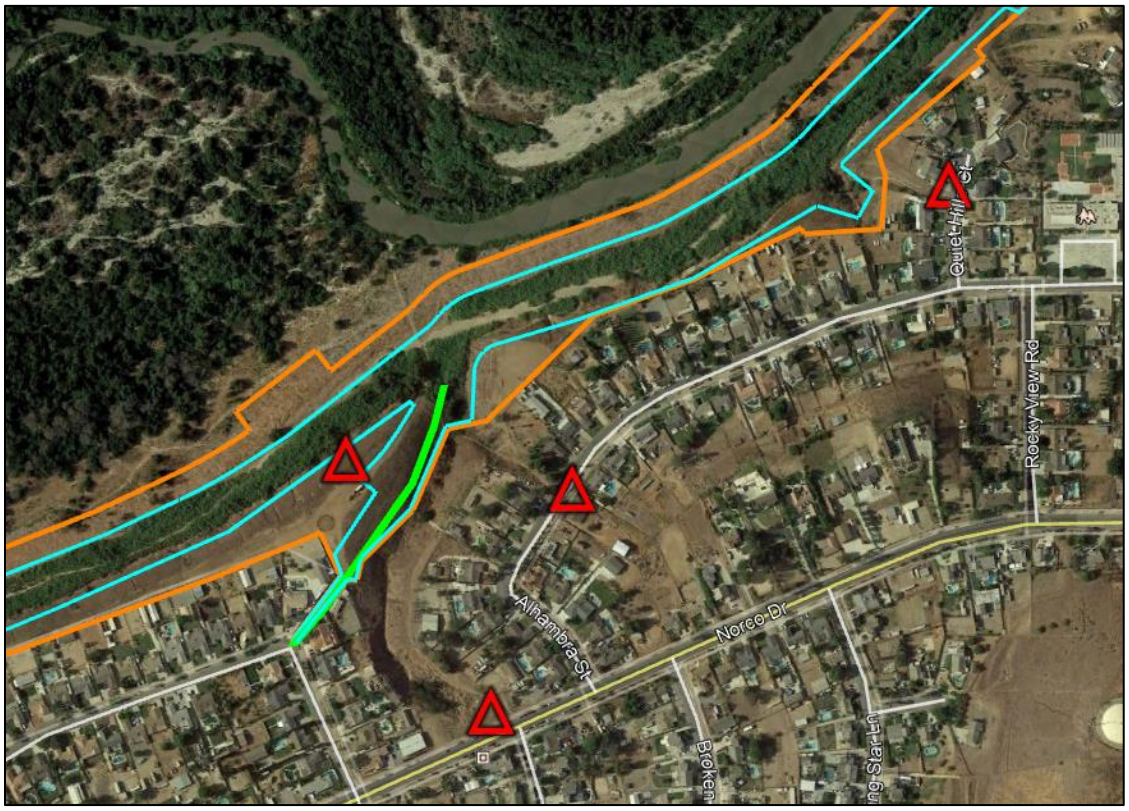

Figure 4.8-1. Locations of permanent trail access closures post-construction. Red triangles indicate permanent access closures. The orange line represents the construction boundary, the blue line represents the permanent embankment feature, and the green line represents the access maintained off of Shadow Canyon Circle.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Maintenance activities would be limited to the project site and would not interfere with any adjacent recreational activities, with the exception of those requiring access at Shadow Canyon Circle. For safety reasons, equestrian or pedestrian access would be temporarily unavailable at this location during maintenance activities. Because closures would be temporary and alternative access points are available throughout the project area, future maintenance activities would not significantly impact recreation.

4.8.2.2 *No Action Alternative (Previously Approved Design)*

Under the No Action Alternative, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as previously approved. Impacts due to this alternative would be the same as described in the 2001 Final SEIS/EIR. As with the proposed project, construction of this alternative would not significantly impact recreation.

4.8.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would cause closures of some recreational access for equestrians and pedestrians during construction and maintenance activities. The Proposed Action would also cause permanent trail access closures along Alhambra Street. However, closures during construction and maintenance activities would be temporary and the permanent closures along Alhambra Street would be nominal compared to the large number of alternative access points available for recreational use. Alternative trail access points would still offer the same recreational experience regarding quality and use. Because use of recreational facilities would remain unchanged, there would be no increase in demand at other facilities such that there would be substantial physical or accelerated deterioration of the facility. During construction some parking would be made unavailable in the Corydon Staging area and overflow parking lot. However, impacts would be temporary, and some parking would still be available for use. Coordination would occur with the City of Norco to mitigate potential effects related to construction activities and impacts to parking availability. Therefore, potential effects to recreation are considered less than significant.

4.9 NOISE

The affected environment for noise is presented in Section 3.9 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to noise: expansion of the TCE in the southern portion of the project and relocation of the construction staging area. For the purposes of the SEA an EIR Addendum, analysis of potential noise impacts associated with project modification under the Proposed Action is provided below.

The 2015 Riverside County General Plan includes the following applicable noise policies (Riverside County 2015):

- Noise Element Policy N.12.1. Minimize the impacts of construction noise on adjacent uses within acceptable practices.
- Noise Element Policy N.12.2. Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.
- Noise Element Policy N.12.4. Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

Riverside County Municipal Code

The Riverside County Municipal Code Chapter 9.52 (Noise Ordinance 847 § 2, 2006) specifies sound level standards by land use type. Per Article 9.52.020 (Exemptions), noise from construction within one-quarter of a mile of an occupied residence is exempt from these standards if it occurs between the hours of 6:00 a.m. and 6:00 p.m. (June through September) or between the hours of 7:00 a.m. and 6:00 p.m. (October through May).

The 2003 City of Norco General Plan includes the following applicable noise policies (City of Norco 2003):

City of Norco Municipal Code

The City's noise ordinance (Chapter 9.07 Noise Regulations, of the City's Municipal Code) sets forth regulations concerning the generation and control of noise. The following sections of the Municipal Code are applicable to the proposed project.

*15.30.020 Hours of Construction Activity***.** Construction activity, including equipment start-up and use, and the loading, unloading and handling of materials, shall not commence before 6:30 a.m., or continue beyond 7:00 p.m., on weekdays.

4.9.1 SIGNIFICANCE THRESHOLD

According to the ordinances outlined above, construction would need to occur between 7:00 a.m. and 6:00 p.m. on weekdays to remain in compliance with both county and city ordinances. Otherwise, a variance or exemption would need to be obtained. The project will assume the most restrictive ordinance, of applicable city and county ordinances, to remain within compliance of both county and city policies. Impacts would be considered significant if the alternative results in:

- conducting construction outside of allowable hours per County and City ordinances without obtaining a variance or exemption.

4.9.2 ENVIRONMENTAL CONSEQUENCES

4.9.2.1 *Proposed Action Alternative*

<u>During Construction</u>

As discussed in Section 2.0 (Proposed Action and Alternatives), construction of the Proposed Action is scheduled to commence in June 2021 and last approximately three years, ending in Summer 2024, including a one-year restoration and maintenance period. It is possible that the Proposed Action would be built in stages, with multiple start dates and construction periods for various sections of the project depending on land acquisition schedule, environmental windows and weather delays. Construction phasing may result in an extension of the overall project duration beyond Fall 2022. Construction of the Proposed Action will require approximately 110 combined average daily haul trips for fill material which will be hauled from a borrow site located 3 miles west of the Lower Norco Bluffs Project area (refer to **Figure 2.3-11**) and for rip rap from a local quarry. Construction vehicles would access the site from Corydon Avenue or Shadow Canyon Circle. These trips would result in only short-term periodic increases in noise levels during normal construction hours.

The nearest sensitive receptor to the Proposed Action site are the residences located along Norco Bluffs, adjacent to the project area. The closes resident to the TCE would be located off of Shadow Canyon Circle, adjacent to the construction access road.

As long as construction activities occur during 7:00 a.m. to 6:00 p.m., Monday through Friday, which are the exempted time periods per County of Riverside Municipal Code and City of Norco Municipal Code, the proposed construction would be in compliance with local (city and county) noise ordinances; any changes

to that schedule, including occasional overtime work, would require obtaining a variance from local authorities. The project will assume the most restrictive ordinance, of applicable city and county ordinances, to remain within compliance of both county and city policies. Therefore, less than significant impacts would occur from construction equipment noise generated during construction of the Proposed Action.

While local ordinances do not limit the decibel level of construction that occurs during authorized time periods, information on anticipated noise levels that could be experienced by nearby residents, recreationists and wildlife in the vicinity is provided as follows. Noise levels for typical pieces of construction equipment that may be utilized for this project (at 50 feet) are listed in **Table 4-10**.

Table 4-10 Typical Noise Levels for Construction Equipment

Equipment	dBA at 50 Feet
Skid Steer	80
Shovel	82
Compactors	82
Concrete Pumps, Mixers, Batch Plants	82-85
Cranes (movable)	83
Dozers	85
Front End Loader	75-96
Graders, Scrapers	85-89
Trucks	88
Rock Drills	98

Source: FHWA Construction Noise Handbook, 2006

Noise from construction equipment attenuates over distance because of spreading losses, absorption of the intervening terrain, and reflection off any intervening walls or berms. Spreading losses account for an attenuation factor of 6 dBA per doubling of distance. For "line- of-sight" noise in the absence of any intervening terrain, an estimated average peak 92 dBA level is projected at 50 ft. and would be reduced to 86 dBA at 100 ft., 80 dBA at 200 ft., 74 dBA at 400 ft., etc. This assumption is utilized for evaluating stationary construction noise associated with construction of the Lower Norco Bluffs Project. Construction activities typically generate noise at a short-term rate throughout the workday and do not result in long-term, steady noise generation.

Post-Construction

This project is not creating or establishing a new, permanent source of noise. Any noise impacts occurring after construction would be related to future maintenance activities. See section below.

Future Operation and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is

completed (see Section 2.4 for a detailed list of future maintenance activities). Maintenance operations and repairs would require temporary access to the embankment and may involve on-site activities that generate noise. Routine and special inspection and patrol with pickup trucks and sport utility vehicles may occur up to daily during the flood season and up to weekly during the non-flood season. Additionally, mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones to protect and reinforce the constructed embankment, as necessary during flood fight activities, are part of future maintenance activities. Similar to construction of the Proposed Action, these activities could result in temporary, short-term periodic noise from construction equipment use. Duration of these activities would be 7:00 a.m. to 6:00 p.m., Monday through Friday, with the exception of emergency repairs or flood fighting activities that are required to protect life and property. Due to the short-term nature of maintenance and repair activities, and due to construction activities being exempt if conducted within the indicated time periods, potential effects of future maintenance activities on noise are considered less than significant.

4.9.2.2 *No Action Alternative (Previously Approved Design)*

Under the No Action Alternative, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as previously approved. Impacts due to this alternative would be the same as described in the 2001 Final SEIS/EIR and similar to the Proposed Action. As with the Proposed Action, construction and maintenance of this alternative would not significantly impact noise.

4.9.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Actin would not conduct construction outside of allowable hours per county and city noise ordinances without obtaining a variance or exemption. Therefore, potential effects on noise are considered less than significant

4.10 SOCIOECONOMICS

The affected environment for socioeconomics is presented in Section 3.10 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to socioeconomics: expansion of the TCE in the southern portion of the project. For the purposes of the SEA an EIR Addendum, analysis of potential noise impacts associated with project modification under the Proposed Action is provided below.

The significance of population and expenditure impacts are assessed in terms of their direct effect on the local economy and related effect on other socioeconomic resources (e.g., housing).

4.10.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative results in:

- substantial shifts in population trends or adversely affect regional spending and earning patterns

4.10.2 ENVIRONMENTAL CONSEQUENCES

4.10.2.1 *Proposed Action Alternative*

During Construction

Construction of the Lower Norco Bluffs Project under the Proposed Action would be short-term and would not attract a long-term worker population to the project area. The majority of the construction-related jobs are expected to be filled by both currently employed and unemployed labor force participants from the surrounding area, and construction of the proposed project would not increase the region's population. Implementation of the Proposed Action would neither place a demand on employment opportunities or housing, nor would it create significant new employment opportunities or housing in the region. In addition, minority or low-income communities would not be disproportionately affected by implementation of the proposed project. Local populations would directly benefit from construction of the Lower Norco Bluffs Project through the provision of bluff toe protection. The Proposed Action would have no adverse impact to socioeconomics.

Post-Construction

Any socioeconomics impacts occurring after construction would be related to future maintenance activities. See section below.

Future Operations and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Future maintenance activities would not have the potential to result in substantial shifts in population trends; adversely affect regional spending and earning patterns; or introduce overwhelming demand for public services or utilities. Therefore, no socioeconomic impacts would occur as a result of future maintenance.

4.10.2.2 *No Action Alternative (Previously Approved Design)*

Under the Previously Approved Design, project modifications included under the Proposed Action would not be implemented, and the project would be constructed as described in the 2001 SEIS/EIR. In the 2001 SEIS/EIR, socioeconomic effects were described in the context of an environmental justice analysis. Much of the information described in this section is similar to information provided in the analysis. Potential effects to socioeconomics would be similar to those described for the Proposed Action, and construction of this alternative would result in socioeconomic impacts that are considered less than significant.

4.10.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would not cause substantial shifts in population trends or adversely affect regional spending and earning pattern. The majority of the construction-related jobs are expected to be filled by labor force participants from the surrounding area, which would not create demand on employment opportunities or housing. Additionally, minority or low-income communities would not be

disproportionately affected by implementation of the proposed project. Local populations would directly benefit from construction of the Lower Norco Bluffs Project through the provision of bluff toe protection. Therefore, the Proposed Action would have no adverse impact to socioeconomics.

4.11 PUBLIC SERVICES AND UTILITIES

The affected environment for public services and utilities is presented in Section 3.11 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to public services and utilities: expansion of the TCE in the southern portion of the project. For the purposes of the SEA an EIR Addendum, analysis of potential public services and utilities impacts associated with project modification under the Proposed Action is provided below.

4.11.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative results in:

- an increase to the size of the population and geographic area served, the number and type of calls for service, physical development, or an increase in demand for service that could result in capacity constraints to existing public service and utilities providers.
- existing utility systems adversely affected by the proposed embankment construction activities, without equitable replacement, protection, or relocation.

4.11.2 ENVIRONMENTAL CONSEQUENCES

4.11.2.1 *Proposed Action Alternative*

During Construction

Construction activities could result in a temporary increase in the potential of safety and health hazards, which could increase the need for police and/or fire services due to accidents caused by construction personnel or equipment. To avoid and minimize potential risks associated with safety and health hazards, the contractor would be required to comply with safety and health standards as outlined in Engineering Manual 385-1-1, which describes stringent safety and occupational health standards required by all Corps activities and operations. As a standard Corps practice to alleviate fire hazards, a water truck is always present during construction activities. Implementation of BMPs to reduce the risk of hazards could include development of an accident prevention plan, identification of a site safety and health officer, and regular work-site safety inspections. Additionally, although the Proposed Action could have the potential to result in a temporary increase in police and fire service calls, this increase would be short-term and would not result in a significant permanent demand on fire or police facilities serving the proposed project area.

The Proposed Action would also not create added pressures on the public service system. As described in the Socioeconomics section (section 4.10), a majority of the construction-related jobs are expected to be filled by both currently employed and unemployed labor force participants from the surrounding area,

and construction of the proposed project would not increase the region's population.

The Proposed Action would also not substantially impact water supply. Water would be required for dust abatement, cleaning of construction equipment, and irrigation for vegetation activities. The amount of water required would depend on the length of access roads, weather conditions, road surface conditions, and other site-specific conditions. However, water use for the Proposed Action would not affect availability of water for the local population or other needs of the City of Norco.

The Proposed Action would not substantially change any wastewater impacts compared to the Previously Approved design. Wastewater generated during construction would be limited to that generated by project personnel and would be accommodated by portable toilets brought to staging areas for construction crews. These portable toilets would be emptied into septic tanks or municipal sewage systems. Because this increase would be short-term and temporary, wastewater generated during project construction is not expected to significantly impact the capacity of the City of Norco in providing wastewater services to the project area.

The Proposed Action would not substantially change any solid waste impacts compared to the Previously Approved Design. Organic materials, trees, shrubs, and abandoned timber structures, would be disposed of by hauling to a commercial site. Topsoil containing organic material would not be disposed of at a commercial site, but would be stockpiled and spread on embankment slopes or borrow areas as a part of site restoration. Disposal of these materials by burning or burying at the proposed project site would not be permitted. Inorganic materials would include, but are not limited to, broken concrete, rubble, asphaltic concrete, metal, and other types of construction materials. Where possible, soil from excavation would be screened and separated for use as backfill materials at the site of origin to the maximum extent possible. Spoils unsuitable for backfill use would be disposed of at appropriate disposal sites. As identified in **Table 3-10**, the project area is served by the El Sobrante Landfill. Because the exact amount of material recycling is unknown, the total amount of waste requiring landfill disposal is unknown. Recycling activities would greatly reduce the quantity of construction-related materials transported to local landfills. It is assumed that the amount of construction waste would be a small percentage of the maximum daily throughput for El Sobrante. Therefore, construction waste generated by the proposed project would not substantially affect the remaining capacities of local landfills to serve local demands.

A number of utilities currently exist within the Proposed Action TCE, and some will require protection or relocation (new locations are currently unknown) due to the proposed project. **Figure 2.3-12** shows known utilities located in the project TCE. These include:

- Southern California Edison conductors within the Corydon Staging Area and abandoned wastewater treatment plant
- Transmission gas lines and gas points along Corydon Avenue
- ATT Conduit within the wastewater treatment plant

The Corps will coordinate with the appropriate jurisdictions prior to and during construction to ensure that only temporary disruptions occur to the services provided by the utilities mentioned above. Currently, no known utility relocations are required at this time. If utility modifications are determined to be required, equitable, replacement, protection, or relocation would occur.

Post-Construction

Any public services and utilities impacts occurring after construction would be related to future maintenance activities. See section below.

Future Operation and Maintenance

Future maintenance of the Proposed Action Alternative would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). No new workers would be required for future maintenance. Therefore, operation and maintenance of the embankment would not generate any additional population that could exceed the capacity of local public service providers. Periodic maintenance, as well as required maintenance following flood and scour events, would require relatively small amounts of material and would typically occur for only short periods of time. Consequently, any increases in fire or police calls would be temporary and not substantially alter the level of service of these providers. Demands on utilities during maintenance would also be temporary and relatively minor. As such, future maintenance is not expected to result in any significant impacts to public services and utilities.

4.11.2.2 *No Action Alternative (Previously Approved Design)*

Under the Previously Approved Design Alternative, construction related impacts or temporary increases in public services or utilities demand would occur, similar to the Proposed Action. Potential impacts to public services, water, wastewater, and solid waste would be similar to the representative scenario provided above for the proposed project. Therefore, temporary construction public services and utilities impacts associated with the Previously Approved Design Alternative would not result in any significant impacts.

4.11.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would not result in any significant increase in demand for public services since the implementation of BMPs would reduce the risk of fire and safety hazards. Additionally, a majority of the construction-related jobs are expected to be filled by labor force participants from the surrounding area, which would not result in a substantial increase in the local population and increase public service needs. Wastewater and solid waste services would also not be significantly affected as wastewater generated during construction would be limited and as it is assumed that the amount of construction waste would be a small percentage of the maximum daily throughput for El Sobrante landfill. The Proposed Action does not currently anticipate the need to modify any existing utility structures in the project area. However, utility modifications are determined to be required, equitable, replacement, protection, or relocation would occur. Therefore, potential effects on public services and utilities are expected to be less than significant.

4.12 TRANSPORTATION

The affected environment for transportation is presented in Section 3.12 and does not include any substantially different conditions than were present when the Lower Norco Bluffs Project was previously approved.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved

Design and the Proposed Action, as relevant to transportation: modified composition of the embankment to include launchable rock instead of soil cement; filling of one side canyon and a system of v-ditches, catch basins, side drains, and culverts to assist drainage; relocation of the construction staging area; and the addition of a temporary access ramp at the southern end of the project. For the purposes of the SEA and EIR Addendum, analysis of potential earth resources impacts associated with project modification under the Proposed Action is provided below.

Applicable Regulations

California Department of Transportation

Caltrans has jurisdiction over State highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. The following Caltrans regulations apply to potential transportation and traffic impacts of the proposed project:

- Vehicle Code (CVC), division 15, chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.
- Street and Highway Code §§660-711, 670-695. Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of State and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

4.12.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative results in:

- an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

4.12.2 ENVIRONMENTAL CONSEQUENCES

4.12.2.1 *Proposed Action Alternative*

During Construction

The Proposed Action would result in temporary, short-term increases in local traffic as a result of construction-related vehicle trips. Specifically, construction of the Proposed Action will require approximately 110 combined average daily haul trips for fill material which will be hauled from a borrow site located 3 miles west of the Lower Norco Bluffs site (refer to **Figure 2.3-11**) and for rip rap material from a local quarry. Construction vehicles would access the site from Cucamonga Avenue, Pine Avenue, Archibiold Avenue, Limonite Avenue, I-15, Sixth Street, Hamner Avenue, Fifth Street, Shadow Canyon Circle and Corydon Avenue.

Based on the above, it is assumed construction-related traffic would be dispersed amongst SR-91 and I-15 for regional access to the Proposed Action area, and Cucamonga Avenue, Pine Avenue, Archibold Avenue, Limonite Avenue, Sixth Street, Hamner Avenue, Fifth Street, Shadow Canyon Circle and Corydon Avenue for

site access. Therefore, these roadways would likely experience the majority of Proposed Action related traffic. **Table 3-11** shows the most recently published annual average daily traffic (AADT) volumes on the segments of these roadways nearest the Proposed Action site. Given the high volume of existing traffic on these roadways (as shown in **Table 3-11**), the anticipated construction-related traffic of approximately 110 average daily trips would account for a minimal increase of existing average daily traffic volumes along utilized roadways. This short-term increase in daily traffic volumes is considered unlikely to exceed the capacity of these roadways or exceed any applicable Riverside County General Plan performance standard (refer to Section 3.12). Therefore, temporary construction related traffic impacts to the existing traffic load and capacity of the utilized roadway system would be less than significant.

During construction, the primary construction staging area for the Proposed Action would be located off of Corydon Avenue in the Corydon Equestrian Staging Area and overflow parking lot for the Wayne-Makin Shearer Sports Complex. The construction staging area is approximately 500 feet north of the nearest residential receptor (refer to **Figure 2.3-7**). In the event any oversize loads would occur during construction on public roadways, they must comply with Caltrans regulations regarding oversize load limits and permits. Additionally, all site access points will be clearly designated and would likely have controlled entrance, thus eliminating roadway hazards. Therefore, less than significant safety impacts would occur to local roadways during construction.

Post-Construction

The Proposed Action will be constructed along the Santa Ana River and would not introduce any new road hazards such as sharp curves or dangerous intersections. It is assumed that once the Proposed Action is operational, site access would be gate-controlled. See Future Operations and Maintenance section below for potential impacts to roadway capacity and traffic.

Future Operations and Maintenance

Future maintenance of the Proposed Action would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). Mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones to protect and reinforce the constructed embankment, as necessary during flood fight activities, are part of routine operation and maintenance. Number of vehicle trips required for stone replacement maintenance would be dependent on the amount of stone removed during a flood event. The replacement of stone is expected to occur infrequently, and more trips would likely be necessary during the winter months compared to the summer months. Similar to construction traffic, these trips would be dispersed amongst I-15 and SR-91 for regional access, and utilize Norco Drive, Corydon Avenue, and Shadow Canyon Circle to access the Lower Norco Bluffs project site. Any permanent increase in traffic would be infrequent and would account for a negligible increase to average daily trips along utilized roadways (per traffic volumes shown in **Table 3-11**). As discussed above, maintenance related traffic would account for a negligible increase of daily trips along utilized roadways (per traffic volumes shown in **Table 3-11**). Therefore, future maintenance activities would not have a significant effect on roadway capacity, traffic, or roadway hazards.

4.12.2.2 *No Action Alternative (Previously Approved Design)*

Under the Previously Approved Design Alternative, project modifications included under the Proposed Action would not be implemented, and the Lower Norco Bluffs Project would be constructed as previously

approved. Construction and maintenance of the Previously Approved Design Alternative is assumed to require the same or similar daily vehicle trips to that of the Proposed Action. Therefore, the analysis of construction related traffic generation would be similar or identical to that provided above for the Proposed Action. Less than significant impacts would occur from construction and maintenance vehicle trips of the Previously Approved Design Alternative. Similar to the Proposed Action, It is assumed that once the Previously Approved Design Alternative is operational, site access would be gate-controlled. Therefore, no traffic safety hazards impacts would occur from construction and operation of the Previously Approved Design Alternative.

4.12.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would account for a minimal increase of existing average daily traffic volumes along utilized roadways during construction. This short-term, minimal increase in daily traffic volumes is considered unlikely to exceed the capacity of these roadways or exceed any applicable county performance standards. Any increase in traffic volumes related to future maintenance would be dependent on the type of maintenance activity occurring but would likely be negligible and temporary. Therefore, potential effects to traffic are considered less than significant.

4.13 HAZARDOUS MATERIALS

The affected environment for hazardous materials is presented in Section 3.13. The previously identified construction staging area in the abandoned wastewater treatment plant is currently undergoing a Phase III Environmental Site Assessment.

As described in **Table 2-1**, the following are the primary differences between the Previously Approved Design and the Proposed Action, as relevant to hazardous materials: expansion of the TCE in the southern portion of the project and relocation of the construction staging area. For the purposes of the SEA an EIR Addendum, analysis of potential public services and utilities impacts associated with project modification under the Proposed Action is provided below.

4.13.1 SIGNIFICANCE THRESHOLD

Impacts would be considered significant if the alternative results in:

- a potential public health hazard involving the use, production, or disposal of materials, which pose a hazard to people or animal or plan population in the area affect; or
- a significant hazard to the public or the environment through reasonably foreseeable upset and accident condition involving the release of hazardous materials into the environment

4.13.2 ENVIRONMENTAL CONSEQUENCES

4.13.2.1 *Proposed Action*

<u>During Construction</u>

Small quantities of hazardous materials would be stored, used, and handled during construction of the Proposed Action, including petroleum hydrocarbons and their derivatives (e.g., diesel, gasoline, oils,

lubricants, and solvents) to operate the construction equipment. These materials would be contained within vessels engineered for safe storage. Storage of substantial quantities of these materials along the embankment is not anticipated. Furthermore, construction vehicles may require on-site fueling, or routine or emergency maintenance that could result in the release of oil, diesel fuel, transmission fluid or other materials; however, the materials would not be used in quantities or stored in a manner that would pose a significant hazard to the public or the workers themselves. Therefore, impacts from general construction activities would be less than significant. The potential for an accidental release of toxic materials from construction vehicles (e.g., oil and diesel fuel) would be mitigated by the fueling and servicing of construction vehicles in protected areas so that fluids would be contained within an isolated or impervious area a safe distance from the active flow path. Spills or leaks would be cleaned up immediately, and any contaminated soil would be disposed of properly.

As standard Corps practice to alleviate fire hazards, a water truck is always present during construction activities. In addition, Corps construction projects must comply with the fire prevention and protection practices set forth in the Corps' Safety and Health Requirements Manual (EM 385-1-1). The provisions of EM 385-1-1 are incorporated into all Corps construction specifications, and the contractor is required to prepare a fire prevention and protection plan for the construction project.

Post-Construction

The Proposed Action would not require long-term storage, treatment, disposal, or transport of substantial quantities of hazardous materials.

Future Operations and Maintenance

Future operations and maintenance of the Proposed Action would include routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated features after construction is completed (see Section 2.4 for a detailed list of future maintenance activities). These activities would not create impacts to public safety.

4.13.2.2 *No Action Alternative (Previously Approved Design)*

Effects of the Previously Approved Design were analyzed and disclosed in the 2001 SEIS/EIR. Under the Previously Approved Design, the design modifications of the Proposed Action would not be implemented, and the Lower Norco Bluffs Project would be constructed as previously approved. Impacts on hazardous materials through the implementation of this alternative would be similar to that of the Proposed Action, and no impacts to public safety would occur.

4.13.3 SUMMARY OF SIGNIFICANCE THRESHOLDS RELATED TO THE PROPOSED ACTION

The Proposed Action would require use, storage and handling, of small quantities of hazardous materials during construction, however BMPs would be implemented to reduce the risk of safety and health hazards. Hazardous materials would be properly stored, and the potential for an accidental release of toxic materials from construction vehicles would be mitigated by fueling and servicing construction vehicles in protected areas. Spills or leaks would be cleaned up immediately, and any contaminated soil would be disposed of properly. As standard Corps practice to alleviate fire hazards, a water truck is always present during construction activities. In addition, Corps construction projects must comply with the fire prevention and protection practices set forth in the Corps' Safety and Health Requirements Manual (EM

385-1-1). The provisions of EM 385-1-1 are incorporated into all Corps construction specifications, and the contractor is required to prepare a fire prevention and protection plan for the construction project. Therefore, potential effects related to hazardous materials would be considered less than significant.

5 CUMULATIVE IMPACTS

A cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time in the proposed activity area. Those actions could be undertaken by various agencies (federal, state, or local) or private entities. A discussion of cumulative impacts resulting from actions and projects that are proposed, under implementation, or reasonably anticipated to be implemented in the near future is required.

Cumulative environmental impacts are most likely to arise when a relationship exists between a proposed activity and other projects expected to occur in a similar location, time period, and/or involving similar actions. Projects in proximity to the proposed project activities would be expected to have more potential for a relationship that could result in potential cumulative impacts than those more geographically separated.

This cumulative impact discussion analyzes cumulative projects located within approximately two miles of the Lower Norco Bluffs Project area that could have the ability to combine with impacts from the Proposed Action. These projects are summarized in **Table 5-1**. Projects that occur further away are assumed to be outside of the influence of the Proposed Action. For instance, construction noise would not be heard at that distance, minor hydrologic or water quality effects would dissipate, and biological effects would most likely be limited to plant and animal species within the geographically local area.

The assessment focuses on addressing the following: (1) the area(s) in which the effects of the proposed project would be felt; (2) the effects that are expected in the area(s) from the proposed project; (3) past, present, and reasonably foreseeable future actions that have or that are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact(s) that can be expected if the individual impacts are allowed to accumulate.

Table 5-1. Cumulative Projects in the Proposed Action Vicinity

Project Name	General Location	Description
River Road Dike (Santa Ana River Mainstem Project)	The project site is within the City of Norco along River road on the easterly side of the Prado Basin reservoir.	The purpose of this project is to provide flood-risk reduction to nearby residential developments, businesses, and infrastructure from reservoir expansion that results from raising Prado Dam. *Construction is scheduled to begin June 2021 and complete in May 2023.*
Santa Ana River Mainstem Mitigation Areas (Norco site and Target Areas 1-4)	The Norco site is located east of Archibald Ave., northwest of Norco Dr., and south of Riverwalk Park in Norco, CA. Target Areas 1-4 are located within the Santa Ana River Floodplain downstream of the Norco site and along Temescal Creek.	This project includes several mitigation parcels that have been restored, through arundo removal, to offset construction impacts related to SARMP. *Monitoring, management, and maintenance of the restoration sites will continue in perpetuity.*
Hamner Ave Bridge	The bridge site is near the border between Norco and Eastvale, approximately 1,300 feet to the west of the I-15 Bridges over the Santa Ana River in the City of Norco, California.	The purpose of the project is to replace the existing 2-lane bridge with a 6-lane bridge to provide enhance public safety and traffic circulation in the area. *Construction began in January 2021 and expected to be completed January 2023*
I-15 Bridge	Along the I-15 between State Route 60 and Cajalco Road	The Riverside county Transportation Commission in partnership with Caltrans and the Federal Highway Administration, is adding two express lanes to I-15 in both directions, widening 11 bridges, and adding six soundwalls. The project will be built within the existing median and offer multiple entrance and exit points to the express lane. *Construction is on-going and scheduled to complete in the second half of 2020*
Santa Ana River Trail	The proposed Santa Ana River Trail would be located approximately 2500 ft. northwest of the project area. This system is currently continuous in the immediate project vicinity, but not continuous through the City of Norco.	The 22-mile Santa Ana River trail is divided into three sections: Lower, Middle, and Upper, and includes bicycle trails and hiking/equestrian trails. The Upper trail consists of proposed trail alignments that would cross adjacent the Lower Norco Bluffs Project area.

		Construction of some segments is on-going and anticipated to be completed in 2025 or later, pending further reviews and approvals by the Corps and other regulatory agencies. Construction within Prado Basin, if approved, would also depend on timing for completion of SARMP features.
RCRCD Conservation Easement	The conservation lands are located adjacent to the north side of the proposed project.	RCRCD purchased 111 acres on the main stem of the Santa Ana River near Norco and Eastvale. *Arundo donax* has invaded the riparian habitat and the invasive weeds are being removed to help restored the area to a plant community with native species. *Active restoration is on-going*
Abandoned Wastewater Treatment Plant Phase III Environmental Site Assessment	The abandoned wastewater treatment plant is located adjacent to the proposed project and staging area.	There is currently an HTRW Phase III Environmental Site Assessment being conducted by the GSA at the abandoned wastewater treatment plant off of Corydon Avenue, adjacent to the project footprint.

5.1 WATER RESOURCES AND HYDROLOGY

Construction activities for the Proposed Action would not have water resources, and hydrology impacts above and beyond those determined in the 2001 Final SEIS/EIR, which were largely characterized by other flood control projects within and downstream of the Prado Basin. As discussed in previous sections, the Proposed Action would be in full compliance with applicable laws and regulations, as well as environmental commitments identified in the 2001 Final SEIS/EIR and in Section 6 of this document. As such, potential impacts to water resources and hydrology would be site-specific and not significant. Water resources and hydrology impacts of the Proposed Project would not singly, or cumulatively, combine with similar impacts of other projects as significant impacts. Also, the Proposed Action would provide bluff toe protection to adjacent developed areas. Furthermore, as described in Section 2 of this Final SEA/EIR Addendum, the Proposed Action would contribute to the national economic development (NED) objective of providing flood protection for the surrounding area. Other flood control projects in the cumulative scenario would also contribute to this NED objective, resulting in an overall benefit. Therefore, cumulative impacts on water resources and hydrology from the Proposed Action would be less than significant.

5.2 AIR QUALITY

The SCAQMD regional analysis focuses on whether a specific project would result in a cumulatively considerable increase in emissions. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the Basin, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

The primary air quality impacts of the Proposed Action would occur during construction, since the operational impacts would result from limited vehicle trips for future operations and maintenance activities. The SCAQMD thresholds of significance were developed in order to ensure compliance with the SIP. Pursuant to Clean Air Act regulations at 40 CFR 932.158(a)(5)(v), emissions of ozone (i.e., VOC and NOx - the precursors to ozone) or NO2 are deemed to be in compliance with applicable SIP for projects where the action involves regional water and/or wastewater projects. Furthermore, as indicated in Section 4.4.4 of the 2001 SEIS/EIR, the project is sized to meet the population projection in the SIP. As a result, emissions of VOC, NOx, and NO2 are deemed to be in compliance with the SIP and a conformity analysis is not required for these pollutants. Based on the above, NOx emissions would be in compliance with the SIP. Impacts would be less than significant cumulatively.

5.3 EARTH RESOURCES

Construction activities for the Proposed Action would not have earth resources impacts above and beyond those determined in the 2001 Final SEIS/EIR. As discussed in previous sections, the Proposed Action would be in full compliance with applicable laws and regulations, as well as environmental commitments identified in the 2001 Final SEIS/EIR and in Section 6 of this document. As such, potential impacts to earth resources would be site-specific and not significant. Earth resources impacts of the Proposed Project would not singly, or cumulatively, combine with similar impacts of other projects as significant impacts. Therefore, cumulative impacts on earth resources from the Proposed Action would be less than significant.

5.4 BIOLOGICAL RESOURCES

Continued development in the region has resulted in substantial losses of habitat and produced extensive habitat fragmentation. Impacts from increased development have caused wildlife population and habitat isolation, constrained or obstructed movement and connectivity, reduced genetic exchange among and between wildlife populations, declining populations due to fragmentation, increasing wildlife mortality caused by vehicle collisions, and behavioral changes such as habitat avoidance. It is assumed that all actions that result in habitat disturbance (other than mitigation or restoration efforts, which typically have a restoration plan with methods for reducing potential impacts) would include offsetting measures to address individual impacts. Therefore, cumulative impacts on biological resources from the Proposed Action would be less than significant.

5.5 CULTURAL RESOURCES

No historic properties are located with the APE. Only one cultural resource, a portion of a pipeline that extends westward from an abandoned wastewater treatment facility located outside the APE, was located during the survey The Corps, in consultation with the SHPO, has determined that the pipeline is not eligible of the NRHP either individually or as a contributing feature of a district. The Proposed Action, in conjunction with ongoing and future actions, would not contribute significantly to the loss of cultural values or data within the basin. Cumulative impacts on cultural resources from the Proposed Action would be less than significant.

5.6 LAND USE

Land use impacts tend to be localized, affecting properties in the immediate vicinity of the project. As discussed in Section 4.6 (Land Use), the Proposed Action would not be incompatible with existing land uses and would not be inconsistent with applicable plans and policies. Potential land use impacts from the Proposed Action would affect existing recreational land uses surrounding the site. Therefore, the Proposed Action would not contribute to cumulative impacts from other projects scheduled to occur in the area. Therefore, cumulative impacts on land use from the Proposed Action would be less than significant.

5.7 AESTHETICS

The activities associated with the Proposed Action would be short-term, localized, and would not significantly impact or conflict with visual resources (see Section 4.7). Therefore, the proposed project would not contribute to a degradation or alteration of the scenic viewscape. As such, no cumulative aesthetics impacts would occur.

5.8 RECREATION

As described in Section 4.8 (Recreation), implementation of the Proposed Action would temporarily interfere with recreational activities in the immediate vicinity, including access to trails along Shadow Canyon Circle, and permanently interfere with trail access along Alhambra Street. It would also

temporarily reduce parking availability for the adjacent Wayne-Makin Shearer Sports Complex. Because of the number of equestrian trails available in the vicinity and the temporary nature of other impacts to recreational activities, the potential effects would be less than significant. The cumulative projects listed in **Table 5-1** would not result in the elimination or replacement of recreation uses or facilities. The City of Corona Santa Ana River Trail, listed in **Table 5-1**, would improve and increase recreational opportunities in the Lower Norco Bluffs Project vicinity. With the implementation of environmental commitments for recreation described in Section 6 (Environmental Commitments) and Section 4.8 (Recreation), no contribution to cumulative impacts in the region would occur.

5.9 NOISE

With regard to a cumulative increase in temporary noise levels of the Proposed Action construction in conjunction with construction of cumulative projects identified in **Table 5-1**, The Proposed Action construction would temporarily increase ambient noise levels in the vicinity of the Proposed Action area. As discussed in Section 3.0 (Affected Environment), the nearest sensitive receptors are located adjacent to the TCE off of Shadow Canyon Circle. Construction activities associated with other projects in close proximity to the Proposed Action (as identified in **Table 5-1**) could potentially occur at the same time as the Proposed Action and further increase noise levels at these sensitive receptor locations. However, due to the distances and construction timing of projects identified in **Table 5-1**, it is unlikely that construction noise from the Proposed Action would combine with construction noise from those projects to increase potential cumulative construction noise impacts to sensitive receptors. In the event this occurred, these impacts would be temporary and of short duration. While mobile construction vehicles bringing construction supplies to cumulative project sites could share travel routes with the Proposed Action, it is assumed these shared routes would be limited to regional access roadways (I-15 and SR-91). Due to the traffic volumes on these roadways, no significant cumulative noise from mobile construction sources would occur to sensitive receptors along shared travel routes.

Each cumulative project identified in **Table 5-1** would be required to comply with local noise ordinances. However, per discussion in Section 4.0 (Environmental Consequences), as long as construction activities occur during 7:00 a.m. to 6:00 p.m., Monday through Friday, which are the exempted time periods per county and city ordinances; any changes to that schedule, including occasional overtime work, would require obtaining a variance from local authorities. As a result, the Proposed Action would not result in significant construction or operational noise impact. Therefore, while overall development of the Lower Norco Bluffs Project area could result in cumulative temporary and permanent increases to existing ambient noise levels, the Proposed Action would have a minimal cumulative contribution to these potential noise impacts. Therefore, noise impacts of the Proposed Action would not combine with impacts of present and reasonably foreseeable projects to result in a significant cumulative impact.

5.10 SOCIOECONOMICS

The Proposed Action would not create socioeconomic impacts to any adjacent communities in the region (see Section 4.10). As such, implementation of the Proposed Action would not contribute to an incremental socioeconomic effect that would be cumulatively considerable.

5.11 PUBLIC SERVICES AND UTILITIES

The Proposed Action would have no significant impacts on public services and utilities (See Section 4.12). As such, the proposed project would not contribute to an incremental impact on public services and utilities that would be cumulatively considerable.

5.12 TRANSPORTATION

Cumulative projects within the area (as identified in **Table 5-1**) will generate trips to and from the respective project sites using local roadways. The combined contribution of these vehicle trips could result in an increase to existing roadway network levels of service. However, each project identified in **Table 5-1** would be required to comply with the performance standards identified in the Riverside County General Plan (Refer to Section 4.13). While development of cumulative projects identified in **Table 5-1** will result in a cumulative addition to traffic volumes on study area roadways, the Proposed Action's contribution to this impact would be minimal during both construction and operation (refer to Section 4.13). Additionally, proposed haul routes were developed to avoid roadways on the eastside of the project area to avoid and prevent traffic congestion associated with nearby Hamner Bridge and I-15 Bridge construction projects. Therefore, the contribution of the Proposed Action to cumulative impacts would be less than significant.

5.13 HAZARDOUS MATERIALS

As discussed in Section 4.11, the Proposed Action would not substantially increase the risks associated with hazardous materials. The construction of the proposed project would be a beneficial impact. Therefore, safety risks associated with the proposed project would not result in a significant cumulative impact.

6 ENVIRONMENTAL COMMITMENTS

The following environmental commitments have been incorporated into the proposed project for the purpose of minimizing environmental effects. Many of these commitments were included in the 2001 SEIS/EIR and other related documents. Updates and additional information are provided in brackets, and new commitments or measures that were developed subsequent to the 2001 SEIS/EIR are prefaced with "EC-".

Air Quality

AQ-1 The project construction contractor shall retard diesel engine injection timing by two degrees before top center on all construction equipment that was manufactured before 1996, and which does not have an existing IC engine warranty with the manufacturer. The contractor shall provide a certification from a third-party certified mechanic prior to start of construction, stating the timing of all diesel-powered construction equipment engines have been retarded two degrees before top center.

AQ-2 The project construction contractor shall use high-pressure injectors on all diesel engines that were manufactured before 1996, and which do not have existing IC engine warranties with the manufacturer. The contractor shall provide documentation of warranty and manufacture date or a certification from a third-party certified mechanic stating that all diesel construction

equipment engines are utilizing high-pressure fuel injectors.

AQ-3 The project construction contractor shall use Caterpillar pre-chamber diesel engines or equivalent, and perform proper maintenance and operation.

AQ-4 The project construction contractor shall electrify equipment, where feasible.

AQ-5 The project construction contractor shall restrict the idling of construction equipment to 10 minutes.

AQ-6 The project construction contractor shall ensure that equipment will be maintained in proper tune to prevent visible soot from reducing light transmission through the exhaust stack exit by more than 20 percent for more than 3 minutes per hour and use low-sulfur fuel as required by SCAQMD regulation.

AQ-7 The project construction contractor shall use catalytic converters on all gasoline equipment (except for small [2-cylinder] generator engines). If this measure is not implemented, emissions from gasoline equipment shall be offset by other means (e.g., Emission Reduction Credits).

AQ-8 The project construction contractor shall cease construction during periods of high ambient ozone concentrations (i.e., Stage 2 smog alerts) near the construction area (SCAQMD, 1993).

AQ-9 The project construction contractor shall schedule all material deliveries to the construction spread outside of peak traffic hours, and minimize other truck trips during peak traffic hours, or as approved by local jurisdictions.

AQ-10 The project construction contractor shall use only solar powered traffic signs (no gasoline-powered generators shall be used).

The following measures will be implemented to reduce construction emissions of PM10:

AQ-11 The project construction contractor shall apply non-toxic soil stabilizers according to manufacturers' specification to all inactive construction areas (previously graded areas inactive for 10 days or more; soil stock piled for 2 days or more).

AQ-12 The project construction contractor shall enclose, cover, water twice daily, or apply non-toxic soil binders according to manufacturers' specifications to exposed stock piles (i.e., gravel, sand, dirt) with 5 percent or greater silt content.

AQ-13 In areas where dewatering is not required, the project construction contractor shall water active grading/excavation sites at least twice daily.

AQ-14 The project construction contractor shall increase dust control watering when wind speeds exceed 15 miles per hour for a sustained period of greater than 10 minutes, as measured by an anemometer. The amount of additional watering would depend upon soil moisture content at the time; but no airborne dust should be visible.

AQ-15 The project construction contractor shall suspend all excavating and grading operations when

wind speeds (as instantaneous gusts) exceed 25 mph (40 kph).

AQ-16 The project construction contractor shall ensure that trucks hauling dirt on public roads to and from the site are covered and maintain a 50 mm (2 in) differential between the maximum heights of any hauled material and the top of the haul trailer. Haul truck drivers shall water the load prior to leaving the site to prevent soil loss during transport.

AQ-17 The project construction contractor shall ensure that graded surfaces used for off-road parking, materials lay-down, or awaiting future construction are stabilized for dust control, as needed.

AQ-18 The project construction contractor shall sweep streets in the project vicinity once a day if visible soil material is carried to adjacent streets.

AQ-19 The project construction contractor shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.

AQ-20 The project construction contractor shall apply water three times daily, or apply non-toxic soil stabilizers according to manufacturers' specifications to all unpaved parking, staging areas, or unpaved road surfaces.

AQ-21 The project construction contractor shall ensure that traffic speeds on all unpaved roads to be reduced to 15 mph (25 kph) or less.

AQ-22 Prior to the approval of plans and specifications, the USACE shall ensure that plans and specifications specify that all heavy equipment shall be maintained in a proper state of tune as per the manufacturer's specifications.

Biological Resources

BR-1 The USACE shall develop and implement a monitoring program that entails surveys for least Bell's vireo and southwestern willow flycatcher in spring and early summer during construction. In addition, a monitoring protocol will be developed and implemented for raptor monitoring including bald and golden eagles in both the project area and borrow site area during construction. If eagles are foraging, the Corps will coordinate with the Contracting officer Representative and USFWS to develop appropriate avoidance measures.

BR-2 The construction contractor shall keep grading activities associated with the project construction to a minimum and existing root systems will be left intact to the extent feasible.

BR-3 The construction contractor shall clear vegetation associated with project construction within potential vireo or flycatcher habitat only during period when least Bell's vireo and southwestern willow flycatcher are not nesting (nesting period is from February 28 – August 15).

BR-4 The Corps biologist (or the environmental monitor) will monitor construction activities to

assure that vegetation is removed only in designated areas and compliance with commitments. Riparian areas not to be disturbed will be flagged.

EC-BR-5 In compliance with the 2012 BO Amendment, the Corps will mitigate for habitat impacts by restoring (through arundo removal and other non-native removal at an offsite location) one acre of riparian habitat for each acre of wetland/riparian habitat temporarily disturbed and restoring five acres for each acre of permanent impact to riparian/wetland habitat to be maintained in perpetuity (**Table 4-9**). This will equate to 161.8 acres of off-site mitigation to compensate for 27.96 acres of permanent impacts to riparian habitat and 21.45 acres of temporary impacts to riparian/wetland habitat. The 1:1 off-site mitigation requirement for temporary to riparian/wetland habitat impacts assumes that the restored area will be actively maintained in perpetuity. (The Corps also has the option of compensating for temporary impacts to riparian/wetland habitat by restoring three acres in an off-site location for each acre affected (3:1), and maintaining the restored area for a period of five years only.) In addition, all temporarily affected areas will be restored on-site by hydroseeding of native vegetation communities, as approved by USACE. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.

Enhancement Creation and restoration of riparian habitat will be considered successful when the following target/threshold objectives are met: (a) a minimum of 30 percent absolute ground cover of native plant species; (b) less than 10 percent absolute ground cover of exotic plant species (including 0 percent arundo); (c) the absolute ground cover of native species must be represented by at least five dominant or co-dominant plant species; (d) the recruitment of native plant seedlings must be documented to occur within the replanted areas; (e) a positive trend in the diversity and absolute ground cover of native plant species must be observed based on appropriate statistical analyses that account for natural, year to year variations; and (f) the structure and composition of the revegetated area is statistically similar (i.e., not significantly different) to habitat occupied by vireo in the vicinity. Alternatively, riparian revegetation efforts can be considered successful if the habitat is occupied by a breeding pair of vireo, flycatcher, and/or yellow-breasted chat (*Icteria virens*). In addition, habitat must sustain itself for 2 consecutive years without supplemental water.

EC-BR-6 The USACE shall restore each acre of riparian vegetation that is temporarily disturbed during construction-related activities (21.45 acres) and shall keep all temporarily disturbed areas free of exotic plants until riparian vegetation is re-established. If the site has not begun to recover within 5 years (i.e., 50 percent of the disturbed areas are not vegetated with young riparian vegetation), then the site will be replanted with cuttings from native riparian species.

EC-BR-7 In compliance with the 2012 BO Amendment, the USACE will restore (through arundo and other non-native removal) three acres of riparian habitat for each acre of non-riparian floodplain habitat permanently impacted by the project (**Table 4-9**). This will equate to 25.50 acres of off-site restoration to compensate for 8.98 acres of permanent impacts to non-riparian habitat. All temporarily impacted areas will be restored onsite, with

appropriate vegetation communities approved by the USACE. The USACE shall maintain temporarily impacted, non-riparian areas for 8 years post-construction. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.

EC-BR-8 The USACE or Sponsor shall implement or contribute funding to a cowbird trapping program within Prado Basin during the construction of the project and for 5 years after completion. Sufficient funding shall be provided to maintain at least 5 traps during vireo nesting season within the vicinity of the Norco Bluffs project area.

EC-BR-9 Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the TCE including designated borrow areas, staging areas or routes of travel. The construction area(s) will be the minimal area necessary to complete the Proposed Project and will be specified in the construction plans. Highly visible barriers (such as orange construction fencing or sound walls) will be installed around all riparian and sensitive habitats adjacent to the TCE to designate limits of construction activities. These barriers will be maintained until the completion of all construction activities.

EC-BR-10 Noise barriers will be constructed where the project borders riparian habitat or at the recommendation of a qualified biologist (or repaired) prior to February 14 of each year to minimize impacts to listed species and nesting birds. The construction contractor will be required to monitor noise regularly during the nesting season (February 15 – August 15), as all work will be within 500 feet if riparian habitat. Ambient noise levels will be recorded prior to the nesting season, or prior to construction during that period. If construction noise levels exceed authorized limits (per the 2001 and 2012 BO or as otherwise agreed to by the Service), the Contractor will construct or modify sound barriers, equipment, or procedures (including construction schedules) as necessary to meet these conditions to ensure that: 1) noise does not exceed 60 dBA Leq per half hour, or otherwise agreed upon and documented limit with the USFWS, within occupied vireo habitat; or, (2) noise does not exceed 5 dBA above ambient conditions if said levels are above 60 dBA Leq per half hour, or another agreed upon and documented limit. If construction noise levels within riparian habitat areas outside of the project footprint cannot be reduced below 60 dBA Leq per half hour or another agreed upon and documented limit, during the period of February 15 through August 15 of any year, the Corps will offset impacts at a 1:1 ratio per breeding season affected by such noise levels. This 1:1 ratio will be based on the acreage of riparian habitat outside the project footprint subject to noise levels over 60 dBA, or 5 dBA above ambient, Leq per half hour or other agreed upon and documented limit, during the noted period, per the number of breeding seasons affected (e.g., 1 acre of riparian, habitat affected by noise in two breeding seasons will result in 2 acres of restoration). The area affected will be determined by the periodic project noise monitoring. Pile driving activities will be conducted outside of the vireo nesting season.

EC-BR-11 Prior to construction activities, a Corps qualified biologist (or the environmental monitor) shall conduct pre-construction environmental training for all construction crew members. The training shall focus on required avoidance/minimization measures and conditions of regulatory agency permits and approvals (if required). The training shall also include a

summary of sensitive species and habitats potentially present within and adjacent to the project site.

EC-BR-12 Dust control measures will be implemented during the construction phase to reduce excessive dust emissions. Methods for reducing dust emissions may include wetting work areas by water truck on a regular basis such as dirt access roads and sediment stockpiles, as well as covering truck beds carrying material and stockpiles.

EC-BR-13 Prior to any ground-disturbing activities (e.g. mechanized clearing or rough grading) for all project related construction activities, a Corps qualified biologist (or environmental monitor) shall conduct a pre-construction surveys of the project site for terrestrial special-status, including Multiple Species Habitat Conservation Plan (MSHCP) covered, wildlife species. During these surveys the biologist will:

a. Inspect the project area for any sensitive wildlife species;
b. In the event of the discovery of a non-listed, special-status ground-dwelling animal such as a burrowing owl or special-status reptile, attempts will be made to recover and relocate the animal to adjacent suitable habitat within the project site at least 200 feet from the limits of construction activities. Burrowing owl surveys and relocations would follow established protocols.

EC-BR-14 The USACE or contracted biologists will continue to monitor and survey the project area, borrow area, and adjacent habitats throughout construction and restoration activities for the presence of special status species, and shall confirm that conservation measures are sufficient to avoid or minimize impacts to these species, or shall recommend additional measures as warranted.

EC-BR-15 Upon construction completion the contractor will immediately re-vegetate bare and disturbed areas with a native hydroseed mix approved by USACE, and depending on the time of year the hydroseed is placed, temporary supplemental watering may be needed. Watering need and frequency for hydroseeded areas will be approved by USACE to ensure success germination and establishment of native vegetation.

EC-BR-16 Best management practices shall be implemented to reduce impacts to native habitats, including the following:

a. All equipment maintenance, staging, and dispending of fuel, oil, coolant, or any other toxic substances will occur in developed or designated non-sensitive upland areas. These areas will implement BMPs to prevent runoff carrying toxic substances from entering the Santa Ana River and associated drainages. If a spill occurs outside of a designated area, the cleanup will be immediate and documented.
b. Fire suppression equipment including shovels, water, and extinguishers will be available onsite during the fire season (as determined by Riverside County Fire Department) and when activities may produce sparks. Emergency contacts for the Norco Fire Station No. 57 on Corydon Avenue will be established.
c. To the extent feasible, the contractor will prevent exotic weeds from

establishing within the work site during construction. Construction equipment will be cleaned of mud or other debris prior to mobilizing and before leaving the site to reduce the potential spread of invasive plants and/or seeds.

EC- BR-17 To avoid and reduce impacts to Santa Ana sucker, no work will take place within the main channel of Santa Ana River. In addition, during the construction phase the contractor will construct a temporary earthen berm with sheet pile shoring on the inside edge of the TCE, but outside the sound wall, where the project is at risk of flooding from the Santa Ana River. The purpose of the berm is to reduce the likelihood of channel flows entering the proposed Project area during a storm event, thus avoiding impacts to sucker by exclusion from the proposed Project area. The berm will be constructed of fill material either from onsite grading activities or from the borrow area. The contractor will be responsible for designing the berm wand will get approval be the Corps. If the berm fails and channel flows enter the proposed Project area, all work in the flood area will cease until a qualified biological monitor confirms with the Corps that work can recommence. The decision to restart will be based on the following:

a. Assessment of Santa Ana sucker presence within the project area, via surveys employing techniques such as block nets and electro-fishing;
b. Removal of fish present;
c. Lack of channel flows entering the project site within the foreseeable immediate future; and
d. Coordination with the USFWS.

EC-BR-18 To further reduce impacts to sucker, the Corps will contract localized sucker predator removal for five years. The location within the Santa Ana River and methodologies will be developed in coordination with the USFWS and will include five person-days (not less than 35 hours in the river) per year of mechanical removal of predatory aquatic species, within one year of the start of the proposed Project. Aquatic predator removal measures will only occur outside the sucker spawning season (i.e., they will occur between September 16 and January 15). Any required permits, such as from the California Department of Fish and Wildlife, would be obtained by the Corps or its contractor prior to conducting this activity.

the Corps and /or OCPW will obtain any necessary permits from the California Department of Fish and Wildlife.

EC-BR-19 Operations and maintenance activities occurring within the 15-foot corridor at the toe of the embankment will be conducted outside of the bird nesting season. If soil disturbance of two inches or more is anticipated within this area, the Service will be contacted for approval.

EC-BR-20 To prevent the spread of non-native vegetation, during clearing activities, machinery will be used to mulch *Arundo donax* within one week of cutting and before a rain event. All

cut vegetation will be kept outside of flowing water.

EC-BR-21 The Corps and/or OCPW will incorporate into the quarterly and annual reports (see FWS-SB-909.6, Service 2001, Terms and Conditions 2.1 and 2.2) reporting on any new or updated conservation measure listed within this opinion when reporting on construction activities occurring within the Norco Bluffs feature of the SARP.

EC-BR-22 The Corps and/or OCPW will provide an estimate of vireo take that has occurred as a result of habitat loss or noise impacts due to the Norco Bluffs construction Project. The annual report provided to the Palm Springs Fish and Wildlife Office (PSFWO) should detail any observed impacts to vireo, as well as efforts to restore habitat as outlined by the Terms and Conditions in the 2001 Biological Opinion, and the status and outcome of the yearly brown-headed cowbird trapping program

EC-BR-23 The Corps and/or OCPW will coordinate regularly with the Service regarding the aquatic predator removal effort, and provide annual reports detailing aquatic predator removal activities.

Water Resources and Hydrology

EC-WR-1 Construction Stormwater Pollution Prevention Plan. A Construction Stormwater Pollution Prevention Plan (SWPPP) shall be developed for the project by the construction contractor, and filed with the Santa Ana Regional Water Quality Control Board (RWQCB) prior to construction. The SWPPP shall be stored at the construction site for reference or inspection review. Implementation of the SWPPP would help stabilize graded areas and waterways, and reduce erosion and sedimentation. The plan would designate BMPs that would be adhered to during construction activities. Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) would be installed before clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. During construction activities, measures would be in place to ensure that contaminates are not discharged from the construction sites. The SWPPP would define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. Erosion control during grading of the construction sites and during subsequent construction would be in place and monitored as specified by the SWPPP. A silting basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff.

EC-WR-2 Hazardous Materials Management Plan and Emergency Response Plan. A project- specific hazardous materials management and hazardous waste management plan would be developed prior to initiation of construction. The plan would identify types of hazardous materials to be used during construction and the types of wastes that would be generated.

All project personnel would be provided with project-specific training to ensure that all hazardous materials and wastes are handled in a safe and environmentally sound manner. This plan shall include an emergency response program to ensure quick and safe cleanup of accidental spills.

EC-WR-3 Water quality permits. Prior to engaging in any soil-disturbing activities, the construction contractor shall document compliance with the Clean Water Act (CWA) Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities, and shall also receive any necessary permits for dewatering activities, as applicable.

Additional Conditions from the Santa Ana Water Board 401 Water Quality Certification (WQC)(Appendix B of this EA) are as follows:

1. Reporting and Notification Requirements
The following section details the reporting and notification types and timing of submittals. Requirements for the content of reports and notifications are detailed in Attachment B of the 401 WQC, including specifications for photo and map documentation during the Project construction. Written reports and notifications should be submitted using the *Reporting and Notification Cover Sheet* located in Attachment B and signed by the Permittee or an authorized representative.

2. Project Reporting:
a. Annual Reporting. The Corps is to submit an Annual Report each year on the anniversary of the effective date. Annual reporting shall continue until a *Notice of Project Complete Letter* has been issued.

3. Project Status Notifications:
a. Commencement of Construction. The Corps is to submit a *Commencement of Construction Report* at least seven (7) days prior to start of initial ground disturbance activities.
b. Request for Notice of Completion of Discharges Letter. The Corps is to submit a *Request for Notice of Completion of Discharges Letter* following completion of active Project construction activities, including any required restoration and mitigation. This request is to be submitted to the Santa Ana Water Board staff within thirty (30) days following completion of all Project construction activities. Upon acceptance of the request, Santa Ana Water Board staff will issue a *Notice of Completion of Discharges Letter*, which will end the active discharge period
c. Request for Notice of Project Complete Letter. The Corps is to submit a *Request for Notice of Project Complete Letter* when construction and any required post-construction monitoring is complete and no further Project activities will occur. This request is to be submitted to Santa Ana Water Board staff within thirty (30) days following completion of all Project activities. Upon approval of the request, the Santa Ana Water Board staff will issue a *Notice of Project Complete Letter*, which will end the post discharge monitoring period.

4. Conditional Notifications and Reports: The following notifications and reports are required as appropriate.
a. Accidental Discharges of Hazardous Materials. Following an accidental

discharge of a reportable quantity of a hazardous material, sewage, or an unknown material, the following applies (Water Code, section 13271):

i. As soon as (A) the Corps or its construction contractor has knowledge of the discharge or noncompliance, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures then, the Corps or its contractor shall:

first call – 911 (to notify local response agency) then call – Office of Emergency Services (OES) State Warning Center at (800) 852-7550 or (916) 845-8911 lastly follow the required OES procedures as set forth in the *California Hazardous Materials Spill / Release Notification Guidance*

ii. Following notification to OES, the Corps or its contractor shall notify Santa Ana Water Board, as soon as practicable (ideally within twenty-four [24] hours). Notification may be via telephone, email, delivered written notice, or other verifiable means.

iii. Within five (5) working days of notification to the Santa Ana Water Board, the Corps or its contractor shall submit an *Accidental Discharge of Hazardous Material Report.*

b. Violation of Compliance with Water Quality Standards. The Corps or its contractor shall notify the Santa Ana Water Board of any event causing a violation of compliance with water quality standards. Notification may be via telephone, email, delivered written notice, or other verifiable means.

i. Examples of noncompliance events include lack of storm water treatment following a rain event, discharges causing a visible plume in a water of the State, and water contact with uncured concrete.

ii. This notification shall be followed within three (3) working days by submission of a *Violation of Compliance with Water Quality Standards Report* to the Santa Ana Water Board.

c. In-Water Work.

i. The Corps or its contractor shall notify the Santa Ana Water Board at least forty-eight (48) hours prior to initiating work in water or stream diversions. Notification may be via telephone, email, delivered written notice, or other verifiable means.

ii. Within three (3) working days following completion of work in water or stream diversions, an *In-Water Work/Diversions Water Quality Monitoring Report* shall be submitted to Santa Ana Water Board staff.

d. Modifications to Project. Project modifications may require an amendment of this Order. The Corps is to give advance notice to Santa Ana Water Board staff by submitting a *Modifications to Project Report*, if Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, State, or federal regulatory authority. The Corps is to inform Santa Ana Water Board staff of any Project modifications that will interfere with the Corps' compliance with this Order. Notification may be made in accordance with conditions in the Certification Deviation section of this Order.

e. Water Quality Monitoring

1. General: If surface water is present, continuous visual surface water monitoring shall be conducted to detect accidental discharge of construction related pollutants (e.g., oil, grease, turbidity plume, or uncured concrete).

2. Accidental Discharges/Noncompliance: Upon occurrence of an accidental discharge

of hazardous materials or a violation of compliance with a water quality standard, Santa Ana Water Board staff may require water quality monitoring based on the discharge constituents and/or related water quality objectives and beneficial uses.

5. In-Water Work or Diversions: While not planned, during any work in water including stream diversions, any discharge(s) to waters of the State shall conform to the following water quality standards.
a. Oil and Grease. Waste discharges shall not result in deposition of oil, grease, wax, or other material in concentrations that result in a visible film or in coating objects in the water, or that cause a nuisance or adversely affect beneficial uses.
b. Oxygen. The dissolved oxygen content of surface waters shall not be depressed below 5 mg/L for waters designated WARM, as a result of controllable water quality factors. In addition, waste discharge shall not cause the median dissolved oxygen concertation to fall below 85 percent of saturation or the 95th percentile concentration or fall below 75 percent of saturation within a 30-day period.
c. pH. The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharge.
d. Turbidity. Increases in turbidity that result from controllable water quality factors shall comply with the following: where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed 20 percent; where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU; and where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent. Changes in turbidity shall not adversely affect beneficial uses.
Measurements of turbidity shall be taken 100 feet downstream of Project activities.
e. Temperature. The temperature of waters designated WARM shall not be raised above 90°F June through October or above 78°F during the rest of the year as a result of controllable water quality factors. Baseline sampling shall be conducted at least at one location within the Project boundary. All other sampling shall take place at a minimum of two locations: the sample locations shall be upstream and downstream of the construction area. Results of the analyses shall be submitted to the Santa Ana Water Board by the 15th day of each subsequent sampling month. A map or drawing indication the locations of sampling points shall be included with each submittal.

6. General Compliance
a. Permitted actions shall not cause a violation of any applicable water quality standards, including impairment of designated beneficial uses for receiving waters, as adopted in the Basin Plan and subsequent Basin Plan Amendments or in any applicable State Water Resources Control Board water quality control plan or policy. The source of any such discharge shall be eliminated as soon as practicable.

7. The Corps and its construction contractor are to grant Santa Ana Water Board staff or an authorized representative (including an authorized contractor acting as a Water Board representative), upon presentation of credentials and other documents as may be required by law, permission to:
a. Enter upon the Project or compensatory mitigation site(s) premises where a regulated facility or activity is located or conducted, or where records are kept;

b. Have access to and copy any records that are kept and are relevant to the Project;
c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (401WQC);
d. Sample or monitor for the purposes of assuring Order compliance.

8. A copy of the 401 WQC shall be provided to any consultants, contractors, and subcontractors working on the Project. Copies of the 401 WQC shall remain at the Project site for the duration of the project. All personnel performing work on the Project shall be familiar with the content of this Order and its posted location at the Project site.

9. Construction
1. Dewatering: Construction dewatering discharges, including temporary stream diversions necessary to carry out the Project, are subject to regulation by Santa Ana Water Board Order No. R8-2020-0006, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimis) Threat to Water Quality.
2. Construction General Permit Requirement: The Corps or its contractor shall maintain compliance with conditions described in, and required by, NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS000002) and any subsequent approvals.
3. Good Site Management "Housekeeping":
a. BMPs for effective perimeter control shall be in place at all times to control the discharge of pollutants from the Project site during construction. Construction waste shall be contained and protected against wind and exposure to storm water at all times, unless being actively handled. Chemical, fuel, and lubricant containers shall be kept closed and protected from damage or upset at all times, unless being actively used. Dirt and landscaping material stockpiles shall have effective erosion
control BMPs in place to prevent their transport in storm water or directly into the channel and shall not be located in any waters of the United States. Discharges of wastewater from the Project site are prohibited.
b. Substances resulting from Project-related activities and that could be harmful to aquatic life shall not be discharged to soils or waters of the State. These substances include but are not limited to petroleum lubricants and fuels, cured and uncured cements, epoxies, paints and other protective coating materials, Portland cement concrete or asphalt concrete, and washings and cuttings thereof. All waste concrete shall be removed from the Project site.
c. Motorized equipment shall not be maintained or parked in or near any stream crossing, channel, or lake margin in such manner that petroleum products or other pollutants from the equipment might enter these areas under any flow conditions. Vehicles shall not be driven, or equipment shall not be operated on-site in waters of the State onsite, except as necessary to complete the proposed Project.
d. Prior to construction activities, the construction contractor shall delineate the work area with brightly colored fencing or other methods to ensure temporary impacts to waters of the United States and waters of the State do not exceed the limits authorized in this Certification.

Land Use

EC-LU-1 Before and during construction within the Lower Norco Bluffs area, including the Corydon Equestrian Staging area, the construction plans shall be coordinated with the City of Norco's Parks, Recreation, and Community Services. At a minimum, coordination shall include the following: the expected start date and duration of construction; a detailed description of the activities associated with construction; a detailed description of expected maintenance activities that will occur in the future, which shall include the frequency and duration of such activities, and the procedures for notifying the City prior to maintenance activities in order to avoid disruptions to the remaining recreation resources; and any additional information that would help minimize disruptions to the remaining recreation resources.

Aesthetics

EC-A-1 If artificial lighting is required during construction, a Lighting Plan will be developed by the contractor to outline and determine locations of light sources. All night work will be coordinated with the City of Norco. At a minimum, coordination shall include the following: the expected start date and duration of night time work; a detailed description of the activities associated with night time work; a detailed description of expected maintenance activities that will occur in the future, which shall include the frequency and duration of such activities, and the procedures for notifying the City prior to maintenance activities in order to avoid disturbance to residents and wildlife.

Noise

Construction would need to occur between 7:00 a.m. and 6:00 p.m. on weekdays to remain in compliance with both county and city ordinances. The project will assume the most restrictive ordinance, of applicable city and county ordinances, to remain within compliance of both county and city policies. Any changes to that schedule, including occasional overtime work, would require obtaining a variance from local authorities per the following additional environmental commitments, which would be incorporated into contract specifications for the proposed project to reduce potential impacts to noise.

EC-N-1 Prior to construction, the construction contractor shall obtain Riverside County approval (exemption or variance) per Riverside County Municipal Code Section 847, Section 7.(a).1 – , Section Construction Related Exceptions, for all noise sources not exempt by Riverside County Municipal Code Section 847, Section 2.i. and exceeding Riverside County Municipal Code Section 847, Section 4 – General Sound Level Standards. Additionally, prior to any such activities occurring, the construction contractor shall obtain Riverside County approval (exemption or variance) for all operational and maintenance activities not compliant with Riverside County Municipal Code Section 847.

EC-N-2 Prior to construction, the construction contractor shall obtain a variance from the City of Norco for all construction activities not compliant with the performance standards identified within the City of Norco Municipal Code Section 17.84.040 (c) – Noise Standards. Additionally, prior to any such activities occurring, the project proponent shall obtain a variance from the City of Norco for all operational and maintenance activities not compliant with City of Norco Municipal Code Section 17.84.040 (c) – Noise Standards.

Cultural Resources

CR-1 The Corps shall ensure that ground disturbing activities that have the potential to impact historic properties is monitored by archaeologists meeting the Secretary of the Interior's Standards. Any finds shall be documented in accordance with the Santa Ana River Flood Control Project Programmatic Agreement executed by the Corps, SHPO, and Advisory Council on Historic Preservation in 1993.

CR-2 If previously unknown cultural resources are found during construction of any feature of the Santa Ana River Project, construction in the area of the find shall cease until the requirements in 36 CFR 800.13, are met. This would include coordination with the California State Historic Preservation Officer, the Advisory Council on Historic Preservation, and appropriate Native American groups and/or other interested parties. It may require additional measures such as test and data recovery excavations, archival research, avoidance measures, etc.

7 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

The following section provides a brief summary of the laws, regulations, Executive Orders, and other guidelines that are relevant to the proposed project activities and alternatives. Included in this summary is a discussion of the consistency of the proposed project with each of the plans, policies, and regulations listed below.

7.1 FEDERAL LAWS AND REGULATIONS

The National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA)

This SEA/EIR Addendum was prepared in accordance with both NEPA and CEQA. Pursuant to Section 15164 of the State CEQA Guidelines, an addendum to an approved EIR shall be prepared if "none of the conditions described in Section 15162 of the guidelines calling for preparation of a subsequent EIR have occurred, only if minor technical changes or additions are necessary to make the EIR under consideration adequate under CEQA, and the changes to the EIR made by the addendum do not raise important new issues about significant effects on the environment."

The subject Supplemental EA documents that the above conditions have been met. The proposed modifications will not significantly impact any resources other than those described in the previously prepared environmental documents. Preparation of an SEIS/EIR is, therefore, not required.

National Historic Preservation Act (NHPA) of 1966, as amended

The Project is in compliance with the Act. A programmatic agreement (PA) was executed for the Santa Ana River Mainstem Project in 1993 by the, Corps, SHPO, and the Advisory Council on Historic Preservation. The PA details the procedures to be followed for each feature of the project. In accordance with the PA, the Corps contracted with Aspen Environmental Group (Aspen) to complete a record search and pedestrian survey of the Lower Norco Bluffs APE. The Corps has submitted the report to the SHPO for their review and acceptance and has consulted with the SHPO about the eligibility of the singular cultural resource located within the Lower Norco Bluffs APE.

Fish and Wildlife Coordination Act, as amended

The proposed project is in compliance. The SARMP has been fully coordinated with USFWS, CDFW, and other agencies. Two Coordination Act Reports have been prepared for the SARMP (1988 and 1999). These documents are included in the 1988 GDM/SEIS and the 2001 SEIS/EIR, and the recommendations continue to be carried forward during implementation of each SARMP feature. Over the years, numerous meetings have occurred between USFWS, CDFW, other resource agencies; non-federal sponsors; and the Corps to discuss previous and current SARMP features and other proposed and ongoing embankment protection projects. Discussions included potential impacts to, mitigation for, and minimization and avoidance measures for nesting birds covered under the Migratory Bird Treaty Act (MBTA); species covered under the Federal and California Endangered Species Act (such as the least Bell's vireo, California gnatcatcher, and Santa Ana sucker); and wildlife movement issues. Specific issues related to the Proposed Project were coordinated with the resource agencies. Furthermore, the draft SEA/EIR Addendum was sent to USFWS, CDFW, and other resource agencies for review and, with the exception of the Biological Opinion, no comments were received.

Bald and Golden Eagle Protection Act, as amended

The proposed project is in compliance. The Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 FR 31132; 50 CFR 22.3).

On 10 November 2009, the USFWS implemented new rules (74 FR 46835) governing the "take" of golden and bald eagles. The new rules were released under the existing Bald and Golden Eagle Act which has been the primary regulation protection unlisted eagle populations since 1940. All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment.

The proposed project modification will not affect birds protected under this act, beyond those affects that were addressed in the 2001 Final SEIS/EIR and CESA (2081-2001-023-06). Golden eagles may occasionally forage within the borrow site and other upland habitats within Prado Basin, as do other raptors. However, no nesting habitat will be affected, and no nests are known to occur in the vicinity. Mitigation and compensation measures that were outlined in those documents will be implemented, as required, for impacts related to proposed project. For instance, temporarily impacted areas will be re-vegetated following construction.

The Endangered Species Act, as amended

The Endangered Species Act (ESA), and subsequent amendments, provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 7 requires

federal agencies, in consultation with, and with the assistance of the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species.

Potential effects of the Proposed Action on federally listed species and on designated and proposed critical habitat have been addressed in a formal consultation with USFWS. A Biological Assessment (BA) was prepared and is included in Appendix D. The BA identified that least Bell's vireo (*Vireo bellii pusillus*) and its designated critical habitat may be adversely affected; southwestern willow flycatcher (*Epidonax trailii extimus*) would not be affected although its critical habitat may be affected, but would not likely be adversely affected; and Santa Ana sucker (*Catostomus santaanae*) and its critical habitat may be affected but would not likely be adversely affected. A request for formal consultation for these species and their designated critical habitats was sent to the USFWS on April 29, 2020. A Biological Opinion was provided on March 15, 2021 and is located in Appendix D. The Proposed Action is in compliance with the Endangered Species Act.

Migratory Bird Treaty Act

The proposed project is in compliance. The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds, their nests or eggs. Birds protected under the MBTA include essentially all native birds in a given region. Initial vegetation clearing must be conducted outside of the nesting bird season. Therefore, vegetation removal must take place between August 15 and February 28. Mitigation measures developed in the 2001 Final SEIS/EIR have been formulated to reduce impacts on migratory birds.

Clean Air Act, as amended

'Under Section 176(c) of the Clean Air Act Amendments (CAAA) of 1990, the Lead Agency is required to make a determination of whether the proposed project "conforms" with the State Implementation Plan (SIP). Conformity is defined in Section 176(c) of the CAAA as compliance with the SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of such standards. However, if the total direct and indirect emissions from the Proposed Action are below the General Conformity Rule de minimis emission thresholds, the Proposed Action would be exempt from performing a comprehensive Air Quality Conformity Analysis, and would be considered to be in conformity with the SIP. Emissions generated by this proposed project are expected to be temporary and would be below Federal and local air standards.

For the proposed project, the Corps would implement environmental commitments (AQ-1 to AQ-22) to further ensure that impacts to air quality would not be considered regionally significant, and that construction emissions would not violate NAAQS. The proposed project would have no long-term impacts on local or regional air quality. Thus, emissions from the Proposed Action would conform to the SIP. The Corps has determined that the proposed project is in compliance with the CAAA.

Clean Water Act, as amended

The proposed project is in compliance with the guidelines in 40 CFR 230.10(c), promulgated by the Environmental Protection Agency (EPA) under Section 404(b)(1) of the Clean Water Act (CWA) Guidelines.

The 2001 SEIS/EIR identified that the proposed project and other Prado Basin and Vicinity features would affect jurisdictional waters (Waters of the U.S.). The current Proposed Project does not encroach any further into Waters of the U.S. than originally designed, and therefore does not result in additional impacts. See Section 4.1, Water Resources and Hydrology, for an updated analysis, accounting, and description of impacts to Waters of the U.S. related to the proposed project. An updated 404(b)(1) evaluation can be found in Appendix C. Pursuant to the Corps Clean Water Act implementing regulations (33CFR 336.1(a)(1)), a 401 certification permit was obtained from the Santa Ana Regional Water Quality Control Board on August 31, 2020 and can be found in Appendix B The Corps' contractor will obtain a National Pollution Discharge Elimination System (NPDES) construction stormwater permit (Section 402) prior to construction. A SWPPP including BMPs and Erosion and Sedimentation Control Plan would be developed and implemented by the construction contractor prior to and during construction to minimize site erosion.

Executive Order 11988, Floodplain Management

Under this Executive Order, the Corps must take action to avoid development in the base floodplain (100-year) unless it is the only practicable alternative to reduce hazards and risks associated with floods; to minimize the impact of floods on human safety, health and welfare; and to restore and preserve the natural and beneficial value of the base floodplain. The Proposed Project would avoid development in the flood basin to the extent practicable to reduce hazards and risks. The Proposed Project is in compliance. Executive Order 11900.

Executive Order 11900, Protection of Wetlands

In developing alternatives, the Corps considered the effects of the proposed project on the survival and quality of wetlands. Projects are to "…avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative…" See Section 4.4, Biological Resources, for an accounting and description of impacts to wetlands related to the construction of the Proposed Project. Mitigation measures developed in the 2001 Final SEIS/EIR and, subsequently for this Proposed Project, have been formulated to reduce impacts on wetlands.

Executive Order 12898, Environmental Justice

Executive Order 12898 requires the U.S. EPA and all other Federal agencies (as well as state agencies receiving Federal funds) to develop strategies to address this issue as part of the NEPA process. The agencies are required to identify and address, as appropriate, any disproportionately high and adverse human health or environmental impacts of their programs, policies, and activities on minority and low-income populations. The order makes clear that its provisions apply fully to programs involving Native Americans. The CEQ has oversight responsibility for the Federal government's compliance with E.O. 12898 and NEPA. The CEQ, in consultation with the USEPA and other agencies, has developed guidance to assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. According to the CEQ's Environmental Justice Guidance Under the National Environmental Policy Act (published December 10, 1997), agencies should consider the composition of the affected area to determine whether minority populations or low-income populations are present in the area affected by the Proposed Action, and if so whether there may be disproportionately high and adverse human health or environmental impacts (Council on Environmental Quality 1997). An updated Environmental Justice Analysis is provided in Appendix E. The SEA/EIR Addendum is in compliance with

the directives and objectives of this Executive Order.

Executive Order 13112, Invasive Species

The proposed project is in compliance with Executive Order 13112, which requires federal agencies to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health effects that invasive species cause. The environmental protection standard specifications direct the contractor to implement measures to prevent the spread of invasive species. Mitigation measures developed in the 2001 Final SEIS/EIR and this SEA/EIR Addendum have been formulated to reduce impacts from invasive species.

7.2 STATE REGULATIONS

California Regional Water Quality Control Board (RWQCB)

The construction contractors will be required to comply with requirements to request discharge permits, where applicable, prepare SWPPPs, and provide notifications to the State Water Resources Control Board.

California Air Resources Board

CARB has issued a number of CAAQS. These standards include pollutants not covered under the NAAQS and also require more stringent standards than those under the NAAQS. There is no change in compliance from the 2001 Final SEIS/EIR.

In 2006, in response to concerns related to global warming and climate change, the California State Legislature adopted Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006." AB 32 focuses on reducing GHGs in California and requires the California Air Resources Board (CARB), the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to State-wide levels in 1990 by 2020 (Hendrix, Wilson, et. al., 2007). The Proposed Project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions.

California Endangered Species Act

The Proposed Project is, or would be, in compliance. Effects of the Proposed Project on state-listed species would be addressed in consultations by OCPW with CDFW, if necessary. The CESA permit (2081-2001-023-06) previously issued for the SARMP may be amended after receipt of a Biological Opinion by USFWS to address proposed changes to the Lower Norco Bluffs Project, if necessary. However, previous coordination with CDFW on other SARMP features indicated that neither CESA nor a Streambed Alteration Agreement would be required, considering that construction will be overseen by the federal government, and routine OMMR&R conducted by the non-federal sponsors would not result in additional effects to state-listed species. The same would apply for the Proposed Project.

California Department of Fish and Wildlife Code, Section 1600

The Proposed Project is, or would be, in compliance. A 1601 Streambed Alteration Agreement (SAA No. 6-2001-263) was issued for the SARMP in 2002, and a new SAA (1600-2009-0031-R6) was signed by OCPW in October 2009. OCPW is responsible for coordinating with CDFW, if necessary, for any additional

updates. However, previous coordination with CDFW on other SARMP features indicated that neither CESA nor a SAA would be required, considering that construction will be overseen by the federal government, and routine OMMR&R conducted by the non-federal sponsors would not result in additional effects to listed species. The same would apply for the Proposed Project. Applicable minimization and avoidance measures included in the 2009 amended SAA would be followed during construction of the Proposed Project.

7.3 LOCAL REGULATIONS

South Coast Air Quality Management District (SCAQMD)

The proposed project is within SCAQMD jurisdiction. The SCAQMD is responsible for planning, implementing, and enforcing federal and State ambient standards within this portion of the South Coast Air Basin. The regulations of this agency are primarily focused on stationary sources; therefore, most of the local agency regulations are not relevant to the Proposed Project.

The SCAQMD has visible emissions, nuisance, and fugitive dust emissions regulations with which the Project's construction will need to comply. The specific regulations are as follows:

- SCAQMD Rule 401 – Visible Emissions
- SCAQMD Rule 402 – Nuisance
- SCAQMD Rule 403 – Fugitive Dust

These rules limit the visible dust emissions from the project construction sites, prohibit emissions that can cause a public nuisance and require the prevention and reduction of fugitive dust emissions to the extent possible. There is no change in compliance from the 2001 Final SEIS/EIR.

Riverside County Municipal Code

The Riverside County Municipal Code Chapter 9.52 (Noise Ordinance 847 § 2, 2006) specifies sound level standards by land use type. Per Article 9.52.020 (Exemptions), noise from construction within one-quarter of a mile of an occupied residence is exempt from these standards if it occurs between the hours of 6:00 a.m. and 6:00 p.m. (June through September) or between the hours of 7:00 a.m. and 6:00 p.m. (October through May). If any changes occur to the project work hours, a variance would be obtained. The Proposed Project is considered within this provision.

City of Norco Municipal Code

Title 9, Chapter 9.07 of the City of Norco Municipal Code provides exterior and interior noise standards, special provisions, exemptions, and variances for noise sources. Certain exempt activities include facilities owned or operated by or for a governmental agency, emergency-related noise, agricultural operations, and construction. Capital improvement projects of a governmental agency are specifically exempt from the noise ordinance pursuant to Section 9.07.020 of the City of Norco Municipal Code. The Proposed Project is considered within this provision.

8 AGENCY COORDINATION

The Lower Norco Bluffs Project was coordinated formally and informally with numerous agencies,

organizations, and individuals, including USFWS, CDFW, State Parks (also known as California Department of Parks and Recreation), SHPO, Santa Ana RWQCB, Caltrans, Orange County agencies, Riverside County agencies, and local cities. The Draft SEA/EIR Addendum was distributed to several public agencies and interested parties for review and comment, as identified in the Distribution List, Appendix A. Public comments received during the public comment period and responses are provided in Appendix H.

9 LIST OF PREPARERS AND REVIEWERS

Name	Role
Hayley Lovan	Reviewer, Chief, Ecosystem Planning Section
Jenna May	Environmental Coordinator
Naeem Siddiqui	Environmental Coordinator
Marissa Maggio	Biologist
Danielle Storey	Archaeologist
Florin Nistor	Engineering Design Technical Lead
Michael Lau	Geotechnical Design
Jeffrey Devine	HTRW Analysis

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Appendices

Appendix A - Distribution Mailing List

Federal Agencies

U.S. Environmental Protection Agency
Environmental Review Branch

Scott Sobiech, Field Supervisor and
Rebecca Christensen
U.S. Fish & Wildlife Service

Robert Fisher, Supervisory Ecologist
U.S. Geological Survey

State Agencies

State Clearinghouse

Kathleen Andrews
CA. Dept. of Conservation District 1,

Kim Freeburn
California Department of Fish and Wildlife

Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation

Hope A Smythe
Regional Water Quality Control Board Region 8

Native American Heritage Commission

State Water Resources Control Board
Environmental Services Unit

Enrique Arroyo, District Planner
Department of Parks and Recreation

Ryan Chamberlain, Director
Caltrans District 12

John Bulinski, Director
Caltrans, District 8

Jacob Mathew
Caltrans Office of Encroachment Permits 464

CA Dept. of Toxic Substances Control
Attn: Greg Holmes, Unit Chief

CA Dept. of Public Health

Local Agencies

Shawn Nevill, Dick Zembal, and Greg Woodside
Orange County Water District

Joe Grindstaff, General Manager
Inland Empire Utilities Agency

Ms. Juliana Adams
Riverside Co. Flood Control

Ms. Nardy Khan, James Tyler, Mr. Ariel Corpuz, and
Joe Nguyen
Orange County Public Works Flood Control Div./
Santa Ana River Section

Joanna Chang
OC Public Works/OC Development Services

South Coast Air Quality Management District

General Manager Metropolitan Water District

Orange County Transportation Authority
Attn: Dan Phu
Orange, CA 92863

Riverside County, County Recorder

Riverside County Planning Department
Director of Planning

Scott Bangle, Parks Director and Marc Brewer

Riverside County Regional Parks and Open Space

Hugh Nguyen
Orange County Clerk – Recorderer

Honey Bernas, Interim Executive Director
Western Riverside County Regional Conservation
Authority

Gustavo Gonzalez, Planning Manager and Jimmy Chung, City Engineer
Eastvale City Hall

Andy Okoro, Brian Petree, Sam Nelson, Chad Blais, Public Works Director, and Steve King, Planning Director
City of Norco

Organizations/Groups

Brian J. Brady Executive Director
Santa Ana Watershed Association

Riverside-Corona Resource Conservation District
Attn: Kerwin Russell

Riverside Audubon Society

Audubon Society
San Bernardino Valley Chapter

Brad Richards
Chair: Prado Basin Group Sierra Club San Gorgonio Chapter

Glenn Parker Wildlife Corridor Conservation Authority

Megan Brousseau
Associate Director Inland Empire Waterkeeper

Dan Silver, Executive Director
Endangered Habitats League

Private Entity

Jason Sanchez, Manager Public Projects and Greg Rousseau, Project Engineer
BNSF Railway

Libraries

Corona Public Library
Attn: Nora Jacob

Norco Public Library

Riverside Public Library
Attn: Government Documents

Chino Branch Library

Native American Contacts

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson

Juaneno Band of Mission Indians
Sonia Johnston, Chairperson

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Matias Belardes, Chairperson

Juaneno Band of Mission Indians Acjachemen Nation - Romero
Teresa Romero, Chairperson

Pauma Band of Luiseno Indians - Pauma & Yuima Reservation
Temet Aguilar, Chairperson

Pechanga Band of Mission Indians
Mark Macarro, Chairperson

Rincon Band of Mission Indians
Bo Mazzetti, Chairperson

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson

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Appendix B – 401 Certification, Clean Water Act 404(b)(1) Evaluation, and Jurisdictional Delineation Report

RWQCB 401 Certification

August 31, 2020

Ms. Jenna May
U.S. Army Corps of Engineers
915 Wilshire Boulevard, Suite 1201
Los Angeles, California 90017
Email: Jenna.C.May@usace.army.mi

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER FOR THE LOWER NORCO BLUFFS BLUFF TOE STABILIZATION (SARWQCB WDID # 332020-12)

Dear Ms. May:

Enclosed please find a Clean Water Act Section 401 Water Quality Certification and Order, authorized by Santa Ana Regional Water Quality Control Board Executive Officer, Hope A. Smythe. This Order is issued to you for Lower Norco Bluffs Bluff Toe Stabilization (Project). Attachments A through C of the Enclosure are also part of the Order.

This Order is issued in response to an application submitted by U.S. Army Corps of Engineers for the proposed Project discharge to waters of the State to ensure that the water quality standards for all waters of the State impacted by the Project are met. You may proceed with your Project according to the terms and conditions of the enclosed Order.

If you require further assistance, please contact me by phone at (951) 782-3295 or by email at Jason.Bill@Waterboards.ca.gov. You may also contact David Woelfel, Chief of Regional Planning Programs Section, by phone at (951) 782-7960 or by email at David.Woelfel@waterboards.ca.gov.

Sincerely,

Jason Bill

Jason Bill
Environmental Scientist
Regional Planning Programs Section
Santa Ana Regional Water Quality Control Board

Enclosures (1): Order for Lower Norco Bluffs Bluff Toe Stabilization

cc: [Via email only] (w/ enclosure):

U.S Army Corps of Engineers, Regulatory Division, Los Angeles District - James Mace James.E.Mace@usace.army.mil
U.S. Environmental Protection Agency, Region 9 – Wetlands Section – Melissa Scianni -- Scianni.Melissa@epa.gov
U.S. Fish and Wildlife Service – Karin Cleary-Rose – Karin_cleary-rose@fws.gov
California Department of Fish and Wildlife – Carly Beck - Carly.Beck@wildlife.ca.gov
California Department of Fish and Wildlife – Eric Chan - Eric.Chan@wildlife.ca.gov
State Water Resource Control Board, Office of Chief Counsel -- Teresita Sablan – Teresita.Sablan@waterboards.ca.gov
State Water Resources Control Board, Division of Water Quality -- Water Quality Certification Unit – Stateboard401@waterboards.ca.gov
Santa Ana Regional Water Quality Control Board – David Woelfel – David.Woelfel@waterboards.ca.gov

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER

Reg. Meas. ID:	437995
Place ID:	866672
SARWQCB WDID:	332020-12
USACE #:	Not Available

Effective Date: August 31, 2020

Program Type: Fill/Excavation

Project Type: Non-Restoration Bank Stabilization

Project: Lower Norco Bluffs Bluff Toe Stabilization (Project)

Federal Permit: United States Army Corps of Engineers (USACE) Federal project

Applicant: U.S. Army Corps of Engineers

Applicant Contact: Jenna May, Biologist
U.S. Army Corps of Engineers
915 Wilshire Boulevard, Suite 1201
Los Angeles, California 90017
Phone: (213) 452-3698
Email: Jenna.C.May@usace.army.mil

Water Board Staff: Jason Bill
Environmental Scientist
3737 Main Street, Suite 500
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Phone: (951) 782-3295
Email: Jason.Bill@Waterboards.ca.gov

Water Board Contact Person:
If you have any questions, please call Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) staff listed above or (951) 782-4130 and ask to speak with the Regional Planning Programs Section Chief.

Table of Contents

I. Order

This Clean Water Act (CWA) section 401 Water Quality Certification action and Order (Order) is issued at the request of United States Army Corps of Engineers (herein after Permittee) for the Project. This Order is for the purpose described in the application and supplemental information submitted by the Permittee. The application was received on April 27, 2020. The application was deemed complete on July 16, 2020. Prior to receiving a complete application, Santa Ana Water Board staff issued a notice of incomplete application, and the Permittee responded to the request for application information as summarized on Table 1.

Table 1: Record of Notice(s) of Incomplete Application

Date of Notice of Incomplete Application	Date Requested Information Received
5/27/2020	6/16/2020

II. Public Notice

The Santa Ana Water Board provided public notice of the application pursuant to California Code of Regulations, title 23, section 3858 from May 8, 2020 to the effective date of the Order. The Santa Ana Water Board did not receive any comments during the comment period.

III. Project Purpose

The purpose of Project is to prevent further undercutting of the toe of the bluffs on the southern bank of the Santa Ana River. This undercutting is destabilizing the bluff face. Additionally, the Project would address runoff from the top the bluffs. This runoff has also contributed to erosion and destabilization of the bluffs.

IV. Project Description

The Project consists of constructing an approximately 1.5-mile-long embankment structure comprised of launchable rock, riprap, bedding material, and fill. The structure would range from 120 to 180 feet wide, with launchable rock extending 10 to 25 feet beyond and would be constructed from 2.5 feet below the riverbed to the top of the 100-year water surface elevation. One bluff drainage would be filled, and a system of v-ditches, catch basins, side drains, and culverts would be constructed at three other bluff drainages. The Project staging area, located off Corydon Avenue, is currently composed of paved and rocked decomposed granite surface. Temporary access would be from a constructed ramp extending down from the staging area, and a permanent access ramp would be built from top of the constructed embankment near the entrance of the embankment on Shadow Canyon Circle.

V. Project Location

The Project would take place in the floodplain and along the south bluff of the Santa Ana River, downstream of the Hamner Avenue Bridge over the Santa Ana River. The Project would continue for approximately 9,000 linear feet to the downstream end, west of the intersection of Croydon Avenue and 5th Street. The Project site is located within the City of Norco, Riverside County, in the un-sectioned Jurupa Land Grant. The Project site is located on the U.S. Geological Survey Corona North 7.5-minute topographic quadrangle map (33.9400° N/ -117.5697° W). A map showing the Project location is found in Attachment A of this Order.

VI. Project Impact and Receiving Waters Information

The Project is located within the jurisdiction of the Santa Ana Water Board. Receiving waters and groundwater potentially impacted by this Project are protected in accordance with the Water Quality Control Plan for the Santa Ana River Basin (1995) and subsequent amendments (Basin Plan) and other plans and policies. The Basin Plan includes water quality standards, which consist of existing and potential beneficial uses of waters of the State, water quality objectives to protect those uses, and the State and federal antidegradation policies.

It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

Receiving Water:	Santa Ana River, Reach 3
Existing or Potential Beneficial Uses:	Agricultural Supply (AGR), Groundwater Recharge (GWR), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), and Spawning, Reproduction, and Development (SPWN)

VII. Description of Direct Impacts to Waters of the State

Direct temporary and permanent impacts to waters of the State would occur from the excavation in preparing the site to construct the embankment structure. Fill consisting of launchable rock, riprap, bedding material, and earthen fill would permanently be discharged to construct the embankment. Additional permanent discharge of fill of earthen material, concrete for v-ditches, over-the-side drains, and culverts would be required to convey flows from the bluff drainages to the floodplain of the Santa Ana River. Addition temporary fills of earthen material would occur in constructing temporary access ramps.

Total Project fill/excavation quantities for all impacts are summarized in Table 2. Permanent impacts are categorized as those resulting in a physical loss in area and also those degrading ecological condition only.

Table 2: Total Project Fill/Excavation Quantity

Aquatic Resource Type	Temporary Impact[1]			Permanent Impact					
				Physical Loss of Area			Degradation of Ecological Condition Only		
	Acres	CY[2]	LF	Acres	CY	LF	Acres	CY	LF
Riparian Zone	20.64	--	--	27.13	--	--	--	--	--
Stream Channel	0.32	--	--	3.18	--	--	--	--	--
Wetland	0.59	--	--	1.04	--	--	--	--	--

[1] Includes only temporary direct impacts to waters of the State and does not include upland areas of temporary disturbance, which could result in a discharge to waters of the State.

[2] Cubic Yards (CY); Linear Feet (LF)

VIII. Compensatory Mitigation

The Permittee has agreed to provide compensatory mitigation for direct impacts, described in section XII.I. for permanent impacts.

IX. California Environmental Quality Act (CEQA)

Pursuant to California Code of Regulations, Title 14, Chapter 3, section 15096, as a responsible agency, the Santa Ana Water Board is required to consider CEQA documents prepared by the lead agency to determine whether a Project should receive Certification. A responsible agency has responsibility to mitigate and avoid only the direct and indirect environmental effects of those parts of the project that it decides to carry out, finance, or approve. Further, the responsible agency must make findings as required by section 15091 and, if necessary, section 15093 for each and every significant impact of the Project.

On December 17, 2001, the Permittee, as lead agency for the National Environmental Policy Act, submitted to the State Clearinghouse (SCH) a final Supplemental Environmental Impact Statement and Environmental Impact Report (SEIS/EIR) for Prado Basin and Vicinity, including the Stabilization of the Norco Bluff Toe (SCH Number 1997071087). The proposed Project is covered under this SEIS/EIR. The Prado Basin and Vicinity project is a component of Permittee's Santa Ana River Mainstem Flood Control Project. The lead CEQA agency is the Orange County Flood Control District (OCFCD) who certified the EIR in December 2001. The Permittee also prepared a Supplemental Environmental Assessment (SEA)/CEQA Addendum to the SEIS/EIR in March 2011 to address minor technical project changes and demonstrate compliance with the Western Riverside County Multiple Species Habitat Conservation Plan for the Santa Ana River Flood Control Project Reach 9, Phase 2A Embankment. Riverside County Flood Control District (RCFCD) reviewed the SEA/CEQA Addendum and determined that preparing a subsequent EIR was not necessary. RCFCD filed a Notice of Determination of the findings with the State Clearinghouse on June 14, 2011.

As required by section 15096, in approving this Certification, the Santa Ana Water Board has considered the SEIS/EIR approved by the Permittee and certified by OCFCD and subsequent information provided by the Permittee. More specifically, the Santa Ana Water Board considered those SEIS/EIR and SEA/Addendum sections pertaining to impacts to water quality standards. Based on the mitigation proposed in the SEIS/EIR and the Conditions set forth in this Certification, potentially adverse impacts to water quality standards should be reduced to a less than significant level and beneficial uses protected, if all stated mitigation and conditions are performed. Thus, the Santa Ana Water Board independently finds that to avoid or mitigate impacts to water quality to a less than significant level, changes or alterations have been required in the Project.

X. Petitions for Reconsideration

Any person aggrieved by this action may petition the State Water Resources Control Board to reconsider this Order in accordance with California Code of Regulations, title 23, section 3867. A petition for reconsideration must be submitted in writing and received within thirty (30) calendar days of the issuance of this Order.

XI. Fees Received

The Permittee is a Federal Agency and is exempt from fees.

XII. Conditions

The Santa Ana Water Board has independently reviewed the record of the Project to analyze impacts to water quality and designated beneficial uses within the watershed of the Project. In accordance with this Order, the Permittee may proceed with the Project under the following terms and conditions:

A. Authorization

Impacts to waters of the State shall not exceed quantities shown in Table 2.

B. Reporting and Notification Requirements

The following section details the reporting and notification types and timing of submittals. Requirements for the content of these reporting and notification types are detailed in Attachment B, including specifications for photo and map documentation during the Project construction. Written reports and notifications shall be submitted using the *Reporting and Notification Cover Sheet* located in Attachment B and signed by the Permittee or an authorized representative.

1. Project Reporting:

a. Annual Reporting. The Permittee shall submit an Annual Report each year on the anniversary of the effective date. Annual reporting shall continue until a *Notice of Project Complete Letter* is issued to the Permittee.

2. Project Status Notifications:

a. Commencement of Construction. The Permittee shall submit a *Commencement of Construction Report* at least seven (7) days prior to start of initial ground disturbance activities.

b. Request for Notice of Completion of Discharges Letter. The Permittee shall submit a *Request for Notice of Completion of Discharges Letter* following completion of active Project construction activities, including any required restoration and Permittee-responsible mitigation. This request shall be submitted to the Santa Ana Water Board staff within thirty (30) days following completion of all Project construction activities. Upon acceptance of the request, Santa Ana Water Board staff will issue to the Permittee a *Notice of Completion of Discharges Letter*, which will end the active discharge period and, if appropriate, associated annual fees.

c. Request for Notice of Project Complete Letter. The Permittee shall submit a *Request for Notice of Project Complete Letter* when construction and any required post-construction monitoring is complete[3] and no further Project activities will occur. This request shall be submitted to Santa Ana Water Board staff within thirty (30) days following completion of all Project activities. Upon approval of the request, the Santa Ana Water Board staff will issue to the Permittee a *Notice of Project Complete Letter*, which will end the post discharge monitoring period and associated annual fees.

[3] Completion of post-construction monitoring will be determined by Santa Ana Water Board staff and will be contingent on successful attainment of restoration and mitigation performance criteria.

3. **Conditional Notifications and Reports:** The following notifications and reports are required as appropriate.

   a. **Accidental Discharges of Hazardous Materials.**[4] Following an accidental discharge of a reportable quantity of a hazardous material, sewage, or an unknown material, the following applies (Water Code, section 13271):

      i. As soon as (A) the Permittee has knowledge of the discharge or noncompliance, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures then, the Permittee shall:
         - first call – 911 (to notify local response agency)
         - then call – Office of Emergency Services (OES) State Warning Center at (800) 852-7550 or (916) 845-8911
         - lastly follow the required OES procedures as set forth in the *California Hazardous Materials Spill / Release Notification Guidance*

      ii. Following notification to OES, the Permittee shall notify Santa Ana Water Board, as soon as practicable (ideally within twenty-four [24] hours). Notification may be via telephone, email, delivered written notice, or other verifiable means.

      iii. Within five (5) working days of notification to the Santa Ana Water Board, the Permittee shall submit an *Accidental Discharge of Hazardous Material Report.*

   b. **Violation of Compliance with Water Quality Standards.** The Permittee shall notify the Santa Ana Water Board of any event causing a violation of compliance with water quality standards. Notification may be via telephone, email, delivered written notice, or other verifiable means.

      i. Examples of noncompliance events include lack of storm water treatment following a rain event, discharges causing a visible plume in a water of the State, and water contact with uncured concrete.

      ii. This notification shall be followed within three (3) working days by submission of a *Violation of Compliance with Water Quality Standards Report* to the Santa Ana Water Board.

   c. **In-Water Work.**

      i. The Permittee shall notify the Santa Ana Water Board at least forty-eight (48) hours prior to initiating work in water or stream diversions. Notification may be via telephone, email, delivered written notice, or other verifiable means.

[4] "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. (Health and Code, section 25501)

ii. Within three (3) working days following completion of work in water or stream diversions, an *In-Water Work/Diversions Water Quality Monitoring Report* shall be submitted to Santa Ana Water Board staff.

d. **Modifications to Project.** Project modifications may require an amendment of this Order. The Permittee shall give advance notice to Santa Ana Water Board staff by submitting a *Modifications to Project Report*, if Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, State, or federal regulatory authority. The Permittee shall inform Santa Ana Water Board staff of any Project modifications that will interfere with the Permittee's compliance with this Order. Notification may be made in accordance with conditions in the Certification Deviation section of this Order.

e. **Transfer of Property Ownership.** This Order is not transferable in its entirety or in part to any person or organization except after notice to the Santa Ana Water Board in accordance with the following terms:

i. The Permittee shall notify the Santa Ana Water Board by submitting a *Transfer of Property Ownership Report*, of any change in ownership or interest in ownership of the Project area. The Permittee and purchaser shall sign and date the notification and provide such notification to the Santa Ana Water Board at least ten (10) days prior to the transfer of ownership. The purchaser shall also submit a written request to the Santa Ana Water Board to be named as the permittee in a revised order.

ii. Until such time as this Order has been modified to name the purchaser as the permittee, the Permittee shall continue to be responsible for all requirements set forth in this Order.

f. **Transfer of Long-Term Best Management Practices (BMPs) Maintenance.** If maintenance responsibility for post-construction BMPs is legally transferred, the Permittee shall submit to the Santa Ana Water Board a copy of such documentation and shall provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer or designer specifications. The Permittee shall provide such notification to the Santa Ana Water Board with a *Transfer of Long-Term BMP Maintenance Report* at least ten (10) days prior to the transfer of BMP maintenance responsibility.

C. Water Quality Monitoring

1. **General:** If surface water is present, continuous visual surface water monitoring shall be conducted to detect accidental discharge of construction related pollutants (e.g., oil, grease, turbidity plume, or uncured concrete).

2. **Accidental Discharges/Noncompliance:** Upon occurrence of an accidental discharge of hazardous materials or a violation of compliance with a water quality standard, Santa Ana Water Board staff may require water quality monitoring based on the discharge constituents and/or related water quality objectives and beneficial uses.

3. **In-Water Work or Diversions:** During planned work in water or stream diversions any discharge(s) to waters of the State shall conform to the following water quality standards.

   a. **Oil and Grease.** Waste discharges shall not result in deposition of oil, grease, wax, or other material in concentrations that result in a visible film or in coating objects in the water, or that cause a nuisance or adversely affect beneficial uses.

   b. **Oxygen.** The dissolved oxygen content of surface waters shall not be depressed below 5 mg/L for waters designated WARM, as a result of controllable water quality factors. In addition, waste discharge shall not cause the median dissolved oxygen concertation to fall below 85 percent of saturation or the 95th percentile concentration or fall below 75 percent of saturation within a 30-day period.

   c. **pH.** The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharge.

   d. **Turbidity.** Increases in turbidity that result from controllable water quality factors shall comply with the following: where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed 20 percent; where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU; and where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent. Changes in turbidity shall not adversely affect beneficial uses. Measurements of turbidity shall be taken 100 feet downstream of Project activities.

   e. **Temperature.** The temperature of waters designated WARM shall not be raised above 90°F June through October or above 78°F during the rest of the year as a result of controllable water quality factors

   Sampling shall be conducted in accordance with Table 3 sampling parameters.[5]

Table 3: Sample Type and Frequency Requirements

Parameter	Unit of Measurement	Type of Sample	Minimum Frequency
Oil and Grease	N/A	Visual	Continuous
Dissolved Oxygen	mg/L & % saturation	Grab	Once per day during in-water work
pH	Standard Units	Grab	Once per day during in-water work
Turbidity	NTU	Grab	Once per day during in-water work
Temperature	°F (or as °C)	Grab	Once per day during in-water work

[5] Pollutants shall be analyzed using the analytical methods described in 40 Code of Federal Regulations Part 136; where no methods are specified for a given pollutant, a description of the method to be used must be submitted to the Santa Ana Water Board staff for approval. Grab samples shall be taken between the surface and mid-depth and not be collected at the same time each day to get a complete representation of variations in the receiving water. A hand-held field meter may be used, provided the meter utilizes a U.S. Environmental Protection Agency-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring shall be maintained onsite.

Baseline sampling shall be conducted at least at one location within the Project boundary. All other sampling shall take place at a minimum of two locations: the sample locations shall be upstream and downstream of the construction area. Results of the analyses shall be submitted to the Santa Ana Water Board by the 15th day of each subsequent sampling month. A map or drawing indication the locations of sampling points shall be included with each submittal.

4. **Post-Construction.** The Permittee shall visually inspect the Project site during the rainy season for five (5) years to ensure excessive erosion, stream instability, or other water quality pollution is not occurring in or downstream of the Project site. If water quality pollution is occurring, contact the Santa Ana Water Board staff member overseeing the Project within three (3) working days. The Santa Ana Water Board may require the submission of a *Violation of Compliance with Water Quality Standards Report*. Additional permits may be required to carry out any necessary site remediation.

D. Standards

1. This Certification will remain valid for five (5) years from the effective date of the Certification.

2. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23, chapter 28, Article 6 commencing with sections 3867-3869, inclusive. Additionally, the Santa Ana Water Board reserves the right to suspend, cancel, or modify and reissue this Order, after providing notice to the Permittee, if the Santa Ana Water Board determines that the Project fails to comply with any of the conditions of this Order, or when necessary to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act (Water Code, sections 13000 et seq.) or federal Clean Water Act section 303 (Title 33 U.S Code section 1313). For purposes of Clean Water Act section 401(d), the condition constitutes a limitation necessary to assure compliance with water quality standards and appropriate requirements of State law.

3. This Order is not intended and shall not be construed to apply to any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to subsection 3855(b) of chapter 28, title 23 of the California Code of Regulations, and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

4. This Order is conditioned upon total payment of any fee required under title 23 of the California Code of Regulations and owed by the Permittee.

5. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, processes, or sanctions as provided for under State and federal law. For purposes of Clean Water Act, section 401(d), the applicability of any State law authorizing remedies, penalties, processes, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Order.

E. General Compliance

1. Failure to comply with any condition of this Order shall constitute a violation of the Porter-Cologne Water Quality Control Act and the Clean Water Act. The Permittee and/or discharger may then be subject to administrative and/or civil liability pursuant to Water Code section 13385.

2. If the conditions of this Order are changed, any of the criteria or conditions as previously described are not met, or new information becomes available that indicates a water quality problem, the Santa Ana Water Board may require that the Permittee submit a *Report of Waste Discharge* and obtain *Waste Discharge Requirements*.

3. Permitted actions shall not cause a violation of any applicable water quality standards, including impairment of designated beneficial uses for receiving waters, as adopted in the Basin Plan and subsequent Basin Plan Amendments or in any applicable State Water Resources Control Board water quality control plan or policy. The source of any such discharge shall be eliminated as soon as practicable.

4. In response to a suspected violation of any condition of this Order, the Santa Ana Water Board may require the holder of this Order to furnish, under penalty of perjury, any technical or monitoring reports the Santa Ana Water Board deems appropriate, provided that the burden, including costs, of the reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The additional monitoring requirements ensure that permitted discharges and activities comport with any applicable effluent limitations, water quality standards, and/or other appropriate requirement of State law.

5. The Permittee shall, at all times, fully comply with engineering plans, specifications, and technical reports submitted to support this Order and all subsequent submittals required as part of this Order. The conditions within this Order and Attachments supersede conflicting provisions within Permittee submittals.

6. This Order and all of its conditions contained herein continue to have full force and effect regardless of the expiration or revocation of any federal license or permit issued for the Project. For purposes of Clean Water Act, section 401(d), this condition constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements of State law.

F. Administrative

1. Signatory requirements for all document submittals required by this Order are presented in Attachment C of this Order.

2. This Order does not authorize any act that results in the taking of a threatened, endangered, or candidate species, or any act that is now prohibited or becomes prohibited in the future under either the California Endangered Species Act (Fish and Game Code, sections 2050-2097) or the federal Endangered Species Act (Title 16 U.S. Code sections 1531-1544). If a “take” will result from any act authorized under this Order held by the Permittee, the Permittee shall obtain authorization for the take prior to any construction or operation of the portion of the Project that may result in a take. The Permittee is responsible for meeting all requirements of the applicable endangered species act for the Project authorized under this Order.

3. The Permittee shall grant Santa Ana Water Board staff or an authorized representative (including an authorized contractor acting as a Water Board representative), upon presentation of credentials and other documents as may be required by law, permission to:

   a. Enter upon the Project or compensatory mitigation site(s) premises where a regulated facility or activity is located or conducted, or where records are kept;

   b. Have access to and copy any records that are kept and are relevant to the Project or the requirements of this Order;

   c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order;

   d. Sample or monitor for the purposes of assuring Order compliance.

4. A copy of this Order shall be provided to any consultants, contractors, and subcontractors working on the Project. Copies of this Order shall remain at the Project site for the duration of this Order. The Permittee shall be responsible for work conducted by its consultants, contractors, and any subcontractors.

5. A copy of this Order shall be available at the Project site(s) during construction for review by site personnel and agencies. All personnel performing work on the Project shall be familiar with the content of this Order and its posted location at the Project site.

6. **Lake and Streambed Alteration Agreement:** The Permittee shall submit a signed copy of the California Department of Fish and Wildlife's lake and streambed alteration agreement to the Santa Ana Water Board immediately upon execution and prior to any discharge to waters of the State.

G. Construction

1. **Dewatering:** Construction dewatering discharges, including temporary stream diversions necessary to carry out the Project, are subject to regulation by Santa Ana Water Board Order No. R8-2020-0006, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimis) Threat to Water Quality.

2. **Construction General Permit Requirement:** The Permittee shall maintain compliance with conditions described in, and required by, NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS000002) and any subsequent approvals.

3. **Good Site Management "Housekeeping":**

   a. A Storm Water Pollution Prevention Plan (SWPPP) shall be developed by the construction contractor prior to Project implementation. The SWPPP shall include measures to prevent sediment from entering the watercourse during construction.

   b. BMPs for effective perimeter control shall be in place at all times to control the discharge of pollutants from the Project site during construction. Construction waste shall be contained and protected against wind and exposure to storm water at all times, unless being actively handled. Chemical, fuel, and lubricant containers shall be kept closed and protected from damage or upset at all times, unless being

actively used. Dirt and landscaping material stockpiles shall have effective erosion control BMPs in place to prevent their transport in storm water or directly into the channel and shall not be located in any waters of the United States. Discharges of wastewater from the Project site are prohibited.

c. Substances resulting from Project-related activities and that could be harmful to aquatic life shall not be discharged to soils or waters of the State. These substances include but are not limited to petroleum lubricants and fuels, cured and uncured cements, epoxies, paints and other protective coating materials, Portland cement concrete or asphalt concrete, and washings and cuttings thereof. All waste concrete shall be removed from the Project site.

d. Motorized equipment shall not be maintained or parked in or near any stream crossing, channel, or lake margin in such manner that petroleum products or other pollutants from the equipment might enter these areas under any flow conditions. Vehicles shall not be driven, or equipment shall not be operated on-site in waters of the State onsite, except as necessary to complete the proposed Project.

e. Prior to construction activities, the Permittee shall delineate the work area with brightly colored fencing or other methods to ensure temporary impacts to waters of the United States and waters of the State do not exceed the limits authorized in this Certification.

4. **Hazardous Materials:** During construction activities, the Permittee shall comply with local, State, and federal laws and regulations regarding the handling and storage of hazardous substances.
5. **Invasive Species and Soil Borne Pathogens:** BMPs to stabilize disturbed soils shall include the use of native plant species whenever feasible.
6. **Storm Water:** The Project shall comply with the local regulations associated with the Santa Ana Water Board's Municipal Stormwater Permit issued to Riverside County and co-permittees under NPDES No. CAS618033 and Waste Discharge Requirements Order No. R8-2010-0033, and subsequent iterations thereof.

H. Mitigation for Temporary Impacts

1. The Permittee shall restore all areas of temporary impacts to waters of the State and all Project site upland areas of temporary disturbance, which could result in a discharge of waters of the State, in accordance with the Temporary Impact Restoration Plan submitted for written acceptance by Santa Ana Water Board staff within sixty days (60) of issuance of this Order. The restoration plan shall provide the following: a schedule; plans for grading of disturbed areas to pre-Project contours; planting palette with plant species native to the Project area; seed and pole cutting collection location; invasive species management; performance standards; and maintenance requirements (e.g., watering, weeding, and replanting).

2. The Santa Ana Water Board may extend the monitoring period beyond requirements of the restoration plan upon a determination by Santa Ana Water Board Executive Officer that the performance standards have not been met or are not likely to be met within the monitoring period.

3. If restoration of temporary impacts to waters of the State, as detailed in Table 4, is not completed within sixty (60) days of the impacts, compensatory mitigation may be required to offset temporal loss of waters of the State.

Table 4: Required Project Mitigation Quantity for Temporary Impacts

Aquatic Resource Type	Mit. Type[6]	Units	Method[7]					
			Est.	Re-est.	Reh.	Enh.	Pres.	Unknown
Wetland	PR	Acres	--	--	0.59	--	--	--
Riparian Zone	PR	Acres	--	--	20.64	--	--	--
Stream Channel	PR	Acres	--	--	0.32	--	--	--

I. Compensatory Mitigation for Permanent Impacts[8]

1. **Final Compensatory Mitigation Plan:** The Permittee shall provide compensatory mitigation for impacts to waters of the State in accordance with the Santa Ana Water Board-Approved Compensatory Mitigation Plan. The Compensatory Mitigation Plan shall be submitted for written acceptance by Santa Ana Water Board staff within sixty (60) days of issuance of this Order.

2. **Compensatory Mitigation Monitoring Requirements:** The Permittee shall provide annual monitoring reports that discuss mitigation activities performed, progress towards success criteria, and use of the mitigation area by special status species. Annual monitoring is required for a minimum of five (5) years. The monitoring period shall continue until the Santa Ana Water Board staff determines that performance standards have been met. This may require the monitoring period to be extended beyond the minimum five-year period.

3. **Compensatory Mitigation Plan:**

   a. The Permittee shall provide a final compensatory mitigation plan for written acceptance by Santa Ana Water Board staff. Impacts to waters of the State are not authorized and shall not occur until a compensatory mitigation plan has been approved by Santa Ana Water Board staff. Upon acceptance by Santa Ana Water Board staff, the Permittee shall implement the approved plan.

[6] Mitigation type for onsite restoration of temporary impacts is Permittee-Responsible (PR).

[7] Methods: establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.). Unknown applies to advance credits with an unknown method and or location.

[8] Compensatory Mitigation is for permanent physical loss and permanent ecological degradation of a water of the State.

b. The final compensatory mitigation plan shall include all plan elements as outlined in Title 40 Code of Federal Regulations section 230.94(c), including: a restoration schedule; grading plans; planting palette with plant species native to the Project area; seed and pole cutting collection location; invasive species management; monitoring protocols, performance standards; and maintenance requirements (e.g., watering, weeding, and replanting). The plan shall also include GIS files detailing the location of mitigation location and types for this Project and other Permittee mitigation areas for other projects within the Prado Basin.

4. Permittee-Responsible Compensatory Mitigation Responsibility:

a. Permittee-responsible compensatory mitigation installation shall be completed within thirty (30) days from the start of authorized impacts.

b. The Permittee is responsible for the required compensatory mitigation in perpetuity. However, the Permittee may transfer the compensatory mitigation requirements associated with long-term management when the following conditions have been met:

i. Performance standards are met.

ii. A Transfer Agreement to a third party has been approved by Santa Ana Water Board staff.

iii. An endowment fund has been provided by the Permittee to a third party for management in perpetuity of the mitigation site.

iv. A conservation easement, deed restriction, or other appropriate restrictive covenant for the mitigation site has been recorded and approved by Santa Ana Water Board staff.

c. Transfer of Long-Term Permittee-Responsible Compensatory Mitigation and Management Responsibility

i. A transfer agreement shall be submitted from an authorized representative of the new party (transferee) for acceptance by Santa Ana Water Board staff. This agreement shall demonstrate acceptance and understanding of the responsibility to comply with and fully satisfy the required compensatory mitigation and long-term management conditions. Failure to comply with the mitigation conditions and associated requirements may subject the transferee to enforcement by the Santa Ana Water Board under Water Code section 13385, subdivision (a).

ii. Notification of transfer of responsibilities meeting the above condition must be provided to the Santa Ana Water Board staff. A draft transfer agreement is due to Santa Ana Water Board staff no less than thirty (30) days prior to the transfer of the mitigation responsibility. A final transfer agreement is due to Santa Ana Water Board staff within thirty (30) days of the completion of the transfer.

5. Total Required Compensatory Mitigation:

a. The Permittee shall provide compensatory mitigation for the authorized impact to wetland, riparian, and streambed waters of the United States by reestablishment and

enhancement of wetland, riparian, and streambed habitats in the Santa Ana River and its floodplain and tributaries in the Prado Basin area. The mitigation for permanent impacts shall occur at a 5:1 mitigation ratio (mitigation:impact). The Permittee shall also provide riparian and wetland enhancement at 1:1 mitigation ratio for temporary impacts

b. The Permittee shall provide the total required Project compensatory mitigation information for permanent physical loss of area as summarized in Table 5.

Table 5: Required Project Compensatory Mitigation Quantity for Permanent Physical Loss of Area

Aquatic Resource Type	Comp Mit. Type[9]	Units	Method[10]					
			Est.	Re-est.	Reh.	Enh.	Pres.	Unknown
Riparian and Wetland	PR	Acres	--	21.45	--	187.3	--	--

XIII. Certification Deviation

A. Minor modifications of Project locations or predicted impacts may be necessary as a result of unforeseen field conditions, necessary engineering re-design, construction concerns, or similar reasons. Some of these prospective Project modifications may have impacts on water resources. For purposes of this Certification, a *Certification Deviation* is a Project locational or impact modification that does not require an immediate amendment of the Order because the Santa Ana Water Board has determined that any potential water resource impacts that may result from the change are sufficiently addressed by the Order conditions and the CEQA Findings. After the termination of construction, this Order will be formally amended to reflect all authorized Certification Deviations and any resulting adjustments to the amount of water resource impacts and required compensatory mitigation amounts.

B. A Project modification shall not be granted a *Certification Deviation* if it warrants or necessitates changes that are not addressed by the Order conditions or the environmental document such that the Project impacts are not addressed in the Project's environmental document or the conditions of this Order. In this case, a supplemental environmental review and different Order will be required.

XIV. Water Quality Certification

I hereby issue the Order (SARWQCB WDID # 332020-12) for the *Lower Norco Bluffs Bluff Toe Stabilization* Project. This Order certifies that any discharge from the referenced Project

[9] Compensatory mitigation type may be: In-Lieu-Fee (ILF); Mitigation Bank (MB); Permittee-Responsible (PR)

[10] Methods: establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.). Unknown applies to advance credits with an unknown method and or location.

will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), as long as all of the conditions listed in the Order are met.

This discharge is also regulated pursuant to State Water Resource Control Board Water Quality Order No. 2003-0017-DWQ, which authorizes this Order to serve as Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act (Water Code, sections 13000 et seq.).

Except insofar as may be modified by any preceding conditions, all Order actions are contingent on: (a) the discharge being limited, and all proposed mitigation being completed in strict compliance with the conditions of this Order and the attachments to this Order; and (b) compliance with all applicable requirements of Statewide Water Quality Control Plans and Policies and the Santa Ana Water Board's Basin Plan and Policies.

Hope Smythe
Digitally signed by Hope Smythe
Date: 2020.08.31 11:00:43 -07'00'
Water Boards

Hope A. Smythe
Executive Officer
Santa Ana Water Quality Control Board

Date

Attachment A Project Map(s)
Attachment B Report and Notification Requirements
Attachment C Signatory Requirements


332020-12 Lower Norco Bluffs
Bluff Toe Stabilization Project
Archibald Ave.
Bluff St.
Lake
Norconian
Norco Dr.
Santa Ana River
Hamner Ave.
I-15
N
0
1,000
2,000
4,000
Feet
Pomona
Ontario
Corona
Rivers

Copies of this Form

In order to identify your Project, it is necessary to include a copy of the Project-specific Cover Sheet below with your report (see page 3). Please retain for your records.

Report Submittal Instructions

1. Check the box on the *Report and Notification Cover Sheet* next to the report or notification you are submitting.

    - **Part A (Annual Report):** Submitted annually from the anniversary of the Project effective date until a *Notice of Project Complete Letter* is issued.
    - **Part B (Project Status Notifications):** Used to notify the Santa Ana Water Board of the status of the Project schedule that may affect Project billing.
    - **Part C (Conditional Notifications and Reports):** Required on a case-by-case basis for accidental discharges of hazardous materials, violation of compliance with water quality standards, notification of in-water work, or other reports.

2. Sign the *Report and Notification Cover Sheet* and attach all information requested for the Report Type.

3. **Electronic Report Submittal Instructions:**
    - Submit signed *Report and Notification Cover Sheet* and required information via email to: RB8-401Reporting@waterboards.ca.gov
    - Include in the subject line of the email:

    Subject: ATTN: Jason Bill; Reg. Measure ID: 437995 Report.

Definition of Reporting Terms

1. **Active Discharge Period:** The active discharge period begins with the effective date of this Order and ends on the date that the Permittee receives a *Notice of Completion of Discharges Letter* or, if no post-construction monitoring is required, a *Notice of Project Complete Letter*. The Active Discharge Period includes all elements of the Project, including site construction and restoration, and any Permittee responsible compensatory mitigation construction.

2. **Request for Notice of Completion of Discharges Letter:** This request by the Permittee to the Santa Ana Water Board staff pertains to projects that have post construction monitoring requirements (e.g., if site restoration were required to be monitored for five (5) years following construction). Santa Ana Water Board staff will review the request and send a *Completion of Discharges Letter* to the Permittee upon approval. This letter will initiate the post-discharge monitoring period and a change in fees from the annual active discharge fee to the annual post-discharge monitoring fee.

3. **Request for Notice of Project Complete Letter:** This request by the Permittee to the Santa Ana Water Board staff pertains to projects that either have completed post-construction monitoring and achieved performance standards, or have no post-construction monitoring requirements and no further Project activities are planned. Santa Ana Water Board staff will review the request and send *a Project Complete Letter* to the Permittee upon approval. Termination of annual invoicing of fees will correspond with the date of this letter.

4. **Post-Discharge Monitoring Period:** The post-discharge monitoring period begins on the date of the *Notice of Completion of Discharges Letter* and ends on the date of the *Notice of Project Complete Letter* issued by the Santa Ana Water Board staff. The Post-Discharge Monitoring Period includes continued water quality monitoring or compensatory mitigation monitoring.

5. **Effective Date:** Date of Order issuance.

Map/Photo Documentation Information

When submitting maps or photos, please use the following formats.

1. **Map Format Information:**
   Preferred map formats of at least 1:24000 (1" = 2000') detail (listed in order of preference):
   - **GIS shapefiles**: The shapefiles shall depict the boundaries of all Project areas and extent of aquatic resources impacted. Each shape should be attributed with the extent/type of aquatic resources impacted. Features and boundaries should be accurate to within 33 feet (10 meters). Identify datum/projection used and, if possible, provide map with a North American Datum of 1983 (NAD83) in the California Teale Albers projection in feet.
   - **Google KML files** saved from Google Maps: My Maps or Google Earth Pro. Maps shall show the boundaries of all Project areas and extent/type of aquatic resources impacted. Include URL(s) of maps. If this format is used, include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
   - **Other electronic format** (CAD or illustration format) that provides a context for location (inclusion of landmarks, known structures, geographic coordinates, or USGS DRG or DOQQ). Maps shall show the boundaries of all Project areas and extent/type of aquatic resources impacted. If this format is used, include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
   - Aquatic resource maps marked on paper **USGS 7.5-minute topographic maps** or **Digital Orthophoto Quarter Quads (DOQQ)** printouts. Maps shall show the boundaries of all Project areas and extent/type of aquatic resources impacted. If this format is used, include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.

2. **Photo-Documentation:** Include a unique identifier, date stamp, written description of photo details, and latitude/longitude (in decimal degrees) or map indicating location of photo. Successive photos should be taken from the same vantage point to compare pre/post construction conditions.

REPORT AND NOTIFICATION COVER SHEET

Project:	Lower Norco Bluffs Bluff Toe Stabilization
Permittee:	United States Army Corps of Engineers
SARWQCB WDID:	332020-12
Reg. Meas. ID:	437995 **Place ID:** 866672
Order Effective Date:	August 31, 2020

Report Type Submitted

Part A – Project Reporting	
Report Type 1	☐ **Annual Report**
Part B - Project Status Notifications	
Report Type 2	☐ **Commencement of Construction**
Report Type 3	☐ **Request for Notice of Completion of Discharges Letter**
Report Type 4	☐ **Request for Notice of Project Complete Letter**
Part C - Conditional Notifications and Reports	
Report Type 5	☐ **Accidental Discharge of Hazardous Material Report**
Report Type 6	☐ **Violation of Compliance with Water Quality Standards Report**
Report Type 7	☐ **In-Water Work and Diversions Water Quality Monitoring Report**
Report Type 8	☐ **Modifications to Project Report**
Report Type 9	☐ **Transfer of Property Ownership Report**
Report Type 10	☐ **Transfer of Long-Term Best Management Practices (BMPs) Maintenance Report**

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name [1]	**Affiliation and Job Title**
Signature	**Date**

[1]STATEMENT OF AUTHORIZATION (include if authorization has changed since application was submitted)

I hereby authorize _____ to act in my behalf as my representative in the submittal of this report, and to furnish upon request supplemental information in support of this submittal.

Permittee's Signature	Date

***This Report and Notification Cover Sheet must be signed by the Permittee or a duly authorized representative and included with all written submittals.**

Part A – Project Reporting

Report Type 1	**Annual Report**
Report Purpose	Notify the Santa Ana Water Board staff of Project status during both the active discharge and post-discharge monitoring periods.
When to Submit	Annual reports shall be submitted each year by the effective date. Annual reports shall continue until a Notice of Project Complete Letter is issued to the Permittee.
Report Contents	The contents of the annual report shall include the topics indicated below for each Project period. Report contents are outlined in Annual Report Topics below. **<u>During the Active Discharge Period</u>** • **Topic 1: Construction Summary** • **Topic 2: Mitigation for Temporary Impacts Status** • **Topic 3: Compensatory Mitigation for Permanent Impacts Status** **<u>During the Post-Discharge Monitoring Period</u>** • **Topic 2: Mitigation for Temporary Impacts Status** • **Topic 3: Compensatory Mitigation for Permanent Impacts Status**
Annual Report Topics (1-3)	
Annual Report Topic 1	**Construction Summary**
When to Submit	With the annual report during the Active Discharge Period.
Report Contents	**1.** Project progress and schedule, including initial ground disturbance, site clearing and grubbing, road construction, site construction, and the implementation status of construction storm water BMPs. If construction has not started, provide estimated start date and reasons for delay. **2.** Map showing general Project progress. **3.** If applicable: **a.** Summary of Conditional Notification and Report Types 6 and 7 (Part C below). **b.** Summary of Certification Deviations.
Annual Report Topic 2	**Mitigation for Temporary Impacts Status**
When to Submit	With the annual report during both the Active Discharge Period and Post-Discharge Monitoring Period.
Report Contents	**1.** Planned date of initiation and map showing locations of mitigation for temporary impacts to waters of the State and all upland areas of temporary disturbance which could result in a discharge to waters of the State.

	2. If mitigation for temporary impacts has already commenced, provide a map and information concerning attainment of performance standards contained in the restoration plan.
Annual Report Topic 3	**Compensatory Mitigation for Permanent Impacts Status**
When to Submit	With the annual report during both the Active Discharge Period and Post-Discharge Monitoring Period.
Report Contents	***If not applicable report N/A.** **Part A. Permittee Responsible** **1.** Planned date of initiation of compensatory mitigation site installation. **2.** If installation is in progress, a map of what has been completed to date. **3.** If the compensatory mitigation site has been installed, provide a final map and information concerning attainment of performance standards contained in the compensatory mitigation plan. **Part B. Mitigation Bank or In-Lieu Fee (ILF)** **1.** Status or proof of purchase of credit types and quantities. **2.** Include the name of bank/ILF Program and contact information. **3.** If ILF, location of project and type if known.

Part B – Project Status Notifications

Report Type 2	Commencement of Construction
Report Purpose	Notify Santa Ana Water Board staff prior to the start of construction.
When to Submit	Must be received at least seven (7) days prior to start of initial ground disturbance activities.
Report Contents	1. Date of commencement of construction. 2. Anticipated date when discharges to waters of the State will occur. 3. Project schedule milestones, including a schedule for onsite compensatory mitigation, if applicable.

Report Type 3	Request for Notice of Completion of Discharges Letter
Report Purpose	Notify Santa Ana Water Board staff that post-construction monitoring is required and that active Project construction, including any mitigation and permittee responsible compensatory mitigation, is complete.
When to Submit	Must be received by Santa Ana Water Board staff within thirty (30) days following completion of all Project construction activities.
Report Contents	1. Status of storm water Notice of Termination(s), if applicable. 2. Status of post-construction storm water BMP installation. 3. Pre- and post-photo documentation of all Project activity sites where the discharge of dredge and/or fill/excavation was authorized. 4. Summary of Certification Deviation discharge quantities compared to initial authorized impacts to waters of the State, if applicable. 5. An updated monitoring schedule for mitigation for temporary impacts to waters of the State and Permittee responsible compensatory mitigation during the post-discharge monitoring period, if applicable.

Report Type 4	Request for Notice of Project Complete Letter
Report Purpose	Notify Santa Ana Water Board staff that construction and/or any post-construction monitoring is complete, or is not required, and no further Project activity is planned.
When to Submit	Must be received by Santa Ana Water Board staff within thirty (30) days following completion of all Project activities.
Report Contents	**Part A: Mitigation for Temporary Impacts** 1. A report establishing that the performance standards outlined in the restoration plan have been met for Project site upland areas of temporary disturbance that could result in a discharge to waters of the State. 2. A report establishing that the performance standards outlined in the restoration plan have been met for restored areas of temporary impacts to waters of the State. Pre- and post-photo documentation of all restoration sites. **Part B: Permittee Responsible Compensatory Mitigation**

	1. A report establishing that the performance standards outlined in the compensatory mitigation plan have been met. **2.** Status on the implementation of the long-term maintenance and management plan and funding of endowment. **3.** Pre- and post-photo documentation of all compensatory mitigation sites. **4.** Final maps of all compensatory mitigation areas (including buffers). **Part C: Post-Construction Storm Water BMPs** **1.** Date of storm water Notice of Termination(s), if applicable. **2.** Report status and functionality of all post-construction BMPs.

Part C – Conditional Notifications and Reports

Report Type 5	Accidental Discharge of Hazardous Material Report
Report Purpose	Notifies Santa Ana Water Board staff that an accidental discharge of hazardous material has occurred.
When to Submit	Within five (5) working days following the date of an accidental discharge. Continue reporting as required by Santa Ana Water Board staff.
Report Contents	**1.** The report shall include the *OES Incident/Assessment Form*, a full description and map of the accidental discharge incident (i.e., location, time and date, source, discharge constituent and quantity, aerial extent, and photo documentation). If applicable, the OES Written *Follow-Up Report* may be substituted. **2.** If applicable, any required sampling data, a full description of the sampling methods, including frequency/dates and times of sampling, equipment, locations of sampling sites. **3.** Locations and construction specifications of any barriers, including silt curtains or diverting structures and any associated trenching or anchoring.

Report Type 6	Violation of Compliance with Water Quality Standards Report
Report Purpose	Notifies Santa Ana Water Board staff that a violation of compliance with water quality standards has occurred.
When to Submit	The Permittee shall report any event that causes a violation of water quality standards within three (3) working days of the noncompliance event notification to Santa Ana Water Board staff.
Report Contents	The report shall include: the cause; the location shown on a map; and the period of the noncompliance, including exact dates and times. If the noncompliance has not been corrected, include: the anticipated time it is expected to continue; the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and any monitoring results, if required by Santa Ana Water Board staff.

Report Type 7	In-Water Work and Diversions Water Quality Monitoring Report
Report Purpose	Notifies Santa Ana Water Board staff of the completion of in-water work.
When to Submit	Within three (3) working days following the completion of in-water work. Continue reporting in accordance with the approved water quality monitoring plan.
Report Contents	As required by the approved water quality monitoring plan.

Report Type 8	**Modifications to Project Report**
Report Purpose	Notifies Santa Ana Water Board staff if the Project, as described in the application materials, is altered in any way or by the imposition of subsequent permit conditions by any local, State, or federal regulatory authority.
When to Submit	If Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, State, or federal regulatory authority.
Report Contents	A description and location of any alterations to Project implementation. Identification of any Project modifications that will interfere with the Permittee's compliance with the Order.

Report Type 9	**Transfer of Property Ownership Report**
Report Purpose	Notifies Santa Ana Water Board staff of change in ownership of the Project or Permittee-responsible mitigation area.
When to Submit	At least ten (10) working days prior to the transfer of ownership.
Report Contents	**1.** A statement that the Permittee has provided the purchaser with a copy of this Order and that the purchaser understands and accepts: **a.** the Order's requirements and the obligation to implement them or be subject to administrative and/or civil liability for failure to do so; and **b.** responsibility for compliance with any long-term BMP[1] maintenance plan requirements in this Order. **2.** A statement that the Permittee has informed the purchaser to submit a written request to the Santa Ana Water Board to be named as the permittee in a revised order.

Report Type 10	**Transfer of Long-Term BMP Maintenance Report**
Report Purpose	Notifies Santa Ana Water Board staff of transfer of long-term BMP maintenance responsibility.
When to Submit	At least 10 working days prior to the transfer of BMPs maintenance responsibility.
Report Contents	A copy of the legal document transferring maintenance responsibility of post-construction BMPs.

[1] Best Management Practices (BMPs) is a term used to describe a type of environmental or water pollution control.

SIGNATORY REQUIREMENTS

All Documents Submitted In Compliance With This Order
Shall Meet The Following Signatory Requirements:

1. All applications, reports, or information submitted to the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) shall be signed and certified as follows:

    a) For a corporation, by a responsible corporate officer of at least the level of vice-president.
    b) For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
    c) For a municipality, or a State, federal, or other public agency, by either a principal executive officer or ranking elected official.

2. A duly authorized representative of a person designated in items 1.a through 1.c above may sign documents if:

    a) The authorization is made in writing by a person described in items 1.a through 1.c above.
    b) The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
    c) The written authorization is submitted to the Santa Ana Water Board staff contact prior to submitting any documents listed in item 1 above.

3. Any person signing a document under this section shall make the following certification:

    “I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

Correspondence with RWQCB and Modification Report

REPORT AND NOTIFICATION COVER SHEET

Project:	Lower Norco Bluffs Bluff Toe Stabilization
Permittee:	United States Army Corps of Engineers
SARWQCB WDID:	332020-12
Reg. Meas. ID:	437995 **Place ID:** 866672
Order Effective Date:	August 31, 2020

Report Type Submitted

Part A – Project Reporting	
Report Type 1	☐ **Annual Report**
Part B - Project Status Notifications	
Report Type 2	☐ **Commencement of Construction**
Report Type 3	☐ **Request for Notice of Completion of Discharges Letter**
Report Type 4	☐ **Request for Notice of Project Complete Letter**
Part C - Conditional Notifications and Reports	
Report Type 5	☐ **Accidental Discharge of Hazardous Material Report**
Report Type 6	☐ **Violation of Compliance with Water Quality Standards Report**
Report Type 7	☐ **In-Water Work and Diversions Water Quality Monitoring Report**
Report Type 8	☒ **Modifications to Project Report**
Report Type 9	☐ **Transfer of Property Ownership Report**
Report Type 10	☐ **Transfer of Long-Term Best Management Practices (BMPs) Maintenance Report**

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Jenna May	USACE, Biologist
Print Name [1]	**Affiliation and Job Title**
Jenna May	March 15, 2021
Signature	**Date**

[1]STATEMENT OF AUTHORIZATION (include if authorization has changed since application was submitted)

I hereby authorize _____ to act in my behalf as my representative in the submittal of this report, and to furnish upon request supplemental information in support of this submittal.

_____ _____
Permittee's Signature Date

***This Report and Notification Cover Sheet must be signed by the Permittee or a duly authorized representative and included with all written submittals.**

Santa Ana River Mainstem Project:

Lower Norco Bluffs Toe Protection Project

Modifications to Project Report

US Army Corps of Engineers

Los Angeles District

March 2021

INTRODUCTION

This Modifications to Project Report for the Lower Norco Bluffs Toe Protection (Lower Norco Bluffs) portion of the Santa Ana River Mainstem Flood Control Project (SARMP) has been prepared by the U.S. Army Corps of Engineers (Corps) to describe modification to the project since the receipt of the Clean Water Act Section 401 water quality certification. A Clean Water Act Section 401 water quality certification was obtained by the U.S. Army Corps, Los Angeles District on August 31, 2020 (SARWQCB WDID # 332020-12).

Project implementation, as described in the application materials, has been altered in response to the migration of the Santa Ana River (SAR) into the Project work area and to include measures to protect construction activities. If the SAR were to migrate further into the construction work area (Temporary Construction Easement [TCE]) during construction, this could result in damage to ongoing construction and equipment and the necessity to clear the work area of water, mud, and debris. Addressing these issues would result in schedule delays and substantial increases in costs to the Project. Further migration of the SAR could also increase the likelihood of aquatic wildlife being washed into the active construction site and being stranded, requiring biological monitors to perform rescues.

The Project was originally described in the Lower Norco Bluffs Toe Protection Draft Supplemental Environmental Assessment (SEA) and Environmental Impact Report (EIR) Addendum, released April 22, 2020. The Draft SEA/EIR Addendum was also a supplement to the Final Supplemental Environmental Impact Statement (SEIS)/EIR for Prado Basin Vicinity, dated November 2001.

This report describes modifications to the Lower Norco Bluffs Toe Protection Project since the receipt of the certification.

DESCRIPTION OF PROJECT MODIFICATIONS

Construction is scheduled to commence in July 2021 and last approximately 35 months, including a one-year restoration and maintenance period. Previously, the Project was scheduled to commence in Fall/Winter 2020, however estimated construction duration was expected to be the same, approximately 35 months. As originally described, it is possible that the proposed project would be built in stages, with multiple start dates and construction periods for various sections of the proposed project depending on land acquisition and utility relocations schedule, environmental windows and weather delays. Construction phasing may result in an extension of the overall project duration beyond Summer 2023, i.e. beyond the approximate duration of 18 months.

Because the project TCE runs adjacent to the SAR, some temporary measures are proposed during construction to prevent further migration of the river into the TCE. This includes temporary sheet pile shoring, or similar structure, installed on top of the riverbank. Based on analyses, it is expected that the structure would measure approximately 1,000 ft. from station 30+00 to 40+00. Additionally, a temporary earthen berm, or similar structure, would run adjacent to the TCE in areas where flood-risk is the highest. If the berm runs the entire TCE, it will measure approximately 6,832 ft (See **Figure 1** and **Figure 2)**. It is estimated 40,000 cubic yards of material will be required to build the berm. Material would come from

the borrow site described in the original 401 application and Draft SEA/EIR Addendum. Material would be tested for suitability before placement. The berm will be lined with straw wattles and lined with a hardened material such as gravel bags or riprap to reduce erosion. Following construction, the sheet pile shoring and earthen berm would be removed. The earthen berm would be deconstructed and the materials comprising it would be used for grading the site.

IMPACTS TO JURISDICTIONAL WATERS

Approximately 1,000 feet of sheetpile shoring would be temporarily installed atop part of the riverbank and within the riparian zone. An estimated 40,000 cubic yards of material will be required to build the temporary berm. The material would be discharged into the riparian zone, but outside of the low-flow channel, and measure approximately two (2) acres. Following the deconstruction of the berm, the fill material used to construct the berm would be used as grade within the permanent project footprint. Therefore, no additional acres of permanent impacts to the riparian zone would occur.

The Project would not result in in any additional effects to wetland vegetation. Vegetation clearing and ground-disturbing activities within the TCE were already analyzed and disclosed in the Draft SEA/EIR Addendum and 401 certification for the Project (SARWQCB WDID # 332020-12). Minimization measures described at the time will still be implemented and include keeping grading activities to a minimum and leaving root structures to allow regrowth. To limit the effects of vegetation removal and ground-disturbing, construction activities would be limited to the TCE and delineated by visible boundaries. Additionally, dust control measures would be implemented to reduce excessive dust emissions. Additionally, erosion control measures, such as berms and silt fences, would be implemented to prevent potential effects to existing topography and hydrological regimes that could impact the health of vegetation communities. Upon construction completion, the site would be restored to pre-project conditions, and areas temporarily disturbed would be revegetated with native species. The construction contractor would also be required to develop and implement a SWPPP. Adherence to identified environmental commitments, including BMPs, would reduce potential impacts. Offsite mitigation is occurring and will compensate for impacts to wetlands and waters of the U.S.

All work would occur within the TCE originally described above and in the Draft SEA/EIR Addendum and 401 certification for the Project (SARWQCB WDID # 332020-12). The modifications described above would not result in an expansion of work limits or encroach further into the floodplain. Upon completion of construction, the shoring would be removed, the berm would be deconstructed, and the temporary impact areas would be restored to pre-project conditions through the planting of vegetation and grading to original contours. The extent and location of the impacts to jurisdictional waters would remain the same as described in the 401 certification and Draft SEA/EIR Addendum, only the manner of the impact (construction methods, including installation of temporary shoring and berm) has been modified. The 404(b)1 analysis previously conducted for the Project would still be applicable and cover impacts from this Project modification. There would be no additional impacts to aquatic resources, including the riparian zone, stream channel, and wetlands. Pile driving to install the temporary shoring would occur after September 1 and before February 15, outside of the bird nesting season and Santa Ana Sucker spawning season. As described above, the temporary shoring and berm would be installed and located outside of the low flow channel.

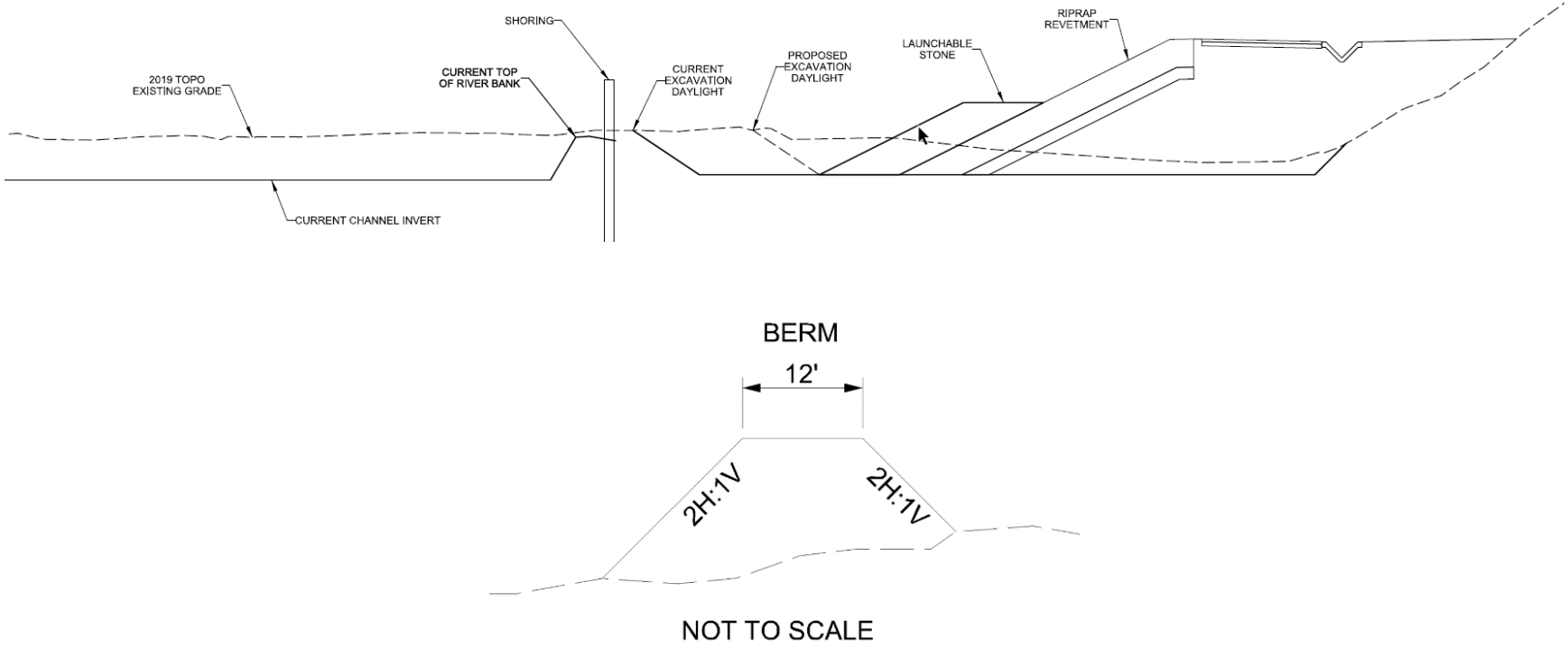

Figure 1. Conceptual features for control of surface water. Actual design may vary pending contractor's final designs

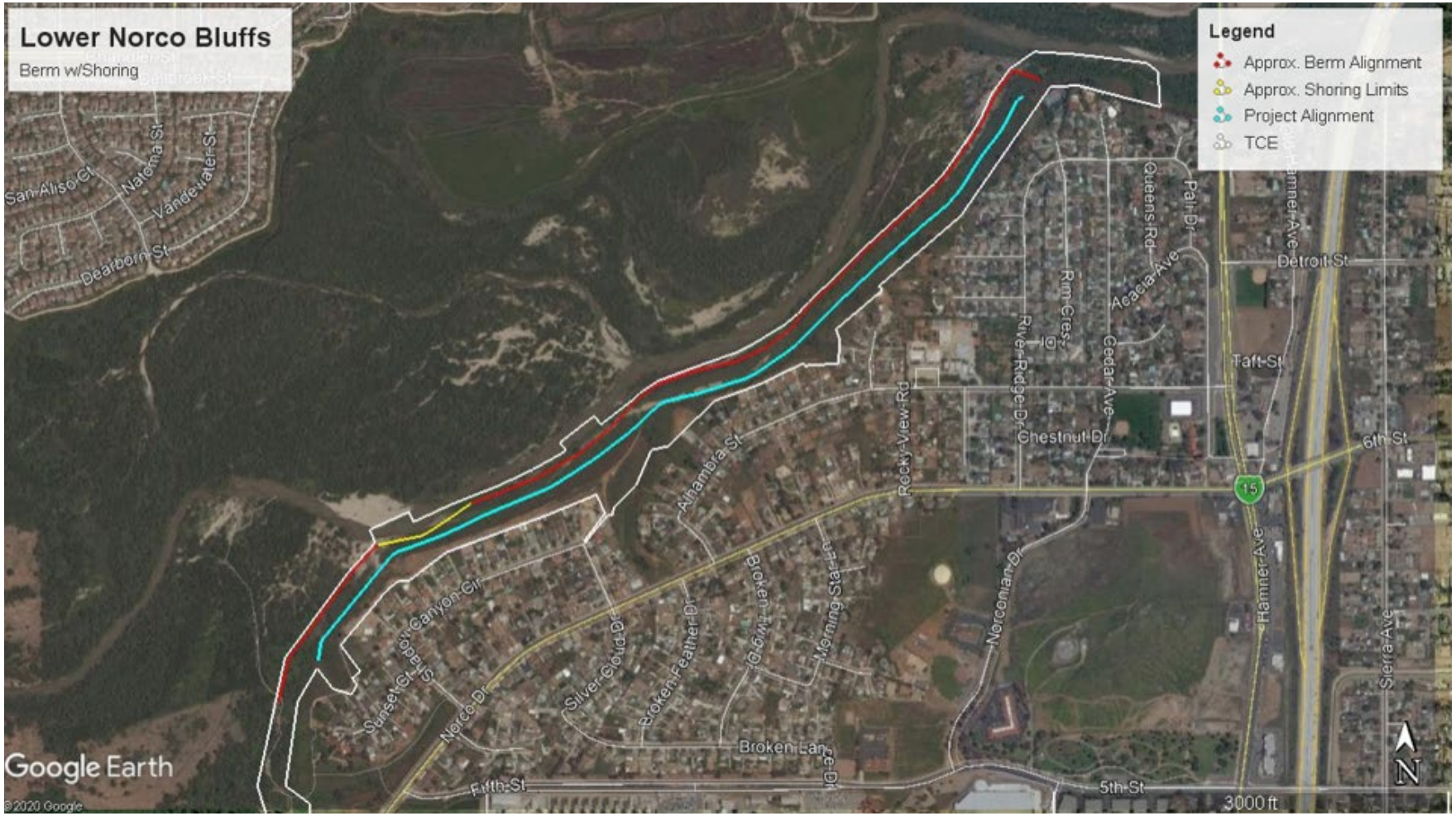

Figure 2. Conceptual features for control of surface water. Actual design may vary pending contractor's final designs

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From: McGowan, Marissa C CIV USARMY CESPD (USA)
To: McGowan, Marissa C CIV USARMY CESPD (USA)
Subject: RE: ATTN: Jason Bill; Reg. Measure ID: 437995 Report
Date: Tuesday, May 4, 2021 12:30:49 PM

From: Lovan, Hayley J CIV (USA)
Sent: Tuesday, March 30, 2021 12:17 PM
To: Bill, Jason@Waterboards [redacted]
Cc: Siddiqui, Naeem A CIV CESPL CESPD (USA) [redacted]
Subject: RE: ATTN: Jason Bill; Reg. Measure ID: 437995 Report

Thank you!

From: Bill, Jason@Waterboards [redacted]
Sent: Tuesday, March 30, 2021 11:54 AM
To: Lovan, Hayley J CIV (USA) [redacted]
Subject: [Non-DoD Source] RE: ATTN: Jason Bill; Reg. Measure ID: 437995 Report

Ms. Lovan,

Yes that is the definition of a Certification Deviation. An amended certification will be issued at the end of the project to reflect the changes in the Modifications to Project Report.

Thank you,

Jason Bill
Environmental Scientist
Santa Ana Regional Water Quality Control Board
[redacted]
Pronouns: he, him, his

From: Lovan, Hayley J CIV (USA) [redacted]
Sent: Tuesday, March 30, 2021 10:35 AM
To: Bill, Jason@Waterboards [redacted]; May, Jenna C SAJ [redacted]; WB-RB8-401Reporting [redacted]

Cc: Woelfel, David@Waterboards [redacted]; Siddiqui, Naeem A CIV CESPL CESPD (USA) [redacted]
Subject: RE: ATTN: Jason Bill; Reg. Measure ID: 437995 Report

EXTERNAL:

Thank you! To clarify, as we discussed previously, this means that an amendment to the 401 WQC is not required at this time, and no change to the conditions are warranted. Is this correct?

From: Bill, Jason@Waterboards [redacted]
Sent: Tuesday, March 30, 2021 10:30 AM
To: May, Jenna C SAJ [redacted]; WB-RB8-401Reporting [redacted]
Cc: Woelfel, David@Waterboards [redacted]; Lovan, Hayley J CIV (USA) [redacted]; Siddiqui, Naeem A CIV CESPL CESPD (USA) [redacted]
Subject: [Non-DoD Source] RE: ATTN: Jason Bill; Reg. Measure ID: 437995 Report

Ms. May,

Santa Ana Water Board staff have reviewed your Modifications to Project Report for the Lower Norco Bluffs Bluff Toe Stabilization Project (SARWQCB WDID # 332020-12) submitted on March 15, 2021. Santa Ana Water Board staff find that the modifications proposed in your report qualify as a Certification Deviation (Section XIII of the project's Clean Water Act Section 401 Water Quality Certification).

Thank you,

Jason Bill
Environmental Scientist
Santa Ana Regional Water Quality Control Board
[redacted]
Pronouns: he, him, his

From: May, Jenna C CIV USARMY CESPL (USA) [redacted]
Sent: Monday, March 15, 2021 8:03 AM
To: WB-RB8-401Reporting [redacted]
Cc: Bill, Jason@Waterboards [redacted]; Woelfel, David@Waterboards

[redacted]; Lovan, Hayley J CIV (USA) [redacted]
Siddiqui, Naeem A CIV CESPL CESPD (USA) [redacted]
Subject: ATTN: Jason Bill; Reg. Measure ID: 437995 Report

EXTERNAL:

Hello,

Please see attached Modifications to Project Report for the Lower Norco Bluffs Bluff Toe Stabilization Project (SARWQCB WDID # 332020-12). I've also attached the associated Water Quality Certification for reference.

Thank you,
Jenna

Jenna May
Biologist
Planning Division
U.S. Army Corps of Engineers
[redacted]

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USACE 404(B)(1) Evaluation

US ARMY CORPS OF ENGINEERS

LOS ANGELES DISTRICT

SANTA ANA RIVER MAINSTEM PROJECT: LOWER NORCO BLUFFS PROJECT

COUNTY OF RIVERSIDE, CALIFORNIA

CLEAN WATER ACT SECTION 404(B)(1) EVALUATION

April 2020

1 INTRODUCTION

The following evaluation is provided in accordance with Section 404(b)(1) of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) as amended by the Clean Water Act of 1977 (Public Law 95-217). Its intent is to succinctly state and evaluate information regarding the effects of discharge of dredged or fill material into the waters of the U.S.

Although the Corps does not process and issue permits for its own activities, the Corps authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including application of the Section 404(b)(1) Guidelines, 33 C.F.R. 336.1(a). As such, this analysis is not meant to stand alone, and depends on information provided in the draft Supplemental Environmental Assessment/Environmental Impact Report Addendum (SEA/EIR Addendum) to which this evaluation is appended. Citation in brackets [] refer to expanded discussion found in the SEA/EIR Addendum, to which the reader should refer for details.

2 PROJECT DESCRIPTION

The draft SEA/EIR Addendum for the Lower Norco Bluffs Toe Protection (Lower Norco Bluffs) portion of the Santa Ana River Mainstem Flood Control Project (SARMP) was prepared as a supplement to the Final Supplemental Environmental Impact Statement (SEIS)/EIR for Prado Basin Vicinity, dated November 2001 (hereinafter referred to as the 2001 SEIS/EIR). The 2001 SEIS/EIR addressed several components of the SARMP within the downstream of Prado Basin, including toe protection at Lower Norco Bluffs, and assessed impacts to environmental resources related to both implementation and future maintenance. Alternatives were previously described and analyzed in the 2001 SEIS/EIR, and a 404(b)(1) analysis was conducted for the Previously Approved Design (see Appendix C of the 2001 SEIS/EIR). The April 2020 draft SEA/EIR Addendum includes the Previously Approved Design described in the 2001 SEIS/EIR, which is now considered the "No Action" Alternative, and proposed modifications to the Previously Approved Design (the Proposed Action Alternative).

2.1 Study Area Description [1.1]

The Lower Norco Bluffs Project is located in the city of Norco, Riverside County, California. It is situated adjacent to the Santa Ana River and within the floodplain. The Lower Norco Bluffs Project construction would occur along an approximate 1.54-mile reach of the Santa Ana River, near the northwest boundary of the City of Norco. The project area is approximately 8 miles north of Prado Dam Embankment and about 40 miles southeast of Los Angeles. The project area begins just south of the Hamner Avenue Bridge and extends down to the Corydon Equestrian Staging Area off of Corydon Avenue.

Figure 2-1 shows the project location and vicinity, and **Figure 2-2** shows the project area

2.2 Basic Project Purpose [1.5]

The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the Corps to determine whether the project is water dependent. The basic project purpose for the proposed project is protecting the toe of the bluff from impinging flows from the Santa Ana River. This protection can only be accomplished through modification of the river-side of the

embankment, within the floodplain of the Santa Ana River, or through channelization of the river. As a result, the project is water dependent.

2.3 Overall Project Purpose [1.5]

The overall project purpose serves as the basis for the Corps 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the goals for the project, and which allows a reasonable range of alternatives to be analyzed.

In conjunction with raising Prado Dam, real estate acquisition is required for properties located between the 556-ft and the 566-ft elevation lines. This elevation band represents the added area that is susceptible to inundation during the reservoir design flood. Within the area of Norco Bluffs, the 566-ft elevation line has been continually migrating due to stormwater erosion of the bluffs. The main objective of the Lower Norco Bluffs Project is to prevent further erosion of the bluff toe and, thus, preventing the movement of the Prado Dam 566-ft elevation line. Impinging river flow causes undercutting of the toe of the bluffs, which leads to destabilization of the bluff face. Without a toe protection project, there is potential for the bluff erosion to affect the location of the 566-ft elevation line, which would require additional real estate acquisition involving numerous homes and properties.

Alternatives that accomplish the objective of preventing movement of the 566-ft elevation are limited to structural measures that protect the bluff toe from undercutting, or measures that prevent the river from encroaching upon the south embankment (channelization). Channelization alternatives are not being considered due to significant environmental impacts that would occur, including significantly greater impacts to jurisdictional waters and wetlands. Two embankment protection alternatives, in addition to the No Action (no construction) alternative, were analyzed in the 2001 SEIS/EIR and 404(b)(1) Evaluation. This 2020 404(b)(1) Evaluation analyzes proposed modifications to the Previously Approved Design. The current Proposed Action along with previously analyzed alternatives represent the reasonable range of alternatives that would meet the project purpose. Of the alternatives evaluated in the 2001 documents, the Previously Approved Design had been identified as the Least Environmentally Damaging Alternative at that time. Therefore, the current evaluation is limited to a comparison between the Previously Approved Design and the Proposed Action.

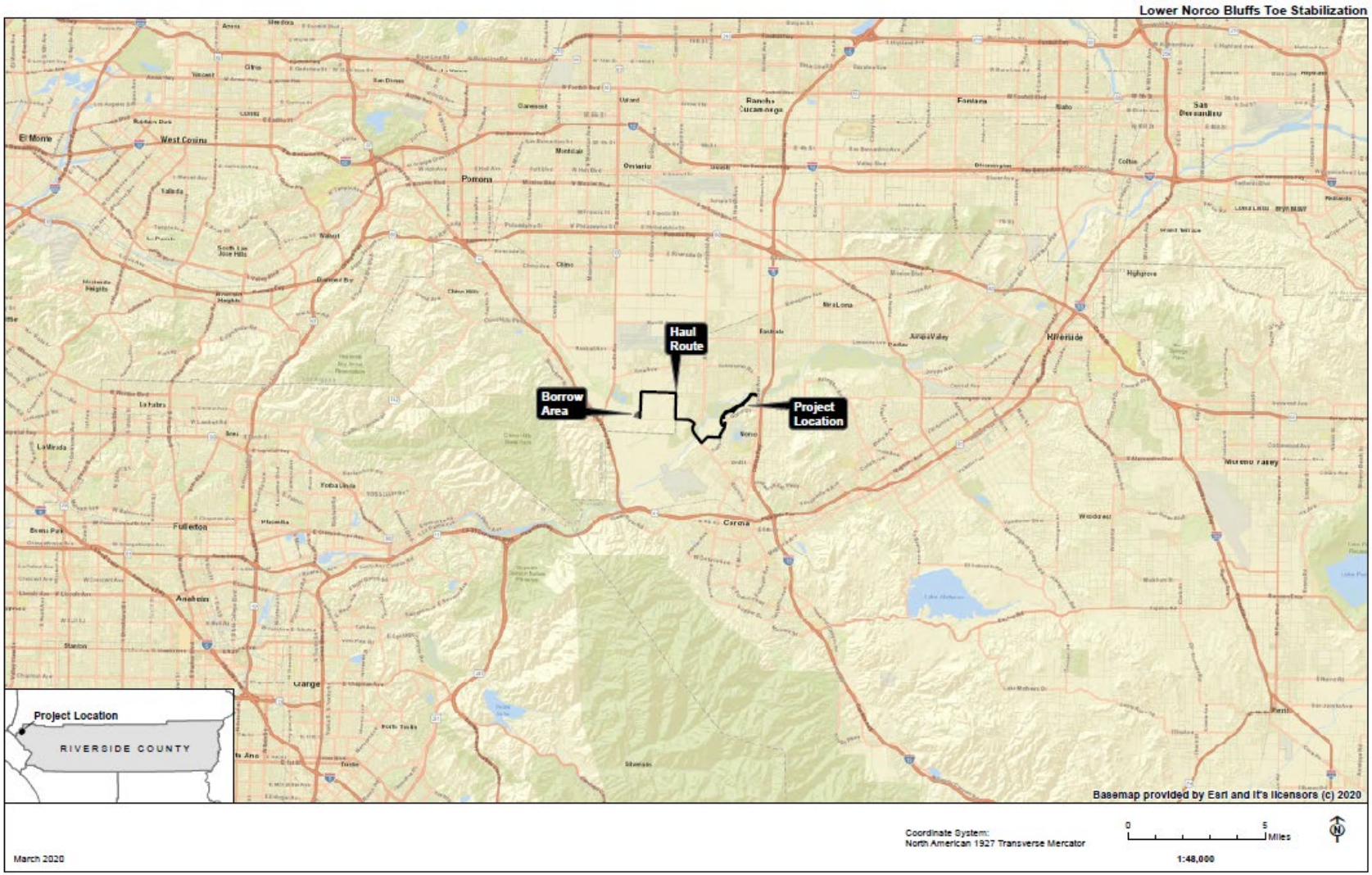

Figure 2-1 Lower Norco Bluffs Regional Map

Figure 2-2 Lower Norco Bluffs Project Area

2.4 Jurisdictional Determination of the Waters of the U.S. [3.1.4; Appendix B]

A jurisdictional delineation was performed in the project area by Aspen Environmental Group on November 27, 2018. Results of the delineation determined both wetland and non-wetland waters of the U.S. (WOTUS). See the Jurisdictional Delineation Report in Appendix B of the draft SEA/EIR Addendum.

Figure 2-3 through **Figure 2-7** show the types of WOTUS delineated and the footprints of the impacts as a result of the project. Two types of WOTUS were delineated:

- ***Non-wetland Waters of the U.S. [(a)(5) Waters]***[1] Non-wetland WOTUS included several drainages that exhibited ordinary high watermark (OHWM). It also included part of the channel bottom that extended up the side slopes to approximately 5 ft., or less, depending on the location of drift deposits and the vegetation and slide slopes (i.e., the OHWM). A review of historic aerial photography (1995-2014) confirms the location and extent of Federal non-wetland WOTUS identified during the site visit.
- ***Wetland Waters of the U.S. [(a)(6) Waters]*** Wetland WOTUS included several locations where surface water, water-stained leaves, saturation, and inundation were present. Pockets of habitat with a dominance of hydrophytic vegetation were generally present within areas immediately adjacent to the main channel of the Santa Ana River, or within areas that showed evidence of seasonal flow, such as secondary channels.

Figure 2-3 Jurisdictional Delineation

[1](a)(5) Waters" and other similar bracketed statements refer to which category of waters of the US, as defined in 33 CFR § 328 3(a), each type of water identified here fits within.

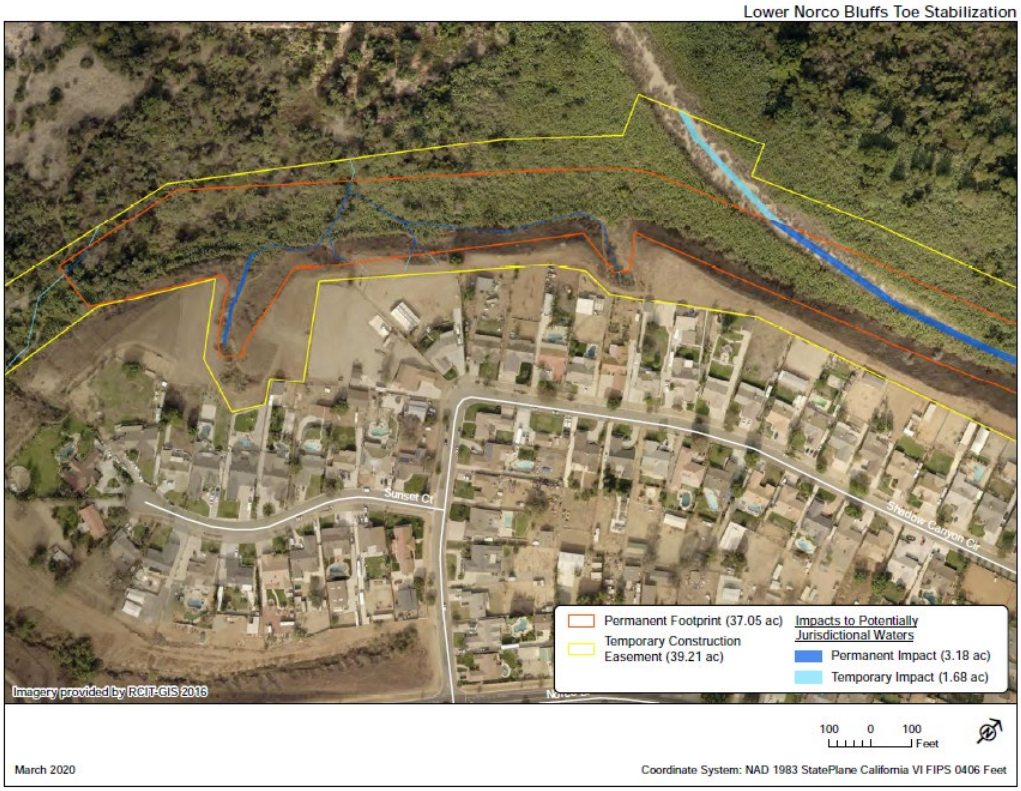

Figure 2-4 Jurisdictional Delineation

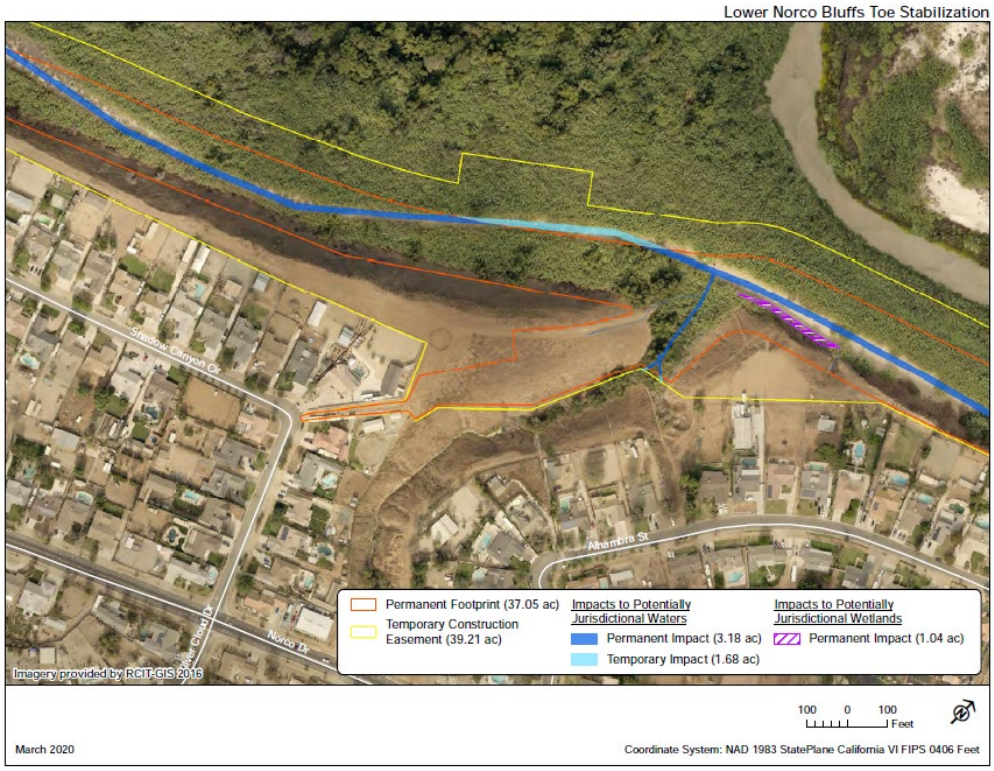

Figure 2-5 Jurisdictional Delineation

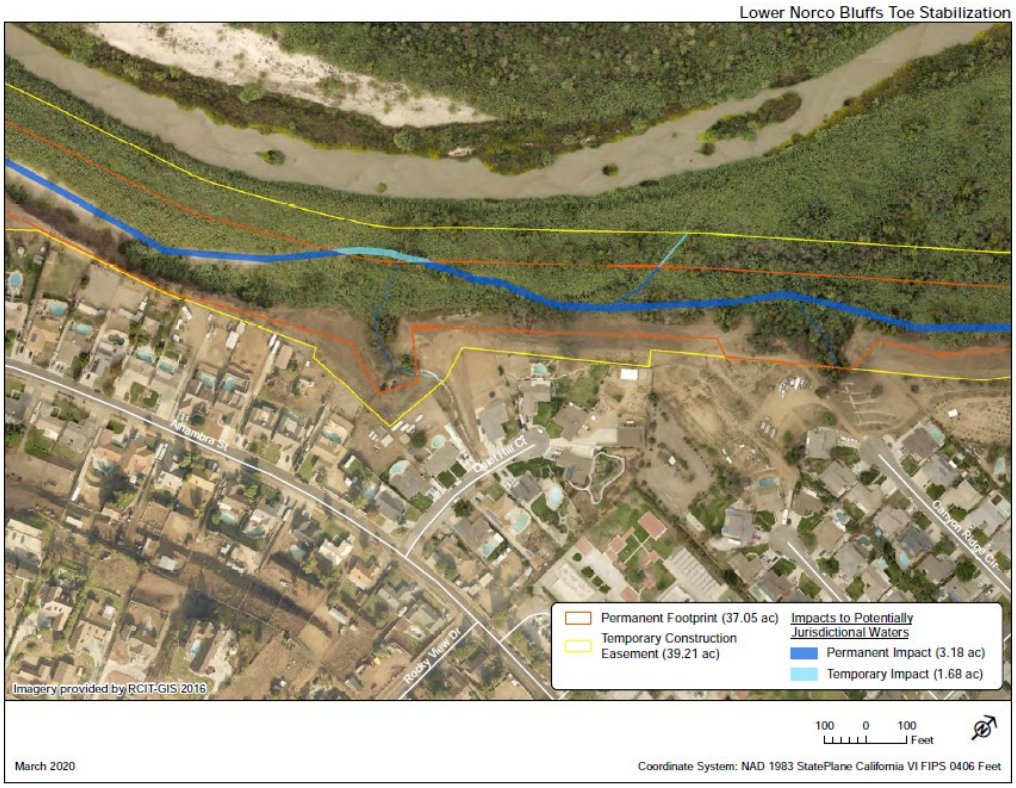

Figure 2-6 Jurisdictional Delineation

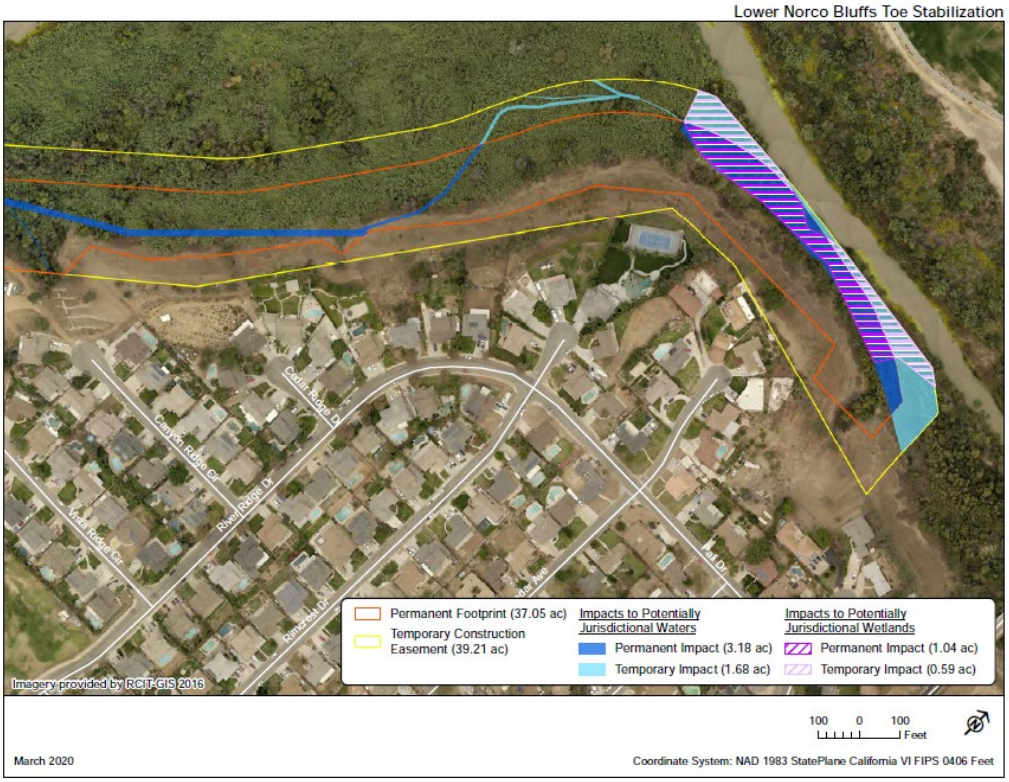

Figure 2-7 Jurisdictional Delineation

2.5 General Description [2.3]

Project alternatives analyzed in the Draft SEA/EIR Addendum include the No Action Alternative (Previously Approved Design) and the Proposed Action Alternative. A full description of each alternative is included in Section 2.3 of the Draft SEA/EIR Addendum. The Preferred Alternative (the Proposed Action Alternative) is also described and evaluated below in comparison with the Previously Approved Design to identify the Least Environmentally Damaging Practicable Alternative (LEDPA).

2.6 Least Environmentally Damaging Practicable Alternative

The guidelines promulgated under Section 404 of the Clean Water Act specify that a permit can be issued for a discharge of dredged or fill material to Waters of the United States only if the discharge is determined to be the least environmentally damaging practicable alternative (LEDPA) (40 CFR § 230.10(a)). When a proposed project requires an individual permit for filling Waters of the United States, an analysis of alternatives must be carried out. For this analysis, the LEDPA generally is the practicable alternative that either avoids Waters of the United States or impacts the smallest area of the waters.

The LEDPA would inflict the least amount of adverse impacts on the aquatic ecosystems posed by specific dredged or fill material discharge activities while maintaining the existing flood control goals of the project. Based on the analyses provided below, the USACE has identified the Preferred Alternative as the LEDPA. Compared with the Previously Approved Design, the Preferred Alternative would have the least environmental impact on existing WOTUS.

2.6.1 Proposed Action Alternative [2.3.2]

Proposed design modifications including the incorporation of launchable rock and riprap rather than soil cement would eliminate the need for diversion of the river or deep dewatering that would have been necessary with the Previously Approved Design. Some dewatering of nuisance surface water may be required, however such operations are expected to be minimal. The embankment would measure approximately 1.5 miles in length. Excavation would occur to approximately 2.5 ft. of the existing grade. The toe of the embankment would be approximately 2.5 ft. from the existing grade and would be comprised of existing fill. The slope face of the embankment would be lined with bedding material (1.5 ft. thick) and riprap (3.5 ft. thick). Launchable stone (width varies between 5 ft. – 25 ft., measured horizontally from the toe of riprap) would be placed at the toe of the embankment, in front of the riprap slope, to provide scour protection. The fill and riprap protection would start 2.5 ft. below the riverbed and extend at a 2H:1V slope to the top of bank protection of 100-year water surface elevation. Launchable stone would start 2.5 ft. below the riverbed and extend at a 2H:1V from the riprap toe to a vertical height of approximately 9 ft. (**Figure 3-1**). One side canyon would be filled to facilitate drainage. A network of concrete v-ditches and side drains would also be constructed on top of the embankment

Approximately 38,500 cy of riprap and 28,100 cy of launch stone would be required for the construction of the embankment, and approximately 640 tons of ABC would be required for the access roads. Riprap would be imported from a local quarry. For the purposes of this analysis, it is assumed that the nearest quarry would likely be used.

Approximately 116,000 cy of onsite excavation and approximately 100,000 cy of imported fill would be required for the embankment. Approximately 250,000 cy of fill will be imported from a borrow site located

approximately 3 miles west of the project site in the City of Chino. The borrow area was previously identified in the 2001 EIS as Borrow Site 2. It is located south of McCarty Road and west of Cucamonga Avenue. Only a portion of the borrow area will be used.

Maintenance, including routine inspections and minor repairs, of the Lower Norco Bluffs embankment and its associated project features, would be required after construction is completed. The following activities may occur:

- Routine and special inspection and patrol with pickup trucks and sport utility vehicles, as needed, and up to daily during flood events;
- Mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones along eroded areas of the embankment to protect and reinforce the embankment, as necessary, during flood fight activities;
- Periodic weeding and patching stone and asphalt maintenance road pavement;
- Periodic clearing of debris around drainage structures; and
- Periodic mending of fencing and painting metal gates.

Rarely, following large and erosive flood flows, larger-scale maintenance and repairs may be required along the toe of the bluffs, which could require access and use of heavy equipment within the floodplain adjacent to the structure. Equipment would need to traverse the embankment riprap to access the bottom of the embankment. A temporary work area may need to be established around repair sites. The local sponsor would be required to obtain emergency or standard permits from regulatory agencies, including Corps Regulatory, who would coordinate and consult, if needed, with the U.S. Fish and Wildlife Service (USFWS). These permits would likely require active habitat restoration of temporary construction areas and access roads. It is likely that a storm event large enough to damage the embankment structure would also have removed vegetation in the immediate area, but specific impacts cannot be evaluated until or unless damage occurs and repair work is defined. Therefore, this scenario is not evaluated further within this document.

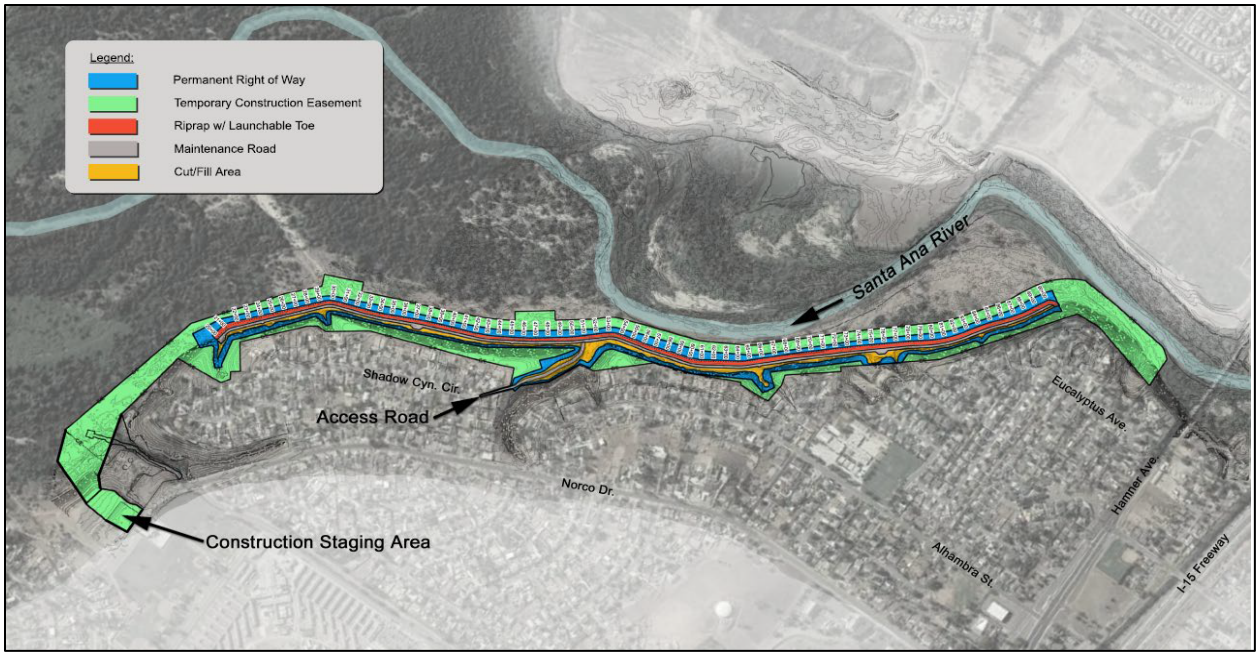

Figure 3-8 Lower Norco Bluffs Project Map and Construction Boundary

Table 3-1. Proposed Action Alternative Impacts to WOTUS

	Temporary Fill Impacts		Permanent Fill Impacts	
	Non-wetland	**Wetlands**	**Non-wetland**	**Wetlands**
Project Area	1.68	0.59	3.18	1.04

2.6.2 Previously Approved Design Alternative [2.3.1; Appendix F]

The Previously Approved Design Alternative is defined as constructing the Lower Norco Bluffs Project according to the plan presented in the 2001 SEIS/EIR. The design consists of soil cement toe protection with a top elevation equal to the 100-year water surface elevation. The soil cement embankment structure would be located between the toe and the riverbed. The structure would be approximately 8 ft. thick and extend from approximately 15 ft. below the riverbed to the 100-year flood level at a 1:1 angle. The soil cement would be formed through a mixture of soil and cement with water, and it dries to a concrete-like hardness. Compacted fill would be located between the soil cement structure and bluff slope at the 100-year flood elevation. The majority of the toe stabilization structure below the riverbed is expected to require dewatering of the Santa Ana River. Dewatering and diversion of the primary stream flow of the Santa Ana River would be required. In addition, fill would be placed within four side canyon areas along the project length in order to ensure proper drainage from these areas.

In the 2001 SEIS/EIR, the details for the location of the composition of the permanent maintenance road were not described. It would be assumed under this alternative, the permanent maintenance road would be similar to that described for the Proposed Action Alternative.

Additionally, the 2001 SEIS/EIR considered a staging area for construction equipment to be located within an abandoned wastewater treatment plant site that is located approximately 1440 ft. downstream of the toe stabilization improvements. A site assessment was recently conducted to determine the character and extent of an Hazardous, Toxic, Radioactive Waste (HTRW) release. A follow up remediation plan and

action for the release is currently being undertaken for this property (See Appendix F in the Draft SEA/EIR Addendum for additional details). As a result, this site is not feasible for use as a staging area, and it is assumed the staging area described as part of the Proposed Action Alternative would be utilized instead.

This alternative would require approximately 300,000 cubic yard (cy) of soil fill and soil cement for the toe stabilization structure. Any offsite fill material would be obtained from the northern portion of the Prado Basin, referred to as Borrow Area No. 2. in the 2001 SEIS/EIR, which is located at the confluence of Mill Creek and Chino Creek near the southern terminus of Cucamonga Avenue. The environmental effects related to utilization of Borrow Area No. 2 were previously analyzed by the USACE in the Final Environmental Assessment for Norco Bluffs Stabilization, prepared in February 1999, and in the 2001 Final SEIS/EIR.

The total construction time for this alternative was estimated to be approximately 18 months. Subsequent to construction activities, periodic maintenance would be required within the river channel to ensure continued integrity of the structural enhancements. Anticipated maintenance activities would be similar to those described for the Proposed Action Alternative.

3 ALTERNATIVES ANALYSIS

3.1 Restrictions on Discharge

The 404(b)(1) Guidelines prohibit the discharge of dredged or fill material into waters of the U.S. if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. 40 C.F.R. 230.10(a). To be "practicable," an alternative must be "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." 40 C.F.R. 230.10(a)(2).

3.2 Overall Project Purpose

Both the Previously Approved Design and the Proposed Action alternatives would meet the overall project purpose. As discussed in Chapter 2 of the draft SEA/EIR Addendum, the main objective of the Proposed Action would be the same as the previously approved Lower Norco Bluffs Project, which is to prevent further erosion of the bluff toe and, thus, preventing the movement of the Prado Dam 566-ft elevation line. Impinging river flow causes undercutting of the toe of the bluffs, which leads to destabilization of the bluff face. Without a toe protection project, there is potential for the bluff erosion to affect the location of the 566-ft elevation line, which would require additional real estate acquisition involving numerous homes and properties.

3.3 Practicability (Technology)

Both alternatives can be constructed with existing technology and would utilize conventional construction techniques and conventional construction equipment. However, the Previously Approved Design would require certain modifications in order to be fully implementable, including identification of a different staging area to avoid contaminated soils.

3.4 Practicability (Logistics)

Both alternatives would be located within Corps operation areas or Corps/sponsor-owned areas, or areas where rights of entry or temporary easements have been acquired by the non-Federal sponsor. All areas where discharges of fill material into WOTUS would occur are located within lands that have been acquired for the project. Thus, all discharges of fill material are practicable with respect to logistics.

3.5 Practicability (Cost)

Costs associated with the alternative are practicable.

Alternatives[1]	Practicability Test			Significant Environmental Impact to Non-Aquatic Resources	Meets Overall Project Purpose
	Cost	Logistics	Technology		
Proposed Action Alternative	Yes	Yes	Yes	No	Yes
No Action Alternative (Previously Approved Design)	Yes	Yes	Yes	No	Yes

[1]Reference draft SEA/EIR Addendum for analysis of impacts to non-aquatic resources

4 FACTUAL DETERMINATIONS

The purpose of the Section 404(b)(1) Guidelines is to restore and maintain the chemical, physical, and biological integrity of the waters of the US through the control of discharges of dredged or fill material. Except as provided under CWA Section 404(b)(2), no discharge of dredged or fill material will be authorized if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, as long as the alternative does not have other significant adverse environmental consequences. In accordance with the Section 404(b)(1) Guidelines, the potential short-term or long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment must be determined.

The following discussion evaluates impacts of both alternatives on environmental resources identified in Subpart C through Subpart F of the Section 404(b)(1) Guidelines.

4.1 Physical and Chemical Characteristics Determinations (Subpart C)

4.1.1 Substrate [2.3.2.5; 3.3]

Geotechnical studies indicate that the sediment within the Norco Bluffs consists primarily of alluvial materials, including clay, silt, sand, and gravel. Fill for both alternatives would include native alluvial material acquired from on-site or material imported from the borrow site, which is also located in Prado Basin.

4.1.2 Suspended Particulates and Turbidity [4.1.2.1]

Construction activities that occur during the winter months would be subject to runoff from the drainage areas coming from the top of the bluffs, east of the project area. Although no activities associated with the Proposed Action are planned to occur within the active river channel, construction activities include soil-disturbing activities that could result in soil erosion and sedimentation that may subsequently cause and/or contribute to water quality degradation, particularly if a precipitation event occurs while soils are actively disturbed. Under the Previously Approved Design, the embankment would be comprised of fill and soil cement, and construction would requiring deep dewatering and river diversion. Construction activities, including river diversion and dewatering efforts, have a greater potential to impact water quality, compared to the Proposed Action.

To protect against potential negative effects to water quality, there are several design criteria and environmental commitments in place for both alternatives, including:

- Temporary impact areas would be actively restored through vegetation plantings after construction.
- Permanent impact areas with drains, such as maintenance roads, would be designed to avoid or minimize the potential of the drain to increase fine-grained sediment delivery to nearby water bodies.
- As stated in the 2001 SEIS/EIR, the contractor would be required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which would include Best Management Practices (BMPs), and an Erosion and Sedimentation Control Plan to reduce impacts to water quality during project construction.

Additionally, the increase in disturbed and impermeable area relative to the total area of disturbed and impermeable surface in the watershed would be nominal, and the effect of pollutant transport would be immeasurable with BMPs implemented.

The Proposed Action includes a drainage system and vegetation would be planted on the existing earthen ramp behind Shadow Canyon Circle, which would minimize erosion from surface water runoff. These features would collectively facilitate drainage from the top of the bluff and the embankment. Temporarily impacted areas throughout the construction would also be re-vegetated after construction, which would minimize erosion from surface water runoff throughout the project area. Therefore, the Proposed Action would not cause or result in substantial flooding.

Although future maintenance for both alternatives may introduce potential water quality impacts associated with the use of motorized vehicles and equipment and soil-disturbing activities, potential impacts would be avoided or minimized through the implementation of the BMPs and design criteria described above. Maintenance activities associated with the Previously Approved Design may also require excavation into the riverbed, which would create the potential for groundwater contamination.

4.1.3 Contaminants [4.1.2.1]

The potential also exists for impacts to surface water quality to result from accidental leaks or spills of potentially hazardous materials, including fuels and lubricants required for operation of construction vehicles and equipment. This potential would be similar for both the Proposed Alternative and the Previously Approved Design.

To protect against potential negative effects to water quality, there are several design criteria and environmental commitments in place, including:

- Human waste and other pollutant or hazardous material discovered during construction would be removed from the site.
- As stated in the 2001 SEIS/EIR, the contractor would be required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which would include Best Management Practices (BMPs), and an Erosion and Sedimentation Control Plan to reduce impacts to water quality during project construction.

Although future maintenance may introduce potential water quality impacts associated with the use of motorized vehicles and equipment, potential impacts would be avoided or minimized through the implementation of the BMPs and design criteria described above.

4.1.4 Current Patterns and Water Circulation [4.1.1.1]

Unlike the Previously Approved Design Alternative, the Proposed Action Alternative would establish a shallower toe and not require diversion or dewatering of the primary stream flow of the Santa Ana River. Because excavation of approximately 2.5 ft. below the existing grade would be required and because groundwater in the floodplain is known to occur starting at depths between 2-5 feet, some dewatering in the floodplain (outside of the main channel) may be required. However, the operation, if any, would be expected to be minimal in comparison to what would be required for the Previously Approved Design, and water encountered would be discharged within the floodplain for percolation or evaporation.

The addition of the structure in the river channel would decrease the existing capacity of the Santa Ana River channel, however the decrease would be nominal due to the extensive width of the channel (approximately 1300 ft.) and capacity of the river channel. Even in the narrowest part of the floodplain (approximately 500 ft. across) in the upstream portion of the project, the permanent structure would encroach on approximately 100 ft., or 20% of the available floodplain. The permanent structure would be located outside of the current, primary channel of the Santa Ana River. It would be expected that, primarily during large storm events, the primary channel would expand to include part of the permanent structure. The permanent structure would encompass approximately 37 acres of the 380 acres available within the floodplain of the immediate project area. For perspective, the entire Santa Ana River watershed is approximately 1,696,000 acres. No work is proposed within the currently active, low flow channel. Additionally, the Proposed Action would not alter the velocity or location of flows, except flows would no longer be able to undercut the toe of the south bank. As with the Previously Approved Design, the Proposed Action would also reduce bluff face sloughing or erosion. Although bluff face sloughing would likely have a nominal contribution to the existing sediment that is carried downstream deposited within Prado Basin, it could still reduce the likelihood of impacts to water storage capacity in Prado Basin.

Periodic emergency repairs would likely be required and would entail the discharge of launchable rocks to replace those that have been dislodged. Given the extensive width of the Santa Ana River floodplain through the project area, it is unlikely that the discharge of rocks to stabilize portions of the embankment would significantly affect river hydrology.

4.1.5 Cumulative Impacts [5.1]

Potential cumulative impacts on water resources and hydrology from the Proposed Action and Previously Approved Design were determined to be less than significant in the draft SEA/EIR Addendum and the 2001

SEIS/EIR, respectively.

4.2 Potential Effects on Biological Characteristics of the Aquatic Ecosystem (Subpart D) [3.4]

4.2.1 Threatened and Endangered Wildlife [4.4.2.1; Appendix D]

Santa Ana Sucker (Federally Threatened) and Designated Critical Habitat

The Santa Ana sucker (hereinafter referred to as sucker) is known to occur within the Santa Ana River. Designated critical habitat for this species is present in the project footprint.

Orange County Water District conducts regular monitoring around the River Road area, approximately 1.5 miles downstream of the project area. No sucker have been observed during surveys in this reach for the last 10 years. However, during heavy storm events, there is potential for sucker to be washed downstream and into the project area via the sandy wash (secondary channel). When the secondary channel was observed in January of 2019, it was mostly dry with some stagnant pools filled with debris. While it is unlikely that sucker would be washed into the area due to the apparent intermittent flow regime in the channel, sucker have been observed in small, sandy channels in other areas. The contractor would be required to construct an earthen berm, bordering the river adjacent project limits, to prevent flows from easily entering the project area. If a major storm event occurs and flows entering the site are unavoidable, a protocol would be developed to avoid potential effects to sucker, including stranding. Protocol would include construction work to be suspended, and a qualified fish biologist would survey the project area to determine presence of sucker. If sucker are detected, they would be safely relocated to the nearest suitable habitat. There is a chance that sucker washing into the project area or being physically relocated could increase stress to the individual and cause mortality. Considering the low presence of sucker in project area, the low likelihood of a storm breaching site protection measures, and the measures in place to address potential sucker stranding, the Proposed Action may affect, but is not likely to adversely affect the sucker. Under the Previously Approved Design, any sucker potentially occupying the area would be directly affected by the diversion and dewatering of the primary channel of the Santa Ana River. Although similar measures would be implemented to prevent sucker from being stranded, this alternative would adversely affect the sucker.

Critical habitat was revised for the Santa Ana sucker in 2010. This most recent modification to designated Critical Habitat includes a total of approximately 9,331 acres located within three units (Units 1-3). Unit 1 is located along portions of the Santa Ana River and is further divided into three separate units (Subunits A-C). Critical habitat was assessed by federal mapping and presence of Physical and Biological Features (PBFs) within the mapped areas. PBFs are features that are essential to the conservation of the species. These features include species needs for life processes and successful reproduction such as: space for growth or individuals and populations, cover and shelter for different life stages of a species, biological and physiological requirements, breeding and rearing sites, germination, seed dispersal and historical habitat or habitat protected from disturbance.

The project area overlaps with approximately 52.96 acres of critical habitat, which is 1% of the 4,771 acres of critical habitat in the subunit. Of that 52.96 acres, approximately 5 acres of open sandy wash and unvegetated floodplain contain some potential PBFs for sucker. The critical habitat potentially impacted by this project is in relatively poor condition, but is within the historical range for sucker. The majority of the area is comprised of dense, riparian vegetation. If flow were created in the secondary channel, the intermittent habitat available would still be considered to have low suitability due to disturbance from

recreation and giant reed invasion. Most of the 5 acres of critical habitat that could be potentially affected would not be permanently degraded, and the hydrological regime would not be substantially affected by the Proposed Action. The sandy wash (secondary channel) would be altered due to the construction of the embankment feature, but a new channel would likely develop along the structure, similar to the existing channel paralleling the bluff. Although hardened features along banks are known to cause impacts to native fish by permanently removing vegetation and altering sediment movement, the embankment would be located on the toe of the existing bank for the floodplain. Therefore, it would not significantly alter the hydrologic regime during normal flow conditions. During high floods, the embankment would influence hydrology by preventing impinging flows from contacting the bluff toe. Flows reaching the embankment would likely have flow velocities strong enough to alter vegetation and sediment throughout the floodplain. Therefore, these effects would likely occur with or without the embankment feature present, and potential effects under this infrequent flood scenario would be considered less than significant.

As described in earlier sections, the TCE would be cleared of vegetation and graded to prepare the site for construction, and areas outside of the permanent project footprint would be restored with native vegetation. Site preparation and measures would allow for the removal of giant reed and planting of native vegetation in its place. Therefore, this would create an overall improvement to sucker critical habitat within the project area. Additionally, mitigation measures to offset potential impacts to sucker and critical habitat would include implementation of a sucker predator removal program, which would occur for 5 years. The Proposed Action may affect, but is not likely to adversely affect sucker critical habitat. Under the Previously Approved Design, sucker critical habitat would be directly affected by the diversion and dewatering of the primary channel of the Santa Ana River. Although similar measures would be implemented to prevent sucker from being stranded, this alternative would adversely affect sucker critical habitat.

Least Bell's Vireo (Federally and State Endangered) and Designated Critical Habitat

Least Bell's vireo (vireo) are known to currently maintain ten territories within 200 ft of the project area, including the borrow site. These territories account for approximately 10% of the 101 territories in the area (SAWA 2019). Of the ten known territories occurring within 200 ft. of the project area, two lie within the permanent construction footprint, two lie within the TCE, and six lie within the 200 ft. buffer. This would result in potential permanent displacement of two territories and temporary displacement of eight territories. This is assuming that vireo nesting beyond 200 feet from the project would continue successfully. To avoid potential effects to vireo, vegetation clearing would occur outside of the nesting season, and sensitive species monitoring would occur through the duration of construction activities. Additionally, considering the large width of the floodplain, movement of vireo would not be constricted within the adjacent area. Although increased competition for nest sites and other resources could occur until construction is completed.

Vireo use their sense of hearing to locate their young and mates, to establish and defend territories, and to locate and evade predators (Scherzinger, 1970). The impact of construction noise on nesting vireo is not well understood. Excessive noise levels have the potential to cause behavioral changes, physiological effects, such as temporary or permanent loss of hearing, and can result in masking of important auditory cues, such as predator alert calls. Vireo may also abandon a nest and general territory if they cannot tolerate the loud noises, in which case eggs and/or hatchlings would be abandoned, inhibiting further recruitment to the population at least temporarily. Recent vireo surveys at the SARMP, Reach 9 BNSF Bridge Project revealed vireos did not appear to abandon territories in 2019 due to noise increases during piling driving activities, as evidenced by the number of territories remaining consistent between the 2018

and 2019. However, pile driving activities did not begin until later in the nesting season. Measures to minimize and avoid potential noise effects on vireo include construction of a sound wall around riparian habitat to attenuate construction noise. Noise monitoring would also be conducted to ensure compliance with noise established noise thresholds, as outlined in the 2012 BO.

Fugitive dust emissions from construction activities has the potential to impair the vision of vireo nesting within and adjacent to the project area. Additionally, increased human presence can cause disturbances to vireo, resulting in nest and/or territory abandonment. BMPs would be implemented to minimize fugitive dust emissions. Installation of sound walls would introduce a physical barrier between the project area and riparian habitat, construction activities would be blocked from sight.

A total of 72.42 acres of critical habitat fall within the project area. A total of 36.87 acres of designated critical habitat would be permanently impacted, and 35.55 acres would be temporarily impacted by the Proposed Action. Of the total 72.42 acres of critical habitat within the project area, approximately 48 acres provide PBFs (i.e., breeding and foraging habitat) required for least Bell's vireo occupation. These acres contain relatively dense riparian and riparian scrub vegetation that are typically dominated by willows, but also contain a dense shrub layer that is mature. The remaining 24.42 acres do not provide PBFs as these areas occur in disturbed, upland communities or are developed areas (i.e. ruderal, grassland and disturbed coastal sage scrub). Critical habitat outside of the permanent construction area would be restored with native riparian vegetation after construction is completed.

As described earlier, nonnative species comprise a large percentage of the project area. Vegetation clearing at the beginning of construction and site restoration after construction would create an overall improvement in riparian habitat within the project area. Additionally, 72.42 acres of critical habitat is a small percentage compared to the 3,338 acres of designated habitat available in Riverside and San Bernardino Counties.

Mitigation to offset impacts to vireo and their critical habitat would also include off-site restoration of riparian habitat through the removal of nonnative species and implementation of a cowbird removal program control. Considering the BMPs, measures, and mitigation described above, both alternatives may affect vireo and vireo critical habitat.

Southwestern willow flycatcher (FE, SE) and Designated Critical Habitat

The number of recorded flycatchers within Prado Basin peaked at nine territories in 2003. Overtime, there has been a steady decline in flycatcher presence, and no nesting pairs have been detected there since 2013 (Pike et al. 2013). Survey and monitoring activities were conducted by SAWA in 2019, and no flycatchers were not detected. Eight migratory individuals were documented within the larger watershed, and two non-paired individuals passed through the Norco Bluffs area. No breeding pairs were detected (SAWA 2019). This species is not expected to be affected by either alternative.

Approximately 4.72 acres of critical habitat are present within the project area. As a result of the Proposed Action, approximately 0.40 acres would be permanently impacted, and 4.32 acres would be temporarily impacted. While designated critical habitat would be impacted, habitat suitability is relatively low within and around the project area. Much of the riparian habitat is heavily disturbed by giant reed invasion or disturbance from restoration activities that reduced the cover and vegetation layers preferred by this species for both nesting and foraging. There is potential that a transient individual could pass through the area during the construction of the project, however the width of the floodplain would allow the species to pass through the riparian corridor and easily avoid the project area. The measures listed above for

minimizing and avoiding impacts to nesting birds, including vireo, would also reduce and mitigate impacts to flycatcher. Project activities are not expected to affect individuals or nests. Upon project completion, native revegetation and long-term maintenance of riparian vegetation would provide an overall improvement in flycatcher habitat for flycatcher. Both alternatives may affect, but are not likely to adversely affect critical habitat for flycatcher.

4.2.2 Fish, Crustaceans, Mollusks, and other Aquatic Organisms

For both alternatives, potential effects to other aquatic organisms would be similar to those described above for sucker. Fish could potentially become stranded, however the probability of this occurring could be reduced by implementation of measures to protect the construction site and protocol for retrieval. Potential effects related to water quality would be more severe under the Previously Approved Design due to the diversion and dewatering of the primary channel. Turbidity could directly impact aquatic organisms with limited mobility through burial. However, turbidity impacts would be temporary and be limited to construction and during emergency maintenance activities.

4.2.3 Other Wildlife

Potential effects and minimization measures described previously for listed species would also apply to other species occupying the area. Measures include scheduling vegetation removal activities outside of the nesting bird season, implementing biological monitoring, and requiring construction workers to take an environmental training. Construction noise and increased human presence could potentially deter these species, but the wide floodplain available near the project area and open space surrounding the borrow area would allow these species to avoid these areas and utilize existing resources nearby. Therefore, potential effects to other special-status species are expected to be less than significant. For aquatic species, given the measures in place to protect the worksite, the low likelihood of such flood events, and protocol implemented response to such events, it is expected that potential effects to aquatic species would be less than significant for both alternatives.

4.2.4 Cumulative Impacts [5.4]

Potential cumulative impacts on water resources and hydrology from the Proposed Action and Previously Approved Design were determined to be less than significant in the draft SEA/EIR Addendum and the 2001 SEIS/EIR, respectively.

4.3 Potential Effects on Special Aquatic Sites (Subpart E)

4.3.1 Wetlands and Vegetated Shallows [4.4.2.1]

Both the Proposed Action and the Previously Approved Design would result in potential effects to riparian vegetation through vegetation clearing and ground-disturbing activities. Vegetation clearing and grading activities are expected to occur throughout the TCE and construction staging area to prepare the site for construction of the embankment structure, site access, and drainage systems. Areas would also be cleared to create room for stockpiles of material.

To reduce potential effects related to ground disturbance, grading activities would be kept at a minimum, and root structures would be left intact to allow regrowth. To limit the effects of vegetation removal and ground-disturbance, construction activities would be limited to the TCE and delineated by visible

boundaries. Additionally, dust control measures would be implemented to reduce excessive dust emissions. Excessive dust can decrease or limit plant survivorship by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success. Additionally, erosion control measures, such as berms and silt fences, would be implemented to prevent potential effects to existing topography and hydrological regimes that could impact the health of vegetation communities. Upon construction completion, the site would be restored to pre-project conditions and areas temporarily disturbed would be revegetated with native species.

To reduce the potential effects on plant communities, including special-status plant species, the Corps would implement conservation measures provided in the 2001 SEIS/EIR along with additional measures, as described above and in Section 6 of the draft SEA/EIR Addendum. These measures would ensure less than significant effects of the Proposed Action by minimizing the removal of and impacts to vegetation, to the extent practicable, and by restoring native plant communities at the conclusion of construction. Construction monitoring would be conducted to confirm compliance with commitments. Additionally, temporary and permanent impacts to riparian habitat would be offset through mitigation, which includes restoration of riparian habitat. All temporary impacts will be restored onsite through planting and seeding by the contractor and undergo a maintenance period. Detailed information of habitat type mitigation ratios and maintenance commitments are provided in the Environmental Commitments Section 6 of the draft SEA/EIR Addendum.

4.3.2 Mud Flats

No mud flats exist within the project area. Therefore, none would be impacted by either the Proposed Action or the Previously Approved Design.

4.3.3 Coral Reefs

No coral reefs exist within the project area. Therefore, none would be impacted by either the Proposed Action or the Previously Approved Design.

4.3.4 Riffle and Pool Complexes

No riffle and pool complexes exist within the project area. Therefore, none would be impacted by either the Proposed Action or the Previously Approved Design.

4.3.5 Cumulative Impacts [5.4]

Potential cumulative impacts on water resources and hydrology from the Proposed Action and Previously Approved Design were determined to be less than significant in the draft SEA/EIR Addendum and the 2001 SEIS/EIR, respectively.

4.4 Potential Effects on Human Use (Subpart F)

4.4.1 Municipal and Private Water Suppliers [4.11.2.1]

Neither the Proposed Action nor the Previously Approved Design would substantially impact water supply. Water would be required for dust abatement, cleaning of construction equipment, and irrigation for vegetation activities. The amount of water required would depend on the length of access roads, weather conditions, road surface conditions, and other site-specific conditions. However, water use for

construction would not affect availability of water for the local population or other needs of the City of Norco.

4.4.2 Recreational and Commercial Fisheries [5.8]

There are no commercial or recreational fisheries within the project area.

4.4.3 Water-Related Recreation [5.8]

There are no water-related recreation within areas where construction would occur.

4.4.4 Aesthetics [4.7.2.1]

Under both alternatives, development of the project would be visible during the construction. Construction activities and facilities would include construction of the embankment (approximately 1.5 miles in length), one temporary construction ramp and access road, and one permanent maintenance road; and a borrow area and approximate 6-mile haul route located west of the proposed project site. The staging area would be located adjacent to Corydon Avenue, west of the Wayne-Makin Shearer sports complex, south and east of the open space, and single residences north and south of the area. Therefore, construction activities would be visible to recreationalists, pedestrians, and homeowners. However, given that construction activities are temporary, these impacts would be considered less than significant.

Artificial light may be necessary, rarely, during the construction period since the proposed construction hours would be 7:00 a.m. to 6:00 p.m. Monday through Friday. In addition, the proposed project site is immediately surrounded by open space and at the toe of the bluff, within the Santa Ana River floodplain. The closest residential area to the project area are the residences located along Shadow Canyon Circle. Residents would be located adjacent to the TCE and construction of the permanent maintenance road. If lighting is required in this area during construction, a Lighting Plan would be developed, and lights would be strategically placed to minimally impact surrounding residents. Therefore, any impacts associated with light and glare would be temporary, and impacts would be considered less than significant.

4.4.5 Parks, national and historical monuments, national seashores, wilderness areas, and research sites

There are no parks, national and historical monuments, national seashores, wilderness areas, or research sites within the project area.

4.4.6 Cumulative Impacts [5.7; 5.8; 5.11]

Potential cumulative impacts on water resources and hydrology from the Proposed Action and Previously Approved Design were determined to be less than significant in the draft SEA/EIR Addendum and the 2001 SEIS/EIR, respectively.

4.5 Evaluation and Testing (Subpart G)

Both alternatives would result mostly in discharges of native fill within waters of the US associated with earthmoving activities. Permanent discharges of fill material would entail discharges of rock and concrete.

Both temporary and permanent fills would be chemically inert and would not leach contaminants into the water column. Per 40 C.F.R 230.60(a), testing is not required.

5 MITIGATION MEASURES (Subpart H) [6.0]

Biological Resources

BR-1 The USACE shall develop and implement a monitoring program that entails surveys for least Bell's vireo and southwestern willow flycatcher in spring and early summer during construction. In addition a monitoring protocol will be developed and implemented for raptor monitoring including bald and golden eagles in both the project area and borrow site area during construction. If eagles are foraging, the Corps will coordinate with the Contracting officer Representative and USFWS to develop appropriate avoidance measures.

BR-2 The construction contractor shall keep grading activities associated with the project construction to a minimum and existing root systems will be left intact to the extent feasible.

BR-3 The construction contractor shall clear vegetation associated with project construction within potential vireo or flycatcher habitat only during period when least Bell's vireo and southwestern willow flycatcher are not nesting (nesting period is from February 28 – August 15).

BR-4 The Corps biologist (or the environmental monitor) will monitor construction activities to assure that vegetation is removed only in designated areas and compliance with commitments. Riparian areas not to be disturbed will be flagged.

EC-BR-5 In compliance with the 2012 BO Amendment, the Corps will restore (through arundo removal and other non-native removal at an offsite location) one acre of riparian habitat for each acre of wetland/riparian habitat temporarily disturbed by the Lower Norco Bluffs Toe Protection Project, and restore five acres for each acre of permanent impact to riparian/wetland habitat to be preserved in perpetuity. This will equate to 161.8 acres of off-site restoration to compensate for 27.96 acres of permanent impacts to riparian habitat and 21.45 acres of temporary impacts to riparian/wetland habitat. The 1:1 offsite mitigation requirement for temporary to riparian/wetland habitat impacts assumes that the restored area will be actively maintained in perpetuity. (The Corps also has the option of compensating for temporary impacts to riparian/wetland habitat by restoring three acres in an off-site location for each acre affected (3:1), and maintaining the restored area for a period of five years only.) In addition, all temporarily affected areas will be restored onsite to native vegetation communities approved by USACE. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.

EC-BR-6 The USACE shall successfully restore each acre of riparian vegetation that is temporarily disturbed during construction-related activities (21.45 acres) and will keep all temporarily disturbed areas free of exotic plants until riparian vegetation is re-established. If the site

has not begun to recover within 5 years (i.e., 50 percent of the disturbed areas are not vegetated with young riparian vegetation), then the site will be replanted with cuttings from native riparian species.

EC-BR-7 In compliance with the 2012 BO Amendment, the USACE will restore (through arundo and other non-native removal) three acres of riparian habitat for each acre of non-riparian floodplain habitat permanently impacted by the project. This will equate to 25.50 acres of off-site restoration to compensate for 8.98 acres of permanent impacts to non-riparian habitat. All temporarily impacted areas will be restored onsite, with appropriate vegetation communities approved by the USACE. The USACE shall maintain non-riparian areas that are temporarily disturbed or destroyed free of exotic plants for 8 years. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.

EC-BR-8 The USACE or Sponsor shall implement or contribute funding to a cowbird trapping program within Prado Basin during the construction of the project and for 5 years after completion. Sufficient funding shall be provided to maintain at least 5 traps during vireo nesting season within the vicinity of the Norco Bluffs project area.

EC-BR-9 Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the TCE including designated borrow areas, staging areas or routes of travel. The construction area(s) will be the minimal area necessary to complete the Proposed Project and will be specified in the construction plans. Highly visible barriers (such as orange construction fencing or sound walls) will be installed around all riparian and sensitive habitats adjacent to the TCE to designate limits of construction activities. These barriers will be maintained until the completion of all construction activities.

EC-BR-10 Noise barriers will be constructed where the project borders riparian habitat or at the recommendation of a qualified biologist (or repaired) prior to February 14 of each year to minimize impacts to listed species and nesting birds. The construction contractor will be required to monitor noise regularly during the nesting season (February 15 – August 15), as all work will be within 500 feet if riparian habitat. Ambient noise levels will be recorded prior to the nesting season, or prior to construction during that period. If construction noise levels exceed authorized limits (per the 2001 and 2012 BO or as otherwise agreed to by the Service), the Contractor will construct or modify sound barriers, equipment, or procedures (including construction schedules) as necessary to meet these conditions to ensure that: 1) noise does not exceed 60 dBA, or otherwise agreed upon limit with the Service, within occupied vireo habitat; or, (2) noise does not exceed 5 dBA above ambient conditions if said levels are above 60 dBA, or another agreed upon limit. If construction noise levels within riparian habitat areas outside of the project footprint cannot be reduced below 60 dBA or another agreed upon and documented limit, during the period of February 15 through August 15 of any year, the Corps will offset impacts at a 1:1 ratio per breeding season affected by such noise levels. This 1:1 ratio will be based on the acreage of riparian habitat outside the project footprint subject to noise levels over 60 dBA, or 5 dBA above ambient, or other agreed upon limit, during the noted period, per the number of breeding seasons affected (e.g., 1 acre of riparian, habitat affected by noise in two breeding seasons will result in 2 acres of restoration). The area affected will be determined by the periodic project noise monitoring.

EC-BR-11 Prior to construction activities, a Corps qualified biologist (or the environmental monitor) shall conduct pre-construction environmental training for all construction crew members. The training shall focus on required avoidance/minimization measures and conditions of regulatory agency permits and approvals (if required). The training shall also include a summary of sensitive species and habitats potentially present within and adjacent to the project site.

EC-BR-12 Dust control measures will be implemented during the construction phase to reduce excessive dust emissions. Methods for reducing dust emissions may include wetting work areas by water truck on a regular basis such as dirt access roads and sediment stockpiles, as well as covering truck beds carrying material and stockpiles.

EC-BR-13 Prior to any ground-disturbing activities (e.g. mechanized clearing or rough grading) for all project related construction activities, a Corps qualified biologist (or environmental monitor) shall conduct a pre-construction surveys of the project site for terrestrial special-status, including Multiple Species Habitat Conservation Plan (MSHCP) covered, wildlife species. During these surveys the biologist will:

a. Inspect the project area for any sensitive wildlife species;
b. In the event of the discovery of a non-listed, special-status ground-dwelling animal such as a burrowing owl or special-status reptile, attempts will be made to recover and relocate the animal to adjacent suitable habitat within the project site at least 200 feet from the limits of construction activities. Burrowing owl surveys and relocations would follow established protocols.

EC-BR-14 The USACE or contracted biologists will continue to monitor and survey the project area, borrow area, and adjacent habitats throughout construction and restoration activities for the presence of special status species, and shall confirm that conservation measures are sufficient to avoid or minimize impacts to these species, or shall recommend additional measures as warranted.

EC-BR-15 Upon construction completion the contractor will immediately re-vegetate bare and disturbed areas with a native hydroseed mix approved by USACE, and depending on the time of year the hydroseed is placed, temporary supplemental watering may be needed. Watering need and frequency for hydroseeded areas will be approved by USACE to ensure success germination and establishment of native vegetation.

EC-BR-16 Best management practices shall be implemented to reduce impacts to native habitats, including the following:

a. All equipment maintenance, staging, and dispending of fuel, oil, coolant, or any other toxic substances will occur in developed or designated non-sensitive upland areas. These areas will implement BMPs to prevent runoff carrying toxic substances from entering the Santa Ana River and associated drainages. If a spill occurs outside of a designated area, the cleanup will be immediate and documented.
b. Fire suppression equipment including shovels, water, and extinguishers will be available onsite during the fire season (as determined by Riverside County Fire Department) and when activities may produce sparks. Emergency contacts for the Norco Fire Station No. 57 on Corydon Avenue

will be established.

c. To the extent feasible, the contractor will prevent exotic weeds from establishing within the work site during construction. Construction equipment will be cleaned of mud or other debris prior to mobilizing and before leaving the site to reduce the potential spread of invasive plants and/or seeds.

EC- BR-17 To avoid and reduce impacts to Santa Ana sucker, no work will take place within the main channel of Santa Ana River. In addition, during the construction phase the contractor will construct an earthen berm on the inside edge of the TCE bordering the main channel of the Santa Ana River. The purpose of the berm is to reduce the likelihood of channel flows entering the project site during a storm event, thus avoiding impacts to Santa Ana sucker by exclusion from the project area. If the berm fails and channel flows enter the project site, all work in the flooded area will cease until the biological monitor confirms that work can recommence. The decision to restart will be based on the following:

a. Assessment of Santa Ana sucker presence within the project area, via surveys employing techniques such as block nets and electro-fishing,
b. Removal of fish present and,
c. Lack of channel flows entering the project site within the foreseeable immediate future.

EC-BR-18 To additionally reduce potential impacts to Santa Ana Sucker, the USACE will contract localized sucker predator removal for 5 years. The location within Santa Ana River and methodologies will be developed in coordination with the USFWS, within one year of the project start.

Water Resources and Hydrology

EC-WR-1 Construction Stormwater Pollution Prevention Plan. A Construction Stormwater Pollution Prevention Plan (SWPPP) shall be developed for the project by the construction contractor, and filed with the Santa Ana Regional Water Quality Control Board (RWQCB) prior to construction. The SWPPP shall be stored at the construction site for reference or inspection review. Implementation of the SWPPP would help stabilize graded areas and waterways, and reduce erosion and sedimentation. The plan would designate BMPs that would be adhered to during construction activities. Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) would be installed before clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. During construction activities, measures would be in place to ensure that contaminates are not discharged from the construction sites. The SWPPP would define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. Erosion control during grading of the construction sites and during subsequent construction would be in place and monitored as specified by the SWPPP. A silting basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff.

EC-WR-2 Hazardous Materials Management Plan and Emergency Response Plan. A project- specific hazardous materials management and hazardous waste management plan would be developed prior to initiation of construction. The plan would identify types of hazardous materials to be used during construction and the types of wastes that would be generated. All project personnel would be provided with project-specific training to ensure that all hazardous materials and wastes are handled in a safe and environmentally sound manner. This plan shall include an emergency response program to ensure quick and safe cleanup of accidental spills.

EC-WR-3 Water quality permits. Prior to engaging in any soil-disturbing activities, the construction contractor shall document compliance with the Clean Water Act (CWA) Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities, and shall also receive any necessary permits for dewatering activities, as applicable.

6 CONCLUSION

a) Adaptation of the Section 404(b)(1) Guidelines to this Evaluation. No significant adaptations of the guidelines were made relative to this evaluation.

b) Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem. All practicable alternatives for fill material and backfill were evaluated. The Preferred Alternative is both the most cost-effective and least environmentally damaging. The Preferred Alternative is the Proposed Action Alternative.

c) Compliance with Applicable State Water Quality Standards: The proposed Preferred Alternative would comply with State of California water quality standards. The Corps will submit a request for 401 Certification to the Santa Ana Regional Water Quality Control Board (RWQCB). Certification or a waiver will be documented in the Final SEA/EIR Addendum. The construction contractors will comply with separate requirements to request discharge permits (where applicable), prepare SWPPPs, and provide notifications to the State Water Resources Control Board.

d) Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act: No toxic materials/wastes are expected to be produced or introduced into the environment by the Lower Norco Bluffs project. Discharge will consist of native substrate, rip rap, and launchable rock. Launchable rock and rip rap will be inert and stable.

e) Compliance with the Endangered Species Act of 1973: As discussed in the attached draft SEA/EIR Addendum, the Corps has determined the Lower Norco Bluffs project may adversely affect, but would not jeopardize the continued existence of Federally-listed threatened or endangered species including southwestern willow flycatcher, least Bell's vireo, and the Santa Ana sucker. Formal consultation pursuant to Section 7(c) will be initiated with the USFWS. The Biological Assessment and Biological Opinion will be made available in the Final SEA/EIR Addendum.

f) Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972: No sanctuaries as designated by the Marine Protection, Research and Sanctuaries Act of 1972 will be affected by the Lower Norco Bluffs. No sediments would be disposed of within the ocean.

g) Evaluation of Extent of Degradation of the Waters of the United States: No significant degradation of municipal or private water supplies, special aquatic sites, or plankton resources will occur.

h) Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem: Specific environmental commitments are outlined in Section 6 of the attached SEA/EIR Addendum, and in Section 5 above. These measures have been incorporated within the project description for the Proposed Action.

i) On the Basis of the Guidelines, the Proposed Disposal Site(s) for the Discharge of Dredged or Fill Material is:

____X__(1) Specified as complying with the requirements of these guidelines; or,
____ (2) Specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem; or,
____ _(3) Specified as failing to comply with the requirements of these guidelines.

Prepared by: Jenna May
Date: April 20, 2020

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Jurisdictional Delineation Report

PRELIMINARY JURISDICTIONAL WATERS AND WETLANDS DELINEATION REPORT FOR THE NORCO BLUFFS PROJECT

Prepared for:

U.S. Army Corps of Engineers, Los Angeles District
CESPL-PD-RQ
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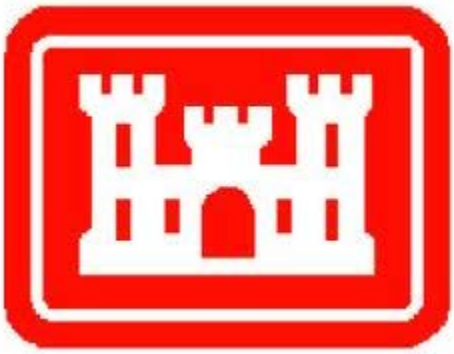
Los Angeles, California 90053



Prepared by:

Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agoura Hills, CA 91301

December 2018

Preliminary Jurisdictional Waters and Wetlands Delineation Report

Norco Bluffs Project
Riverside County, California

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional determination and delineation for the above-referenced project.

Margaret Schaap
Biologist and Regulatory Permitting Specialist
Aspen Environmental Group

December 2018

Contents

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List of Attachments

1.0 Introduction

This report presents the findings of an investigation of jurisdictional features conducted by Aspen Environmental Group (Aspen) for the Norco Bluffs Project (Project) on November 27, 2018. The Project area is located adjacent to the Santa Ana River in Norco, Riverside County, California (Figure 1; note that all figures are included within Attachment 1). The Project Area is located west of Interstate 15 (I-15) and north of Norco Drive. The limits of the Project area were provided to Aspen by the U.S. Army Corps of Engineers (USACE). The proposed Project activities include geotechnical investigations in the Project area to finalize Project design.

1.1 Lead Agency Name and Address

U.S. Army Corps of Engineers, Los Angeles District
915 Wilshire Blvd.
Los Angeles, CA 90017

1.2 Contact Person and Phone Number

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2.0 Project Location and Description

The Project is being designed to protect an existing development along the south side of the Santa Ana River. The development is situated along the bluffs within the city of Norco, approximately 5 miles upstream of Prado Dam.

The Project is a component of the Santa Ana River Mainstem Project (SARMP). The SARMP is a multi-agency flood control project that include Seven Oaks Dam, Prado Dam, and various other components along the Santa Ana River. In addition to the USACE, the local sponsors for the SARMP include Orange County Public Works, Riverside County Flood Control and Water Conservation District, and the San Bernardino County Department of Public Works.

This report was prepared to support permitting of geotechnical studies within the Project area. The geotechnical studies will start near the Hamner Avenue bridge and extends approximately 10,400 feet (2 miles) downstream. The Project Area extended 500 feet from the centerline of the anticipated geotechnical studies into Santa Ana River floodplain (northwest), and 200 feet on the upland (southeast) side. Portions of the Project Area have been subject to giant reed (*Arundo donax*) removal and is regularly used as equestrian trails.

2.1 Topography and Surrounding Land Uses

The Project area is located in the middle of USGS Corona North 7.5-minute quadrangle (USGS, 1967). Elevations within the Project area range from approximately 540 to 640 feet above mean sea level (MSL). The topography of the Project Area is distinguished by a well-defined bluff that supports a number of houses and development approximately 60 feet above the Santa Ana River floodplain. Within the

floodplain and on the bluffs are relatively flat. The bluffs are notched with a series channels conveying runoff into the Santa Ana River.

Both sides of the Santa Ana River floodplain in the vicinity of the Project are flanked with housing developments, and parks. Portions of the Project Area have been subject to vegetation management activities with the removal and treatment of giant reed. The floodplain and the edge of the bluff on the south side of the river are regularly used as equestrian trails. The Project Area is located just upstream of the Prado Basin to the east. Three bridges cross the Santa Ana River in close proximity to the Project Area; Hamner Avenue and Interstate 15 on the upstream end, and River Road on the downstream end.

2.2 Vegetation

Habitat within the Project area includes eight cover types. These include Arundo management area, developed or disturbed, native riparian, non-native riparian, non-native upland, non-native woodland, wash, and open water (Attachment 1, Figure 3). These vegetation and cover types generally match names used in previous environmental documents or the SARMP.

Arundo management area. This cover type is found in patches within the Project area. These areas have been subject to significant disturbance to remove and treat this invasive species. Few plants remain following treatment and include native tree and shrub species.

Developed or Disturbed. There are numerous developed areas in the Project area including roads, parking lots, residential areas, and adjacent cleared lands. These areas are typically devoid of vegetation or support scattered ornamental species or low densities of weeds.

Native Riparian. This cover type is used to describe a number of vegetation communities within the Santa Ana River floodplain that are dominated by native riparian species. These species include mulefat (*Baccharis salicifolia*), willow species (*Salix sp.*), coyote bush (*Baccharis pilularis*), bur marigold (*Bidens laevis*), watercress (*Nasturtium officinale*), and cattails (*Typha sp.*). This cover type also included a number of non-native species including Arundo, date palms (*Phoenix* sp.) and mustards (*Hirschfeldia sp.*)

Non-native Riparian. This cover type is used to describe vegetation communities that are dominated by non-native riparian species within the Santa Ana River floodplain. These species include Arundo, sweet clover (*Melilotus albus*), and tree tobacco (*Nicotiana glauca*).

Non-native Upland. This cover type is used to describe vegetation communities that are dominated by non-native upland species. Mapped predominantly on the steep slopes between the flood plain and housing developments, species commonly observed include mustards, tree tobacco, horseweed (*Erigeron bonariensis*), sow thistle (*Sonchus sp.*), brome (*Bromus sp.*), Russian thistle (*Salsola sp.*), and various ornamental species.

Water. The main channel/perennial portion of the Santa Ana River has been mapped as water. Emergent vegetation was observed in shallow or slow moving open water and along the edges of the main flow channel.

Wash. This cover type is found in dry stream channels that have recently been scoured by floods or high flows. This cover type typically supports low densities of plant cover; however, in the absence of scouring flows or inundation these areas may develop more complex vegetation communities.

2.3 Climate

The climate in the Project vicinity consists of warm, dry summers and mild, wet winters. The average annual high temperature is about 80°F and the average annual low is about 50°F (U.S. climate data 2018). Roughly 80 percent of the rain falls from November through March. The mean seasonal precipitation for the Project vicinity is approximately 12 inches (U.S. climate data 2018). Storms that have the potential to produce significant amounts of precipitation and flooding are extra-tropical cyclones of North Pacific origin, which normally occur from December through March. These storms often last for several days and can produce widespread precipitation. In addition to the extra-tropical cyclones, the area of the Project may receive thunderstorms, which can occur at any time of the year. Thunderstorms cover comparatively small areas, but result in high-intensity precipitation, usually lasting for less than three hours. On a smaller watershed, thunderstorms can produce flash flooding.

2.4 Hydrology and Geomorphology

The Project area occurs within the floodplain of the Santa Ana River. Surface water was present in the mainstream channel at the time of the survey. The Project Area is located within the Santa Ana River Watershed. It is also located in the Santa Ana River hydrologic unit, a hydrological boundary of the South Coast Hydrologic Region as designated by the California Regional Water Quality Control Board (MWD 2007). The Santa Ana River watershed covers over 2,650 square miles of wildly varying terrain, and includes parts of San Bernardino, Riverside, and Orange Counties. The mainstem of the river extends for over 100 miles, and has over 50 contributing tributaries, making the Santa Ana River the largest stream system in southern California. The headwaters for the river and its tributaries originate in the San Gabriel and San Bernardino Mountains in the north, and the San Gorgonio and San Jacinto Mountains in the east.

2.5 Geology

The upper portion of the Santa Ana River, in which the Project Area is located, is comprised of alluvial deposits that have eroded from the surrounding mountain ranges. These deposits vary in depth from less than 200 feet to over 1,000 feet. The Santa Ana River watershed is located within a geologically active area. The watershed sits on a number of faults including the San Andreas and San Jacinto Faults in the upper watershed. The Elsinore-Whittier Fault passes under the Prado Dam, and the Newport-Inglewood Fault occurs within the Los Angeles Area. Groundwater in the watershed is highly controlled by the configuration of bedrock and by the extensive faulting. The variable depth to bedrock and the presence of faults can cause pressure zones where water flows to the ground surface.

The Project Area is located at the southern end of an extensive alluvial fan that has resulted from thousands of years of fluvial sediment deposition from the Cajon Creek, Lytle Creek, and the Santa Ana River Washes. Soils in the Project Area are loams, sand, and gravel derived from alluvial fans originating in the San Gabriel and San Bernardino Mountains to the north. Historic soil data from the National Resource Conservation Society (NRCS) were reviewed to determine that hydric soils were not historically present in the Project Area (2018a); however, small patches of hydric soils may be found within non-hydric polygons based on NRCS minimum mapping units. The Project Area is mapped as Tujunga gravelly loamy sand, 0 to 9 percent slopes as shown in Attachment 3.

Tujunga gravelly loamy sand, 0 to 9 percent slope is a somewhat excessively drained soil that is found on alluvial fans and is derived from granite. It is found in areas with 0 to 9% slope and from elevations of about 10 to 1,500 feet. Water table depth is typically more than 80 inches and these areas are rarely flooded. The substrate is composed of gravelly loamy sand (0-36”), gravelly sand, gravelly loamy sand (36-60”).

2.6 Soils

Table 2-1 Soil Units Occurring in the Project Area

Map Unit Symbol/No.	Map Unit Name	Description	Area (Acres)	Percent Total
DmA	Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes	A poorly-drained soil that occurs on flood plains between 10-20 feet in elevation; parent material consists of alluvium derived from granite; loamy sand (0-8"), sand (8-36"), gravelly coarse sand (36-60").	31.88	23.9
DrA	Dello loamy sand, poorly drained, 0 to 2 percent slopes	A moderately well-drained soil that occurs on flood plains between 10-20 feet in elevation; parent material consists of alluvium derived from granite; loamy fine sand (0-8"), sand (8-36"), gravelly coarse sand (36-60").	43.74	11.6
GoB	Grangeville loamy fine sand, drained, 0 to 5 percent slopes	A poorly-drained soil that occurs on alluvial fans between +00 and 1800 feet in elevation; parent material consists of alluvium derived from granite; loamy fine sand (0-17"), sandy loam (17-60").	26.75	9.4
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	A well-drained soil that occurs on alluvial fans and terraces between 100 to 3500 feet in elevation; rarely flooded; parent material consists of alluvium derived from granite; sandy loam (0-26"), fine sandy loam (26-43"), loam (43-60"), stratified loamy sand to sandy loam (60-72").	15.15	10.9
GyD2	Greenfield sandy loam, 8 to 15 percent slopes, eroded	A well-drained soil that occurs on alluvial fans and terraces between 100 to 3500 feet in elevation; rarely flooded; parent material consists of alluvium derived from granite; sandy loam (0-26"), fine sandy loam (26-43"), loam (43-60").	0.57	2.2
PlB	Placentia fine sandy loam, 0 to 5 percent slopes	A moderately well-drained soil that occurs on alluvial fans and terraces between 50 to 2500 feet in elevation; parent material consists of alluvium derived from granite; fine sandy loam (0-18"), clay (18-39"), clay loam (39-57"), and gravelly sandy loam (57-60").	6.06	8.3
PlD	Placentia fine sandy loam, 5 to 15 percent slopes	A moderately well-drained soil that occurs on alluvial fans and terraces between 50 to 2500 feet in elevation; parent material consists of alluvium derived from granite; fine sandy loam (0-18"), clay (18-39"), clay loam (39-57"), and gravelly sandy loam (57-60").	2.34	0.8
TeG	Terrace escarpments	Occurs on terraces; parent material consists of alluvium derived from mixed sources.	35.96	15.0
TvC	Tujunga loamy sand, channeled, 0 to 8 percent slopes	A excessively-drained soil that occurs on alluvial fans and flood plains between 10 to 2900 feet in elevation; parent material consists of sandy alluvium derived from granite; loamy sand (0-10"), loamy sand (10-60").	18.73	9.6
W	Water		19.14	8.4
		Total	**200.32**	**100**

3.0 Regulatory Background

Jurisdictional waters, including some wetlands and riparian habitats, may be are regulated by the U.S. Army Corps of Engineers (USACE), the Santa Ana Regional Water Quality Control Board (SARWQCB), and the California Department of Fish and Wildlife (CDFW; formerly California Department of Fish and Game). The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA); the CDFW regulates activities under the Fish and Game Code Section 1600-1607; and the SARWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. Refer to Attachment 6 for additional details on regulatory authorities and background.

4.0 Waters and Wetlands Delineation Methodology

The assessment of jurisdictional wetlands, other waters of the United States (waters of the U.S.), waters of the State, and riparian habitat was conducted by Aspen biologists Margaret Schaap and Erik Waardenburg on November 27, 2018. Prior to conducting the field assessment Ms. Schaap reviewed current and historic aerial photographs, the San Bernardino County Soil Survey (Natural Resource Conservation Service [NRCS], 2018a), and the local and state hydric soil list (NRCS 2018b) to evaluate the potential active channels and wetland features in the Project Area.

A series of transect locations were determined prior to conducting fieldwork, based on methods in the USACE Wetland Delineation Manual (1987). Transects were numbered 1 -6 starting from the downstream end of the Project Area. Each transect was walked perpendicular to the channel and locations were each transect intersected with a state or federally Jurisdictional water a GPS point was collected.

During the field assessment, vegetation, hydrology, and locations of sample locations were mapped using a BadElf GPS unit and identified on aerial photographs (Figures 4a through 4c). Field maps were digitized using Global Information System (GIS) and total state and federal jurisdictional areas were calculated.

4.1 Federal Wetlands

Jurisdictional wetlands were delineated using a routine determination according to the methods outlined in the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008) based on three wetland parameters: dominant hydrophytic vegetation, wetland hydrology, and hydric soils. The three parameters were evaluated at a series of sample points throughout the Project Area. The locations of these sample points were selected at locations judged most likely and least likely to meet wetlands criteria. Soil pits were excavated at these locations to evaluate the presence of hydric soils (Figures 4a through 4c).

Hydrophytic Vegetation

At each sample location, the aerial cover of all plant species in each vegetation type was visually estimated. Plant species in each stratum (tree, sapling and shrub, herb, and woody vine) were ranked according to their canopy dominance (USACE 2008). Species that contributed to a cumulative coverage total of at least 50 percent and any species that comprised at least 20 percent of the total coverage for each stratum were recorded on the Field Data Sheets (50/20 Rule). Wetland indicator status was assigned to each dominant species using the Region 0 List of Plant Species that Occur in Wetlands and Summary of Wetland Indicator Status (Reed 1988), the California subregion of the National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary (USFWS 1997), and the Arid West Region of The National Wetland Plant List (USACE 2012). If greater than 50 percent of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation was met (refer to Table 3 of Attachment 5).

Wetland Hydrology

At each sample location, the presence or absence of wetland hydrology was evaluated by observing indicators of hydrology (USACE 2008). These indicators are divided into two categories (primary and secondary indicators). Presence of one primary indicator is evidence of wetland hydrology. Presence of two or more secondary indicators can also be evidence of wetland hydrology. The Arid West Supplement includes two additional indicator groups that can be utilized during dry conditions or in areas where surface water and saturated soils are not present including Group B (evidence of recent inundation) and

Group C (evidence of recent soil saturation) (USACE 2008). For additional information regarding wetland hydrology indicators refer to Tables 4 and 5 in Attachment 5.

Hydric Soils

Soil pits were excavated at each sample location using a shovel. Whenever possible they were excavated to a depth of 20 inches (USACE 2008). At each soil pit, the soil texture and color were recorded by comparison with a Munsell soil color chart (2000). Any other indicators of hydric soils, such as redoximorphic features, hydrogen sulfide odor, buried organic matter, organic streaking, reduced soil conditions, gleyed or low-chroma soils were also recorded (refer to Tables 6 and 7 of Attachment 5).

4.2 Federal Non-Wetland Waters

Jurisdictional non-wetland waters of the U.S. were delineated based on the limits of the ordinary high-water mark (OHWM) as determined by physical and biological features such as bank erosion, deposited vegetation or debris, and vegetation characteristics. See Tables 1 and 2 in Attachment 5 (Potential Geomorphic and Vegetative Indicators of Ordinary High-Water Marks for the Arid West) for a list of key physical features for determining the OHWM identified by the arid west manual.

4.3 CDFW Jurisdictional Waters

CDFW jurisdiction was delineated to the top of the banks of the channel/Reservoir and/or to the edge of the riparian canopy/riparian habitat. For most of the Project Area, the riparian canopy/riparian habitat extends beyond the OHWM. Therefore, the total acreage of CDFW jurisdictional waters is greater than the combined acreage of federal jurisdictional waters/wetlands.

5.0 Results

Three types of jurisdictional features were documented within the Project Area: USACE jurisdictional non-wetland waters of the U.S, USACE jurisdictional wetlands, and CDFW jurisdictional waters of the State (refer to Figures 4a through 4c). Table 4-1 and Figures 4a through 4c show locations and acreages of jurisdictional features in the Project Area. Attachment 4 contains the Wetland Determination Data Forms completed during the assessment.

Table 5-1: Acreage of Jurisdictional Waters, Wetlands, and CDFW Habitat

	USACE Jurisdictional Waters of The U.S. (Acres)		CDFW State Jurisdictional Waters (Acres)
	Non-wetland waters of U.S.	Wetlands	
Project Area	37.38	4.11	154.27

(a) Non-wetland waters of the United States and non-wetland waters of the State overlap; as such, jurisdictional acreages are not additive.
(b) Wetlands fall under the jurisdiction of the USACE, SARWQCB, and CDFW; as such, wetland acreages are not additive.

Table 5-2: Temporary Impacts from Geotechnical Investigations to Jurisdictional Waters, Wetlands, and CDFW Habitat

	USACE Jurisdictional Waters of The U.S. (Acres)		
	Non-wetland waters of U.S.	Wetlands	State Jurisdictional Waters (Acres)
Geotechnical Investigation Temporary Impact Area	0.20	0.09	0.88
Total	0.29		0.88

5.1 Federal Wetlands

Based on this assessment of hydrology, vegetation, and soils, and Aspen's professional opinion, approximately 4.11 acres of the Project Area satisfies the federal criteria as wetlands (USACE 1987 and USACE 2008). These areas are shown on Figures 4. Additional information for each location can be found on the field data sheets (Attachment 4). It is anticipated that 0.09 acres of Federal wetlands will be temporarily impacted by the geotechnical investigations.

Vegetation

Pockets of habitat with a dominance of hydrophytic vegetation are generally present within the areas immediately adjacent to the main channel of the Santa Ana River, or within areas that showed evidence of seasonal flow, such as secondary channels. When a dominance of hydrophytic vegetation is observed it is generally short lived and wholly dependent on the rate of fluctuation of the water level in the floodplain. Most species observed were FACW or FAC. Additional information on the vegetation observed for each location can be found on the field data sheets (Attachment 4).

Wetland Hydrology

Surface water was present within the Project Area during the survey. Drift deposits, water stained leaves, saturation, and inundation were present at several of the location. Additional information on the hydrology observed for each location can be found on the field data sheets (Attachment 4).

Hydric Soils

Soil pits in the Project Area exposed a reduced matrix and strong smell of hydrogen sulfide, which are both indicators of hydric soils. At least one of these indicators were detected at sample locations T6P1, T4P1, T1P1, and T1P2 (Figures 4). The soil pits on transects 4 and 6 were in close proximity to ponded water that appears to be present year-around. Redox features were present at the two pits on transect 1. Additional information on the soils observed for each location can be found on the field data sheets (Attachment 4)

5.2 Federal Non-Wetland Waters

Based on this assessment of OHWMs and Aspen's professional opinion, 37.38 acres of the Project Area meet the definition of waters of the U.S. as outlined in 33 CFR Part 328 (Figure 5). The limits of the OHWM were determined using biological features such as bank erosion, deposited vegetation or debris, and vegetation and soils characteristics noted during the field surveys. Some of the key hydrology indicators

noted during the delineation included the following. See Tables 1 and 2 in Attachment 5 for additional information.

- A1 – Surface Water
- A2 – High Water Table
- A3 – Saturation
- B2 – Active floodplain
- B3 – Drift Deposits
- B13 – Drift (organic debris, larger than twigs)
- C1 – Hydrogen Sulfide Odor

Federal non-wetland waters of the U.S. included part of the channel bottom within the Project Area and extended up the side slopes to approximately 5 feet or less depending on the location of drift deposits on and the vegetation and side slopes (i.e., the OHWM). A review of historic aerial photography (1995 – 2014) confirms the location and extent of Federal non-wetland waters of the U.S. identified during our site visit. It is anticipated that 0.20 acres of Federal non-wetland waters of the U.S. will be impacted by the geotechnical investigation.

5.3 CDFW Waters

Based on this assessment and Aspen's professional opinion, approximately 154.27 acres of the Project Area meet the definition of CDFW jurisdictional waters of the State as outlined in Sections 1600-1616 of the California Fish and Game Code (Figure 5). This conclusion is primarily based on the presence of bed and bank and extent of riparian vegetation which included riparian, woodland, wash and water cover types. Native and non-native riparian cover types are dominated by willow species, Arundo, and mulefat. It is anticipated that 0.88 acres of CDFW jurisdictional waters will be temporarily impacted as a result of geotechnical investigations.

6.0 Summary and Conclusions

The Project area includes jurisdictional waters of the State and waters of the U.S. including federally jurisdictional wetlands and USACE non-wetland waters as follows:

- 4.11 acres of federally jurisdictional wetland were mapped in areas that support hydrophytic vegetation, show evidence of wetland hydrology, and contain hydric soils. Temporarily impacted by geotechnical investigations may impact up to 0.09 acres of federally jurisdictional wetlands.
- 37.38 acres of jurisdictional non-wetland waters of the United States where mapped in areas that did not meet the hydrophytic vegetation or hydric soils criteria for wetlands but where evidence of hydrology or a discernible OHWM was visible. Temporarily impacted by geotechnical investigations may impact up to 0.20 acres of jurisdictional non-wetland waters of the United States.
- 154.72 acres of CDFW jurisdictional waters were mapped based on riparian vegetation, bed and bank delineation, and field observations. Temporarily impacted by geotechnical investigations may impact up to 0.88 acres of CDFW jurisdictional waters and habitats.

The conclusions presented above represent Aspen's professional opinion based on their knowledge and experience with the USACE and CDFW, including their regulatory guidance documents and manuals. However, the USACE and CDFW have final authority in determining the status and presence of jurisdictional wetlands and waters and the extent of their boundaries.

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Appendix C - Air Quality Analysis Calculations

ANNUAL EMISSIONS SUMMARY

Offroad	Tons/Year								
YEAR	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**GHG**
2021	0.37	1.61	2.35	0.01	0.09	0.08	594.25	0.03	594.25
2022	1.21	4.97	7.26	0.02	0.27	0.24	2078.69	0.11	2078.69
2023	0.04	0.23	0.26	0.00	0.01	0.01	78.65	0.00	78.65

Onroad	Tons/Year								
YEAR	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**GHG**
2021	0.03	0.15	0.31	0.00	0.02	0.01	115.36	0.00	115.36
2022	0.61	3.04	6.85	0.03	0.35	6.03	2639.91	0.03	2639.91
2023	0.01	0.04	0.00	0.00	0.00	0.00	12.21	0.00	12.21

TOTAL Onroad and Offroad	Tons/Year								
YEAR	**VOC/ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**GHG**
2021	**0.40**	**1.76**	**2.66**	**0.01**	**0.11**	**0.10**	**709.60**	**0.04**	**709.60**
2022	**1.82**	**8.01**	**14.11**	**0.05**	**0.62**	**6.28**	**4718.60**	**0.14**	**4718.60**
2023	**0.04**	**0.27**	**0.26**	**0.00**	**0.01**	**0.01**	**90.86**	**0.00**	**90.86**

TOTAL PROJECT									
YEAR	**VOC/ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**GHG**
TOTAL TONS	**2.27**	**10.04**	**17.03**	**0.06**	**0.74**	**6.38**	**5519.06**	**0.18**	**5519.06**
TOTAL POUNDS	4542.33	20076.33	34064.05	110.86	1482.69	12762.80	11038129.81	353.53	11038129.81
POUNDS/DAY	5.80	25.64	43.50	0.14	1.89	16.30	14097.23	0.45	14097.23

Total On-site Trips (on-road)

	Pick up trucks (onsite)	Water Trucks
2021	558	12
2022	3915	3765
2023	3915	72
TOTAL	8388	3849

Total off-site trips (on-road)

	Dump trucks	pick up trucks (commute)
2021	818	283
2022	79040	283
2023	16	283
TOTAL	79874	850

2021

OFF-ROAD EMISSIONS

Clearing and Grubbing

2021

	Qty	Hrs/Day	Total Day	VOC	CO	NOX	SOX	PM10	PM2.5	CO2	CH4
				Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
Loader	1	8	14	8.61	38.41	42.72	0.22	1.46	1.30	19234.54	0.78
Dozer	1	8	14	24.44	98.89	175.51	0.29	6.96	6.20	29665.72	2.21
Chipper	1	8	13	18.36	73.32	107.67	0.38	3.81	3.39	38859.14	1.66
Total Off Road Emissions				**51.41**	**210.62**	**325.89**	**0.89**	**12.23**	**10.89**	**87759.40**	**4.64**

Construction Access Road

2021/2022

	Qty	Hrs/Day	Total Day	VOC	CO	NOX	SOX	PM10	PM2.5	CO2	CH4
				Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
Vibratory Roller	1	4	1	0.21	1.54	1.41	0.00	0.10	0.08	235.95	0.02
Grader	1	4	1	0.49	1.95	2.84	0.01	0.10	0.09	917.94	0.04
Dozer	1	4	1	0.87	3.53	6.27	0.01	0.25	0.22	1059.49	0.08
Loader	1	4	1	0.31	1.37	1.53	0.01	0.05	0.05	686.95	0.03

Total Off Road Emissions				**1.88**	**8.40**	**12.05**	**0.03**	**0.50**	**0.44**	**2900.33**	**0.17**
Sound Wall		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
2021/2023					**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Loader	1	4	4	1.23	5.49	6.10	0.03	0.21	0.19	2747.79	0.11
	Dozer	1	4	14	12.22	49.45	87.75	0.15	3.48	3.10	14832.86	1.10
	Manlift	1	4	11	1.03	10.03	8.70	0.02	0.48	0.43	1675.16	0.09
	Total Off Road Emissions				**14.48**	**64.97**	**102.56**	**0.20**	**4.17**	**3.71**	**19255.81**	**1.31**
Geotechnical Instrumentation		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
2021/2023					**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Drill, Rotary	1	8	2	1.21	8.82	3.56	0.05	0.11	0.10	4980.94	0.11
	Total Off Road Emissions				**1.21**	**8.82**	**3.56**	**0.05**	**0.11**	**0.10**	**4980.94**	**0.11**
Shoring		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
2021					**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Dozer	1	4	4	3.49	14.13	25.07	0.04	0.99	0.89	4237.96	0.32
	Grader	1	4	20	9.78	39.00	56.90	0.18	2.06	1.84	18358.74	0.88
	Loader	1	4	2	0.61	2.74	3.05	0.02	0.10	0.09	1373.90	0.06
	Scrapers	1	4	4	3.36	13.07	22.79	0.05	0.85	0.76	5142.86	0.30
	Excavator	1	4	2	0.91	3.65	4.20	0.02	0.15	0.14	1869.88	0.08
	Crane	1	4	44	10.57	83.61	64.08	0.16	3.47	3.09	14140.64	0.95
	Vibratory Roller	1	4	12	2.54	18.50	16.92	0.03	1.14	1.01	2831.46	0.23
	Total Off Road Emissions				**31.27**	**174.69**	**193.01**	**0.50**	**8.77**	**7.81**	**47955.44**	**2.82**
Berm Construction		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
2021					**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Dozer	2	4	110	192.04	776.99	1378.99	2.29	54.71	48.69	233087.84	17.33
	Loader	2	4	110	67.63	301.82	335.63	1.70	11.51	10.24	151128.53	6.10
	Scrapers	2	4	110	184.96	718.79	1253.30	2.78	46.74	41.60	282857.13	16.69
	Excavator	2	4	110	100.04	401.40	462.37	2.02	16.83	14.98	205687.13	9.03
	Roller	2	4	110	46.54	339.12	310.13	0.61	20.90	18.60	51910.09	4.20

	Grader	1	4	110	53.77	214.50	312.94	0.99	11.35	10.10	100973.07	4.85
	Total Off Road Emissions				**644.98**	**2752.63**	**4053.35**	**10.38**	**162.05**	**144.22**	**1025643.79**	**58.20**

	VOC	CO	NOX	SOX	PM10	PM2.5	CO2	CH4
	Total lbs.	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
TOTAL 2021 OFF ROAD EMISSIONS (LBS/YEAR)	745.21	3220.12	4690.41	12.05	187.84	167.17	1188495.71	67.24
TOTAL 2021 OFF ROAD EMISSIONS (TONS/YEAR)	**0.37**	**1.61**	**2.35**	**0.01**	**0.09**	**0.08**	**594.25**	**0.03**

GHG EMISSIONS OFFROAD 594.25 using EPA GHG calculator @ https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

tons CO2 e

ON-ROAD EMISSIONS

		Quantity	Hrs/Day	Hrs/Trip*	# Trips/ Work Day/Truck	Total Work Days/Truck	Total Trips/ Truck	Miles/ Round Trip/Truck**	Total Miles/ Truck***	ROG Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
Clearing and Grubbing																	
2021	Water Truck	1	8			1	3	4	12	0.01	0.06	0.14	0.00	0.01	0.01	50.58	0.00
	Pickup Trucks (on-site)	1	8			1	3	4	12	0.01	0.05	0.00	0.00	0.00	0.00	13.32	0.00
	16 CY Dump Truck	2	8	3	3	14	45	49	2195.2	4.53	22.12	51.81	0.18	2.61	2.03	18505.34	0.21
	Subtotal On Road Emissions									**4.54**	**22.23**	**51.95**	**0.18**	**2.62**	**2.04**	**18569.24**	**0.21**
Construction Access Road																	
2021/2022	Water Truck	1	4			1	3	4	12	0.01	0.06	0.14	0.00	0.01	0.01	50.58	0.00
	16 CY Dump Truck	5	4	3	2	1	2	49	78.4	0.40	1.97	4.63	0.02	0.23	0.18	1652.26	0.02
	Subtotal On Road Emissions									**0.42**	**2.04**	**4.77**	**0.02**	**0.24**	**0.19**	**1702.84**	**0.02**
Shoring																	
2021	16 CY Dump Truck	10	4	2.5	2	20	32	49	1568	16.17	78.98	185.02	0.63	9.32	7.26	66090.51	0.74
	Water Truck	1	4			14	3	4	12	0.01	0.06	0.14	0.00	0.01	0.01	50.58	0.00
	Subtotal On Road Emissions									**16.18**	**79.04**	**185.16**	**0.63**	**9.33**	**7.26**	**66141.09**	**0.74**
Berm Construction		**Quantity**	**Hrs/Day**	**Hrs/Trip***	**# Trips/ Work Day/Tru**	**Total Work Days/Truck**	**Total Trips/ Truck**	**Miles/ Round Trip/Tr**	**Total Miles/ Truck*** **	**ROG**	**CO**	**NOX**	**SOX**	**PM (PM10)**	**PM2.5**	**CO2**	**CH4**

2021					ck			uck**		Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
	16 CY Dump Truck	20	4	2.5	2	24	38	42	1613	33.25	162.48	380.61	1.30	19.17	14.93	135957.61	1.53
	Water Truck	1				16	3	4	12	0.01	0.06	0.14	0.00	0.01	0.01	50.58	0.00
									Subtotal On Road Emissions	**33.27**	**162.54**	**380.76**	**1.30**	**19.18**	**14.94**	**136008.19**	**1.53**

Duration of Project 2021/2022/2023		**Quantity**	**Hrs/Day**	**Hrs/Trip***	**# Trips/ Work Day/Truck**	**Total Work Days/Truck**	**Total Trips/ Truck**	**Miles/ Round Trip/Truck****	**Total Miles/ Truck*****	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
										Total lbs.	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
Assume 15 daily work commute of pick up trucks for 170 days	Pickup Trucks (commute)	5	3		1	57	57	20	1133	2.87	23.87	2.14	0.06	0.55	0.36	6290.54	0.24
	Pickup Trucks (on-site)	5	3		1	90	90	4	360	0.91	7.58	0.68	0.02	0.17	0.11	1998.17	0.08
	Subtotal On Road Emissions									**3.78**	**31.45**	**2.82**	**0.08**	**0.72**	**0.48**	**8288.71**	**0.32**

										ROG	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
									2021 TOTAL ON-ROAD EMISSIONS (LBS/YEAR)	58.18	297.30	625.46	2.21	32.08	24.90	230710.07	2.82
									2021 TOTAL ON-ROAD EMISSIONS (TONS/YEAR	**0.03**	**0.15**	**0.31**	**0.00**	**0.02**	**0.01**	**115.36**	**0.00**
									GHG EMISSIONS OFFROAD	**115.36**							

*For Dump Trucks, calculated by adding the amount of time for roundtrip to borrow site (1 hour) and land fille (1.5 hours)

tons CO2 e

** For Dump Trucks, calculated by adding mileage of roundtrip to borrow site (24 miles) and landfill (25 miles); For water trucks and pick up trucks (on-site), calculated using length of project TCE (4 miles roundtrip); Pick-up trucks (commute) assume 20 miles roundtrip

*** Assumes 3 trips/day for pick up and water trucks (on-site)

2022

OFF-ROAD EMISSIONS

Excavation 2022		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Dozer	1	8	182	302.93	1227.49	2117.13	3.79	83.49	74.31	385654.35	27.33
	Grader	1	8	182	169.56	698.23	921.51	3.28	33.62	29.92	334129.23	15.30
	Excavator	2	8	32	55.35	232.47	234.67	1.17	8.52	7.58	119672.49	4.99
	Total Off Road Emissions				**527.84**	**2158.19**	**3273.32**	**8.24**	**125.62**	**111.80**	**839456.08**	**47.63**
Backfill 2022		**Qty**	**Hrs/Day**	**Total Day**	**VOC Total lbs.**	**CO Total lbs.**	**NOX Total lbs.**	**SOX Total lbs.**	**PM10 Total lbs.**	**PM2.5 Total lbs.**	**CO2 Total lbs.**	**CH4 Total lbs.**
	Dozer	2	8	150	499.34	2023.33	3489.78	6.24	137.62	122.48	635693.99	45.05
	Loader	2	8	73	89.08	362.37	516.56	1.96	17.94	15.97	174004.76	8.04
	Scrapers	2	8	128	410.15	1622.01	2656.86	6.46	99.01	88.12	658285.56	37.01
	Excavator	2	8	228	394.39	1656.36	1672.04	8.37	60.68	54.00	852666.53	35.58
	Roller	1	8	228	138.65	569.28	951.56	3.14	32.79	29.18	279235.81	12.51
	Grader	1	8	58	54.04	222.51	293.67	1.05	10.71	9.53	106480.74	4.88
	Total Off Road Emissions				**1585.64**	**6455.87**	**9580.48**	**27.21**	**358.75**	**319.29**	**2706367.38**	**143.07**
Riprap 2022		**Qty**	**Hrs/Day**	**Total Day**	**VOC Total lbs.**	**CO Total lbs.**	**NOX Total lbs.**	**SOX Total lbs.**	**PM10 Total lbs.**	**PM2.5 Total lbs.**	**CO2 Total lbs.**	**CH4 Total lbs.**
	Loader	1	8	120	73.21	297.84	424.57	1.61	14.75	13.13	143017.61	6.61
	Dozer	1	8	12	19.97	80.93	139.59	0.25	5.50	4.90	25427.76	1.80
	Roller	1	8	17	10.34	42.45	70.95	0.23	2.44	2.18	20820.21	0.93
	Grader	1	8	22	20.50	84.40	111.39	0.40	4.06	3.62	40389.25	1.85
	Excavator	1	8	144	124.54	523.06	528.01	2.64	19.16	17.05	269263.11	11.24
	Total Off Road Emissions				**248.57**	**1028.68**	**1274.52**	**5.13**	**45.92**	**40.87**	**498917.94**	**22.43**
Grouted Stone		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**

2022					Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
	Concrete Pump	1	8	3	1.60	8.74	13.26	0.05	0.40	0.35	4832.86	0.14
	Excavator	1	8	2	1.73	7.26	7.33	0.04	0.27	0.24	3739.77	0.16
	Loader	1	8	2	1.22	4.96	7.08	0.03	0.25	0.22	2383.63	0.11
	Total Off Road Emissions				**4.55**	**20.97**	**27.67**	**0.12**	**0.91**	**0.81**	**10956.26**	**0.41**

Concrete V-Ditch 2022		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Excavator	1	8	3	2.59	10.90	11.00	0.06	0.40	0.36	5609.65	0.23
	Concrete Vibrator	1	8	10	1.22	4.16	7.70	0.01	0.29	0.26	1010.23	0.11
	Grader	1	8	5	4.66	19.18	25.32	0.09	0.92	0.82	9179.37	0.42
	Total Off Road Emissions				**8.47**	**34.24**	**44.02**	**0.16**	**1.61**	**1.43**	**15799.25**	**0.76**

Concrete Ramp and Inlet Structure Access 2022/2023		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Concrete Pump	1	4	1	0.27	1.46	2.21	0.01	0.07	0.06	805.48	0.02
	Concrete Vibrator	1	4	1	0.06	0.21	0.39	0.00	0.01	0.01	50.51	0.01
	Vibratory Roller	1	4	1	0.19	1.53	1.31	0.00	0.08	0.07	235.95	0.02
	Grader	1	4	1	0.47	1.92	2.53	0.01	0.09	0.08	917.94	0.04
	Total Off Road Emissions				**0.99**	**5.12**	**6.44**	**0.02**	**0.26**	**0.23**	**2009.88**	**0.09**

Catch Basins 2022/2023		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Concrete Vibrator	1	4	4	0.24	0.83	1.54	0.00	0.06	0.05	202.05	0.02
	Concrete Pump	1	4	4	1.07	5.82	8.84	0.04	0.26	0.24	3221.91	0.10
	Skid Steer	1	4	4	0.31	4.27	2.31	0.01	0.07	0.06	684.19	0.03
	Excavator	1	4	8	3.46	14.53	14.67	0.07	0.53	0.47	7479.53	0.31
	Dozer	1	4	4	3.33	13.49	23.27	0.04	0.92	0.82	4237.96	0.30
	Loader	1	4	4	1.22	4.96	7.08	0.03	0.25	0.22	2383.63	0.11

	Vibratory Roller	1	4	8	1.56	12.28	10.47	0.02	0.66	0.59	1887.64	0.14
	Crane	1	4	4	0.89	7.60	5.20	0.01	0.28	0.25	1285.51	0.08
	Total Off Road Emissions				**12.09**	**63.78**	**73.36**	**0.23**	**3.03**	**2.69**	**21382.42**	**1.09**
Culvert, Inlet and Outlet		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
2022/2023					**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Loader	1	4	3	0.92	3.72	5.31	0.02	0.18	0.16	1787.72	0.08
	Crane	1	4	1	0.22	1.90	1.30	0.00	0.07	0.06	321.38	0.02
	Skid Steer	1	4	1	0.08	1.07	0.58	0.00	0.02	0.02	171.05	0.01
	Total Off Road Emissions				**1.22**	**6.69**	**7.18**	**0.03**	**0.27**	**0.24**	**2280.15**	**0.11**
Project Access Road		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
2022					**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Vibratory Roller	1	8	5	1.95	15.35	13.08	0.03	0.83	0.74	2359.55	0.18
	Grader	1	8	4	3.73	15.35	20.25	0.07	0.74	0.66	7343.50	0.34
	Dozer	1	8	11	18.31	74.19	127.96	0.23	5.05	4.49	23308.78	1.65
	Excavator	1	8	12	10.38	43.59	44.00	0.22	1.60	1.42	22438.59	0.94
	Asphalt Paver	1	8	2	1.25	4.43	9.23	0.02	0.33	0.29	1956.66	0.11
	Total Off Road Emissions				**35.61**	**152.90**	**214.52**	**0.57**	**8.54**	**7.60**	**57407.08**	**3.21**
Construction Access Road		**Qty**	**Hrs/Day**	**Total Day**	**VOC**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
2021/2022					**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Vibratory Roller	1	4	1	0.19	1.53	1.31	0.00	0.08	0.07	235.95	0.02
	Grader	1	4	1	0.47	1.92	2.53	0.01	0.09	0.08	917.94	0.04
	Dozer	1	4	1	0.83	3.37	5.82	0.01	0.23	0.20	1059.49	0.08
	Loader	1	4	1	0.31	1.24	1.77	0.01	0.06	0.05	595.91	0.03
	Total Off Road Emissions				**1.80**	**8.07**	**11.43**	**0.03**	**0.47**	**0.41**	**2809.29**	**0.16**
					VOC	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
					Total lbs.	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**

TOTAL 2021 OFF ROAD EMISSIONS (LBS/YEAR)	2426.77	9934.50	14512.95	41.73	545.37	485.38	4157385.73	218.96
TOTAL 2021 OFF ROAD EMISSIONS (TONS/YEAR)	1.21	4.97	7.26	0.02	0.27	0.24	2078.69	0.11

GHG EMISSIONS OFFROAD 2078.69 using EPA GHG calculator @ https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

tons CO2 e

ON-ROAD EMISSIONS

Excavation 2022		Quantity	Hrs/Day	Hrs/Trip*	# Trips/ Work Day/Truck	Total Work Days/Truck	Total Trips/Truck	Miles /Round Trip/Truck**	Total Miles/ Truck***	ROG Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM (PM10) Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	16 CY Dump Truck	20	8	3	3	288	922	42	38707	744	3707	8506	32	429	330	3263178	34
	Subtotal On Road Emissions									**744**	**3707**	**8506**	**32**	**429**	**330**	**3263178**	**34**

Backfill 2022		Quantity	Hrs/Day	Hrs/Trip*	# Trips/ Work Day/Truck	Total Work Days/Truck	Total Trips/Truck	Miles /Round Trip/Truck**	Total Miles/ Truck***	ROG Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM (PM10) Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Water Truck	1	8		3	228	684	4	2736	13	30	0	2	1	11533	0	0
	16 CY Dump Truck	20	8	3	3	172	550	42	23117	445	2214	5080	19	256	197	1948843	21
	Subtotal On Road Emissions									**458**	**2244**	**5080**	**20**	**257**	**11730**	**1948843**	**21**

Riprap 2022		Quantity	Hrs/Day	Hrs/Trip*	# Trips/ Work Day/Truck	Total Work Days/Truck	Total Trips/Truck	Miles /Round Trip/Truck**	Total Miles/ Truck***	ROG Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM (PM10) Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Water Truck	1	8		3	17	51	4	204	0	1	2	0	0	0	860	0
	Subtotal On Road									**0**	**1**	**2**	**0**	**0**	**0**	**860**	**0**

	Emissions																
Catch Basins		**Quantity**	**Hrs/Day**	**Hrs/Trip***	**# Trips/ Work Day/Truck**	**Total Work Days/Truck**	**Total Trips/Truck**	**Miles /Round Trip/Truck*****	**Total Miles/ Truck*****	**ROG**	**CO**	**NOX**	**SOX**	**PM (PM10)**	**PM2.5**	**CO2**	**CH4**
2022/2023										**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Water Truck	1	8		3	2	6	4	24	0	0	0	0	0	0	101	0
	16 CY Dump Truck	1	8	3	3	2	6	49	314	0	2	3	0	0	0	1322	0
	Subtotal On Road Emissions									**0**	**2**	**4**	**0**	**0**	**0**	**1423**	**0**
Culvert, Inlet and Outlet		**Quantity**	**Hrs/Day**	**Hrs/Trip***	**# Trips/ Work Day/Truck**	**Total Work Days/Truck**	**Total Trips/Truck**	**Miles /Round Trip/Truck*****	**Total Miles/ Truck*****	**ROG**	**CO**	**NOX**	**SOX**	**PM (PM10)**	**PM2.5**	**CO2**	**CH4**
2022/2023										**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	16 CY Dump Truck	1	4	3	2	1	2	49	78	0	0	1	0	0	0	330	0
	Subtotal On Road Emissions									**0**	**0**	**1**	**0**	**0**	**0**	**330**	**0**
Project Access Road		**Quantity**	**Hrs/Day**	**Hrs/Trip***	**# Trips/ Work Day/Truck**	**Total Work Days/Truck**	**Total Trips/Truck**	**Miles /Round Trip/Truck*****	**Total Miles/ Truck*****	**ROG**	**CO**	**NOX**	**SOX**	**PM (PM10)**	**PM2.5**	**CO2**	**CH4**
2022										**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
	Water Truck	1	8		3	3	9	4	36	0	0	0	0	0	0	152	0
	16 CY Dump Truck	5	8	3	3	12	38	49	1882	9	45	103	0	5	4	39657	0
	Subtotal On Road Emissions									**9**	**45**	**104**	**0**	**5**	**4**	**39808**	**0**
Construction Access		**Quantity**	**Hrs/Day**	**Hrs/Trip***	**# Trips/ Work**	**Total Work Days/Truck**	**Total Trips/Tr**	**Miles /Rou**	**Total Miles/**	**ROG**	**CO**	**NOX**	**SOX**	**PM (PM10)**	**PM2.5**	**CO2**	**CH4**

2021/2022					Day/Truck		uck	nd Trip/Truck**	Truck***	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
	Water Truck	1	4		3	1	3	4	12	0	0	0	0	0	0	51	0
	16 CY Dump Truck	5	4	3	2	1	2	49	78	0	2	4	0	0	0	1652	0
	Subtotal On Road Emissions									**0**	**2**	**4**	**0**	**0**	**0**	**1703**	**0**

For Duration of Project		Quantity	Hrs/Day	Hrs/Trip*	# Trips/ Work Day/Truck	Total Work Days/Truck	Total Trips/Truck	Miles /Round Trip/Truck**	Total Miles/ Truck***	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4
										Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
2021/2022/2023																	
Assume 15 daily work commute of pick up trucks for 170 days	Pickup Trucks (commute)	5	3		1	57	57	20	1133	3	23	2	0	1	0	6291	0
	Pickup Trucks (on-site)	5	3		3	261	783	4	3132	8	62	6	0	2	1	17386	1
	Subtotal On Road Emissions									**10**	**85**	**7**	**0**	**2**	**1**	**23677**	**1**

	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4
2022 TOTAL ON-ROAD EMISSIONS	1222	6086	13709	53	694	12065	52798 23	56
2022 TOTAL ON-ROAD EMISSIONS (TONS/YEAR	**1**	**3**	**7**	**0**	**0**	**6**	**2640**	**0**
GHG EMISSIONS OFFROAD	**2640**							
	tons							
	CO2 e							

*For Dump Trucks, calculated by adding the amount of time for roundtrip to borrow site (1 hour) and land fille (1.5 hours)

** For Dump Trucks, calculated by adding mileage of roundtrip to borrow site (24 miles) and landfill (25 miles); For water trucks and pick up trucks (on-site), calculated using length of project TCE (4 miles roundtrip); Pick-up trucks (commute) assume 20 miles roundtrip

*** Assumes 3 trips/day for pick up and water trucks (on-site)

2023

OFF-ROAD EMISSIONS

6' Chain Link Fence 2023		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Concrete Pump	1	8	22	11.17	63.82	85.71	0.40	2.54	2.26	35441.00	1.01
	Manlift	1	8	39	6.28	70.85	52.95	0.14	2.62	2.34	11878.41	0.57
	Total Off Road Emissions				**17.44**	**134.67**	**138.66**	**0.54**	**5.17**	**4.60**	**47319.41**	**1.57**

Maintenance Road 2023		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Vibratory Roller	1	8	24	8.63	73.38	58.35	0.13	3.47	3.08	11325.84	0.78
	Grader	1	8	8	7.12	30.25	36.04	0.14	1.32	1.18	14687.00	0.64
	Asphalt Paver	1	8	16	9.48	34.86	67.08	0.18	2.40	2.13	15653.29	0.86
	Total Off Road Emissions				**25.23**	**138.49**	**161.47**	**0.45**	**7.18**	**6.39**	**41666.12**	**2.28**

Borrow Area Restoration 2023		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Grader	1	8	10	8.90	37.81	45.05	0.18	1.65	1.47	18358.75	0.80
	Total Off Road Emissions				**8.90**	**37.81**	**45.05**	**0.18**	**1.65**	**1.47**	**18358.75**	**0.80**

Landscape, Irrigation and Maintenance 2023		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Tractor	1	8	1	0.24	2.71	1.58	0.00	0.06	0.05	413.82	0.02
	Total Off Road Emissions				**0.24**	**2.71**	**1.58**	**0.00**	**0.06**	**0.05**	**413.82**	**0.02**

Concrete Ramp and Inlet Structure Access		Qty	Hrs/Day	Total Day	VOC	CO	NOX	SOX	PM10	PM2.5	CO2	CH4

2022/2023					Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
	Concrete Pump	1	4	1	0.25	1.45	1.95	0.01	0.06	0.05	805.48	0.02
	Concrete Vibrator	1	4	1	0.06	0.21	0.39	0.00	0.01	0.01	50.51	0.01
	Vibratory Roller	1	4	1	0.18	1.53	1.22	0.00	0.07	0.06	235.95	0.02
	Grader	1	4	1	0.45	1.89	2.25	0.01	0.08	0.07	917.94	0.04
	Total Off Road Emissions				**0.94**	**5.08**	**5.80**	**0.02**	**0.23**	**0.20**	**2009.88**	**0.08**

Catch Basins 2021/2022		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Concrete Vibrator	1	4	4	0.24	0.83	1.54	0.00	0.06	0.05	202.05	0.02
	Concrete Pump	1	4	4	1.02	5.80	7.79	0.04	0.23	0.21	3221.91	0.09
	Skid Steer	1	4	4	0.30	4.27	2.18	0.01	0.05	0.05	684.19	0.03
	Excavator	1	4	8	3.30	14.47	12.84	0.07	0.46	0.41	7479.53	0.30
	Dozer	1	4	4	3.18	12.92	21.56	0.04	0.85	0.75	4237.96	0.29
	Loader	1	4	4	1.16	4.93	6.24	0.03	0.22	0.19	2383.63	0.10
	Vibratory Roller	1	4	8	1.44	12.23	9.73	0.02	0.58	0.51	1887.64	0.13
	Crane	1	4	4	0.83	7.59	4.63	0.01	0.25	0.22	1285.51	0.08
	Total Off Road Emissions				**11.47**	**63.04**	**66.52**	**0.23**	**2.69**	**2.39**	**21382.42**	**1.03**

Culvert, Inlet and Outlet 2021/2022		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Loader	1	4	3	0.87	3.70	4.68	0.02	0.16	0.15	1787.72	0.08
	Crane	1	4	1	0.21	1.90	1.16	0.00	0.06	0.05	321.38	0.02
	Skid Steer	1	4	1	0.08	1.07	0.55	0.00	0.01	0.01	171.05	0.01
	Total Off Road Emissions				**1.15**	**6.66**	**6.38**	**0.03**	**0.24**	**0.21**	**2280.15**	**0.10**

Sound Wall 2020/2022		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Loader	1	4	4	1.16	4.93	6.24	0.03	0.22	0.19	2383.63	0.10
	Dozer	1	4	14	11.12	45.23	75.48	0.15	2.96	2.63	14832.86	1.00
	Manlift	1	4	11	0.88	9.99	7.47	0.02	0.37	0.33	1675.16	0.08
	Total Off Road Emissions				**13.17**	**60.15**	**89.18**	**0.19**	**3.55**	**3.16**	**18891.65**	**1.19**

Appendix C

Geotechnical Instrumentation 2020/2022		Qty	Hrs/Day	Total Day	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
	Drill, Rotary	1	8	2	1.14	8.82	2.78	0.05	0.10	0.09	4980.94	0.10
	Total Off Road Emissions				**1.14**	**8.82**	**2.78**	**0.05**	**0.10**	**0.09**	**4980.94**	**0.10**

	VOC Total lbs.	CO Total lbs.	NOX Total lbs.	SOX Total lbs.	PM10 Total lbs.	PM2.5 Total lbs.	CO2 Total lbs.	CH4 Total lbs.
TOTAL 2022 OFF ROAD EMISSIONS	**79.69**	**457.42**	**517.43**	**1.69**	**20.87**	**18.57**	**157303.14**	**7.19**
TOTAL 2022 OFF ROAD EMISSIONS (TONS/YEAR)	**0.04**	**0.23**	**0.26**	**0.00**	**0.01**	**0.01**	**78.65**	**0.00**

GHG EMISSIONS
OFFROAD 78.65 using EPA GHG calculator @ https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

tons CO2 e

ON-ROAD EMISSIONS

		Quantity	Hrs/Day	Hrs/Trip*	# Trips/ Work Day/Truck	Total Work Days/Truck	Total Trips/ Truck	Miles/ Round Trip/Truck**	Total Miles / Truck ***	ROG	CO	NOX	SOX	PM (PM10)	PM2.5	CO2	CH4
Maintenance Road										**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**	**Total lbs.**
2023	Water Truck	1	8		3	5	15	4	60	0.05	0.27	0.62	0.00	0.03	0.02	252.89	0.00
									Subtotal On Road Emissions	**0.05**	**0.27**	**0.62**	**0.00**	**0.03**	**0.02**	**252.89**	**0.00**
Landscape, Irrigation and Maintenance																	
2023	Water Truck	1	8		3	1	3	4	12	0.01	0.05	0.12	0.00	0.01	0.00	50.58	0.00
									Subtotal On Road Emissions	**0.01**	**0.05**	**0.12**	**0.00**	**0.01**	**0.00**	**50.58**	**0.00**
Catch Basins																	
2022/2023	Water Truck	1	8		3	2	6	4	24	0.02	0.11	0.25	0.00	0.01	0.01	101.16	0.00
	16 CY Dump Truck	1	8	2.5	3	2	6	49	313.6	0.28	1.44	3.23	0.01	0.16	0.12	1321.77	0.01
									Subtotal On Road Emissions	**0.02**	**0.11**	**0.25**	**0.00**	**0.01**	**0.01**	**101.16**	**0.00**
Culvert, Inlet and Outlet																	
2022/2023	16 CY Dump Truck	1	4	2.5	2	1	2	49	78	0.07	0.36	0.81	0.00	0.04	0.03	330.44	0.00
									Subtotal On Road Emissions	**0.07**	**0.36**	**0.81**	**0.00**	**0.04**	**0.03**	**330.44**	**0.00**
For Duration of Project		**Quantity**	**Hrs/Day**	**Hrs/Trip***	**# Trips/ Work**	**Total Work**	**Total Trips/**	**Miles/ Round**	**Total Miles**	**ROG**	**CO**	**NOX**	**SOX**	**PM (PM10)**	**PM2.5**	**CO2**	**CH4**

2021/2022/2023					Day/Truck	Days/Truck	Truck	Trip/Truck**	/ Truck ***	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.	Total lbs.
Assume 15 daily work commute of pick up trucks for 170 days	Pickup Trucks (commute)	5	3		1	57	57	20	1133	2.66	21.39	1.86	0.06	0.55	0.36	6291.32	0.22
	Pickup Trucks (on-site)	5	3		3	261	783	4	3132	7.34	59.12	5.14	0.17	1.52	1.00	17386.26	0.62
	Subtotal On Road Emissions									**10.00**	**80.51**	**7.01**	**0.23**	**2.06**	**1.37**	**23677.58**	**0.84**

	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4
2023 TOTAL ON-ROAD EMISSIONS	10.16	81.31	8.80	0.24	2.15	1.43	24412.65	0.85
2023 TOTAL ON-ROAD EMISSIONS (TONS/YEAR	**0.01**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**12.21**	**0.00**
GHG EMISSIONS OFFROAD	**12.21** tons CO2 e							

*For Dump Trucks, calculated by adding the amount of time for roundtrip to borrow site (1 hour) and land fille (1.5 hours)

** For Dump Trucks, calculated by adding mileage of roundtrip to borrow site (17 miles) and landfill (25 miles); For water trucks and pick up trucks (on-site), calculated using length of project TCE (4 miles roundtrip); Pick-up trucks (commute) assume 20 miles roundtrip

*** Assumes 3 trips/day for pick up and water trucks (on-site)

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Appendix D - USFWS Consultation, Biological Assessment and Biological Opinion

USFWS Consultation Letter

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT
915 WILSHIRE BOULEVARD, SUITE 930
LOS ANGELES, CALIFORNIA 90017-3489

April 29, 2020

Ms. Rebecca Christensen
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Palm Springs Fish and Wildlife Office
777 E. Tahquitz Canyon Way, Suite 208
Palm Springs, California 92262

Dear Ms. Christensen:

The U.S. Army Corps of Engineers, Los Angeles District (Corps) has completed a Biological Assessment for the proposed Lower Norco Bluffs Toe Stabilization Project within the Prado Basin and along the Santa Ana River in the City of Norco, California. The purpose of this letter is to request initiation of formal consultation pursuant to Section 7 of the Endangered Species Act of 1973, as amended, for least Bell's vireo and its designated critical habitat, as well as for Santa Ana sucker should the sucker be washed into the project site during a large flow event. The Corps also requests concurrence from the Fish and Wildlife Service that the proposed action is not likely to adversely affect/adversely modify the following species or designated critical habitat: southwestern willow flycatcher and its designated critical habitat, Santa Ana sucker designated critical habitat. The Corps also requests concurrence from the Service that the proposed action is not likely to adversely affect the Santa Ana sucker under circumstances other than a large flood event, which is discussed further in the Biological Assessment.

The proposed project is part of the Santa Ana River Mainstem Project (SARMP) and has been addressed in previous consultations with your agency including a 2001 Biological Opinion (BO) and a 2012 BO amendment. The SARMP provides flood protection to areas within San Bernardino, Riverside, and Orange Counties. The purpose of the proposed Lower Norco Bluffs Toe Stabilization feature is to maintain required protective elevation for flood control due to measured erosion of the bluff overtime. A description of the current project design, as well as an evaluation of the potential effects to species and habitats protected under the Endangered Species Act are contained in the attached Biological Assessment (BA). The species of concern that may occur within the project area, associated critical habitats, and effects determinations are summarized in Table 1 below.

Table 1. Determination for Federally List Species and Critical Habitat

Common Name	Scientific Name	Status	Corps' Determination
Least Bell's vireo	*Vireo bellii pusillus*	E	May Affect – Likely to Adversely Affect
Least Bell's vireo Critical Habitat	--	D	May Affect – Likely to Adversely Affect
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	May Affect – Not Likely to Adversely Affect
Southwesterm willow flycatcher Critical Habitat	--	D	May Affect – Not Likely to Adversely Affect
Santa Ana Sucker	*Catostomus santaanae*	T	May Affect – Not Likely to Adversely Affect (under most conditions; May Adversely Affect if sucker are washed into project area during a high flow event)
Santa Ana Sucker Critical Habitat	--	D	May Affect – Not Likely to Adversely Affect
* E = endangered, T = threatened, D = designated			

Construction of the project is scheduled to begin fall of 2020 and is expected to require at least 24 months to complete, although the schedule is subject to change due to adverse weather conditions, funding shortages or other contracting issues. A contract to initiate habitat restoration in designated areas within Prado Basin was awarded in 2019, to offset impacts to riparian and floodplain vegetation's from Norco Bluffs and other SARM project features.

The attached BA contains the information required for initiation of formal consultation pursuant to 50 CFR 402.14, including:

1. A description of the action to be considered, including purpose (section), duration and timing (section), location, components and how carried out, and other relevant information (Chapter 1);

2. A map of the action area and figures related to design and biological findings (Appendix A);

3. Information on the species/habitat within the action area in the Federal agency's possession (Chapter 3);

4. A description of effects of the action and analysis of any cumulative effects (Chapter 4);

5. Any other available information related to the nature and scope of the proposed action relevant to its effects on listed species or designated critical habitat.

If you have any questions regarding this project, please contact Ms. Marissa Maggio, Project Biologist, at (213) 663-2630 or via e-mail at Marissa.C.Maggio@usace.army.mil. In order to maintain the project schedule, the Corps is requesting receipt of a Draft BO by July 13, 2020, if possible.

Thank you for your attention to these documents.

Sincerely,

Eduardo T. De Mesa
Chief, Planning Division

Enclosure

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Biological Assessment

Biological Assessment

Lower Norco Bluffs Toe Protection Project

U.S. Army Corps of Engineers

Los Angeles District

April 2020

Contents

Figures

Tables

Chapter 1. Introduction

This Biological Assessment (BA) for the Lower Norco Bluffs Toe Protection (Proposed Project) feature of the Santa Ana River Mainstem Flood Control Project (SARMP) has been prepared by the U.S. Army Corps of Engineers (Corps) in accordance with the requirements set forth under regulations implementing Section 7 of the Endangered Species Act (ESA) (50 C.F.R. Pt. 402). This BA evaluates the potential effects of the action on listed and proposed species and designated and proposed critical habitat, and determines whether any species or habitat are likely to be adversely affected by the action, as required in 50 CFR 402.12. This BA contains the information required to initiate formal consultation.

1.1. Purpose and Need of the Proposed Project

The purpose of the SARMP is to provide flood risk reduction to areas susceptible to flooding within the counties of San Bernardino, Riverside, and Orange. The Orange County Flood Control District (OCFCD), one of the three SARMP local sponsors, will be responsible for operation, maintenance, repair, replacement, and rehabilitation of the Lower Norco Bluffs Toe Protection Project feature.

Major flood control improvements, including raising Prado Dam, have been approved as part of the SARMP. In conjunction with raising Prado Dam, the OCFCD is responsible for providing to the project all required interests in lands located between the 556-foot (ft) and the 566-ft elevation lines. This elevation band represents the added area that is susceptible to inundation during the Reservoir Design Flood. Within the Norco Bluffs area (directly upstream of Prado Basin), the 566-ft elevation line has been continually migrating due to erosion of the south bank of the Santa Ana River. The greatest amount of erosion has occurred during storm events when lateral migration of the Santa Ana River has caused erosional undercutting of the toe of the bluffs, resulting in sloughing of the bluff top.

Under a 190-year flood event, storm water could inundate areas behind Prado Dam up to elevation 566-ft, subsequent to the proposed raising of the dam and spillway. As stated above, the OCFCD is required to acquire all property rights within the Prado Basin up to elevation 566-ft to accommodate the inundation. Since the Lower Norco Bluffs have historically retreated, and the 566-ft elevation contour is located along the toe of the bluffs, this elevation line could extend farther south. If the 566-ft elevation contour extends farther south, the acquisition requirements for operation of the Prado Dam could change over time during the operational phase of the SARMP. The erosion and subsequent acquisition requirements could involve numerous homes and properties (at least 80 residences). Therefore, the Corps needs to stabilize the bluff toe at the Lower Norco Bluffs so that the 566-ft elevation contour is stabilized in its current location within the existing riverbed.

1.2. Threatened, Endangered, Proposed Threatened or Proposed Endangered Species, Designated Critical Habitat

Below are the federally-protected species and associated designated critical habitat that will be discussed in this document, as part of the Corps' formal consultation request under Section 7 of the ESA, as well as species for which the Corps has made a no effect determination. Table 1-2 lists the federally-listed species and designated critical habitat with the potential to occur within the Action Area (defined in Section 2), and the Corps' assessment of whether the Proposed Project has the potential to directly or indirectly affect those species or critical habitat based on habitat suitability and best available data. Supporting analyses are provided in Chapter 4 of this document.

Table 1-2: Federally Endangered and Threatened Species and Critical Habitat

Common Name	Scientific Name	Status	Corps' Determination
Slender-horned spineflower	*Dodecahema leptoceras*	E	No Effect
Santa Ana River Woollystar	*Eriastrum densifolium ssp. sanctorum*	E	No Effect
Braunton's milk vetch	*Astragalus brauntonii*	E	No Effect
Santa Ana River woollystar	*Eriastrum densifolium* ssp. *sanctorum*	E	No Effect
Thread-leaved brodiae	Brodiae filifolia	E	No Effect
Delhi sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	E	No Effect
Least Bell's vireo	*Vireo bellii pusillus*	E	May Affect – Likely to Adversely Affect
Least Bell's vireo Critical Habitat		D	May Affect – Likely to Adversely Affect
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	May Affect – Not Likely to Adversely Affect
Southwestern willow flycatcher Critical Habitat		D	May Affect – Not Likely to Adversely Affect
Coastal California gnatcatcher	*Polioptila californica californica*	T	No Effect
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	T	No Effect
Santa Ana Sucker	*Catostomus santaanae*	T	May Affect – Not Likely to Adversely Affect (under most conditions); May Adversely Affect if sucker are

			washed into project area during a high flow event)
Santa Ana Sucker Critical Habitat		D	May Affect – Not Likely to Adversely Affect
E = endangered, T = threatened, D = designated			

1.3. Consultation History

The United States Fish and Wildlife Service (USFWS) has issued a series of biological opinions (i.e., USFWS 1980, 1989, 2000, 2001, 2002, 2003, 2004, 2012, 2013a, 2013b, 2020) addressing the effects of constructing, operating, and maintaining the SARMP on federally-listed species and their designated critical habitat.

The SARMP was addressed initially in a biological opinion issued on October 1, 1980 (USFWS 1980). As noted above, a subsequent series of biological opinions and amendments have been issued. On December 5, 2001, the USFWS issued a biological opinion (2001 biological opinion) that addressed, in part, components of the SARMP that were added or modified, which included the Norco Bluffs feature.

On March 27, 2012, the USFWS issued an amendment (2012 amendment) to the 2001 biological opinion to address proposed changes to the mitigation approach for the SARMP that will be applied to the remaining SARMP components (USFWS 2012); that document is incorporated by reference herein. The species and critical habitats consulted on in the 2001 biological opinion and 2012 amendment include least Bell's vireo, southwestern willow flycatcher and Santa Ana sucker.

On February 2, 2020, the Corps held a teleconference with the USFWS to discuss the Lower Norco Bluffs Toe Protection Project, including design modifications, and potential minimization measures to implement to avoid or minimize impacts to known, listed species and designated critical habitat occurring within the Action Area.

1.4. Description of Proposed Project

1.4.1. Project Location

The Proposed Project is located in the city of Norco, Riverside County, adjacent to the Santa Ana River. Construction would occur along an approximately 1.54-mile reach of the Santa Ana River near the northwest boundary of the city of Norco. The Proposed Project area is approximately 8 miles north of Prado Dam, 10 miles west of city of Riverside and about 40 miles southeast of Los Angeles (Appendix A Figure 1). The site of the Proposed Project is located along the southern bank of the Santa Ana River, southwest of Interstate 15. Figure 2 shows Lower Norco Bluffs Toe Protection

Project feature location along the Santa Ana River. The borrow area is located in the city of Chino off of Cucamonga Avenue and Chino Corona Road.

1.4.2. Project Description

The Proposed Project consists of constructing an approximately 1.5 mile long flood control feature along the toe of the bluff slope (Figure 3). The project includes construction of a temporary access ramp that leads to the toe of the slope within the floodplain of the Santa Ana River. Once access to the toe of the slope is established, the area will be graded and excavated in order to add and compact fill to construct the embankment feature. Excavation would occur to approximately 2.5 feet below the existing grade. The toe of the embankment would be approximately 2.5 feet from the existing grade and would be composed of fill. The slope face of the embankment would be lined with bedding material (1.5 feet thick) and riprap (3.5 feet thick). Launchable stone (large loose rocks ranging in size), would be placed at the toe of the embankment, in front of the riprap slope, to provide scour protection. The width of the launchable rock area would be approximately 5 to 25 feet measured horizontally from the toe of riprap. The fill and riprap protection would start 2.5 feet below the riverbed and extend at a 2H:1V slope to the top of bank protection of 100-year water surface elevation. Launchable stone would start 2.5 feet below the riverbed and extend at a 2H:1V from the riprap toe to a vertical height of 9 feet (Figure 4). The project as described in the 2001 Final SEIS/EIR and consulted upon as documented in the 2001 biological opinion is very similar but has been updated based on current conditions and preferred engineering design. Design modifications that have occurred subsequent to the 2001 Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) and biological opinion include: the incorporation of launchable rock and riprap rather than soil cement which eliminates the need to dewater or divert the river; addition of a system of v-ditches, catch basins, side drains and culverts to facilitate drainage; a new staging area off of Corydon Ave and the adjustment of the Temporary Construction Easement (TCE) to include the new staging area.

One small natural side drainage would be graded and filled to facilitate runoff from the top of the bluff. A network of concrete v-ditches and side drains would also be constructed on top of the embankment. Fill material will be obtained from a borrow area and brought to the Proposed Project area via existing paved roads. The borrow area is within the city of Chino near the California Institution for Women along Cucamonga Avenue and Chino Corona Road (Figure 2). It has been used previously for various other SARMP projects and restored with native vegetation between uses.

A staging area for construction equipment would be located within the Corydon Equestrian staging area, located off of Corydon Road. A temporary access road would extend from the staging area down to the river bed and run adjacent to the bluff toe. The contractor will be responsible for constructing a sound wall along the entire north side of the TCE of the Proposed Project that borders the riparian habitat and low flow channel of the Santa Ana River. The sound wall will be made of material typically used to lessen noise impacts and at a height tall enough to account for construction equipment. In addition, the contractor will construct an earthen berm to act as a flood barrier along the north TCE border that is adjacent to the low flow channel of the Santa Ana River.

The earthen berm will be temporary and likely consist of compacted fill material from onsite grading or from the borrow area. Typically, flood barrier berms are covered with plastic sheeting and lined with hardened material such as gravel bags or rip rap to inhibit erosion. The contractor's design of the berm will be subject to Corps approval, and removed when no longer necessary for site protection.

For maintenance purposes, a permanent, asphalt maintenance road would be constructed atop the embankment and run the entire length of the feature. The maintenance road and ramp will be protected by a series of gates and fences to separate use for public access and maintenance access. A permanent ramp would also be constructed from the top of the embankment and run just to the toe of the slope to allow access for emergency maintenance (Figure 5). The project design does not include a permanent access road that runs along the length of the toe of the embankment as this area will be restored to native habitat.

1.4.3. Future Operation and Maintenance

Maintenance, including routine inspections and minor repairs, of the Lower Norco Bluffs embankment would be required after construction is completed. The following activities may occur:

- Routine and special inspection and patrol with pickup trucks and sport utility vehicles, as needed, and up to daily during flood events;
- Mobilizing dump trucks to haul stones and use of hydraulic excavators to place stones along eroded areas of the embankment to protect and reinforce the embankment, as necessary, during flood fight activities;
- Periodic weeding and patching stone and asphalt maintenance road pavement;
- Periodic vegetation clearing to maintain a 15 ft. clearance zone from the toe of the structure;
- Periodic clearing of debris around drainage structures; and

Periodic mending of fencing and painting metal gates. likely equipment would not be able to conduct the repair from the access road at the top of the embankment. Therefore, equipment will need to use the ramp from the embankment leading to the floodplain and establish a temporary work area around repair sites. It is likely that a storm event large enough to damage the embankment structure would also have removed vegetation in the immediate area, but specific impacts cannot be evaluated until or unless damage occurs and repair work is defined. The non-federal sponsor would be required to obtain all applicable permits and approvals for such work. Therefore, this scenario is not evaluated further within this document.

1.4.4. Impacts and Environmental Committments

Environmental Commitments are measures that would be implemented to avoid, minimize and offset impacts to the federally listed species and designated critical habitat associated with the Proposed Project. These include the approved avoidance/minimization and offsetting measures from the 2001 Final SEIS/SEIR and commitments from the 2012 amendment, as they pertain to vegetation and special status wildlife. Implementation of these measures will ensure that construction and routine operation and maintenance of the

Proposed Project has no increased effect on the federally listed species and designated critical habitat beyond those addressed previously.

Commitments relate to avoiding or minimizing impacts during construction (for instance, conducting pre-construction surveys, ensuring activities remain within the authorized footprint, limiting noise intrusions through monitoring and use of sound barriers, etc.); restoring temporarily impacted areas after construction, and providing offsite habitat restoration in another location in the watershed to offset temporal and permanent losses that occur within the Action Area. Requirements for offsite habitat restoration for all SARMP features, including the number of acres of restoration required for each acre of floodplain habitat temporarily or permanently affected by the feature, were detailed in Section 4.3.2 of the 2001 SEIS/EIR and starting on page 11 of the 2001 biological opinion (BO) and 2012 amendment. Table 1-4 summarizes the impacts, require mitigation ratios and mitigation acres needed to offset the temporary and permanent impacts of the proposed Norco Bluffs project in accordance with the 2001 BO and 2012 amendment. The Corps has committed to mitigating 5:1 for permanent impacts to riparian, 3:1 for permanent impacts to upland habitat and 1:1 for temporary impact to riparian habitat. All areas temporarily impacts will also be restored onsite. There are a total of 98.72 acres of impacts estimated for the Proposed Project, of that total, 37.05 acres are permanent impacts from the construction of the embankment, 39.22 acres are temporary impacts from the construction of the embankment and 22.45 acres are temporary impacts from borrow area use. These impacts require a total of 187.30 acres of mitigation. However, actual impacts will be documented during the project, to ensure necessary offsite restoration occurs. The borrow area is not assessed in Table 1-4 because it contains upland habitat and all impacts are temporary. Specific measures are shown below and distinguished by “BIO-#”. The measures are based on current practices and previous commitments made in the 2001 BO and 2012 amendment.

Onsite habitat restoration activities must meet the following conditions:

- Restoration activities must be initiated immediately following the completion of the construction of the Proposed Project, avoiding least Bell’s vireo disturbance if during the nesting season.

- Success criteria would include a minimum of 30% native ground cover with less than 10% invasive plant cover.

- The establishment of a monitoring protocol that documents the maintenance and status of native and non-native cover in the restored area, in order to scientifically show success of native habitat establishment. This includes documenting the following characteristics:

    - Structure and composition of the restored plant community
    - Wildlife occupying restored habitat

TABLE 1-4. SUMMARY OF HABITAT IMPACTS AND REQUIRED OFFSITE RESTORATION

Habitat	Impact Type*	Acres Impacted	Mitigation Ratio	Acres of Mitigation
Riparian/Wetland				
Southern Riparian Woodland	**Permanent**	3.90	5:1	19.50
	Temporary	6.22	1:1	6.22
Disturbed Southern Riparian Woodland	**Permanent**	2.18	5:1	10.90
	Temporary	12.93	1:1	12.93
Disturbed Mulefat Scrub	**Permanent**	0.12	5:1	0.60
	Temporary	1.38	1:1	1.38
Arundo Riparian	**Permanent**	20.60	5:1	103.00
	Temporary	0.60	1:1	0.60
Sandy Wash	**Permanent**	1.27	5:1	6.35
	Temporary	0.32	1:1	0.32
Non-Riparian (Upland)				
Ruderal	**Permanent**	8.22	3:1	24.66
	Temporary	NA**	NA**	0
Nonnative Woodland	**Permanent**	0.28	3:1	0.84
	Temporary	NA**	NA**	0
			Total Acres	**187.30**

*all temporary impacts will also be restored onsite
** No offsite mitigation is required for temporary impacts to non-riparian habitat

1.4.4.1. ENVIRONMENTAL COMMITMENTS

BIO-1 The Corps shall develop and implement a monitoring program that entails surveys for least Bell's vireo and southwestern willow flycatcher in spring and early summer during construction. In addition, a monitoring protocol will be developed and implemented for raptor monitoring, including bald and golden eagles in both the Proposed Project footprint and borrow site area during construction. If eagles are foraging, the Corps will coordinate with the Contracting officer Representative and USFWS to develop appropriate avoidance measures.

BIO-2 The construction contractor shall keep grading activities associated with project construction to a minimum and existing root systems will be left intact to the extent feasible.

BIO-3 The construction contractor shall clear vegetation associated with project construction within potential vireo or flycatcher habitat only during period when least Bell's vireo and southwestern willow flycatcher are not nesting (nesting period is from February 28 – August 15).

BIO-4 In compliance with the 2012 amendment, the Corps will restore (through arundo and other non-native removal at an offsite location) one acre of riparian habitat for each acre of wetland/riparian habitat temporarily disturbed by the Proposed Project, and restore five acres for each acre of permanent impact to riparian/wetland habitat. This will equate to 161.8 acres of off-site restoration to compensate for 27.96 acres of permanent impacts to riparian habitat and 21.45 acres of temporary impacts to riparian/wetland habitat. The 1:1 offsite mitigation requirement for temporary to riparian/wetland habitat impacts assumes that the restored area will be actively maintained in perpetuity. (The Corps also has the option of compensating for temporary impacts to riparian/wetland habitat by restoring three acres in an off-site location for each acre affected (3:1), and maintaining the restored area for a period of five years only.) In addition, all temporarily affected areas will be restored onsite to native vegetation communities approved by the Corps. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.

BIO-5 In compliance with the 2012 amendment, the Corps will restore (through arundo and other non-native removal) three acres of riparian habitat for each acre of non-riparian floodplain habitat permanently impacted by the Proposed Project. This will equate to 25.50 acres of off-site restoration to compensate for 8.98 acres of permanent impacts to upland habitat. All temporarily impacted areas will be restored onsite, with appropriate vegetation communities approved by the Corps. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.

BIO-6 The Corps or Sponsor shall contract out a cowbird trapping program during the construction of the project and for 5 years after construction completion. The contract shall maintain at least 5 traps during vireo nesting season within the vicinity of the Norco Bluffs area.

BIO-7 Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the temporary construction easement (TCE) including designated borrow areas, staging areas or routes of travel. The construction area(s) will be the minimal area necessary to complete the Proposed Project and will be specified in the construction plans. Highly visible barriers (such as orange construction fencing or sound walls) will be installed around all riparian and sensitive habitats adjacent to the TCE to designate limits of construction activities. These barriers will be maintained until the completion of all construction activities.

BIO-8 The Corps biologist (or environmental monitor) will monitor construction activities to ensure compliance with environmental commitments.

BIO-9 Noise barriers will be constructed where the Proposed Project borders riparian habitat or at the recommendation of a qualified biologist prior to February 14 of each year to minimize impacts to listed species and nesting birds. The construction contractor will be required to monitor noise regularly during the nesting season (February 15 – August 15), as all work will be within 500 feet of riparian habitat. Ambient noise levels will be recorded by a qualified contractor prior to the nesting season, or prior to construction during that period. If construction noise levels exceed authorized limits (per the 2001 BO and 2012 amendment or as otherwise agreed to by the USFWS), the construction contractor will construct or modify sound barriers, equipment, or procedures (including construction schedules) as necessary to meet these conditions to ensure that: 1) noise does not exceed 60 dBA, or otherwise agreed upon limit with the USFWS, within occupied vireo habitat; or, (2) noise does not exceed 5 dBA above ambient conditions if said levels are above 60 dBA, or another agreed upon limit. If construction noise levels within riparian habitat areas outside of the project footprint cannot be reduced below 60 dBA or another agreed upon and documented limit, during the period of February 15 through August 15 of any year, the Corps will offset impacts at a 1:1 ratio per breeding season affected by such noise levels. This 1:1 ratio will be based on the acreage of riparian habitat outside the project footprint subject to noise levels over 60 dBA, or 5 dBA above ambient, or other agreed upon limit, during the noted period, per the number of breeding seasons affected (e.g., 1 acre of riparian, habitat affected by noise in two breeding seasons will result in 2 acres of restoration). The area affected will be determined by the periodic project noise monitoring.

BIO-10 Prior to construction activities, a Corps qualified biologist (or environmental monitor) shall conduct pre-construction environmental training for all construction crew members. The training shall focus on required avoidance/minimization measures and conditions of regulatory agency permits and approvals. The training shall also include a summary of sensitive species and habitats potentially present within and adjacent to the Proposed Project area and borrow area.

BIO-11 A storm water pollution prevention plan (SWPPP) and soil erosion and sediment plan will be developed prior to construction to minimize erosion and identify measures to eliminate or control pollution sources onsite during and following the construction phase. The SWPPP will determine specific Best Management Practices (BMPs) needed during the project construction phase and after to minimize erosion, identify specific pollution prevention measures that will eliminate or control potential point and nonpoint pollution sources onsite and to avoid causing or contributing to any water quality standard exceedances.

BIO-12 Dust control measures will be implemented during the construction phase to reduce excessive dust emissions. Methods for reducing dust emissions may include wetting work areas by water truck on a regular basis such as dirt access roads and sediment stockpiles, as well as covering truck beds carrying material and stockpiles.

BIO-13 Prior to any ground-disturbing activities (e.g. mechanized clearing or rough grading) for all project related construction activities, a Corps qualified biologist (or environmental monitor) shall conduct pre-construction surveys of the Proposed Project area and borrow area for terrestrial special-status, including Multiple Species Habitat Conservation Plan (MSHCP) covered, wildlife species. During these surveys the biologist will:

a. Inspect the Proposed Project area (and borrow area) for any sensitive wildlife species;

b. In the event of the discovery of a non-listed, special-status ground-dwelling animal, such as a burrowing owl or special-status reptile, attempts will be made to recover and relocate the animal to adjacent suitable habitat within the Proposed Project area at least 200 feet from the limits of construction activities. Burrowing owl surveys and relocations would follow established protocols.

BIO-14 The Corps or contracted biologists will continue to monitor and survey the Proposed Project area, borrow area and adjacent habitats throughout construction and restoration activities for the presence of special status species, and shall confirm that conservation measures are sufficient to avoid or minimize impacts to these species, or shall recommend additional measures as warranted.

BIO-15 Upon construction completion the contractor will immediately re-vegetate bare and disturbed areas with a native hydroseed mix approved by the Corps, and depending on the time of year the hydroseed is placed, temporary supplemental watering may be needed. Watering need and frequency for hydroseeded areas will be approved by the Corps to ensure success germination and establishment of native vegetation.

BIO-16 Best management practices shall be implemented to reduce impacts to native habitats, including the following:

a. All equipment maintenance, staging, and dispending of fuel, oil, coolant, or any other toxic substances will occur in developed or designated non-sensitive upland areas. These areas will implement best management practices to prevent runoff carrying toxic substances from entering the Santa Ana River and associated drainages. If a spill occurs outside of a designated area, the cleanup will be immediate and documented.

b. Fire suppression equipment including shovels, water, and extinguishers will be available onsite during the fire season (as determined by Riverside County Fire Department) and when activities may produce sparks. Emergency contacts for the Norco Fire Station No. 57 on Corydon Avenue will be established.

c. To the extent feasible, the contractor will prevent exotic weeds from establishing within the work site during construction. Construction equipment will be cleaned of mud or other debris prior to mobilizing and before leaving the site to reduce the potential spread of invasive plants and/or seeds.

BIO-17 To avoid and reduce impacts to Santa Ana sucker, no work will take place within the main channel of Santa Ana River. In addition, during the construction phase the contractor will construct a temporary earthen berm on the inside edge of the TCE where the project is within at risk of flooding by main channel of the Santa Ana River. The purpose of the berm is to reduce the likelihood of channel flows entering the Proposed Project area during a storm event, thus avoiding impacts to Santa Ana sucker by exclusion from the Proposed Project area. The berm will be constructed of fill material either from onsite grading activities or from the borrow area. The contractor will be responsible for designing the berm and will get approval by the Corps. If the berm fails and channel flows enter the Proposed Project area, all work in the flooded area will cease until a qualified biological monitor confirms with the Corps that work can recommence. The decision to restart will be based on the following:

a. Assessment of Santa Ana sucker presence within the Proposed Project area, via surveys employing techniques such as block nets and electro-fishing,

b. Removal of fish present and,

c. Lack of channel flows entering the Proposed Project area within the foreseeable immediate future.

BIO-18 To additionally reduce potential impacts to Santa Ana sucker, the Corps will contract localized sucker predator removal for 5 years. The location within Santa Ana River and methodologies will be developed in coordination with the USFWS, within one year of the start of the Proposed Project.

Chapter 2. Environmental Baseline

A description and analysis of the existing conditions within the Proposed Project area and its vicinity, including descriptions of plant and animal species, natural communities, and special-status species that have either been observed or have the potential to occur within the Proposed Project area was originally provided in the 2001 EIS/EIR. A recent update to the baseline conditions and existing biological resources within the Action Area (defined below) has been analyzed for the purpose of providing an updated assessment of impacts. The information is based on recent surveys, literature reviews, and coordination with regulatory agencies and technical experts. The Proposed Project area and adjacent habitat have been surveyed by biologists from Santa Ana Watershed Association, Orange County Water District and Aspen Environmental Group to document the presence and locations of biological resources and sensitive species. California Department of Fish and Wildlife (CDFW), USFWS, and California Native Plant Society (CNPS) sensitive species occurrence databases were reviewed for the localized area. This section summarizes the results of database reviews and surveys in order to present an up to date and thorough description of the existing conditions.

2.1. Define Action Area

The Action Area includes the entire project footprint that contains project actions including the permanent footprint, temporary construction easement, staging area, the borrow area and haul route, plus a 200 foot buffer around each area (Figure 3). The Action Area was determined by accounting for direct impacts of project actions within the footprint and indirect impacts from project actions such as noise, vibrations that extend beyond the project footprint.

2.2. Habitat Condition in the Action Area

The Action Area (Figure 3) of the embankment construction (Temporary Construction Easement) falls within the south edge of the Santa Ana River floodplain and up to the top of the slope ending where homes are built along the bluff. The topography of the Action Area ranges from flat within the floodplain and secondary channel to the steep slopes of the bluff. There are several small drainages that lead from the top of the bluff down to the floodplain. The secondary channel is comprised of thick soft sand with little to no coarse gravel or cobbles. The majority of the Action Area is disturbed from a combination of equestrian use, restoration activities and existing invasive and exotic plants. The borrow area is also included as part of the Action Area. The borrow area consists of recently disturbed and restored grassland with gentle slopes. The surround area has high cover of nonnative grasses and forbs. There is little human disturbance when the borrow area is inactive. The habitat at the borrow site is low quality and there is low potential for listed species to occupy or forage in the borrow area. Most wildlife species, including special-status birds are known to occur within the Action Area at the embankment construction location where habitat is suitable. A full species list is found in Appendix B. The haul route is on existing paved road that have relatively consistent use by vehicles.

2.3. Vegetation

Surveys were conducted in spring and fall of 2019 within the Action Area (Figure 6). The recent vegetation mapping efforts remain relatively consistent with the previous findings in the 2001 SEIS/EIR. The native and disturbed vegetation communities are interspersed, therefore breaks in community type are determined based on dominant species type and professional judgment of the biologist surveying. There are a total of 10 vegetation and cover types within the Action Area. Ornamental landscape, trails and parks have been included in the developed/disturbed cover type. Table 2-3 lists the cover types and impact types within the Action Area. The vegetation types were referenced to the Manual of California Vegetation (Sawyer et al.) and the map was created using ArcGIS with recent basemap imagery. The riparian plant communities in the Action Area are considered sensitive habitat types for their part in the ecological function of the Santa Ana River corridor. These communities play important roles in the life histories for a broad diversity of both common and special-status wildlife species. In addition, the Action Area includes designated critical habitat for least Bell's vireo, southwestern willow flycatcher and Santa Ana sucker. While non-native habitats are not protected, these communities still provide important foraging and refugia habitat for a variety of sensitive plants and wildlife species. There will not be any direct or indirect impacts on vegetation outside of the project footprint.

2.3.1. Southern Riparian Woodland

Southern riparian woodland is comprised of winter-deciduous trees that require water near the soil surface. Black willow (*Salix goodingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*) and Fremont cottonwood (*Populus fremontii*) form a dense medium height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp. *holosericea*), and wild grape (*Vitis girdiana*).

2.2.2 Disturbed Southern Riparian Woodland

This vegetation type contains the same species composition as southern riparian woodland, except that there has been some type of disturbance in the past 5-10 year. Mature riparian trees are still well established in this habitat type but the full canopy cover is not as full as it could be. Visual observation shows that the area is in an early successional state as native vegetation is establishing and spreading throughout the areas once bare. The cover of native vegetation will likely increase and no longer be considered disturbed if invasive species to not establish.

2.2.3 Disturbed Mulefat Scrub

This vegetation type is a shrubby riparian scrub community comprised of mulefat (*Baccaris salicifolia*), elderberry (*Sambucus nigra*), small willows and palms, commonly found near intermittent

drainages and along floodplains. This community is sustained by seasonal flooding followed by dry periods but relies on a shallow water table. The community is considered disturbed because of the high presence of nonnative species interspersed within the community. Nonnative species with high cover include poison hemlock (*Conium maculatum*), bristly ox-tongue (*Helminthotheca echioides*) and shortpod mustard (*Hirschfeldia incana*).

2.2.4 Arundo Riparian

This vegetation type is dominated by giant reed (*Arundo donax*). Within the Action Area large patches or swaths of mature giant reed mixed with native riparian species such as willows and cottonwood. Where giant reed patches occur, there is little to no understory. In areas where open space occurs species such as wild grape, poison oak (*Toxicodendron diversilobum*) and wild rose (*Rosa californica*) are typically present.

2.2.5 Disturbed Coastal Sage Scrub

This vegetation type contains typical coastal sage species such as buckwheat (*Eriogonum fasciculatum*), California sage (*Artemisia californica*), goldenbush (*Isocoma menziesii*), California encelia (*Encelia californica)* and brittlebush (*Encelia farinosa*). Annual native species include fiddleneck (*Amsinckia menziesii*) and horseweed (*Erigeron canadensis*). The level of disturbance in this vegetation community is high. Nonnative weed cover is made up of many species such as mustards, nonnative grasses (*Bromus madritensis*, *Bromus diandrus* and *Hordeum* sp.), tocalote (*Centaurea melitensis*) and tree tobacco (*Nicotiana glauca*). This vegetation community takes place along the less steep southern portion of the Action Area. Moving north within the Action Area this community transitions to almost all nonnative grasses and ruderal species.

2.2.6 Ruderal

This cover type is found on top of the steep bluff near the residential housing and adjacent horse trail. Weedy annuals and grasses dominate the community and there is regular disturbance from recreational use. Species commonly observed include mustards, tree tobacco, horseweed (*Erigeron bonariensis*), sow thistle (*Sonchus* sp.), brome (*Bromus* sp.), tocalote, Russian thistle (*Salsola* sp.), and various ornamental species.

2.2.7 Nonnative Woodland

This vegetation type represents the areas that are dominated by nonnative and sometimes ornamental trees. Eucalyptus (*Eucalyptus* sp.) is the dominant species in this cover type which is generally found on the edge of the neighborhood at the top of the bluff. Other species observed include Peruvian pepper tree (*Schinus molle*) and bougainvillea (*Bougainvillea* sp.). The understory is mostly ruderal or ornamental grasses and forbs.

2.2.8 Sandy Wash

This vegetation type is found in the dry secondary stream channels that have recently been scoured by floods or high flows that caused avulsion flows from the main channel. This was also runs along the bottom of the bluff and may also carry flows that drain from the top of the bluff through small

canyons. This cover type typically supports low densities of plant cover; however, in the absence of scouring flows or inundation these areas may develop more complex vegetation communities. During a site visit in January 2020, the sandy wash was mostly dry with some stagnant pools remaining.

2.2.9 Developed / Disturbed

This cover type represents the areas that have been developed by buildings or other similar developments and landscaped vegetation for residential and recreational purposes. There are numerous developed areas in the Project area including roads, parking lots, residential areas, and areas cleared of vegetation, such as horse trails.

2.2.10 Disturbed Annual Grassland

This vegetation type is within the borrow area located near previous dairy farms and Chino Regional Park. This borrow site has been recently used for other SARMP projects within Prado Basin, and seeded with native species by the contractor. The land surrounding the borrow area is very disturbed with nonnative grasses and ruderal species such as Russian thistle (*Salsola* sp.) and sowthistle (*Sonchus* sp.). Even with native seed being applied to the site in fall 2019, the existing nonnative seed bank is expected to cause high cover of exotic species onsite.

2.4. Aquatic Resources

A Corps jurisdictional delineation was conducted by Aspen on November 27, 2018. The survey area occurs within the floodplain of the Santa Ana River between Hamner Avenue and approximately a mile upstream from River Road (Figure 7). The field delineation found both potential wetland and non-wetland waters of the U.S. (WoUS) and well as waters of the state (WoS). Several small ephemeral drainages are also present near the bluff that are potential non-wetland WoUS. For the purposes of this document the limits of the ordinary high water mark (OHWM), as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics, have been used, in the absence of adjacent wetlands, to describe potential non-wetland WoUS. The jurisdictional delineation report can be reviewed in Attachment Appendix D.

Table 2-3 provides an overview of the total acreage of potential jurisdictional WoUS determined during the preliminary jurisdictional delineation.

Table 2-3 Total Acreage of Potential Jurisdictional Wetlands/Waters

Jurisdictional Habitat			
	Total Potential Jurisdictional Waters of the U.S.		Total Potential Jurisdictional Waters of the State
	Wetland Waters	Non-wetland Waters	CDFW Waters (Acres)

	(Acres)	(Acres)	
Total	37.38	4.11	154.27

2.5. Wildlife

The Action Area contains both riparian and upland habitat for wildlife. Riparian communities support some of the most diverse assemblages of wildlife and provide access to water, shade, and cover. In addition, riparian systems and wetlands are frequently considered one of the most productive forms of wildlife habitat in North America. The Prado Basin in which the majority of the Proposed Project occurs supports extensive riparian and aquatic habitat. Many bird species are wholly, or at least partially, dependent on riparian plant communities to perpetuate their kind (Warner et.al., 1984). In the Action Area the adjacent floodplain and upland vegetation is also critical to many wildlife species as many aquatic and semi-aquatic species rely on adjacent terrestrial habitats to complete their life cycles (Semlitsch and Bodie 2003, Burke and Gibbons 1995). Riparian vegetation provides necessary foraging and nesting habitat for many bird species (Rottenborn 1999, Bolger et al 1997); even relatively disturbed areas that are adjacent to existing riparian vegetation can be important to a suite of common and sensitive wildlife.

The riparian and upland community types that occur in the Action Area provide habitat for a variety of resident and migratory wildlife species including several special-status species. Of particular importance are riparian and streambed areas that provide potential habitat for the federally threatened Santa Ana sucker (Catostomus santaannae), federally and state endangered least Bell's vireo (Vireo bellii pusillus) and federally and state endangered southwestern willow flycatcher (Empidonax traillii exitmus).

The embankment construction area lies almost entirely within the Santa Ana River floodplain, but remains on the south side of the perennial low flow channel (Figure 3).The development surrounding the riparian portion of the Action Area makes it part of a key movement corridor and/or dispersal habitat for a number of wildlife species that use the Santa Ana River to connect to different areas. Continuous riparian riverine habitat is upstream and downstream from the project alignment, increasing the likelihood of wildlife presence within the Action Area and directly adjacent. Some species, such as mourning dove and northern mockingbird, are positively correlated with urbanization, but most species were negatively correlated and prefer to inhabit undeveloped spaces. Factors associated with urbanization that are expected to contribute to lower species richness and densities in riparian zones near developed areas include an increase in the number of domestic cats (Rottenborn 1997), an increase in people recreating in riparian areas, noise, collisions on roads, and movement of people and domestic animals (Rottenborn 1999). The frequency of human visitation on the bluffs and in the Santa Ana River floodplain may adversely affect wildlife use in the embankment construction area to some degree. The borrow area is likely to have human presence due to recent restoration efforts beginning at the end of 2019. Several studies have documented the effects of pedestrian traffic on birds (Nowakowski 1994, Fernandez-Juricic 2000, Miller and Hobbs 2000), but,

as with development generally, species vary in their sensitivity to this type of disturbance. As mentioned previously an updated species list from Action Area specific surveys can be found in Appendix B. The only federally listed species observed within the Action Area is least Bell's vireo, which occurred throughout. Species with potential to occur but not observed during surveys and with designated critical habitat within the Action Area will be discussed further in Chapter 3. A full list of special-status species and determination of each species' potential to occur due to literature review and documented past observations within the Action Area is found in Appendix C.

Chapter 3. Federally-Listed/Proposed Species and Designated Critical Habitat within Action Area

3.1. Federally-Listed/Proposed Species

Of the seven federally-listed wildlife species, 4 federally-listed plant species, and three critical habitats reviewed, least Bell's vireo, southwestern willow flycatcher and Santa Ana sucker and their designated critical habitats were determined to potentially occur within the Action Area based on species requirements and Action Area conditions. As mentioned previously the habitat quality for listed species is highest in portion that overlaps with the Santa Ana River floodplain and riparian vegetation. The rest of the Action Area, including the borrow site, staging area and haul route is poor quality habitat for most wildlife species to occupy. Critical habitat was assessed by federal mapping and presence of Physical and Biological Features (PBFs formerly PCEs) within the mapped areas. PBFs are features that are essential to the conservation of the species. These features includes species needs for life processes and successful reproduction such as: space for growth or individuals and populations, cover and shelter for different life stages of a species, biological and physiological requirements, sites for breeding and rearing of offspring, germination, seed dispersal and historical habitat or habitat protected from disturbance.

The following species are not expected to occur within the Action Area due to marginal or no suitable habitat, lack of recent sightings, and/or due to lack of detection during focused surveys: California gnatcatcher (*Polioptila californica californica*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*), Stephens' kangaroo rat (*Dipodomys stephensi*), Slender-horned spineflower (*Dodecahema leptoceras*), Thread-leaved brodiae (*Brodiae filifolia*), Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*) and Braunton's milk vetch (*Astragalus brauntonii*) (see Appendix C). These species are not discussed further as the Corps has made no effect determinations. The following sections discuss the species of concern, results of surveys, and critical habitat designation in the Action Area.

3.2. Least Bell's Vireo

Least Bell's vireo is a federal and state endangered species and a Western Riverside MSHCP covered species. Least Bell's vireo is found as a summer resident of Southern California where it inhabits low riparian growth in the vicinity of water or dry river bottoms below 2,000 feet. The least Bell's vireo breeds in dense, shrubby riparian vegetation, often dominated by willows (Franzreb 1989). Nests are typically found in dense vegetation located low in the riparian zones, most frequently in 5- to 10-year-old stands. When least Bell's vireo nest in mature riparian woodlands, they nest in areas with a substantial, robust understory of willows as well as other plant species. Least Bell's vireo generally prefer semi-complex riparian habitats that have understory scrub and

ample vertical complexity; riparian areas with no understory are less likely to be used. In California, a dense shrub layer associated with riparian habitat was found to be the most critical structural component of occupied least Bell's vireo habitat (Kus et al. 2010). In more xeric areas, this species will readily utilize unconventional habitats, including mesquites and tamarisk. In riverine habitat, in Southern California, this species typically utilizes territory sizes of about 2 acres on average (Kus et al. 2010).

3.2.1. Survey Results

Annual surveys are conducted by the Santa Ana Watershed Association (SAWA). SAWA reported a total of 606 vireo territories within the Prado Basin in 2019 (SAWA 2019). SAWA also documented 101 territories and 35 nests in the Norco Bluffs area; 33 of those nests were successfully fledged. Of the documented territories, 10 were identified within the Action Area as shown in Figure 8.

3.2.2. Status of Designated Critical Habitat in the Action Area for Least Bell's Vireo

Designated critical habitat for this species occurs within the Action Area. 72.42 acres of designated critical babitat will be impacted by the Proposed Project. Of that total federally designated critical habitat for least Bell's vireo, 36.87 acres will be permanently impacted and 35.55 acres will be temporarily impacted (Figure 9). Of the 72.42 acres of critical habitat, approximately 47.93 acres provide the PBFs of habitat (i.e., breeding and foraging habitat for the species) required for least Bell's vireo. The remaining 24.49 acres do not as these areas occur in disturbed upland communities or are developed areas (i.e. ruderal, grassland and disturbed coastal sage scrub) that do not provide habitat for least Bell's vireo.

3.3. Southwestern Willow Flycatcher

The southwestern willow flycatcher is a federally- and state-listed endangered species and a Western Riverside MSHCP covered species. It is a riparian obligate that is present in the United States only during the summer months. The historic breeding range of the species once included southern California, much of Arizona and New Mexico, western Texas, southwestern Colorado, southern Nevada and Utah, and northern portions of Sonora and Baja California, Mexico (Unitt, 1987). Currently, breeding is only known from southern California, extreme southern Nevada, Arizona, New Mexico, and western Texas (Hubbard, 1987; Unitt, 1987; Browning, 1993; McKernan and Braden, 1998; Sedgwick, 2000). This flycatcher species typically requires a relatively complex vegetative structure that includes flowing or open water (occasionally very moist soils that support insect breeding may suffice), a moderate to tall canopy (i.e. young, regenerating vegetation is not favored), open areas for foraging (especially for males), and areas where the canopy is separated from an understory (the shaded, open region favored by females for foraging). This subspecies typically breeds within dense tree or shrubby riparian vegetation that is equal to or greater than 10 feet tall (Allison et al. 2003). Areas within the floodplain with more mature and dense riparian vegetation could be potentially suitable habitat for this species, though unlikely available near the Action Area. Prado Basin has historically harbored the species in small numbers. The species was

first recorded in the Prado Basin in 1987. Individuals have been observed in the Prado Basin as early as April and early May (Pike et al., 2005).

3.3.1. Survey Results

Ongoing surveys and monitoring activities were conducted by SAWA in 2019. Southwestern willow flycatchers were not detected, but 8 migratory individuals were documented within the larger watershed in 2019, 2 non-paired individuals passed through the Norco Bluffs area, but exact locations were not documented. No breeding pairs were detected in 2019 or in recent years (SAWA 2019). Surveys specific to the Action Area did not detect flycatcher, however because individuals were recently observed by SAWA's general Norco Bluffs bird monitoring and potentially within the Action Area, the Corps does not consider them absent from the Action Area.

3.3.2. Status of Designated Critical Habitat in the Action Area for Southwestern Willow Flycatcher

Designated critical habitat for this species occurs within the riparian floodplain portion of the Action Area. The Proposed Project will impact approximately 4.72 acres of designated critical habitat, and all impacted acres provide the PBFs of habitat (i.e., breeding and foraging habitat for the species) required for southwestern willow flycatcher. Of the 4.72 acres of critical habitat, 0.40 acre will be permanently impacted and 4.32 acres will be temporarily impacted by vegetation removal.

3.4. Santa Ana Sucker

The Santa Ana sucker is a federally threatened, California species of special concern, and a Western Riverside MSHCP covered species. The Santa Ana sucker historically occurred in small, shallow, low-elevation streams in the Los Angeles, San Gabriel, and Santa Ana River systems (Swift et al., 1993).

Within the Santa Ana River system, this species historically occurred in the upper Santa Ana River, on Cajon and City Creeks in the foothills of the San Bernardino Mountains, and in Santiago Creek in the foothills of the Santa Ana Mountains (Moyle and others 1995). Currently, the Santa Ana sucker is restricted to 3 noncontiguous populations: the lower Big Tujunga Creek, the East, West and North Forks of the San Gabriel River and the lower and middle Santa Ana River (U.S. Fish and Wildlife Service 2000). The Santa Ana sucker is known to occur in patches throughout the Santa Ana River where habitat is suitable. They are most abundant where water is clear and unpolluted, although they can withstand seasonal turbidity and some temperature changes. Santa Ana sucker are often associated with bottom substrates that consist of boulders, gravel, and cobble where there is algae growth on those surfaces; they are also occasionally found on sandy or muddy substrates, mainly as larval or young of that year.

Critical habitat was re-designated for the species in 2010. This most recent modification to designated critical habitat includes a total of approximately 9,331 acres located within three units

(Units 1-3). Unit 1 is located along portions of the Santa Ana River and is further divided into three separate units (Subunits A-C). Unit 2 includes portions of the San Gabriel River and Unit 3 encompasses sections of Gold Canyon, Big Tujunga Wash, Delta Canyon, and Stone Canyon. The entire Action Area falls within critical habitat Subunit 1B (Santa Ana River). This subunit totals approximately 4,771 acres and is located near the City of Rialto in San Bernardino County and extends to the city of Corona in Riverside County.

3.4.1. Survey Results

Orange County Water District (OCWD) and their partners have been monitoring the presence of Santa Ana sucker within the Santa Ana River Watershed. No suckers have been found within near the Norco Bluffs portion of the Santa Ana River for 10 years (B. Johnson, personal communication, March 12, 2019). As surveys for suckers are not frequent and individuals are challenging to detect, the Corps does assume that individuals are present in the main low flow channel, which is partially in the Action Area.

3.4.2. Status of Designated Critical Habitat in the Action Area

The designated critical habitat spans the floodplain of the Santa Ana River, therefore encompassing much of the Action Area for the Proposed Project (Figure 11). Within the Proposed Project footprint, there is approximately 52.96 acres of designated critical habitat. Approximately 29.66 acres will be permanently impacted, and approximately 23.30 acres will be temporarily impacted by the Proposed Project. Of these acres, only approximately 5.0 acres contain PBFs required for the species to occupy an area, as the majority is vegetated with riparian vegetation. These PBFs include: space for growth of individuals and the population; food, water, air, light, minerals or other nutritional requirements; cover or shelter; sites for breeding, reproduction and rearing of offspring; and habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of the species.

The majority of the Action Area contains poorly suitable PBFs or none at all. The main channel and sandy wash does contain sandy substrate that Santa Ana sucker have been observed utilizing in other areas of the watershed. The sandy wash however, lacks the gravel, cobbles or boulders needed to provide food and shelter for the species. If the sandy wash contained flowing water, this species could potentially inhabit the Proposed Project area. A site visit in January 2020 observed water present in the sandy wash in the form of stagnant pools. This confirms flows in the sandy wash that could potentially provide habitat for individual sucker. Giant reed surrounds most of the channel and is known to degrade sucker habitat by changing the water table and substrate movement. Additionally, upon removal, giant reed is also known to leave large pools that can harbor nonnative predators. The permanent structure proposed in this project avoids the main channel where sucker would be more likely to occur.

Chapter 4. Effects Analysis and Determination

4.1. Effects of the Proposed Project on Federally-Listed Species and Critical Habitat

The primary impacts from the Proposed Project will be from direct effects, including temporary and permanent loss of habitat, and indirect effects of noise, dust and increased human presence that would causes impacts beyond the project footprint. Habitat loss within designated critical habitat or potentially occupied habitat for listed wildlife species is considered an adverse effect, providing the designated critical habitat contains PBFs required by the species. None of the species discussed in this section occur at the borrow site location due to lack of suitable habitat. Noise from mechanized equipment performing actions such as vegetation removal, grading, transport of material, and constructing the embankment will likely affect the listed riparian bird species present in the Action Area. Birds are sensitive to noise and will likely avoid the Action Area if noise is too loud. Vegetation removal within the Action Area will reduce foraging habitat and shelter from predators. However, initial vegetation removal will occur outside nesting bird season in order to minimize stress to nestlings, fledglings and parents. It is anticipated that adult birds would likely have more exposure to the stressors of noise and habitat loss while returning to establish territories where vegetation has been removed and human presence has increased. Per the 2020 BNSF Bridge Project BO, least Bell's vireo did not abandon territories from 2018 to 2019 even while noise increasing activities (pile driving) were occurring during the months when territory establishment takes place.

Least Bell's vireo and southwestern willow flycatcher could be affected by removal or degradation of habitat and continued loud noise during construction of the Proposed Project. Santa Ana sucker individuals are not anticipated to be exposed to any stressors caused by normal project activities, as all work is to take place out of the main channel. However if a large storm or series of large storms causes the berm to fail and the main channel to overflow into the portion of the floodplain that overlaps the Action Area, sucker could be washed into the construction area. If this occurs the individuals would likely be adversely affected. Impacts to sucker that could cause take of individuals include collision with equipment, exposure to decreased water quality from loose sediment in the project area, lack of shelter from predators, and stress or mortality caused by attempts to capture and relocate stranded suckers out of the Proposed Project area.

The Proposed Project would temporarily and permanently impact riparian and sandy wash habitat within the Santa Ana River floodplain. Least Bell's vireo, southwestern willow flycatcher and Santa Ana sucker mapped designated critical habitats all overlap within the riparian floodplain. Vireo and flycatcher critical habitats are associated with riparian vegetation maintained by the waterways such as the Santa Ana River and sucker critical habitat is associated with flows and hydrology of waters such as the Santa Ana River. While these species' mapped critical habitats overlap they are assessed for presence and impacts individually. Impacts to designated critical habitat will be directly from vegetation removal and grading. Vegetation removal activities will also cause indirect effects

such as ground disturbance vibrations, noise and dust. Commitments presented in section 1.4.4 lists measures to reduce and avoid indirect impacts to designated critical habitat as well as riparian habitat in general. A large percentage of the vegetation to be removed is invasive exotic giant reed. Giant reed is known to degrade Santa Ana sucker habitat as well as least Bell's vireo and southwestern willow flycatcher habitat. Moreover, all temporary impact areas will be restored with native vegetation and monitored and managed (weeded) for at least 8 years after construction to reduce the potential for infestation. Most of the impacts to critical habitat will be temporary, but some habitat will be permanently removed due to construction of the embankment. The borrow area is a temporary impact and while critical habitat was mapped within that portion of the Action Area, the PBFs for listed species were not present. None of the species being discussed in this section are associated with the actions taking place at the borrow area.

A series of measures are included as part of the Proposed Project in order to avoid or minimize impacts to listed species and designated critical habitat during construction of the Proposed Project, as well as to restore and improve habitat after construction.

No additional effects to listed species would occur during routine O&M activities that take place on or from established maintenance roads or other permanent features due to the nature of the actions listed above.

4.2. Cumulative Effects

Over past decades this region has seen increased developments, including substantial commercial, residential, and transportation expansions, which has resulted in substantial losses of habitat and produced extensive habitat fragmentation. No other private or state projects are occurring or planned to occur in the Action Area, therefore the Corps has determined that there are no cumulative effects for the Proposed Project.

4.3. Determination

This section further details how the Proposed Project would potentially affect listed species and designated critical habitat, the reasoning behind the determinations and how the conservation measures will minimize and avoid effects to species. The conservation measures listed in Section 1 above will be implemented to avoid and minimize impacts to wildlife, native vegetation and water quality. These measures include: grading to the minimum extent needed and leaving root system intact to the extent feasible (BIO-3), ensuring the limits to construction are clearly marked (BIO-7), implementing environmental monitoring during construction (BIO-8), providing training pre-construction environmental training to all crewmembers (BIO-10), developing a storm water pollution and prevention plan (SWPPP), pre-construction surveys (BIO-13), regevetation of bare areas once work in the area is completed (BIO-15), and appropriate staging and site protection mechanisms put into place to protect existing and nearby habitat (BIO-16). Other measures specific to avoiding and minimizing impacts to listed species are discussed below.

4.3.1. Least Bell's vireo and critical habitat determination

The Proposed Project May Affect and is Likely to Adversely Affect this species and designated critical habitat.

4.3.1.1. DISCUSSION OF EFFECTS ANALYSIS SUPPORTING DETERMINATION

This species is currently known to maintain 10 territories within the Action Area, which is approximately 10% of the 101 territories documented by SAWA in 2019 (SAWA 2019). A total of 36.87 acres of designated critical habitat will be permanently impacted and 35.55 acres will be temporarily impacted by the Proposed Project (Figure 10). Of the total 72.42 acres of mapped critical habitat that overlaps the Action Area, approximately 47.93 acres provide PBFs (i.e., breeding and foraging habitat) required for least Bell's vireo occupation. The remaining 24.49 acres do not as these areas occur in disturbed upland communities or are developed areas (i.e. ruderal, grassland and disturbed coastal sage scrub) that do not provide habitat for least Bell's vireo.

Direct and indirect impacts to least Bell's vireo include displacement of established territories causing adverse effects to 10 territories within the Action Area. This is assuming that vireo nesting beyond Action Area will continue successfully. As mentioned above, riparian vegetation that contains PBFs for this species will be permanently and temporarily removed. However, the 72.42 acres of designated critical habitat is a small percentage compared to the 3,338 acres designated for Riverside and San Bernardino Counties. Other indirect impacts from construction include noise, dust, and human presence. Birds use their sense of hearing to locate their young and mates, to establish and defend territories, and to locate and evade predators (Scherzinger, 1970). Per the 2020 BNSF Bridge Project BO, vireos did not appear to abandon territories in 2018 or 2019 due to noise increases during piling driving as part of the SARMP Reach 9 BNSF Bridge Project. Dust can also visually impair vireos and degrade air quality and human presence can cause vireos to abandon territories and nests. As the floodplain is relatively wide at this portion of the Santa Ana River, movement of vireo will not be constricted within the adjacent area, although increased competition for nest sites and other resources could occur until construction is completed and onsite and offsite habitat restoration occurs. Measures to minimize and avoid impacts to this species include monitoring (BIO-1), avoiding initial vegetation removal during the nesting season (BIO-3), habitat restoration that improve PBFs for species (BIO-4, BIO-5), a cowbird removal program (BIO-6), noise monitoring and sound wall construction (BIO-9), controlling of excess dust (BIO-12) and continued monitoring during construction for special-status species (BIO-14).

4.3.2 Southwestern willow flycatcher and critical habitat determination

The Proposed Project May Affect but is Not Likely to Adversely Affect southwestern willow flycatcher designated critical habitat.

4.3.2.1 DISCUSSION SUPPORTING DETERMINATION

This species has not been documented nesting or maintaining territory within the Action Area or within the Prado Basin within the several years. However, two migrant individuals were documented by SAWA in 2019 at a non-specified location within the larger Norco Bluffs area. These two

individuals were aurally observed during regular bird surveys in May for a few days. It was assumed when they were no longer heard that they had moved on to more preferable breeding habitat. Therefore, there is potential that an individual could pass through the area temporarily during the construction of the Proposed Project. The width of the floodplain, within the project footprint portion of the Action Area would allow the species to pass through the larger riparian corridor and easily avoid the Action Area. Project activities are not expected to affect individuals or nests. Approximately 4.72 acres of critical habitat are present within the Action Area of which, 0.40 acre will be permanently impacted and 4.32 acres will be temporarily impacted by direct project actions. While designated critical habitat will be impacted due to vegetation removal, Southwestern willow flycatcher's habitat preference does not match the current state of the habitat within or near the Action Area. Much of the current riparian habitat is disturbed by giant reed invasion or disturbance from restoration activities that lower the cover and vegetation layers preferred by this species for both nesting and foraging. Human visitation on trails is likely also a reason the species does not prefer to maintain territory in this area. Upon project completion, native revegetation with long term maintenance of riparian vegetation and offsite mitigation will improve habitat for flycatcher.

4.3.3 Santa Ana sucker and critical habitat determination

The Proposed Project May Affect but is Not Likely to Adversely Affect individuals under normal project conditions but May Adversely Affect individuals if the earthen berm fails and the work area becomes flooded with flows from the Santa Ana River. The Proposed Project May Affect but is Not Likely to Adversely Affect the designated critical habitat.

4.3.3.1 DISCUSSION SUPPORTING DETERMINATION

No sucker have been observed during surveys in this portion of the Santa Ana River for approximately the last 10 years. However, there is potential for suckers to inhabit the main channel or be washed downstream during heavy storm events and into the Proposed Project area if the flood protection berm in BIO-17 fails. While it is extremely unlikely that sucker would be washed into the area for any amount of time due to the apparent intermittent flow regime in the sandy wash and lack of recent sightings, sucker have been observed in small sandy channels in other areas of the watershed. Specific measures are laid out to avoid flow entering the project footprint while also laying out actions in the event the earthen berm fails. The construction contractor will ensure no construction activities enter the main low flow channel and will implement erosion control and best management practices for water quality in situations where runoff occurs in the floodplain. The construction contractor will be required to construct an earthen berm bordering the river adjacent project limits to prevent flows from easily entering the Action Area (BIO-17). In the event the berm fails, BIO-17 includes stopping all work, determining presence of sucker onsite and safely relocating individuals back to suitable habitat. There is a chance that stressors caused by a sucker washing into the project or being physically relocated could cause mortality. The number of take for this species is unquantifiable as the circumstance for take occurring is situational, but take is expected to be very low.

The Action Area overlaps with 52.96 acres of sucker designated critical habitat, which is 1% of the 4,771 acres of critical habitat in the subunit. Of that 52.96 acres, approximately 5 acres of open sandy wash or mostly unvegetated floodplain area containing some potential PBFs for sucker will be impacted. The designated critical habitat to be impacted by this Proposed Project is in relatively poor condition to support the species occurring, but is within the historical range. The majority of the area is comprised of dense, riparian vegetation. If flow were created in the sandy wash, the intermittent aquatic habitat would still be considered to have suitability but is considered relatively disturbed from recreation and giant reed invasion. Most of the 5 acres of critical habitat affected by the Proposed Project would not be permanently degraded and the hydrological regime would not be substantially affected. The sandy wash will be altered due to the construction of the embankment feature, but a new wash will likely develop along the structure similar to the existing one. Hardened features along banks are known to cause impacts to native fish by permanently removing vegetation and altering sediment movement. This structure is on the toe of the bank for the floodplain and will not significantly alter the hydrologic regime during normal conditions. Only during high floods will the feature influence hydrology. Therefore, the flows reaching the embankment are likely from flood velocities strong enough to alter the vegetation and sediment throughout the floodplain with or without the embankment feature present. The removal of giant reed within the project footprint and in other parts of the Prado Basin via mitigation for the Proposed Project and in combination with other SARMP mitigation, will be an overall improvement to sucker critical habitat. To offset potential impacts to individuals and effects to critical habitat, the Corps has agreed to provide 5 years of sucker predator removal within a location to be determined in coordination with the USFWS (BIO-18).

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Appendix A Figures

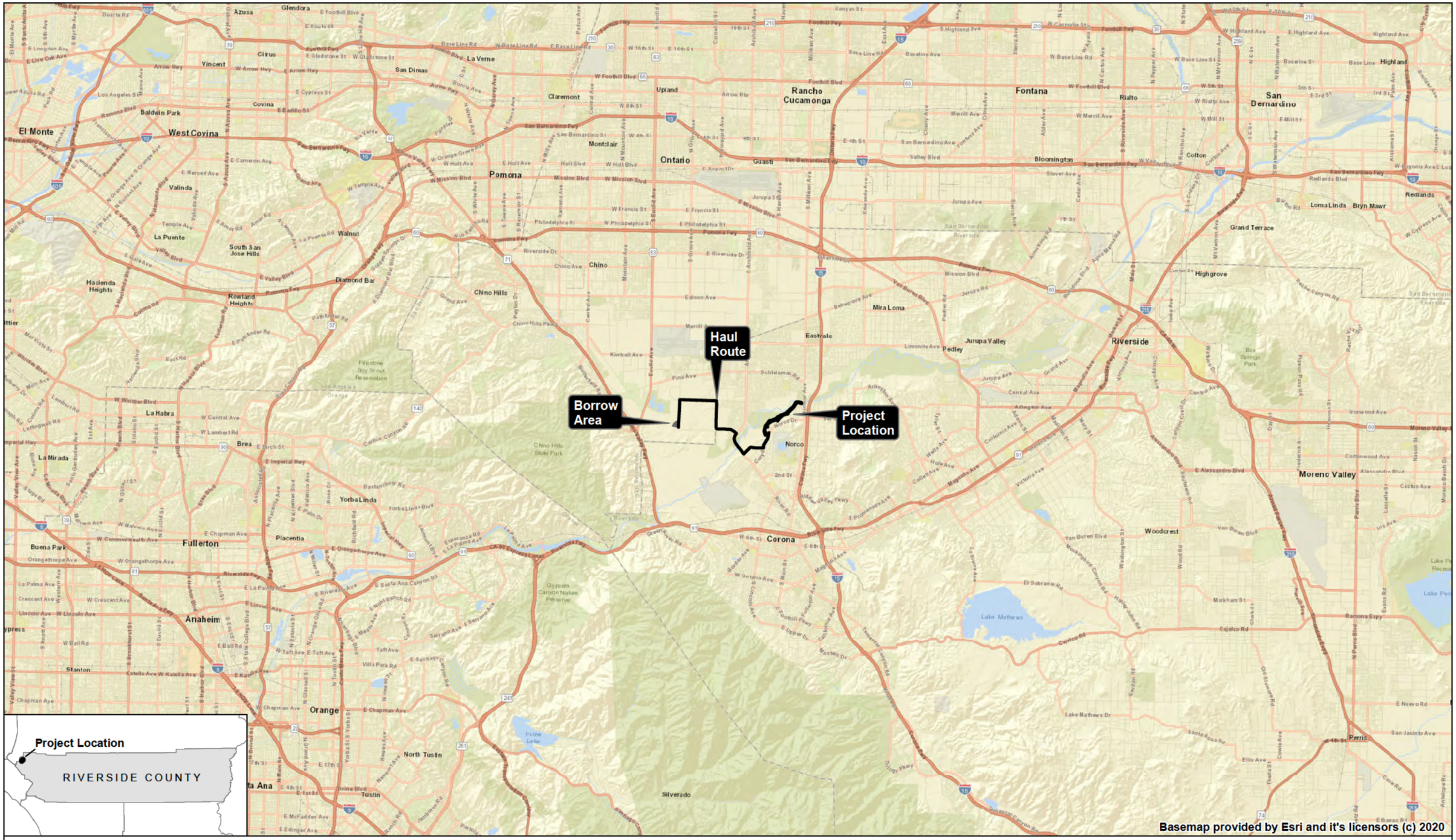

Figure 1. Regional Vicinity

March 2020

Coordinate System:
North American 1927 Transverse Mercator

0 5 Miles

1:48,000

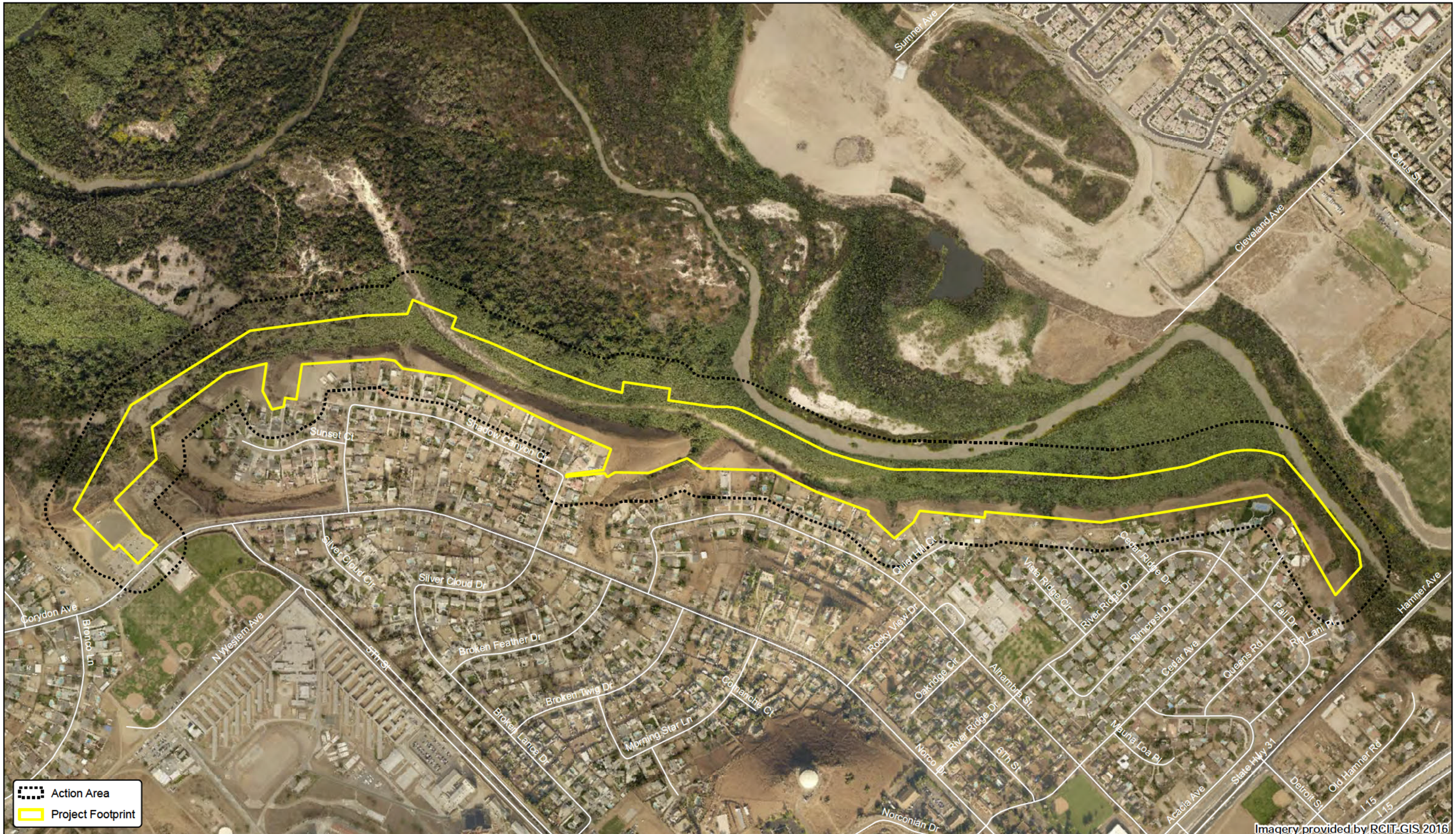

Figure 2a. Project Location

March 2020

Coordinate System:
NAD 1983 StatePlane California VI FIPS 0406 Feet

500 0 500 Feet

1:7,000

Figure 2b. Project Location
Borrow Area

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

Figure 3. Proposed Project and TCE

March 2020

Coordinate System:
NAD 1983 StatePlane California VI FIPS 0406 Feet

500 0 500 Feet

1:7,000

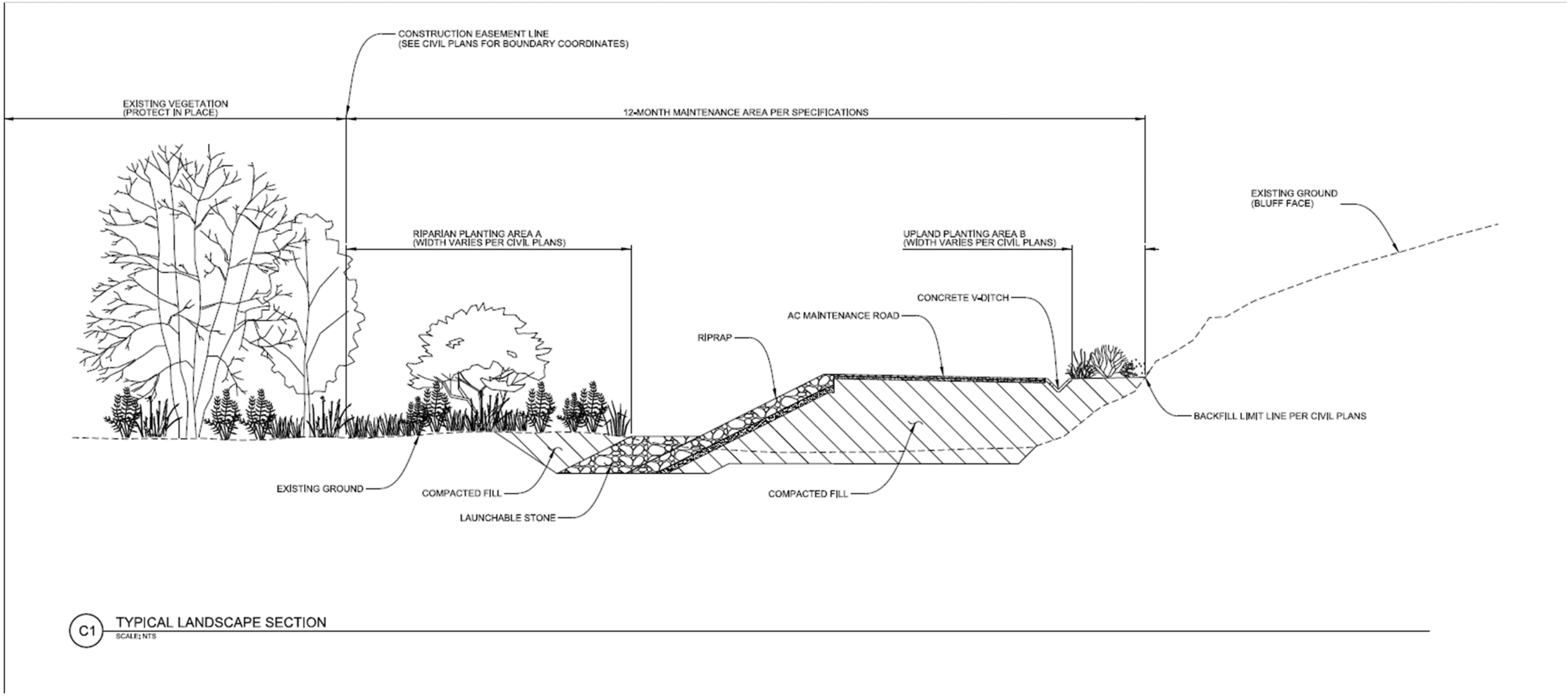

Figure 4. Cross Section of the Embankment

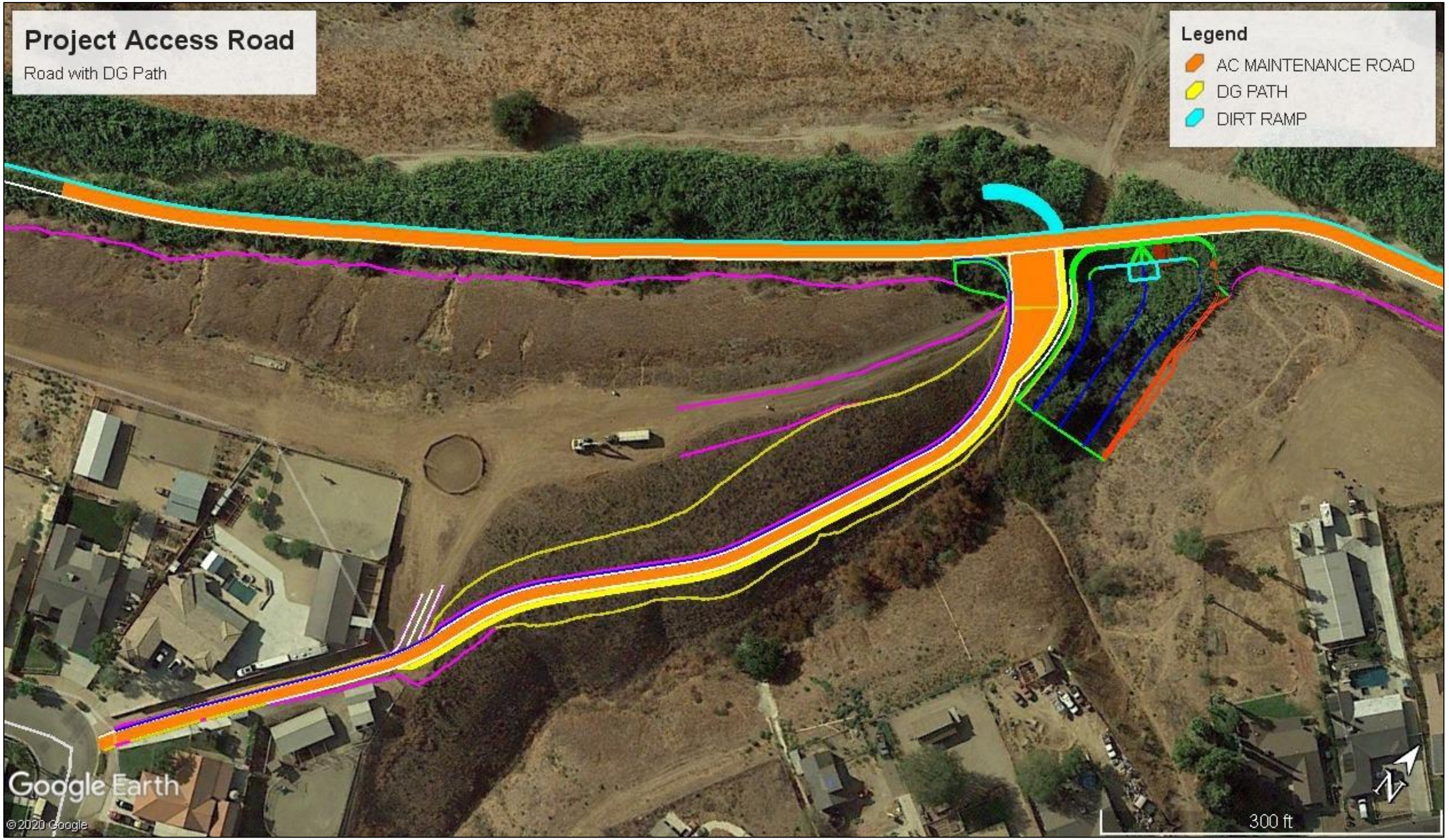

Figure 5. Footprint of Permanent Access road and Dirt Ramp

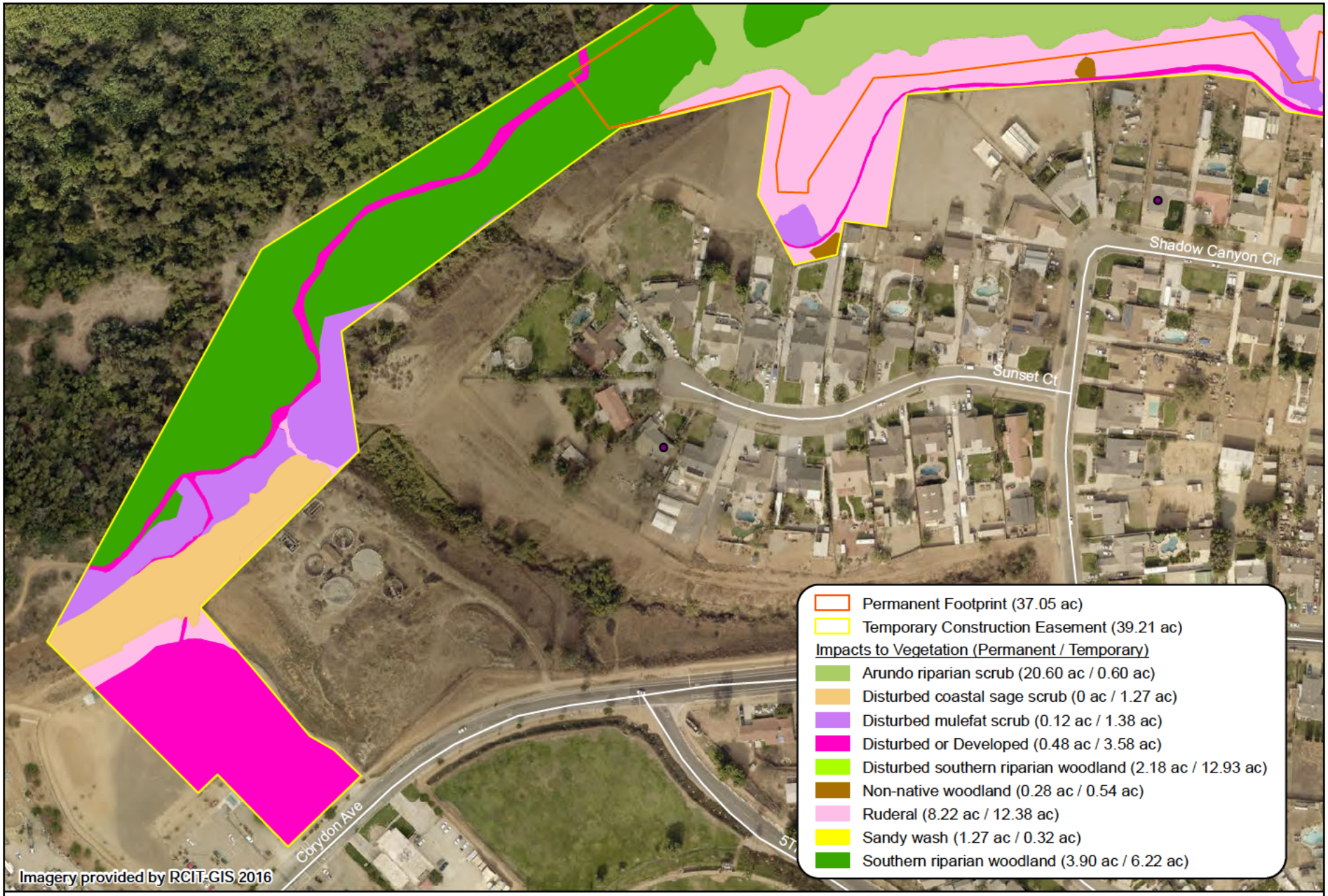

Figure **6**a. Vegetation and Cover Types

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

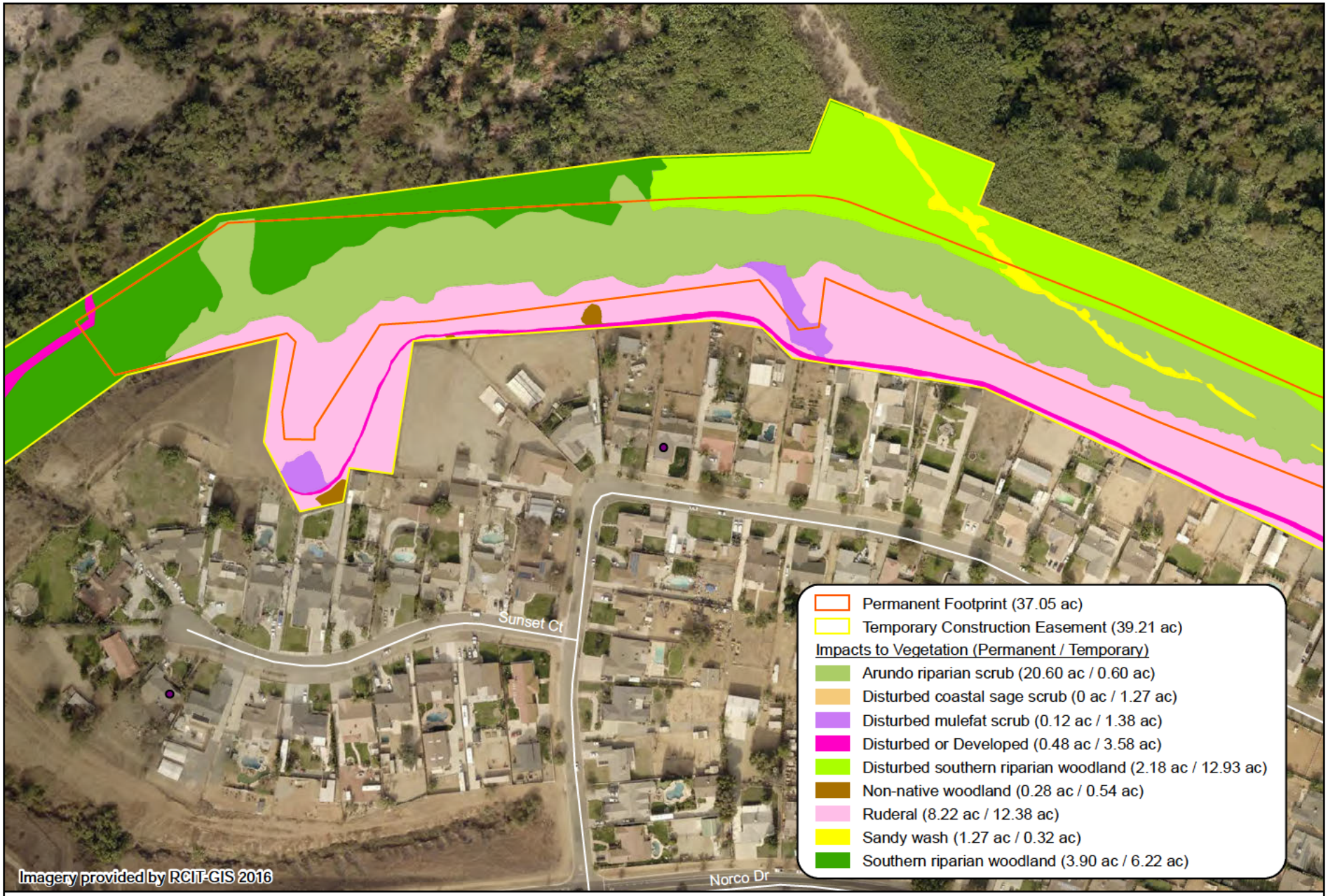

Figure **6**b. Vegetation and Cover Types

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

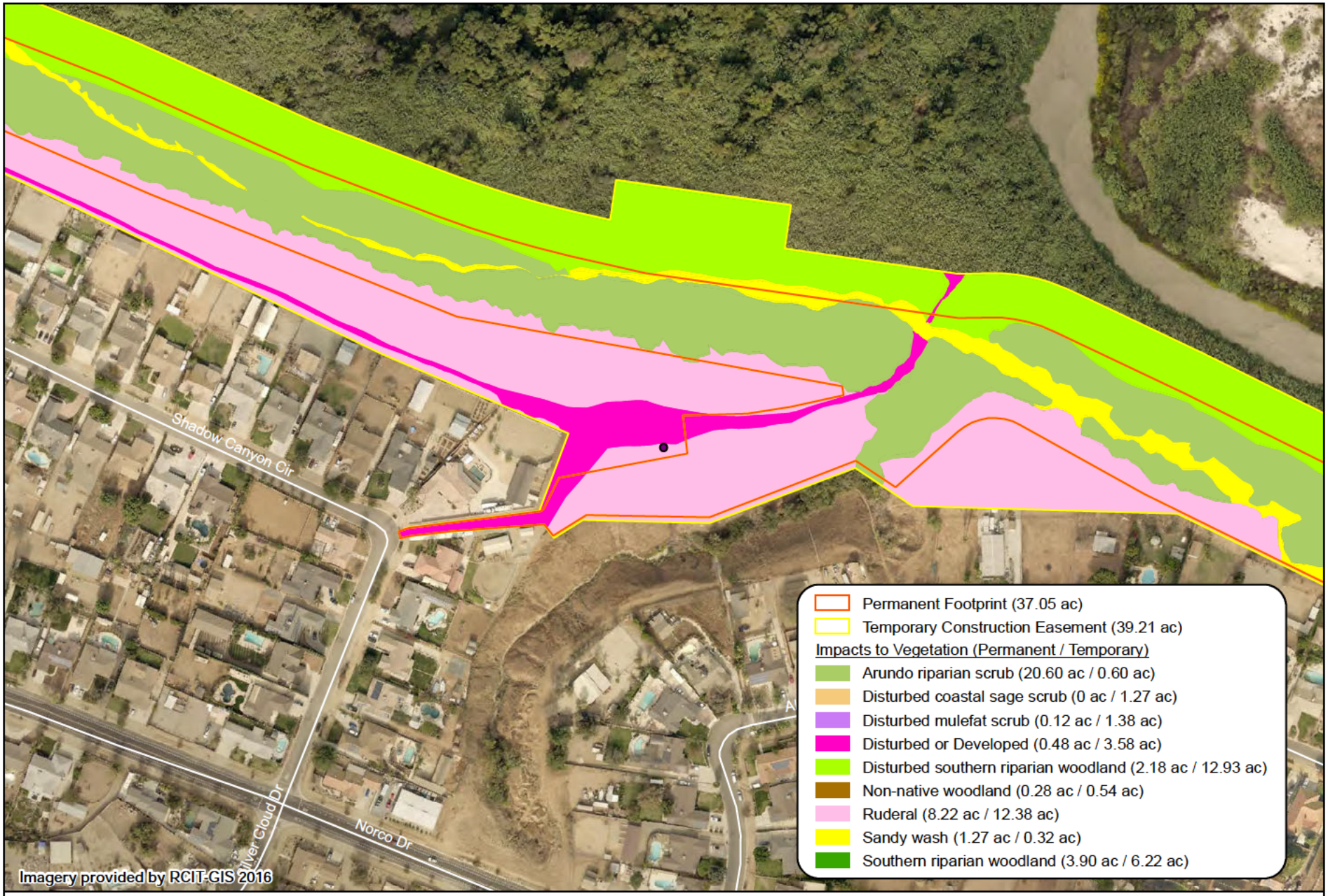

Figure **6**c. Vegetation and Cover Types

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

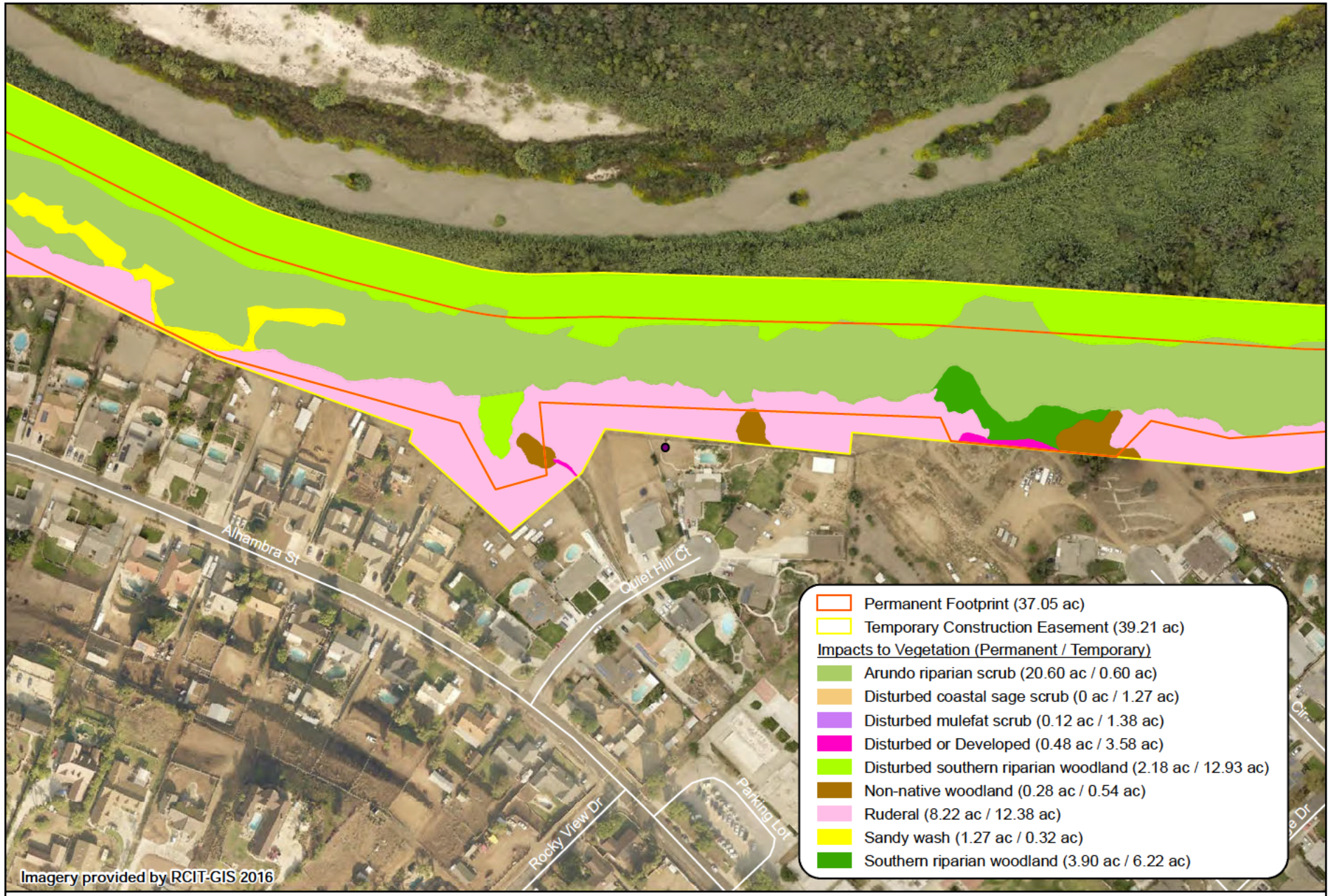

Figure **6**d. Vegetation and Cover Types

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

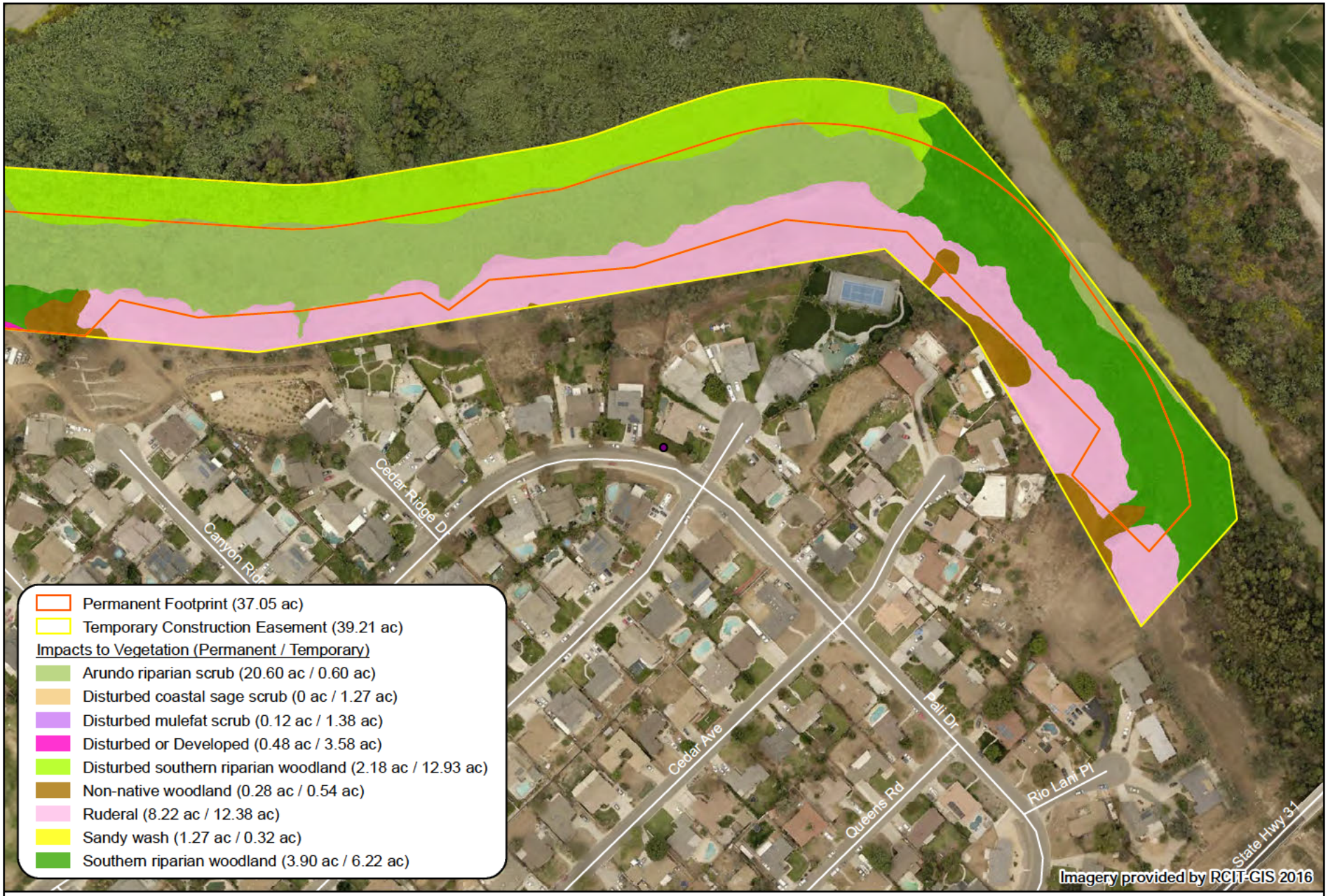

Figure **6**e. Vegetation and Cover Types

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

Figure **6**f. Vegetation
Borrow Area

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

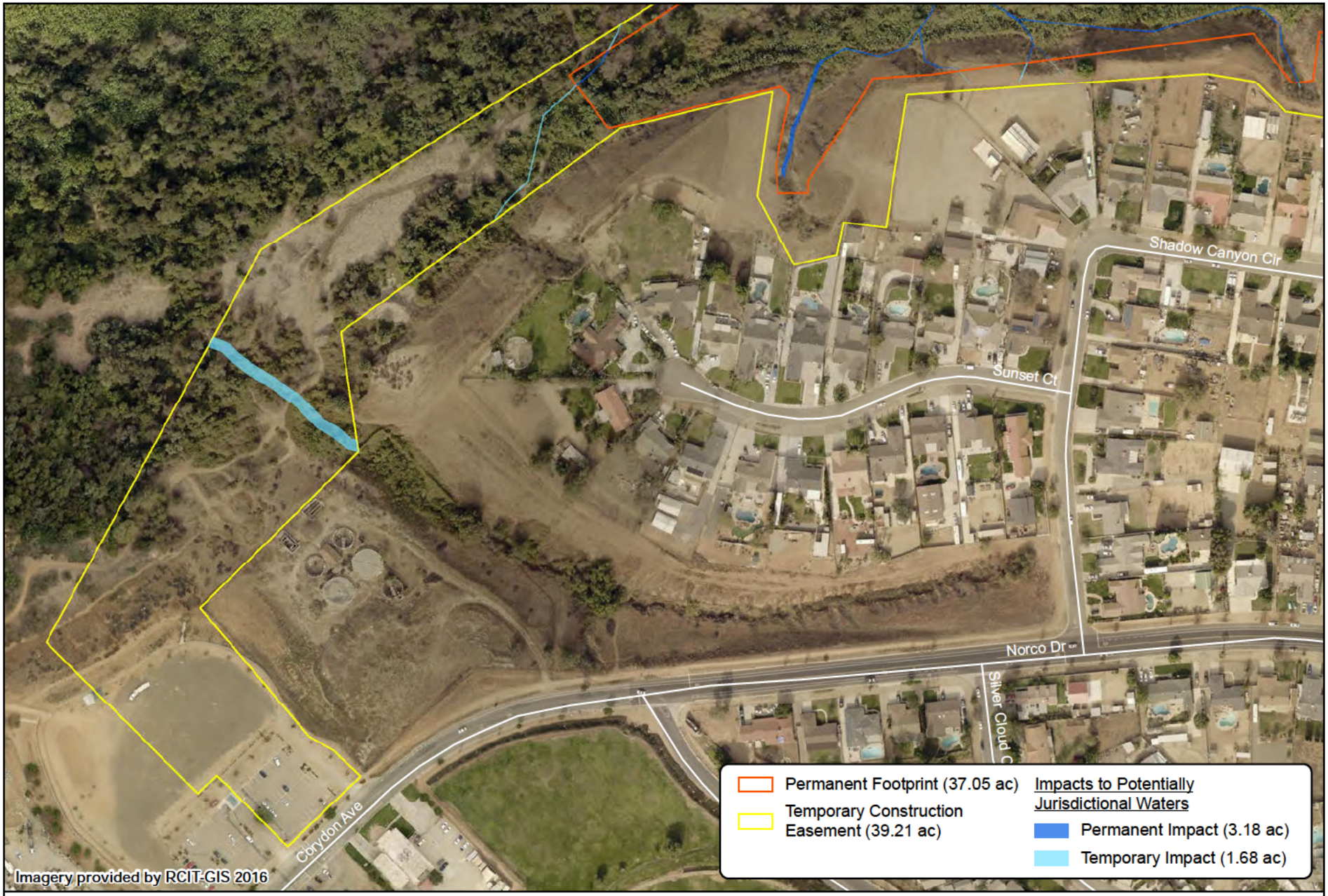

Figure **7**a. Jurisdictional Delineation

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

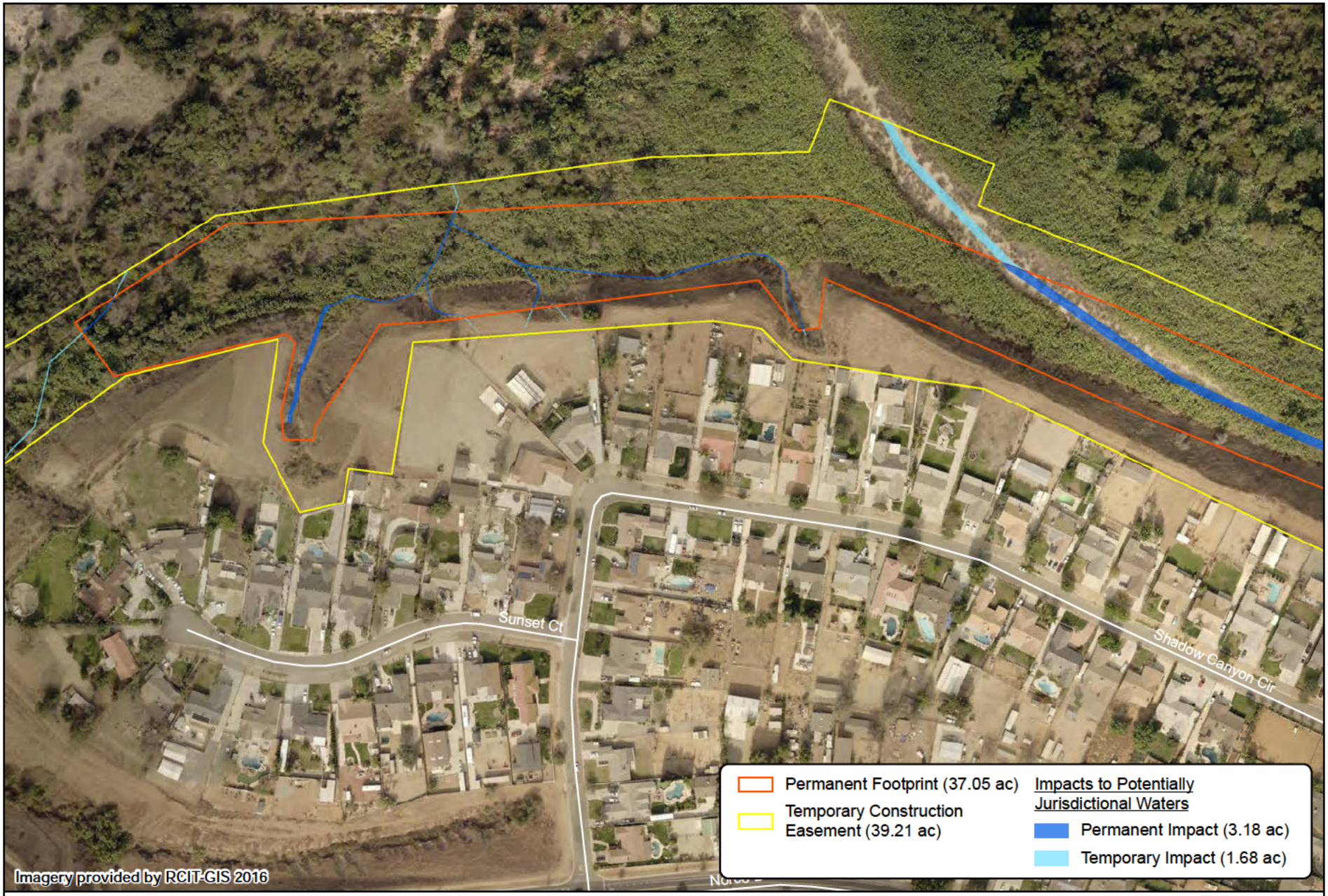

Figure 7b. Jurisdictional Delineation

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

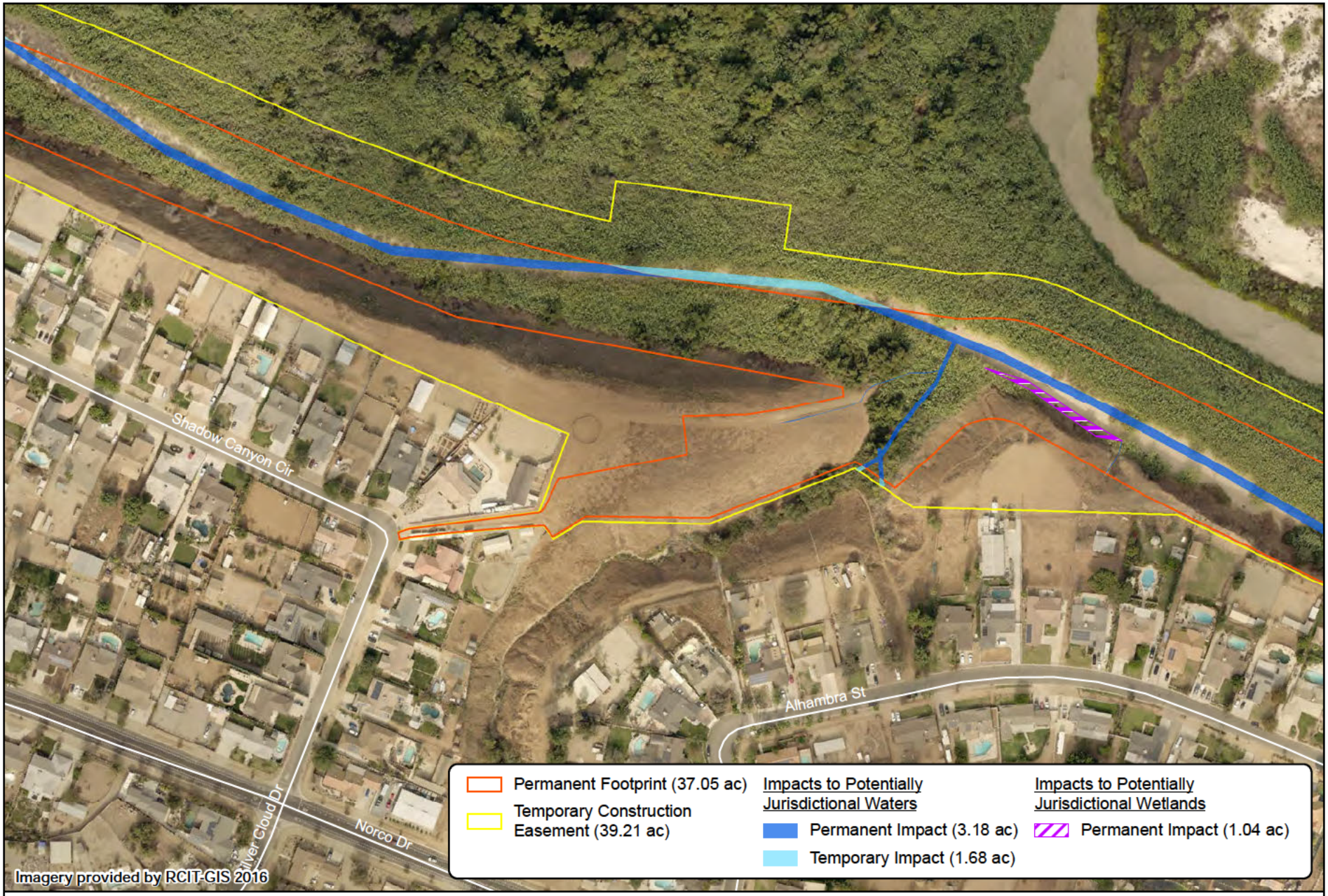

Figure 7c. Jurisdictional Delineation

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

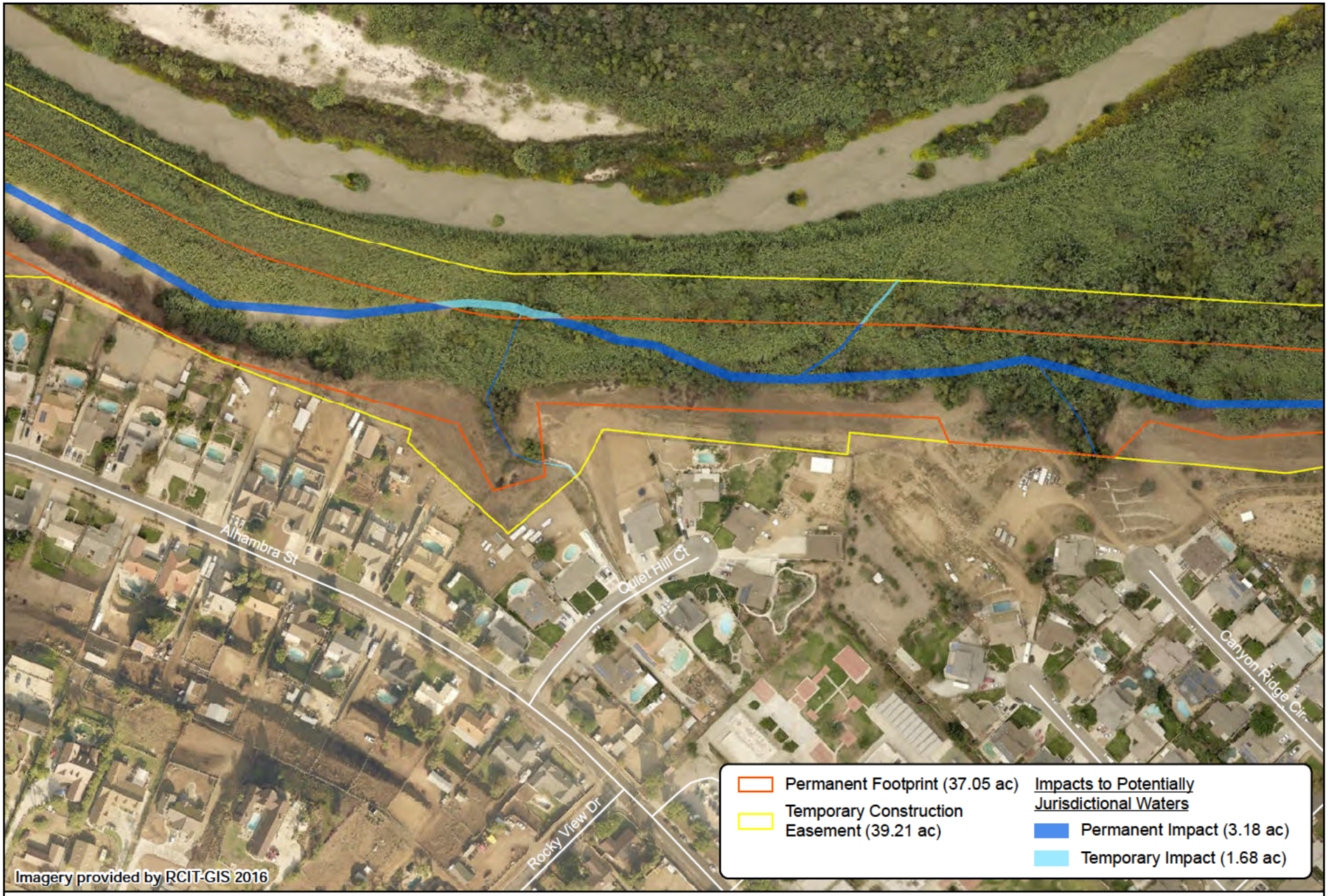

Figure 7d. Jurisdictional Delineation

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

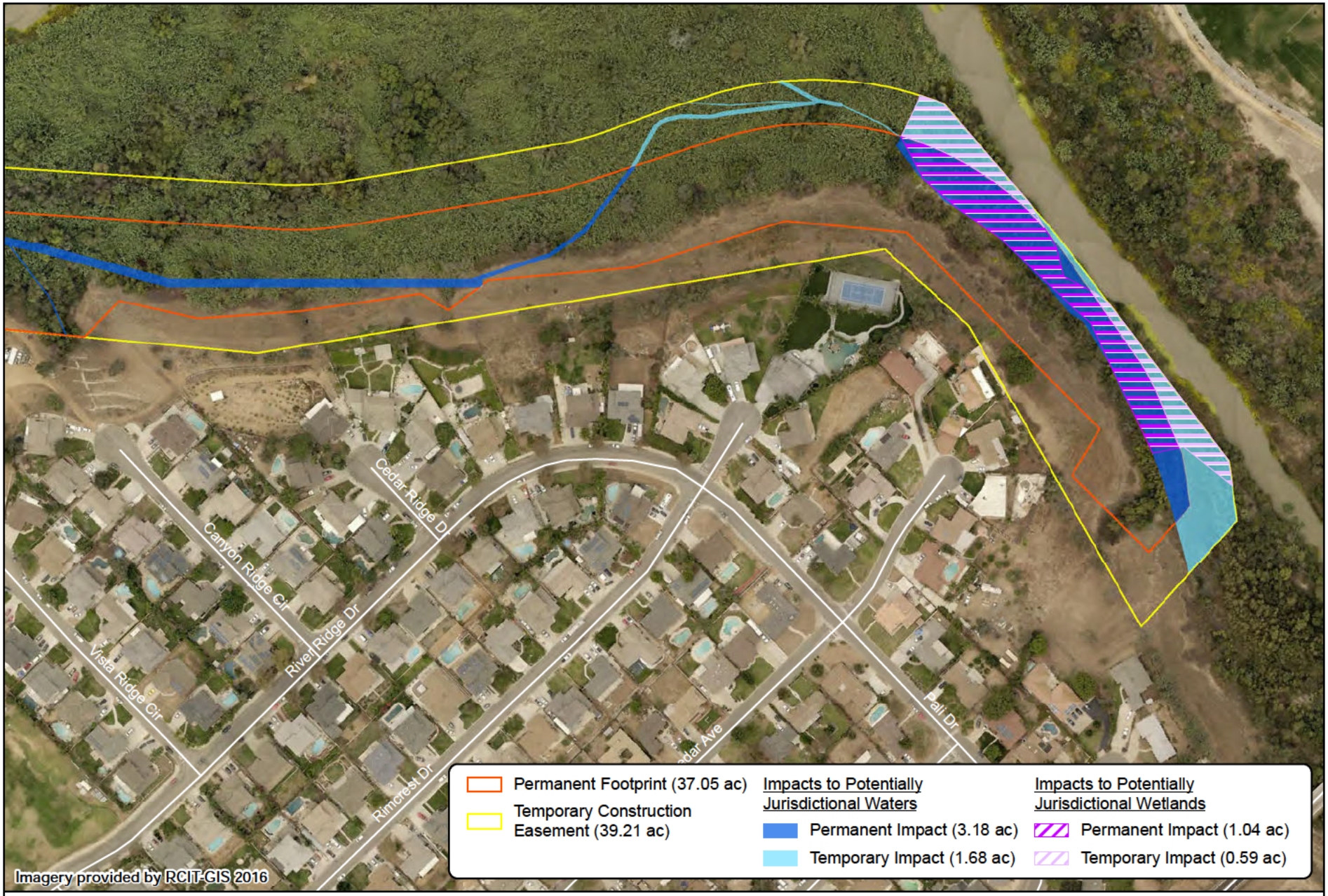

Figure 7e. Jurisdictional Delineation

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

Figure **8**. Least Bell's Vireo Territories

March 2020

Coordinate System:
NAD 1983 StatePlane California VI FIPS 0406 Feet

1,000 0 1,000 Feet

1:7,000

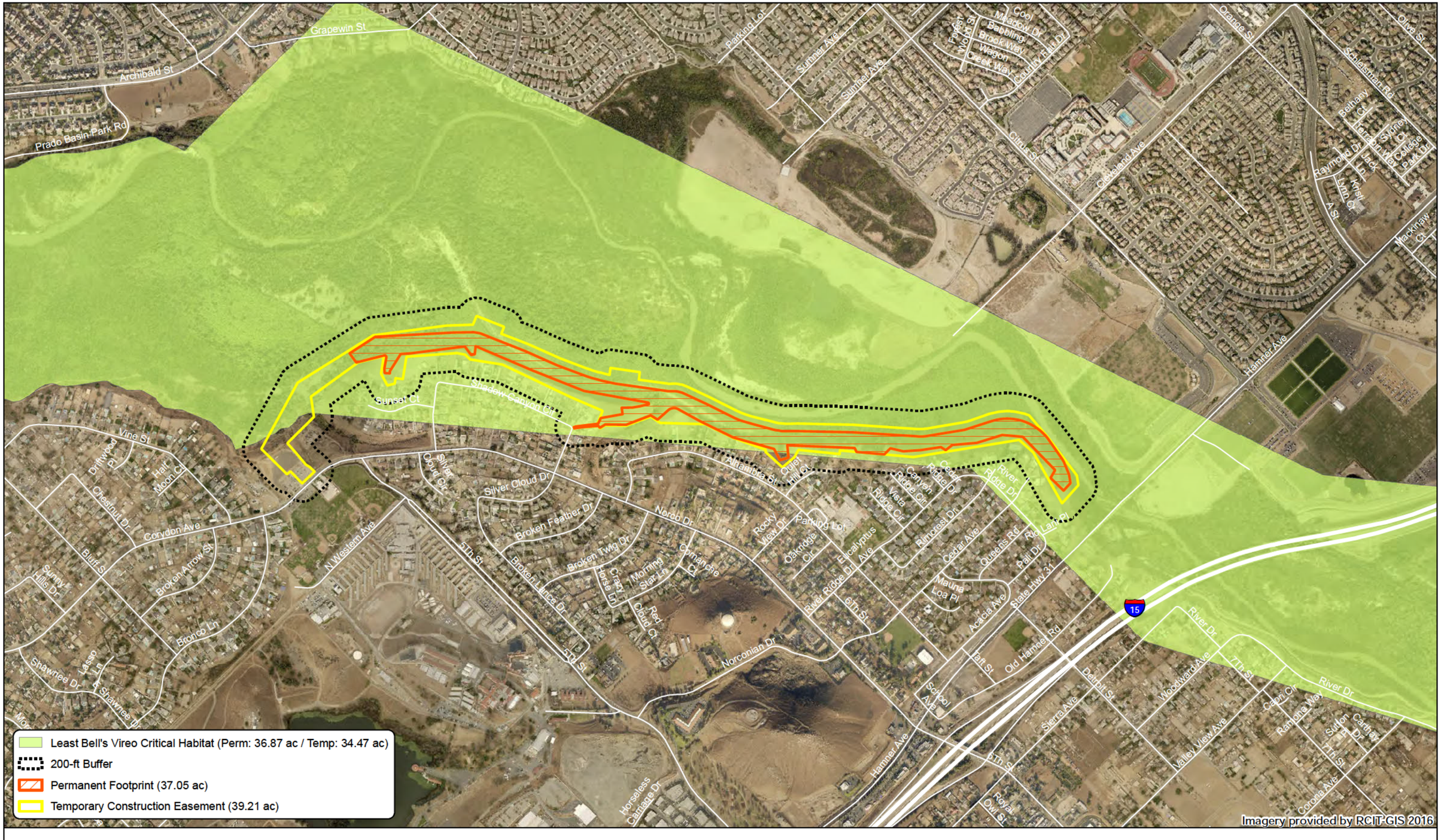

Figure **9**a. Least Bell's Vireo Critical Habitat

March 2020

Coordinate System:
NAD 1983 StatePlane California VI FIPS 0406 Feet

1,000 0 1,000 Feet

1:7,000

Figure **9**b. Least Bell's Vireo Critical Habitat

100 0 100 Feet

March 2020

Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet

Figure **10**. Southwestern Willow Flycatcher Critical Habitat

March 2020

Coordinate System:
NAD 1983 StatePlane California VI FIPS 0406 Feet

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1:7,000

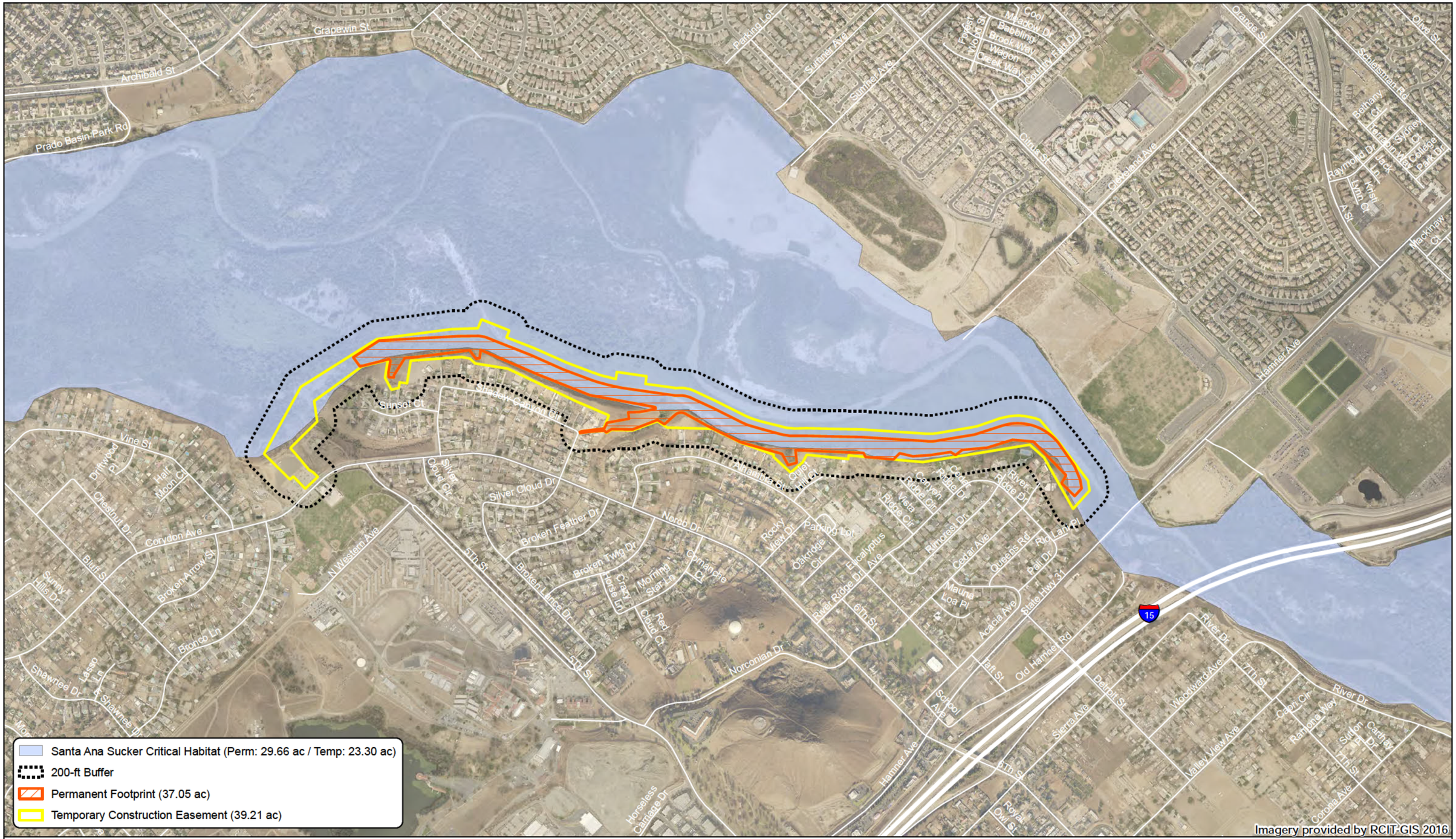

Figure **11**. Santa Ana Sucker Critical Habitat

March 2020

Coordinate System:
NAD 1983 StatePlane California VI FIPS 0406 Feet

1,000 0 1,000 Feet

1:7,000

Appendix B Species Observed

Observed Plants Species List	
Eudicots	
Muskroot Family	**Adoxaceae**
blue elderberry	*Sambucus nigra* ssp. *caerulea*
Fig-Marigold Family	**Aizoaceae**
small-flowered iceplant	*Mesembryanthemum nodiflorum**
Amaranth Family	**Amaranthaceae**
tumbling pigweed	*Amaranthus* sp.* (dried)
Sumac Family	**Anacardiaceae**
Peruvian pepper tree	*Schinus molle**
poison oak	*Toxicodendron diversilobum*
Carrot Family	**Apiaceae**
common celery	*Apium graveolens**
common poison hemlock	*Conium maculatum**
Sunflower Family	**Asteraceae**
bur-sage	*Ambrosia acanthicarpa* (seedling on bluff)
California sagebrush	*Artemisia californica*
Douglas' or California mugwort	*Artemisia douglasiana*
coyote brush or chaparral broom	*Baccharis pilularis*
mule fat	*Baccharis salicifolia ssp. salicifolia*
California brickellbush	*Brickellia californica*
calendula	*Calendula officinalis**
Italian thistle	*Carduus pycnocephalus* var. *pycnocephalus**
tocalote/Maltese star thistle	*Centaurea melitensis**
common horseweed	*Erigeron canadensis*
Australian brass-buttons	*Cotula australis**
California encilia	*Encelia californica*
grassland goldenbush	*Ericameria palmeri* var. *pachylepis*
gazania	*Gazania linearis**
western sunflower	*Helianthus annuus*
bristly ox-tongue	*Helminthotheca echioides**
coastal goldenbush	*Isocoma menziesii*
white everlasting	*Pseudognaphalium microcephalum*
Spanish sunflower	*Pulicaria paludosa**
common groundsel	*Senecio vulgaris**
common sow thistle	*Sonchus oleraceus**
common dandelion	*Taraxacum officinale**
earless crown beard	*Verbesina encelioides* ssp. *exauriculata**
spiny clotbur	*Xanthium spinosum*
Borage Family	**Boraginaceae**
common fiddleneck	*Amsinckia intermedia*
rigid fiddleneck	*Amsinckia menziesii*
slender pectocarya	*Pectocarya linearis* ssp. *ferocula*
common phacelia	*Phacelia distans*
Mustard Family	**Brassicaceae**

sahara mustard	*Brassica tournefortii**
shepherd's purse	*Capsella bursa-pastoris**
shortpod mustard	*Hirschfeldia incana**
white water cress	*Nasturtium officinale**
London rocket	*Sisymbrium irio**
Cactus Family	**Cactaceae**
Indian fig	*Opuntia ficus-indica**
Goosefoot Family	**Chenopodiaceae**
Australian saltbush	*Atriplex semibaccata**
Russian thistle	*Salsola tragus**
Morning-Glory Family	**Convolvulaceae**
common morning-glory	*Ipomoea purpurea**
Stonecrop Family	**Crassulaceae**
sand pigmy-stonescrop/pygmy-weed	*Crassula connata*
Gourd Family	**Cucurbitaceae**
chilicothe/wild cucumber	*Marah macrocarpa*
watermelon	*Citrullus lanatus*
Spurge Family	**Euphorbiaceae**
rattlesnake spurge	*Euphorbia albomarginata*
California croton	*Croton californicus*
doveweed / turkey mullein	*Croton setiger*
castor bean	*Ricinus communis**
Legume Family	**Fabaceae**
coastal deerweed	*Acmispon glaber*
arroyo lupine	*Lupinus succulentus*
California burclover	*Medicago polymorpha**
white sweetclover	*Melilotus albus**
Geranium Family	**Geraniaceae**
red-stemmed filaree	*Erodium cicutarium**
Mint Family	**Lamiaceae**
common horehound	*Marrubium vulgare**
Mallow Family	**Malvaceae**
cheeseweed	*Malva parviflora**
Montia Family	**Montiaceae**
red maids	*Calandrinia ciliata*
Figwort Family	**Scrophulariaceae**
prostrate myoporum	*Myoporum parvifolium**
Myrtle Family	**Myrtaceae**
gum	*Eucalyptus* sp.*
Four-O'clock Family	**Nyctaginaceae**
bougainvillea	*Bougainvillea* sp.*
Olive Family	**Oleaceae**
velvet ash/Arizona flowering-ash	*Fraxinus* sp.
Lopseed Family	**Phrymaceae**
seep monkeyflower	*Erythranthe guttata*
Buckwheat Family	**Polygonaceae**
California buckwheat	*Eriogonum fasciculatum*
willow smartweed	*Persicaria lapathifolia*

sheep sorrel	*Rumex acetosella**
willow dock	*Rumex sp. (seedling)*
Rose Family	**Rosaceae**
toyon / christmas berry	*Heteromeles arbutifolia*
California rose	*Rosa californica*
California blackberry	*Rubus ursinus*
Willow Family	**Salicaceae**
Fremont cottonwood	*Populus fremontii* ssp. *fremontii*
red willow	*Salix laevigata*
arroyo willow	*Salix lasiolepis*
Nightshade Family	**Solanaceae**
tree tobacco	*Nicotiana glauca**
white horse-nettle	*Solanum elaeagnifolium**
Tamarisk Family	**Tamaricaceae**
Mediterranean tamarix	*Tamarix ramosissima**
Nettle Family	**Urticaceae**
hoary nettle	*Urtica dioica* ssp. *holosericea*
dwarf nettle	*Urtica urens**
Vervain Family	**Verbenaceae**
lantana	*Lantana* sp.*
Mistletoe Family	**Viscaceae**
big leaf mistletoe	*Phoradendron leucarpum* ssp. *macrophyllum*
Grape Family	**Vitaceae**
desert wild grape	*Vitis girdiana*
Monocots	
Palm Family	**Arecaceae**
Canary Island palm	*Phoenix canariensis**
Mexican fan palm	*Washingtonia robusta**
Sedge Family	**Cyperaceae**
tall umbrella-sedge	*Cyperus eragrostis* (? No inflorescence)
sedge	*Scirpus* sp. (seedling)
Iris Family	**Iridaceae**
fortnight lily	*Dietes* sp.*
Grass Family	**Poaceae**
giant reed	*Arundo donax**
slender wild oat	*Avena* spp.*
ripgut grass	*Bromus* spp.*
bermuda grass	*Cynodon dactylon**
smilo grass / millett ricegrass	*Stipa miliacea* var. *miliacea [Piptatherum miliaceum]**
Cattail Family	**Typhaceae**
broad-leaved cattail	*Typha latifolia*

Non-native species are indicated by an asterisk. Special-status species are indicated by two asterisks. Other species may have been overlooked or inactive/absent because of the season. Plants were identified using keys, descriptions, and illustrations in Baldwin et al (2012) and other regional references. Wildlife taxonomy and nomenclature generally follow Stebbins (2003) for amphibians and reptiles, AOU (1998) for birds, and Wilson and Ruff (1999) for mammals.

Observed Wildlife Species List	
COMMON NAME	**SCIENTIFIC NAME**
VERTEBRATE ANIMALS	
AMPHIBIANS	**AMPHIBIA**
Treefrogs and Allies	**Hylidae**
California treefrog	*Pseudacris cadaverina*
REPTILES	**REPTILIA**
Spiny Lizards, Horned Lizards, etc.	**Phrynosomatidae**
Western fence lizard	*Sceloporus occidentalis*
BIRDS	**AVES**
Cormorants	**Phalacrocoracidae**
double-crested cormorant	*Phalacrocorax auritus*
Herons and Bitterns	**Ardeidae**
great egret	*Ardea alba*
Vultures	**Cathartidae**
turkey vulture	*Cathartes aura*
Geese and Ducks	**Anatidae**
Mallard	*Anas platyrhynchos*
Hawks, Eagles and Kites	**Accipitridae**
white-tailed kite	*Elanus leucurus*
northern harrier	*Circus hudsonius*
Cooper's hawk	*Accipiter cooperii*
red-shouldered hawk	*Buteo lineatus*
red-tailed hawk	*Buteo jamaicensis*
Falcons	**Falconidae**
American kestrel	*Falco sparverius*
Gulls and Terns	**Laridae**
California gull	*Larus californicus*
Pidgeons and Doves	**Columbidae**
mourning dove	*Zenaida macroura*
Cuckoos and Roadrunners	**Cuculidae**
greater roadrunner	*Geococcyx californianus*
Owls	**Strigidae**
great horned owl	*Bubo virginianus*
Hummingbirds	**Trochilidae**
Anna's hummingbird	*Calypte anna*
Woodpeckers	**Picidae**
nuttall's woodpecker	*Dryobates nuttallii*
downy woodpecker	*Dryobates pubescens*
Northern flicker	*Colaptes auratus*
Tyrant Flycatchers	**Tyrannidae**
black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*
Cassin's kingbird	*Tyrannus vociferans*
Vireos	**Vireonidae**
** least Bell's vireo	*Vireo bellii pusillus*
Jays and Crows	**Corvidae**
California scrub-jay	*Aphelocoma californica*

American crow	*Corvus brachyrhynchos*
common raven	*Corvus corax*
Bushtits	**Aegithalidae**
bushtit	*Psaltriparus minimus*
Wrens	**Troglodytidae**
Bewick's wren	*Thryomanes bewickii*
house wren	*Troglodytes aedon*
Kinglets	**Regulidae**
ruby-crowned kinglet	*Regulus calendula*
Bluebirds and Thrushes	**Turdidae**
Western bluebird	*Sialia mexicana*
Wrentits	**Timaliidae**
wrentit	*Chamaea fasciata*
Mockingbirds and Thrashers	**Mimidae**
Northern mockingbird	*Mimus polyglottos*
California thrasher	*Toxostoma redivivum*
Wood Warblers	**Parulidae**
orange-crowned warbler	*Oreothlypis celata*
yellow-rumped warbler	*Setophaga coronata*
common yellowthroat	*Geothlypis trichas*
Towhees and Sparrows	**Emberizidae**
spotted towhee	*Pipilo maculatus*
California towhee	*Melozone crissalis*
song sparrow	*Melospiza melodia*
white-crowned sparrow	*Zonotrichia leucophrys*
golden-crowned sparrow	*Zonotrichia atricapilla*
Blackbirds and Orioles	**Icteridae**
hooded oriole	*Icterus cucullatus*
Finches	**Fringillidae**
house finch	*Haemorhous mexicanus*
lesser goldfinch	*Spinus psaltria*
MAMMALS	**MAMMALIA**
Hares and Rabbits	**Leporidae**
desert cottontail	*Sylvilagus audubonii*
Squirrels	**Sciuridae**
California ground squirrel	*Ostospermophilus beecheyi*
Pocket Gophers	**Geomyidae**
Botta's pocket gopher (burrows)	*Thomomys bottae*
Dogs, Wolves and Foxes	**Canidae**
* domestic dog	*Canis familiaris*
coyote (scat, tracks)	*Canis latrans*
Raccoons	**Procyonidae**
common raccoon (tracks)	*Procyon lotor*
Skunks	**Mephitidae**
striped skunk	*Mephitis mephitis*
Horses	**Equidea**
* domestic horse	*Equus caballus*

Pigs		Suidae
*	feral pig	*Sus scrofa*

Special-status species are indicated by two asterisks. Other species may have been overlooked or inactive/absent because of the season (amphibians are more active during/after rains, reptiles during summer, some birds (and bats) migrate out of the area for summer or winter, some mammals hibernate etc.), or because of the time of the survey (some species are strictly nocturnal). Wildlife taxonomy and nomenclature generally follow Stebbins (2003) for amphibians and reptiles, AOU (1998) for birds, and Wilson and Ruff (1999) for mammals.

Appendix C Special-Status Species Potential to Occur

Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
Abronia villosa var. *aurita*	Chaparral sand verbena	Fed: none Calif: none MSHCP: none CRPR: 1B.1	Perennial herb; sand, mostly alluvial fans and benches below about 5000 ft. elev.; San Jacinto Mtns., Inland Empire, adj. Colorado Des., Orange & San Diego cos.	Feb - Jul	**Moderate.** Habitat present.
Astragalus brauntonii	Braunton's milk vetch	Fed: **END** Calif: none MSHCP none CRPR:1B.1	Subshrub or perennial herb; scattered patches in Ventura, LA, & Orange cos.; foothills below about 2100 ft. elev.; chaparral, often on carbonate soils; often follows fire or soil disturbance	Jan -Aug	**Not Likely to Occur.** No suitable habitat
Atriplex coulteri	Coulter's saltbush	Fed: none Calif: none MSHCP: none CRPR: 1B.2	Perennial herb; coastal dunes, bluffs, alkaline flats; coastal S Calif and Baja Calif, inland to Encinitas area; sea level to about 1500 ft. elev.	Mar - Aug	**Not Likely to Occur.** No suitable habitat
Brodiae filifolia	Thread-leaved brodiae	Fed: **END** Calif: **END** MSHCP: covered CRPR: 1B.1	Bulb; chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay soils; about 80 – 4000 ft. elev.	Mar - Jun	**Not Likely to Occur.** No suitable habitat
Calochortus catalinae	Catalina mariposa lily	Fed: none Calif: none MSHCP: none CRPR: 4.2	Bulb; chaparral, valley grassland, foothill woodland and coastal sage scrub; Ventura to Orange Cos., inland to Riverside and San Bernardino Cos.; about 65-2400 ft. elev.	Feb - Jun	**Not Likely to Occur.** No suitable habitat
Calochortus weedii var. *intermedius*	Weed's mariposa lily	Fed: none Calif: none MSHCP: covered CRPR: 1B.2	Perennial herb; shrublands, grassland, various soils, about 600 - 2800 ft. elev.; coastal southern Calif., inland to western Riverside Co.	May - Jul	**Not Likely to Occur.** No suitable habitat
Calystegia felix	Lucky morning-glory	Fed: none Calif: none MSHCP: none CRPR: 1B.1	Annual rhizomatous herb; historically associated with wetland and marshy places, but also can be found in drier areas; meadows, seeps and riparian scrub.	May - Jul	**Low.** Riparian scrub present, not found during surveys.
Camissonia lewisii	Lewis' evening-primrose	Fed: none Calif: none MSHCP: none	Annual herb found in sandy or clay soils from 0 – 250 feet within coastal bluff scrub,	Mar – May	**Not Likely to Occur.** No suitable habitat;

Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
		CRPR: 3	cismontane woodland, coastal dune, coastal scrub, or valley and foothill grassland.		outside elevation range.
Centromadia pungens ssp. laevis	Smooth tarplant	Fed: none Calif: none MSHCP: covered CRPR: 1B.1	Annual herb; found in alkaline soils at 330 – 2000 feet elev. within chenopod scrub, meadows, seeps, playas, riparian woodlands, valley and foothill grassland.	Apr - Sep	**Moderate.** Habitat present, not found during surveys but previously found near the project.
Convolvulus simulans	Small-flowered morning-glory	Fed: none Calif: none MSHCP: none CRPR: 4.2	Annual herb; clay and serpentine seeps within open chaparral, coastal scrub and valley and foothill grassland at 115 – 2820 feet elev.	Mar - Jul	**Not Likely to Occur.** No suitable habitat.
Deinandra paniculata	Paniculate tarplant	Fed: none Calif: none MSHCP: none CRPR: 4.2	Annual herb; coastal scrub, vernal pools, and grasslands about 50 – 3000 feet elev.	Mar - Dec	**Moderate.** Habitat present, not found during surveys.
Dodecahema leptoceras	Slender-horned spineflower	Fed: **END** Calif: **END** MSHCP: covered CRPR: 1B.1	Annual herb; mature chaparral, cismontane woodland, coastal scrub; about 650 – 2500 feet elev.	Apr - Jun	**Not Likely to Occur.** No suitable habitat.
Dudleya multicaulis	Many-stemmed dudleya	Fed: none Calif: none MSHCP: covered CRPR: 1B.2	Perennial herb; heavy soils or sandstone outcrops; grassland or shrubland below about 2600 ft. elev.; LA to SD Co, inland to San Gabriel Mtn foothills and W Riv Co.	Apr - Jul	**Not Likely to Occur.** No suitable habitat.
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Fed: **END** Calif: **END** MSHCP: covered CRPR: 1B.1	Subhrub; alluvial fans and plains; endemic to Santa Ana River watershed (mainly San Bern. Co. but rarely in Riverside & Orange cos.), below about 2000 ft. elev.	May - Sep	**Moderate.** Habitat present but rare for this area, not found during surveys.
Juglans californica var. *californica*	So. California black walnut	Fed: none Calif: none MSHCP: covered CRPR: 4.2	Tree or large shrub; woodland, coastal sage scrub, chaparral, below about 3000 ft. elev.; Ventura, LA, Orange, San Bernardino cos.	Mar - Aug	**Moderate.** Habitat present, but not found during surveys.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	Fed: none Calif: none MSHCP: none CRPR: 4.3	Ephemeral spring annual; shrublands; sea level to about 2900 ft. elev.; LA Co, most Channel Islands, inland to W Riv & San Bern cos, S to Baja Calif	Jan - Jul	**Low.** Habitat present, but not found during surveys.
Monardella australis ssp. jokerstii	Jokerst's monardella	Fed: none Calif: none MSHCP: none CRPR: 1B.1	Perennial rhizomatous herb; lower montane coniferous forest, meadows and seeps, vernal pools; about 4000 – 5000 ft elev.	Jul - Sep	**Not Likely to Occur.** (no suitable habitat; outside elevation range)

Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
Pseudognaphalium leucocephalum	White rabbit-tobacco	Fed: none Calif: none MSHCP: none CRPR: 2.2	Perennial herb; 100 - 7000 ft. elev.; sandy and gravelly chaparral, cismontane woodland, coastal scrub and riparian woodland	Jul - Dec	**Moderate**. Habitat present but not found during surveys.
Romneya coulteri	Coulter's matilija poppy	Fed: none Calif: none MSHCP: covered CRPR: 4.2	Perennial rhizomatous herb; Chaparral, coastal scrub; often in burns; 30 - 4500 ft. evel.	Mar – Aug	**Not Likely to Occur.** No suitable habitat.
Sidalcea neomexicana	Salt spring checkerbloom	Fed: none Calif: none MSHCP: none CRPR: 2B.2	Perennial her; alkaline or mesic soils in chaparral, coastal scrub, lower montane coniferous forest, mojavean desert scrub or playas at 50 – 3000 ft. evel.	Mar – Jun	**Not Likely to Occur.** No suitable habitat.
Symphyotrichum defoliatum	San Bernardino Aster	Fed: none Calif: none MSHCP: covered CRPR: 1B.2	Perennial rhizomatous herb; near ditches, streams, springs, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows, seeps, marshes, swamps and valley and foothill grassland; 1500 – 5800 ft. evel.	Jul – Dec	**Not Likely to Occur.** Outside of elevation range.
VEGETATION COMMUNITIES					
Southern Sycamore Alder Riparian Woodland		CNDDB	Tall deciduous streamside woodland that is dominated by western sycamore and occasional white alders. Seldom form closed canopies and appear as scattered trees.		**Not present.**
Southern California arroyo chub/Santa Ana sucker stream		CNDDB	Streams ranging in size and flow but containing suitable spawning or sheltering habitat for both or one native fish species found in southern California.		**Present outside of the project footprint.**
Southern Willow Scrub		CNDDB	Consists of dense, broadleaved, winter-deciduous stands of trees dominated by willows, mulefat and scattered emergent cottonwood and sycamore trees. Typically experiencing periodic flooding.		**Present.**

Special Status Plants and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Flower season	Occurrence Potential
California Walnut Woodland		CNDDB	Consists of mainly California walnut trees with a semi open canopy that allows for a grassy understory. Typically occurs in relatively moist areas with fine textured soils near slopes.		**Not present.**

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
INVERTEBRATES				
Bombus crotchii	Crotch bumble bee	Fed: none Calif: **Candidate END** MSHCP: none	Inhabits open grassland and scrub habitats in CA. nesting occurs underground.	**Low.** Habitat quality is less than ideal for this species to occur.
Rhaphiomidas terminatus abdominalis	Delhi sands flower-loving fly	Fed: **END** Calif: none MSHCP: covered	Remnant sandy soils (Delhi series) with sparse native vegetation including buckwheat, telegraph weed, croton; endemic to Colton and surrounding area. Summer	**Not Likely to Occur:** Endemic to the Colton Dunes. Inhabits areas with Delhi soil series. No suitable habitat occurs within the Project area.
FISH				
Catostomus santaanae	Santa Ana sucker	Fed: **THR** Calif: none MSHCP: covered	Major cismontane stream systems in S Calif. incl. Sta Ana Riv., formerly below 3000 ft. elev.; extant populations near Riverside and downstream. Year-round	**Low.** This species is known from portions of the Santa Ana River where suitable habitat occurs above and below the Prado Dam. Species has not been found near the project area for over 10 years. Potentially could be present during times of heavy flows if washed downstream from occupied habitat; however, perennial flows are not present within the project area.
Gila orcutti	Arroyo chub	Fed: none Calif: SSC MSHCP: covered	Slow-flowing sections or backwaters, cismontane stream systems in S Calif. incl. Sta Ana Riv.; extant populations near Riverside and down-stream; introduced populations occur outside historic native range Year-round	**Low.** Known from Corona North USGS quad in isolated sections of the SAR from Riverside and San Bernardino county line downstream to the Prado Dam. Historical record exists from the pool located within Temescal Wash which is over two miles as the crow

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
				flies from the project.
Oncorhynchus mykiss irideus pop. 10	Steelhead	Fed: **END** Calif: SSC MSHCP: covered	Occurs in rivers with good coastal access, and able to tolerate warmer temperatures. Once was found throughout California.	**Not Likely to Occur.** Considered possibly extirpated from the area due to development, channelization and dams.
AMPHIBIANS				
Spea hammondii	Western spadefoot	Fed: none Calif: SSC MSHCP: covered	Breeds in quiet streams, temporary ponds, vernal pools, burrows in sand during dry season; sea level to about 4500 ft. elev.; Central Val to N Baja. October-April	**Moderate.** Ponded water, such as vernal pools or road pools, or slow moving streams are required for breeding. Ponding within the floodplain could provide suitable habitat, sandy areas for shelter are present.
REPTILES				
Aniella stebbinsi	California legless lizard	Fed: none CA: SSC MSHCP: none	Sandy or loose loamy soils under sparse vegetation; soil moisture is essential; prefer soils with high moisture content.	**Moderate.** Although scattered records occur for this subspecies throughout western Riverside County, the project area supports only marginal habitat, at best due to its isolation, frequent flooding and surrounding disturbance; not identified during surveys.
Aspidoscelis hyperythra	Orange-throated whiptail	Fed: none Calif: SSC MSHCP: covered	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats; prefers washes and other sandy areas with patches of brush and rocks; perennial plants necessary to support major food source of termites.	**Low:** Habitat is marginal for this species within the Project area. Known occurrences nearby have been in upland habitat.
Coleonyx variegatus abbotti	San Diego banded gecko	Fed: none Calif: SSC MSHCP: none	Found in rocky outcrops or granitic soils in coastal scrub or chaparral habitats	**Not likely to occur**: The project area does not support suitable habitat.
Crotalus ruber ruber	Red diamond rattlesnake	Fed: none Calif: SSC MSHCP: covered	Coastal sage scrub, chaparral, desert scrub; SW Calif, Baja Calif.; sea level to about 5000 ft. elev.	**Not likely to occur.** The project area is located within the known geographic distribution for this species, but does not contain habitat preferred by this species.
Emys marmorata	Western pond turtle	Fed: none Calif: SSC MSHCP: covered	Perennial ponds, streams; breed & overwinter in adjacent uplands; coastal S and cent. Calif., NW Baja Calif., below about 4800 ft. elev.	**Not likely to occur.** This species was not observed during surveys and the site does not provide deep pools or basking sites.
Phrynosoma blainvillii"	Coast horned lizard	Fed: none CA: SSC MSHCP: covered	Sandy soils, forest, shrubland or grassland; W Calif. from LA Co through Baja Calif., below about 6000 ft. elev.	**Not likely to occur:** This species has been known to occur in a variety of habitats but is known in this region to be near foothills and open

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
				areas, which are lacking within the project area.
BIRDS				
Accipiter cooperii	Cooper's hawk	Fed: none Calif: SSC MSHCP: covered	Nests and hunts in forest & woodland, also forages in open areas; most of US, Central and S America.	**Present:** This species was last observed flying over and foraging in the project area during surveys. Nesting habitat is available within and near the project area; however, no active nests have been found or reported.
Accipiter striatus	Sharp-shinned hawk	Fed: none Calif: SSC MSHCP: covered	Nests in conifer and riparian forests, preferably on north facing slopes near water. Forages in many habitats in winter and migration.	**Moderate:** This species was observed flying over and foraging in the project area during the recent surveys. Breeding habitat does not occur in the project area.
Aechmophorus clarkii	Clark's grebe	Fed: none CA: none MSHCP: none	Forage and nest on large freshwater lakes and marshes and are found on the coast during non-breeding season.	**Not Likely to Occur.** No suitable habitat.
Agelaius tricolor	Tricolored blackbird	Fed: none Calif: **THR** MSHCP: covered	Nests in conifer and riparian forests, preferably on north facing slopes near water. Forages in many habitats in winter and migration.	**Not Likely to Occur.** No suitable habitat.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	Fed: none Calif: SSC MSHCP: covered	Valley foothill-hardwood, hardwood conifer forest, chaparral, valley-foothill riparian forest, coniferous forest, wet meadows	**Not Likely to Occur.** No suitable habitat.
Ammodramus savannarum	Grasshopper sparrow	Fed: none Calif: SSC MSHCP: covered with specific objectives	Dense grasslands on rolling hills, lowland plains; in valleys and on hillsides on lower mountain slopes; favors native grasslands with a mix of grasses, forbs, and scattered shrubs.	**Not Likely to Occur.** No suitable habitat.
Aquila chrysaetos	Golden eagle	Fed: none Calif: FP, CSC MSHCP: covered	Uncommon resident in southern California; nests primarily located in rugged, isolated mountain areas	**Low.** No suitable habitat within project area, the borrow area is closer to Prado wetlands and open space that it more suitable for this species to forage.
Artemisiospiza belli belli	Bell's sage sparrow	Fed: none Calif: SSC MSHCP: covered	Uncommon to fairly common localized breeder in dry chaparral and coastal sage scrub habitats.	**Not Likely to Occur.** No suitable habitat.
Ardea Herodias	Great blue heron	Fed: none Calif: none MSHCP: covered	Rookery sites typically occur in groves of large trees within proximity to aquatic foraging areas of streams, wetlands, and grasslands	**Moderate.** Nesting site habitat does not occur; however, this species may utilize the project area for foraging opportunities.

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
Asio otus	Long-eared owl	Fed: none Calif: SSC MSHCP: none	Dense, riparian and live oak vegetation often adjacent to grasslands or meadows. Forages in grassland, open areas and agriculture fields.	**Not Likely to Occur.** No suitable habitat.
Athene cunicularia)	Burrowing owl	Fed: none Calif: SSC (burrow sites) MSHCP: covered (addl. survey)	Open, dry perennial or annual grasslands, deserts, and scrublands characterized by low-growing vegetation; subterranean nester, dependent upon burrowing mammals, particularly California ground squirrels	**Present.** Permanent resident is known within 300 feet of borrow area, staging area contains rubble and old concrete opening that could be used for shelter.
Botaurus lentiginosus	American bittern	Fed: none Calif: SA MSHCP: covered	Found almost exclusively in emergent habitat of freshwater marshes and vegetated borders of ponds and lakes	**Not Likely to Occur**. No suitable habitat.
Buteo swainsoni	Swainson's hawk	Fed: none Calif: **THR** MSHCP: covered	Breeds in interior valleys and high desert with scattered large trees or riparian woodland corridors surrounded by open fields, desert scrub or agriculture.	**Low:** Although this species was formerly common in southern California, it no longer breeds in the region; this species has been reported from the Prado Basin, where it likely occurs during spring migrations.
Carduelis lawrencei	*Lawrence's goldfinch*	Fed: none Calif: none MSHCP: covered	Nests in open oak or other arid woodland and chaparral near water; nearby herbaceous habitats used for foraging; closely associated with oaks	**Low.** Although streamside this species is associated with the presence of oaks which are not present in or near the project area.
Cathartes aura	Turkey vulture	Fed: none Calif: none MSHCP: covered	Throughout US and Cent. America; forages widely over many habitats; roosts communally in open trees; nests on cliffs or steep mountainsides in sheltered shrubby or rocky sites.	**Present:** Common in the region; the project area does not support suitable nesting habitat; however, this species is known to fly through and forage in the project area.
Campylorhynchus brunneicapillus sandiegensis	Cactus wren	Fed: none Calif: SSC MSHCP: covered	Species require tall opuntia cactus for nesting and roosting.	**Not Likely to Occur**. No suitable habitat.
Circus cyaneus	Northern harrier	Fed: none Calif: SSC (nesting only) MSHCP: covered	Prefer open country, grasslands, steppes, wetlands, meadows, agriculture fields; roost and nest on ground in shrubby vegetation often at edge of marshes	**Present.** Species was observed during surveys, it has been recently recorded in project area; this species does not nest in the project area but may utilize the area for foraging.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	Fed: **THR** Calif: **END** MSHCP: covered	Strongly associated with large complex riparian woodlands.	**Low.** This species was not detected during surveys of the proposed project area, it has been previously

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
				recorded in the Prado Basin in 2011; this species is not expected to use the project area as it is not as continuous as the species prefers.
Coturnicops noveboracensis	Yellow rail	Fed: none Calif: SSC MSHCP: none	Prefer open country, grasslands, steppes, wetlands, meadows, agriculture fields; roost and nest on ground in shrubby vegetation often at edge of marshes	**Not Likely to Occur**. No suitable habitat.
Elanus leucurus	White-tailed kite	Fed: none Calif: FP MSHCP: covered	Typically nests at lower elevations in riparian trees, including oaks, willows, and cottonwoods; forages over open country	**Present.** This species was observed during surveys; breeding habitat is present as well as foraging habitat at both the project site and borrow area.
Empidonax traillii extimus	Southwestern willow flycatcher	Fed: **END** Calif: **END** (nesting) MSHCP: covered	Riparian obligate. Breeds in willow riparian forests & shrublands at scattered locations in SW US and N Baja; winters in Cent. Amer.; threatened by habitat loss and cowbird parasitism.	**Low.** Known from three surrounding USGS quads. Successful nesting was documented in the Prado Basin from 1988 to 2007; not detected in the project area during previous annual surveys.
Icteria virens	Yellow-breasted chat	Fed: none Calif: SSC (nesting) MSHCP: covered	Summer resident; inhabits riparian thickets of willow and other brushy tangles near water courses; nests in low, dense riparian vegetation; nests and forages within 10 feet of ground	**High.** Although not observed within the project area this species is known to occur in and near riparian habitat; project area supports suitable nesting habitat.
Falco columbaris	Merlin	Fed: none Calif: SSC (wintering) MSHCP: covered	Seacoasts, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches; require clumps of trees or windbreaks for roosting in open country.	**Not Likely to Occur.** No suitable habitat.
Falco mexicanus	Prairie falcon	Fed: none Calif: SSC (nesting) MSHCP: covered	Rare in southern California; nests along cliff faces or rocky outcrops; forages over open spaces, agricultural fields	**Not Likely to Occur.** No suitable habitat.
Falco peregrines	American peregrine falcon	Fed: none Calif: FP MSHCP: covered	Prefers coastal estuaries and other wetlands; occurs in S. California as a rare migrant	**Not Likely to Occur.** No suitable habitat.
Haliaeetus leucocephalus	Bald eagle	Fed: none Calif: FP MSHCP: covered	Breed in large trees, usually near major rivers or lakes; winters more widely; wide but scattered distribution in N America; esp. coastal regions. Winter	**Not Likely to Occur.** No suitable habitat.
Laterallus jamaicensis coturniculus	California black rail	Fed: none	In California this species is found in wet meadows and	**Not Likely to Occur.** No suitable habitat

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
		Calif: THR MSHCP: none	marshes with shallow water with bulrush, American glasswort and alkali seaheath.	
Melospiza lincolnii	Lincoln's sparrow	Fed: none Calif: none MSHCP: specific obj (breeding)	Breeds in montane wetlands, meadows, and riparian scrub; fairly common and widespread in winter at lower elev. winter	**Moderate:** Known from the surrounding riparian forests. Suitable habitat exists within the project area. May be an uncommon winter visitor.
Pandion haliaetus	Osprey	Fed: none Calif: SSC MSHCP: covered	Breeds in variety of habitats with shallow water and large fish, including boreal forest ponds, desert salt-flat lagoons, temperate lakes, and tropical coasts. Winters along large bodies of water containing fish.	**Not Likely to Occur.** May fly over the project area, although foraging opportunities are extremely limited. No suitable nesting habitat exists within the project area.
Phalacrocorax auritus	Double-crested cormorant	Fed: none Calif: SSC MSHCP: covered	Require lakes, rivers, reservoirs, estuaries, or ocean for foraging; nests in tall trees, wide rock ledges on cliffs, or rugged slopes near aquatic environments	**Present.** Observed during surveys as a fly over; the project area does not support suitable nesting or foraging habitat.
Picoides pubescens	Downy woodpecker	Fed: none Calif: none MSHCP: covered	Forests and woodlands, esp. riparian areas in So. Calif; also wooded suburbs and parks; builds nests in dead trees. year-around	**Present.** This species was observed within the project area. Suitable breeding habitat occurs in the project area.
Polioptila californica californica	Coastal California gnatcatcher	Fed: **THR** Calif: SSC MSHCP: covered	Obligate, permanent resident of coastal sage scrub below 2500 ft in southern California; low scrub in arid washes, on mesas and slopes	**Low:** This species was not observed during surveys, only small patches of disturbed coastal sage scrub occur within the project site, but some scrub habitat is present that could be used for foraging. Not observed during ongoing surveys.
Pyrocephalus rubinus	Vermillion flycatcher	Fed: none Calif: SSC MSHCP: none	Scrub, desert, cultivated lands and riparian woodlands.	**Moderate.** Although not observed within the project area this species is known to occur in the Prado Basin. Suitable habitat occurs in the project area.
Setophaga petechia	Yellow warbler	Fed: none Calif: SSC (nesting) MSHCP: covered	Riparian plant associations; prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging	**High.** Species was not detected in the project area. The project area supports suitable foraging and nesting habitat.
Vireo bellii pusillus	Least Bell's vireo	Fed: **END** Calif: **END** MSHCP: covered	Summer resident of southern California in low riparian habitats in vicinity of water or dry river bottoms; found below 2000 ft; nests placed along margins of bushes or on twigs projecting into pathways, usually willow, mesquite,	**Present.** This species has been documented breeding in and adjacent to the project area (SAWA, 2019).

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
			baccharis	
MAMMALS				
Canis latrans	Coyote	Fed: none Calif: none MSHCP: covered	Opportunistic predators; many habitats throughout US, Mexico & S Canada, where cover & prey available.	**Present.** Coyotes are regularly observed on the project site; project area is located in the vicinity of known movement corridors.
Dipodomys stephensi	Stephens kangaroo rat	Fed: **END** Calif: **THR** MSHCP: covered	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover; prefers buckwheat, chamise, brome grass, and filaree; will burrow into firm soil	**Not Likely to Occur.** This species is only likely to occur in transience. There has been no recent recorded evidence (i.e. inter-related burrows, runways, sufficient open forb-rich habitat) in the project area.
Eumops perotis californicus	Western mastiff bat	Fed: none Calif: SSC MSHCP: none	Prefers deciduous and coniferous woodlands; primarily roosts in tree foliage	**High.** This subspecies was identified in the nearby the Project. Suitable habitat occurs nearby and foraging habitat is within the project areas.
Lasiurus xanthinus	Western yellow bat	Fed: none Calif: SSC MSHCP: none	Prefers riparian woodland habitat, particularly where palm trees are found.	**High.** There is suitable foraging and roosting habitat within the project area.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Fed: none Calif: SSC MSHCP: covered	Intermediate canopy stages of shrub habitats and shrub, tree, herbaceous edges; primarily coastal sage scrub habitats	**Moderate.** This subspecies is known from the Prado Basin; project area supports suitable habitat.
Lynx rufus	Bobcat	Fed: none Calif: none MSHCP: covered	Opportunistic predators; many habitats throughout US, Mexico & S Canada, where cover & prey available.	**High:** Species is relatively common within riparian corridors, but rarely observed
Mustela frenata	Long-tailed weasel	Fed: none Calif: none MSHCP: covered	Generalist predator, mainly on small mammals; many habitats, US, Mexico, S Canada (excl. deserts).	**High:** Species is relatively common within riparian corridors, but rarely observed.
Felis concolor	Mountain lion	Fed: none Calif: none MSHCP: covered	Large areas where prey (mainly deer) is available; throughout W N Amer; vulnerable to habitat fragmentation.	**Moderate:** Known from the nearby Prado Basin and Chino Hills State Park. Cover is sparse for this species in the project area but species likely uses the project area as a movement corridor and possibly even for foraging.
Neotoma lepida intermedia	San Diego desert woodrat	Fed: none Calif: SSC MSHCP: covered	Arid shrublands, esp. around rocky outctops & crevices; cismontane Calif from San Luis Obispo to San Diego Co, and NW Baja Calif. Year-around	**Not Likely to Occur.** No suitable habitat.

Special Status Wildlife and their Probability to Occur Within the Project Area

Scientific Name	Common Name	Conservation Status	Habitat and Distribution	Occurrence Probability in Project Area
Nyctinomops femorosaccus	*Pocketed free-tailed bat*	Fed: none Calif: SSC MSHCP: none	Variety of arid areas in southern California, including pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian; rocky areas with high cliffs	**Moderate.** This is a more rare species in CA, but suitable roosting is found in a nearby bridge and foraging habitat is present within the project area.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	Fed: none Calif: SSC MSHCP: covered	Open shrublands, grasslands; often sandy alluvial benches; S Calif. valleys, LA, SW San Bernardino and W Riverside Cos.	**Low.** No records exist for the area but suitable occurs within the project area.
Sylvilagus bachmani	Brush rabbit	Fed: none Calif: none MSHCP: covered	Dense shrublands (as cover); largely feeds on grasses; West coast (W Washington through Baja Calif.). Year-around	**Low:** Although this species was observed in the city of Chino, the project area supports only marginal habitat.

Appendix D Jurisdictional Delineation

PRELIMINARY JURISDICTIONAL WATERS AND WETLANDS DELINEATION REPORT FOR THE NORCO BLUFFS PROJECT

Prepared for:

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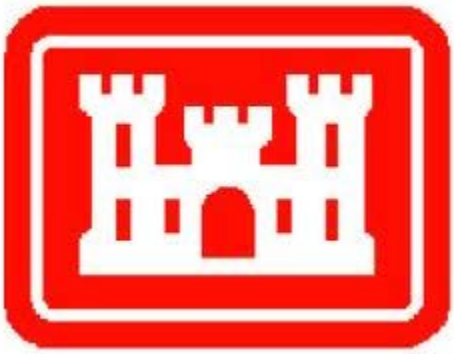

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December 2018

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Preliminary Jurisdictional Waters and Wetlands Delineation Report

Norco Bluffs Project
Riverside County, California

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional determination and delineation for the above-referenced project.

Margaret Schaap
Biologist and Regulatory Permitting Specialist
Aspen Environmental Group

December 2018

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1.0 Introduction

This report presents the findings of an investigation of jurisdictional features conducted by Aspen Environmental Group (Aspen) for the Norco Bluffs Project (Project) on November 27, 2018. The Project area is located adjacent to the Santa Ana River in Norco, Riverside County, California (Figure 1; note that all figures are included within Attachment 1). The Project Area is located west of Interstate 15 (I-15) and north of Norco Drive. The limits of the Project area were provided to Aspen by the U.S. Army Corps of Engineers (USACE). The proposed Project activities include geotechnical investigations in the Project area to finalize Project design.

1.1 Lead Agency Name and Address

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915 Wilshire Blvd.
Los Angeles, CA 90017

1.2 Contact Person and Phone Number

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2.0 Project Location and Description

The Project is being designed to protect an existing development along the south side of the Santa Ana River. The development is situated along the bluffs within the city of Norco, approximately 5 miles upstream of Prado Dam.

The Project is a component of the Santa Ana River Mainstem Project (SARMP). The SARMP is a multi-agency flood control project that include Seven Oaks Dam, Prado Dam, and various other components along the Santa Ana River. In addition to the USACE, the local sponsors for the SARMP include Orange County Public Works, Riverside County Flood Control and Water Conservation District, and the San Bernardino County Department of Public Works.

This report was prepared to support permitting of geotechnical studies within the Project area. The geotechnical studies will start near the Hamner Avenue bridge and extends approximately 10,400 feet (2 miles) downstream. The Project Area extended 500 feet from the centerline of the anticipated geotechnical studies into Santa Ana River floodplain (northwest), and 200 feet on the upland (southeast) side. Portions of the Project Area have been subject to giant reed (*Arundo donax*) removal and is regularly used as equestrian trails.

2.1 Topography and Surrounding Land Uses

The Project area is located in the middle of USGS Corona North 7.5-minute quadrangle (USGS, 1967). Elevations within the Project area range from approximately 540 to 640 feet above mean sea level (MSL). The topography of the Project Area is distinguished by a well-defined bluff that supports a number of houses and development approximately 60 feet above the Santa Ana River floodplain. Within the

floodplain and on the bluffs are relatively flat. The bluffs are notched with a series channels conveying runoff into the Santa Ana River.

Both sides of the Santa Ana River floodplain in the vicinity of the Project are flanked with housing developments, and parks. Portions of the Project Area have been subject to vegetation management activities with the removal and treatment of giant reed. The floodplain and the edge of the bluff on the south side of the river are regularly used as equestrian trails. The Project Area is located just upstream of the Prado Basin to the east. Three bridges cross the Santa Ana River in close proximity to the Project Area; Hamner Avenue and Interstate 15 on the upstream end, and River Road on the downstream end.

2.2 Vegetation

Habitat within the Project area includes eight cover types. These include Arundo management area, developed or disturbed, native riparian, non-native riparian, non-native upland, non-native woodland, wash, and open water (Attachment 1, Figure 3). These vegetation and cover types generally match names used in previous environmental documents or the SARMP.

Arundo management area. This cover type is found in patches within the Project area. These areas have been subject to significant disturbance to remove and treat this invasive species. Few plants remain following treatment and include native tree and shrub species.

Developed or Disturbed. There are numerous developed areas in the Project area including roads, parking lots, residential areas, and adjacent cleared lands. These areas are typically devoid of vegetation or support scattered ornamental species or low densities of weeds.

Native Riparian. This cover type is used to describe a number of vegetation communities within the Santa Ana River floodplain that are dominated by native riparian species. These species include mulefat (*Baccharis salicifolia*), willow species (*Salix sp.*), coyote bush (*Baccharis pilularis*), bur marigold (*Bidens laevis*), watercress (*Nasturtium officinale*), and cattails (*Typha sp.*). This cover type also included a number of non-native species including Arundo, date palms (*Phoenix* sp.) and mustards (*Hirschfeldia sp.*)

Non-native Riparian. This cover type is used to describe vegetation communities that are dominated by non-native riparian species within the Santa Ana River floodplain. These species include Arundo, sweet clover (*Melilotus albus*), and tree tobacco (*Nicotiana glauca*).

Non-native Upland. This cover type is used to describe vegetation communities that are dominated by non-native upland species. Mapped predominantly on the steep slopes between the flood plain and housing developments, species commonly observed include mustards, tree tobacco, horseweed (*Erigeron bonariensis*), sow thistle (*Sonchus sp.*), brome (*Bromus sp.*), Russian thistle (*Salsola sp.*), and various ornamental species.

Water. The main channel/perennial portion of the Santa Ana River has been mapped as water. Emergent vegetation was observed in shallow or slow moving open water and along the edges of the main flow channel.

Wash. This cover type is found in dry stream channels that have recently been scoured by floods or high flows. This cover type typically supports low densities of plant cover; however, in the absence of scouring flows or inundation these areas may develop more complex vegetation communities.

2.3 Climate

The climate in the Project vicinity consists of warm, dry summers and mild, wet winters. The average annual high temperature is about 80°F and the average annual low is about 50°F (U.S. climate data 2018). Roughly 80 percent of the rain falls from November through March. The mean seasonal precipitation for the Project vicinity is approximately 12 inches (U.S. climate data 2018). Storms that have the potential to produce significant amounts of precipitation and flooding are extra-tropical cyclones of North Pacific origin, which normally occur from December through March. These storms often last for several days and can produce widespread precipitation. In addition to the extra-tropical cyclones, the area of the Project may receive thunderstorms, which can occur at any time of the year. Thunderstorms cover comparatively small areas, but result in high-intensity precipitation, usually lasting for less than three hours. On a smaller watershed, thunderstorms can produce flash flooding.

2.4 Hydrology and Geomorphology

The Project area occurs within the floodplain of the Santa Ana River. Surface water was present in the mainstream channel at the time of the survey. The Project Area is located within the Santa Ana River Watershed. It is also located in the Santa Ana River hydrologic unit, a hydrological boundary of the South Coast Hydrologic Region as designated by the California Regional Water Quality Control Board (MWD 2007). The Santa Ana River watershed covers over 2,650 square miles of wildly varying terrain, and includes parts of San Bernardino, Riverside, and Orange Counties. The mainstem of the river extends for over 100 miles, and has over 50 contributing tributaries, making the Santa Ana River the largest stream system in southern California. The headwaters for the river and its tributaries originate in the San Gabriel and San Bernardino Mountains in the north, and the San Gorgonio and San Jacinto Mountains in the east.

2.5 Geology

The upper portion of the Santa Ana River, in which the Project Area is located, is comprised of alluvial deposits that have eroded from the surrounding mountain ranges. These deposits vary in depth from less than 200 feet to over 1,000 feet. The Santa Ana River watershed is located within a geologically active area. The watershed sits on a number of faults including the San Andreas and San Jacinto Faults in the upper watershed. The Elsinore-Whittier Fault passes under the Prado Dam, and the Newport-Inglewood Fault occurs within the Los Angeles Area. Groundwater in the watershed is highly controlled by the configuration of bedrock and by the extensive faulting. The variable depth to bedrock and the presence of faults can cause pressure zones where water flows to the ground surface.

The Project Area is located at the southern end of an extensive alluvial fan that has resulted from thousands of years of fluvial sediment deposition from the Cajon Creek, Lytle Creek, and the Santa Ana River Washes. Soils in the Project Area are loams, sand, and gravel derived from alluvial fans originating in the San Gabriel and San Bernardino Mountains to the north. Historic soil data from the National Resource Conservation Society (NRCS) were reviewed to determine that hydric soils were not historically present in the Project Area (2018a); however, small patches of hydric soils may be found within non-hydric polygons based on NRCS minimum mapping units. The Project Area is mapped as Tujunga gravelly loamy sand, 0 to 9 percent slopes as shown in Attachment 3.

Tujunga gravelly loamy sand, 0 to 9 percent slope is a somewhat excessively drained soil that is found on alluvial fans and is derived from granite. It is found in areas with 0 to 9% slope and from elevations of about 10 to 1,500 feet. Water table depth is typically more than 80 inches and these areas are rarely flooded. The substrate is composed of gravelly loamy sand (0-36”), gravelly sand, gravelly loamy sand (36-60”).

2.6 Soils

Table 2-1 Soil Units Occurring in the Project Area

Map Unit Symbol/No.	Map Unit Name	Description	Area (Acres)	Percent Total
DmA	Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes	A poorly-drained soil that occurs on flood plains between 10-20 feet in elevation; parent material consists of alluvium derived from granite; loamy sand (0-8"), sand (8-36"), gravelly coarse sand (36-60").	31.88	23.9
DrA	Dello loamy sand, poorly drained, 0 to 2 percent slopes	A moderately well-drained soil that occurs on flood plains between 10-20 feet in elevation; parent material consists of alluvium derived from granite; loamy fine sand (0-8"), sand (8-36"), gravelly coarse sand (36-60").	43.74	11.6
GoB	Grangeville loamy fine sand, drained, 0 to 5 percent slopes	A poorly-drained soil that occurs on alluvial fans between +00 and 1800 feet in elevation; parent material consists of alluvium derived from granite; loamy fine sand (0-17"), sandy loam (17-60").	26.75	9.4
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	A well-drained soil that occurs on alluvial fans and terraces between 100 to 3500 feet in elevation; rarely flooded; parent material consists of alluvium derived from granite; sandy loam (0-26"), fine sandy loam (26-43"), loam (43-60"), stratified loamy sand to sandy loam (60-72").	15.15	10.9
GyD2	Greenfield sandy loam, 8 to 15 percent slopes, eroded	A well-drained soil that occurs on alluvial fans and terraces between 100 to 3500 feet in elevation; rarely flooded; parent material consists of alluvium derived from granite; sandy loam (0-26"), fine sandy loam (26-43"), loam (43-60").	0.57	2.2
PlB	Placentia fine sandy loam, 0 to 5 percent slopes	A moderately well-drained soil that occurs on alluvial fans and terraces between 50 to 2500 feet in elevation; parent material consists of alluvium derived from granite; fine sandy loam (0-18"), clay (18-39"), clay loam (39-57"), and gravelly sandy loam (57-60").	6.06	8.3
PlD	Placentia fine sandy loam, 5 to 15 percent slopes	A moderately well-drained soil that occurs on alluvial fans and terraces between 50 to 2500 feet in elevation; parent material consists of alluvium derived from granite; fine sandy loam (0-18"), clay (18-39"), clay loam (39-57"), and gravelly sandy loam (57-60").	2.34	0.8
TeG	Terrace escarpments	Occurs on terraces; parent material consists of alluvium derived from mixed sources.	35.96	15.0
TvC	Tujunga loamy sand, channeled, 0 to 8 percent slopes	A excessively-drained soil that occurs on alluvial fans and flood plains between 10 to 2900 feet in elevation; parent material consists of sandy alluvium derived from granite; loamy sand (0-10"), loamy sand (10-60").	18.73	9.6
W	Water		19.14	8.4
		Total	**200.32**	**100**

3.0 Regulatory Background

Jurisdictional waters, including some wetlands and riparian habitats, may be are regulated by the U.S. Army Corps of Engineers (USACE), the Santa Ana Regional Water Quality Control Board (SARWQCB), and the California Department of Fish and Wildlife (CDFW; formerly California Department of Fish and Game). The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA); the CDFW regulates activities under the Fish and Game Code Section 1600-1607; and the SARWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act. Refer to Attachment 6 for additional details on regulatory authorities and background.

4.0 Waters and Wetlands Delineation Methodology

The assessment of jurisdictional wetlands, other waters of the United States (waters of the U.S.), waters of the State, and riparian habitat was conducted by Aspen biologists Margaret Schaap and Erik Waardenburg on November 27, 2018. Prior to conducting the field assessment Ms. Schaap reviewed current and historic aerial photographs, the San Bernardino County Soil Survey (Natural Resource Conservation Service [NRCS], 2018a), and the local and state hydric soil list (NRCS 2018b) to evaluate the potential active channels and wetland features in the Project Area.

A series of transect locations were determined prior to conducting fieldwork, based on methods in the USACE Wetland Delineation Manual (1987). Transects were numbered 1 -6 starting from the downstream end of the Project Area. Each transect was walked perpendicular to the channel and locations were each transect intersected with a state or federally Jurisdictional water a GPS point was collected.

During the field assessment, vegetation, hydrology, and locations of sample locations were mapped using a BadElf GPS unit and identified on aerial photographs (Figures 4a through 4c). Field maps were digitized using Global Information System (GIS) and total state and federal jurisdictional areas were calculated.

4.1 Federal Wetlands

Jurisdictional wetlands were delineated using a routine determination according to the methods outlined in the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008) based on three wetland parameters: dominant hydrophytic vegetation, wetland hydrology, and hydric soils. The three parameters were evaluated at a series of sample points throughout the Project Area. The locations of these sample points were selected at locations judged most likely and least likely to meet wetlands criteria. Soil pits were excavated at these locations to evaluate the presence of hydric soils (Figures 4a through 4c).

Hydrophytic Vegetation

At each sample location, the aerial cover of all plant species in each vegetation type was visually estimated. Plant species in each stratum (tree, sapling and shrub, herb, and woody vine) were ranked according to their canopy dominance (USACE 2008). Species that contributed to a cumulative coverage total of at least 50 percent and any species that comprised at least 20 percent of the total coverage for each stratum were recorded on the Field Data Sheets (50/20 Rule). Wetland indicator status was assigned to each dominant species using the Region 0 List of Plant Species that Occur in Wetlands and Summary of Wetland Indicator Status (Reed 1988), the California subregion of the National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary (USFWS 1997), and the Arid West Region of The National Wetland Plant List (USACE 2012). If greater than 50 percent of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation was met (refer to Table 3 of Attachment 5).

Wetland Hydrology

At each sample location, the presence or absence of wetland hydrology was evaluated by observing indicators of hydrology (USACE 2008). These indicators are divided into two categories (primary and secondary indicators). Presence of one primary indicator is evidence of wetland hydrology. Presence of two or more secondary indicators can also be evidence of wetland hydrology. The Arid West Supplement includes two additional indicator groups that can be utilized during dry conditions or in areas where surface water and saturated soils are not present including Group B (evidence of recent inundation) and

Group C (evidence of recent soil saturation) (USACE 2008). For additional information regarding wetland hydrology indicators refer to Tables 4 and 5 in Attachment 5.

Hydric Soils

Soil pits were excavated at each sample location using a shovel. Whenever possible they were excavated to a depth of 20 inches (USACE 2008). At each soil pit, the soil texture and color were recorded by comparison with a Munsell soil color chart (2000). Any other indicators of hydric soils, such as redoximorphic features, hydrogen sulfide odor, buried organic matter, organic streaking, reduced soil conditions, gleyed or low-chroma soils were also recorded (refer to Tables 6 and 7 of Attachment 5).

4.2 Federal Non-Wetland Waters

Jurisdictional non-wetland waters of the U.S. were delineated based on the limits of the ordinary high-water mark (OHWM) as determined by physical and biological features such as bank erosion, deposited vegetation or debris, and vegetation characteristics. See Tables 1 and 2 in Attachment 5 (Potential Geomorphic and Vegetative Indicators of Ordinary High-Water Marks for the Arid West) for a list of key physical features for determining the OHWM identified by the arid west manual.

4.3 CDFW Jurisdictional Waters

CDFW jurisdiction was delineated to the top of the banks of the channel/Reservoir and/or to the edge of the riparian canopy/riparian habitat. For most of the Project Area, the riparian canopy/riparian habitat extends beyond the OHWM. Therefore, the total acreage of CDFW jurisdictional waters is greater than the combined acreage of federal jurisdictional waters/wetlands.

5.0 Results

Three types of jurisdictional features were documented within the Project Area: USACE jurisdictional non-wetland waters of the U.S, USACE jurisdictional wetlands, and CDFW jurisdictional waters of the State (refer to Figures 4a through 4c). Table 4-1 and Figures 4a through 4c show locations and acreages of jurisdictional features in the Project Area. Attachment 4 contains the Wetland Determination Data Forms completed during the assessment.

Table 5-1: Acreage of Jurisdictional Waters, Wetlands, and CDFW Habitat

	USACE Jurisdictional Waters of The U.S. (Acres)		CDFW State Jurisdictional Waters (Acres)
	Non-wetland waters of U.S.	Wetlands	
Project Area	37.38	4.11	154.27

(a) Non-wetland waters of the United States and non-wetland waters of the State overlap; as such, jurisdictional acreages are not additive.
(b) Wetlands fall under the jurisdiction of the USACE, SARWQCB, and CDFW; as such, wetland acreages are not additive.

Table 5-2: Temporary Impacts from Geotechnical Investigations to Jurisdictional Waters, Wetlands, and CDFW Habitat

	USACE Jurisdictional Waters of The U.S. (Acres)		
	Non-wetland waters of U.S.	Wetlands	State Jurisdictional Waters (Acres)
Geotechnical Investigation Temporary Impact Area	0.20	0.09	0.88
Total	0.29		0.88

5.1 Federal Wetlands

Based on this assessment of hydrology, vegetation, and soils, and Aspen's professional opinion, approximately 4.11 acres of the Project Area satisfies the federal criteria as wetlands (USACE 1987 and USACE 2008). These areas are shown on Figures 4. Additional information for each location can be found on the field data sheets (Attachment 4). It is anticipated that 0.09 acres of Federal wetlands will be temporarily impacted by the geotechnical investigations.

Vegetation

Pockets of habitat with a dominance of hydrophytic vegetation are generally present within the areas immediately adjacent to the main channel of the Santa Ana River, or within areas that showed evidence of seasonal flow, such as secondary channels. When a dominance of hydrophytic vegetation is observed it is generally short lived and wholly dependent on the rate of fluctuation of the water level in the floodplain. Most species observed were FACW or FAC. Additional information on the vegetation observed for each location can be found on the field data sheets (Attachment 4).

Wetland Hydrology

Surface water was present within the Project Area during the survey. Drift deposits, water stained leaves, saturation, and inundation were present at several of the location. Additional information on the hydrology observed for each location can be found on the field data sheets (Attachment 4).

Hydric Soils

Soil pits in the Project Area exposed a reduced matrix and strong smell of hydrogen sulfide, which are both indicators of hydric soils. At least one of these indicators were detected at sample locations T6P1, T4P1, T1P1, and T1P2 (Figures 4). The soil pits on transects 4 and 6 were in close proximity to ponded water that appears to be present year-around. Redox features were present at the two pits on transect 1. Additional information on the soils observed for each location can be found on the field data sheets (Attachment 4)

5.2 Federal Non-Wetland Waters

Based on this assessment of OHWMs and Aspen's professional opinion, 37.38 acres of the Project Area meet the definition of waters of the U.S. as outlined in 33 CFR Part 328 (Figure 5). The limits of the OHWM were determined using biological features such as bank erosion, deposited vegetation or debris, and vegetation and soils characteristics noted during the field surveys. Some of the key hydrology indicators

noted during the delineation included the following. See Tables 1 and 2 in Attachment 5 for additional information.

- A1 – Surface Water
- A2 – High Water Table
- A3 – Saturation
- B2 – Active floodplain
- B3 – Drift Deposits
- B13 – Drift (organic debris, larger than twigs)
- C1 – Hydrogen Sulfide Odor

Federal non-wetland waters of the U.S. included part of the channel bottom within the Project Area and extended up the side slopes to approximately 5 feet or less depending on the location of drift deposits on and the vegetation and side slopes (i.e., the OHWM). A review of historic aerial photography (1995 – 2014) confirms the location and extent of Federal non-wetland waters of the U.S. identified during our site visit. It is anticipated that 0.20 acres of Federal non-wetland waters of the U.S. will be impacted by the geotechnical investigation.

5.3 CDFW Waters

Based on this assessment and Aspen's professional opinion, approximately 154.27 acres of the Project Area meet the definition of CDFW jurisdictional waters of the State as outlined in Sections 1600-1616 of the California Fish and Game Code (Figure 5). This conclusion is primarily based on the presence of bed and bank and extent of riparian vegetation which included riparian, woodland, wash and water cover types. Native and non-native riparian cover types are dominated by willow species, Arundo, and mulefat. It is anticipated that 0.88 acres of CDFW jurisdictional waters will be temporarily impacted as a result of geotechnical investigations.

6.0 Summary and Conclusions

The Project area includes jurisdictional waters of the State and waters of the U.S. including federally jurisdictional wetlands and USACE non-wetland waters as follows:

- 4.11 acres of federally jurisdictional wetland were mapped in areas that support hydrophytic vegetation, show evidence of wetland hydrology, and contain hydric soils. Temporarily impacted by geotechnical investigations may impact up to 0.09 acres of federally jurisdictional wetlands.
- 37.38 acres of jurisdictional non-wetland waters of the United States where mapped in areas that did not meet the hydrophytic vegetation or hydric soils criteria for wetlands but where evidence of hydrology or a discernible OHWM was visible. Temporarily impacted by geotechnical investigations may impact up to 0.20 acres of jurisdictional non-wetland waters of the United States.
- 154.72 acres of CDFW jurisdictional waters were mapped based on riparian vegetation, bed and bank delineation, and field observations. Temporarily impacted by geotechnical investigations may impact up to 0.88 acres of CDFW jurisdictional waters and habitats.

The conclusions presented above represent Aspen's professional opinion based on their knowledge and experience with the USACE and CDFW, including their regulatory guidance documents and manuals. However, the USACE and CDFW have final authority in determining the status and presence of jurisdictional wetlands and waters and the extent of their boundaries.

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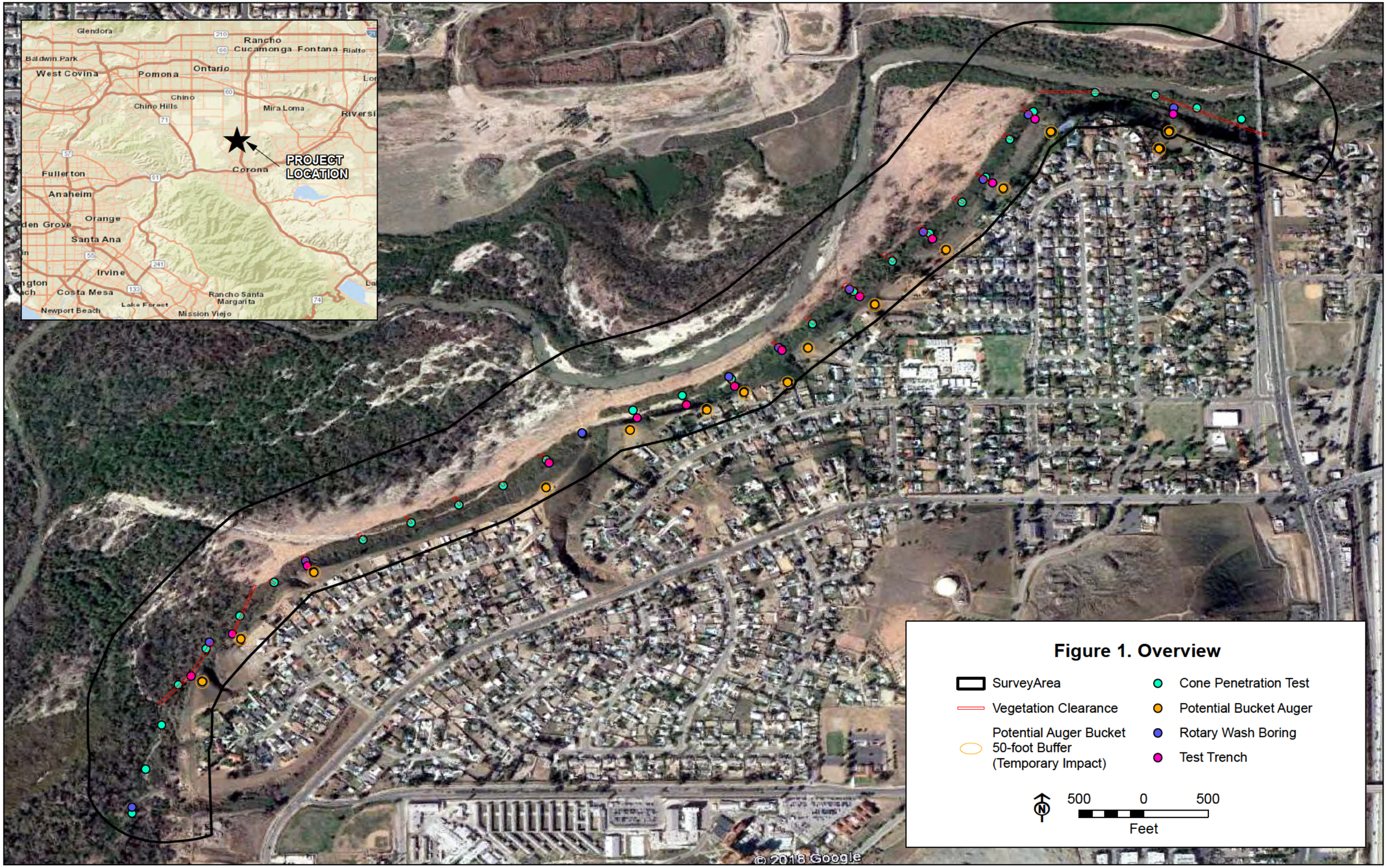
Glendora
Baldwin Park
West Covina
Pomona
Ontario
Rancho Cucamonga
Fontana
Rialto
Chino
Chino Hills
Mira Loma
Riversi
PROJECT LOCATION
Corona
Fullerton
Anaheim
Orange
Santa Ana
Irvine
Costa Mesa
Newport Beach
Lake Forest
Rancho Santa Margarita
Mission Viejo
Figure 1. Overview
SurveyArea
Vegetation Clearance
Potential Auger Bucket 50-foot Buffer (Temporary Impact)
Cone Penetration Test
Potential Bucket Auger
Rotary Wash Boring
Test Trench
500
0
500
Feet
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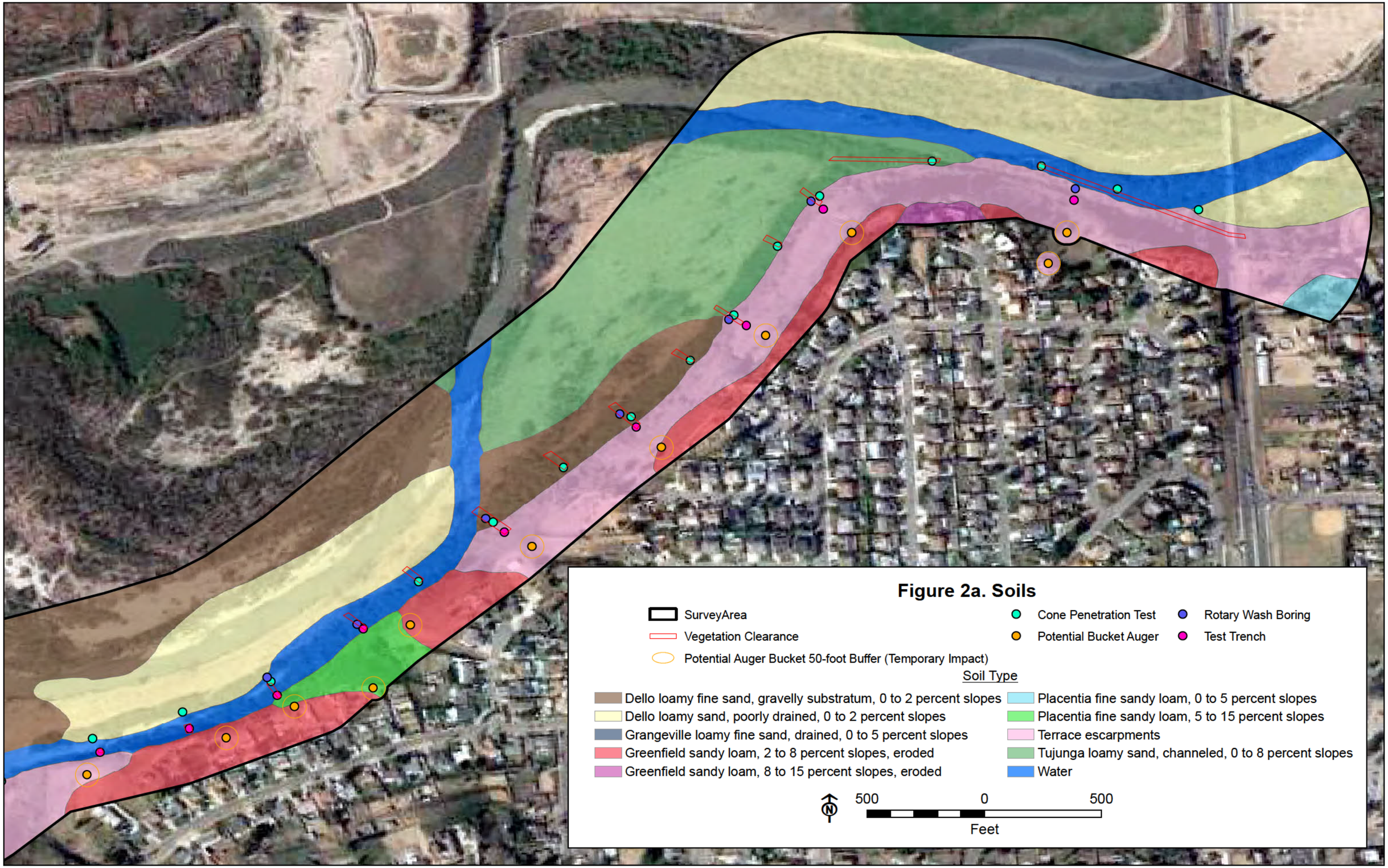
Figure 2a. Soils
SurveyArea
Vegetation Clearance
Potential Auger Bucket 50-foot Buffer (Temporary Impact)
Cone Penetration Test
Potential Bucket Auger
Rotary Wash Boring
Test Trench
Soil Type
Dello loamy fine sand, gravelly substratum, 0 to 2 percent slopes
Dello loamy sand, poorly drained, 0 to 2 percent slopes
Grangeville loamy fine sand, drained, 0 to 5 percent slopes
Greenfield sandy loam, 2 to 8 percent slopes, eroded
Greenfield sandy loam, 8 to 15 percent slopes, eroded
Placentia fine sandy loam, 0 to 5 percent slopes
Placentia fine sandy loam, 5 to 15 percent slopes
Terrace escarpments
Tujunga loamy sand, channeled, 0 to 8 percent slopes
Water
N
500
0
500
Feet

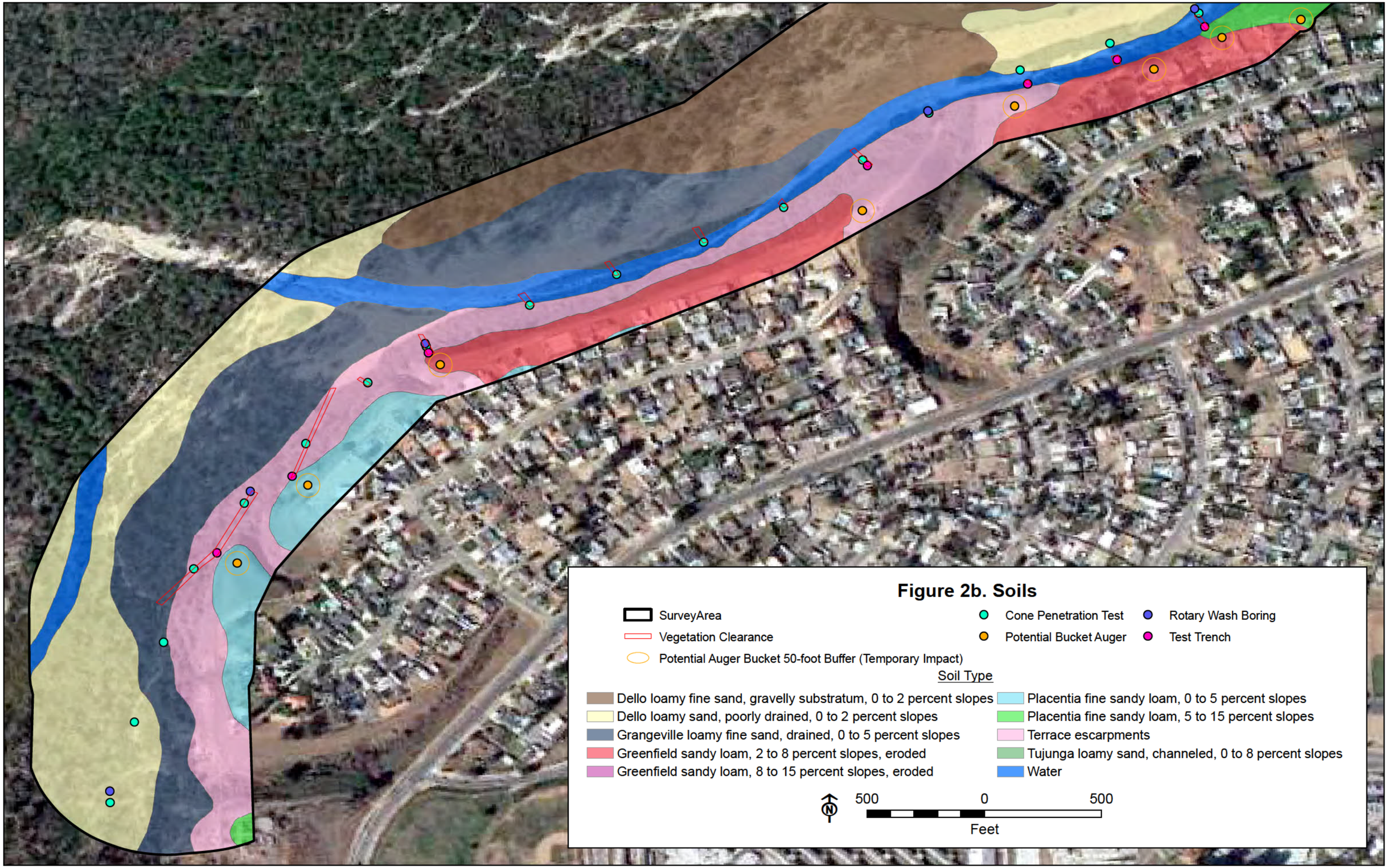
Figure 2b. Soils
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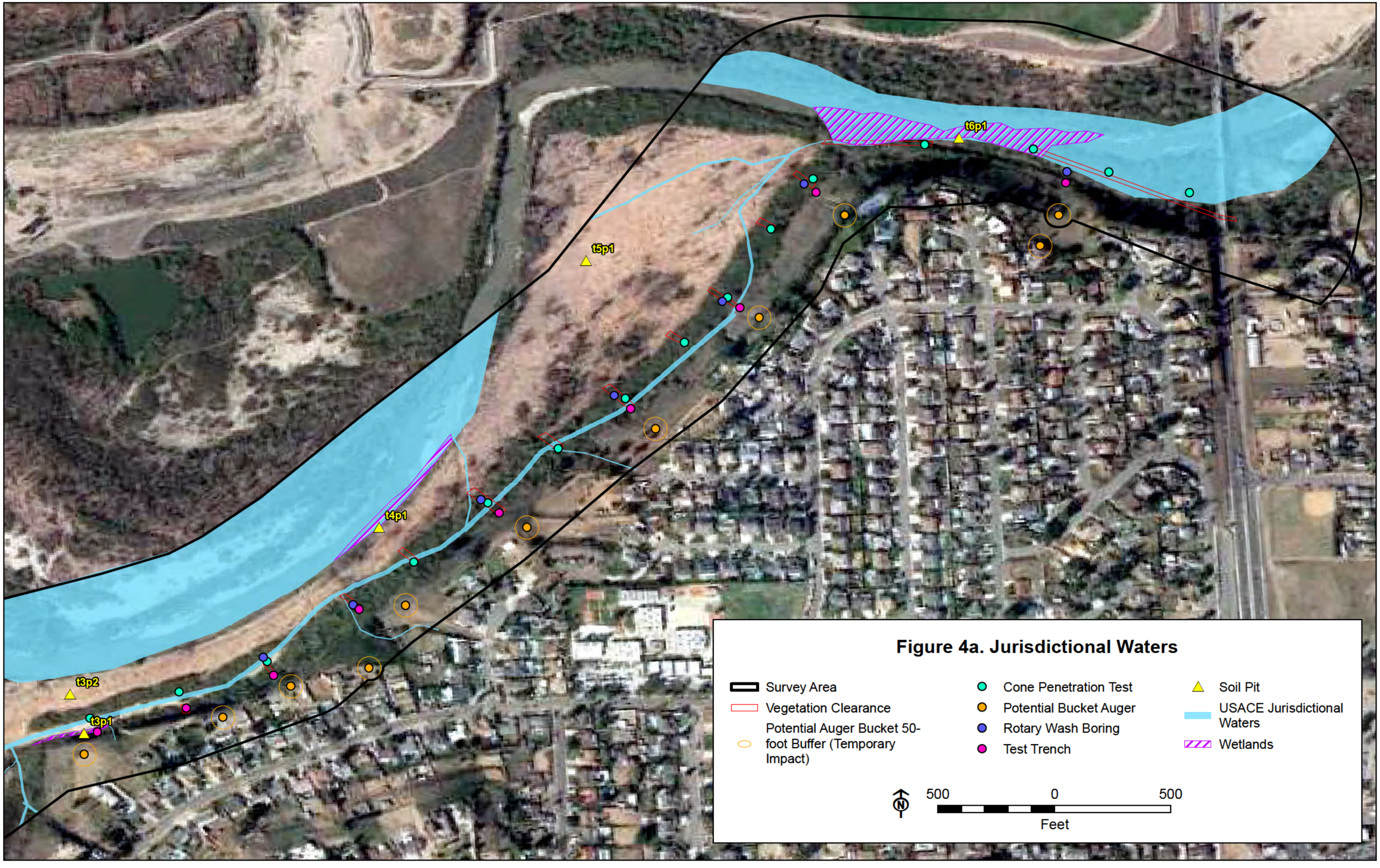
Placentia fine sandy loam, 5 to 15 percent slopes
Terrace escarpments
Tujunga loamy sand, channeled, 0 to 8 percent slopes
Water
N
500
0
500
Feet


t6p1
t5p1
t4p1
t3p2
t3p1
Figure 4a. Jurisdictional Waters
Survey Area
Vegetation Clearance
Potential Auger Bucket 50-foot Buffer (Temporary Impact)
Cone Penetration Test
Potential Bucket Auger
Rotary Wash Boring
Test Trench
Soil Pit
USACE Jurisdictional Waters
Wetlands
N
500
0
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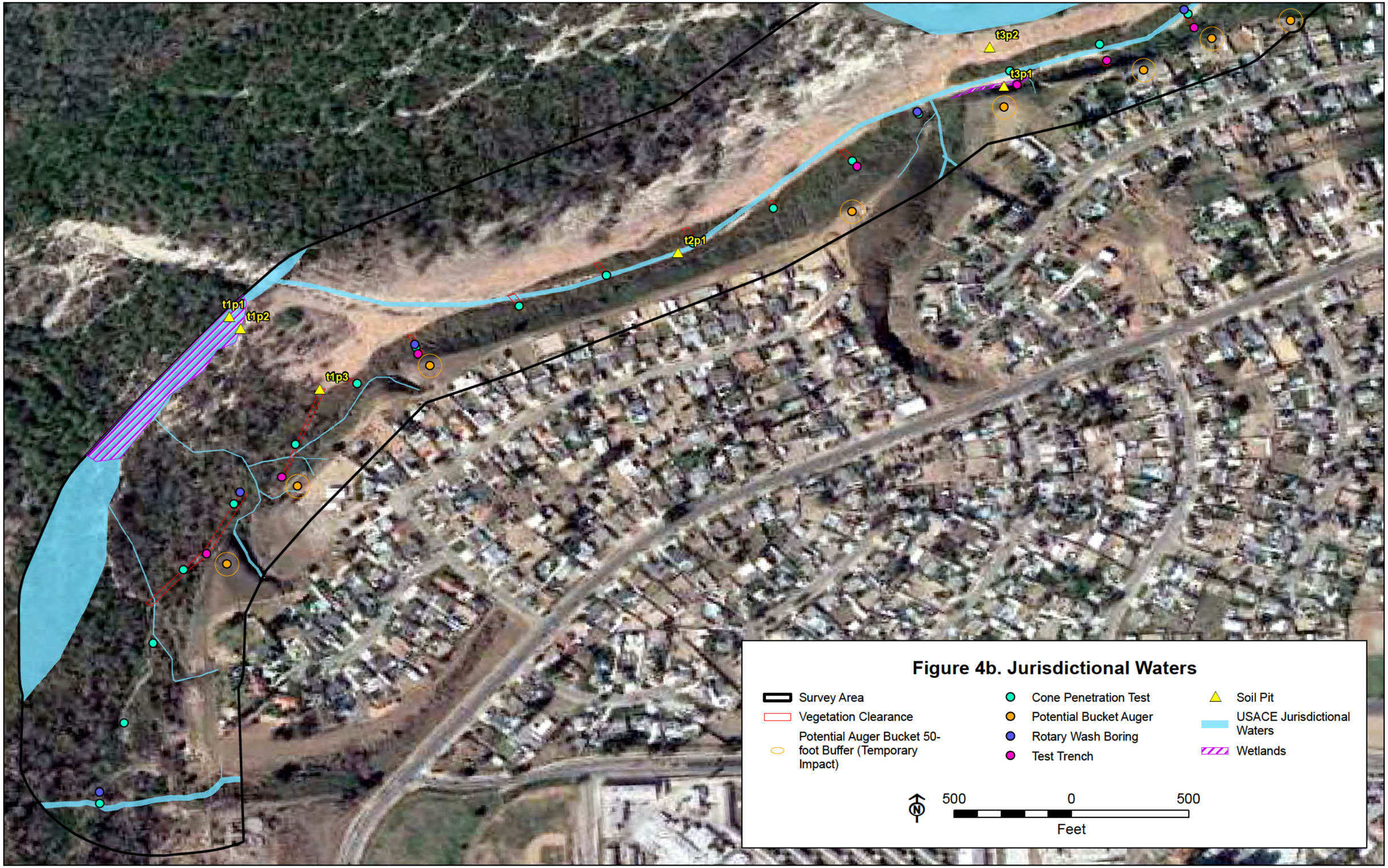
t3p2
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Figure 4b. Jurisdictional Waters
Survey Area
Vegetation Clearance
Potential Auger Bucket 50-foot Buffer (Temporary Impact)
Cone Penetration Test
Potential Bucket Auger
Rotary Wash Boring
Test Trench
Soil Pit
USACE Jurisdictional Waters
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Biological Opinion

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer to:
FWS-WRIV-08B0408-20F1132

March 15, 2021
Sent Electronically

Eduardo T. De Mesa
U.S. Army Corps of Engineers – Los Angeles District
915 Wilshire Boulevard, Suite 930
Los Angeles, California 90017

Attention: Marissa McGowan, Project Biologist

Subject: Formal Section 7 Consultation for the Lower Norco Bluffs Toe Stabilization Project, Riverside County, California

Dear Eduardo De Mesa:

This document transmits the U.S Fish and Wildlife Service's (Service) biological opinion on the Lower Norco Bluffs Toe Stabilization Project (Project), Riverside County, California. On April 29, 2020, we received a letter via email from your agency, the U.S. Army Corps of Engineers (Corps) requesting initiation of Section 7 consultation under the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.). This request is regarding the potential effects of the Project on the federally endangered least Bell's vireo (*Vireo bellii pusillus*; vireo) and its critical habitat; the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher) and its critical habitat; and the federally threatened Santa Ana sucker (*Catostomus santaanae*; sucker) and its critical habitat. The Project is one component of the much larger Santa Ana River Mainstem Flood Control Project (SARP), and was originally evaluated in a biological opinion dated December 5, 2001 (FWS-SB-909.6). Orange County Public Works (OCPW; referred to as Orange County Flood Control District in previous SARP documents) is the non-Federal sponsor of the Project.

The Service has reiterated the need for the Corps to reinitiate consultation on the larger SARP to re-examine the effects of interdependent actions, namely the effects of operations of Seven Oaks and Prado Dams to federally listed species and their critical habitats (most recently in our August 17, 2020, Biological Opinion for the Prado Basin Ecosystem Restoration Project and Water Conservation Plan, FWS-WRIV-19B0097-20F0606). New analyses would include effects from flood control operations and planned water conservation activities for Seven Oaks Dam and Prado Dam, as well as ongoing management requirements for flood control facilities located within the 100-year floodplain. While we understand that OCWD's mission includes water conservation and Corps' mission includes flood control, the operations of the dams are interdependent, and thus necessitate a holistic assessment of the overall effects to critical habitat and federally listed species in light of all water conservation and flood control activities.

In 2012, the Service expressed these significant concerns to the Corps regarding potential effects of ongoing operations at Prado Dam and proposed operations of Seven Oaks Dam on the Santa Ana sucker and its designated critical habitat. As a result of discussions with the Service and others, the Corps committed to work with the Service to assess how operations of these dams are affecting geomorphology, hydrology, sediment transport, and other factors important to maintaining suitable habitat conditions for the sucker (Corps 2012).

Southwestern Willow Flycatcher and its Critical Habitat

In its biological assessment of the Project, the Corps determined that the proposed action is not likely to adversely affect flycatcher or its designated critical habitat. The flycatcher population within the greater Prado Basin has been dwindling since 2003, and the last resident flycatcher recorded was a lone calling male in 2016 (Pike 2020). In May 2019, two migrant willow flycatchers (*Empidonax traillii*) were observed in the vicinity of Norco Bluffs for a few days during regular bird surveys (Zembal *et al*. 2020). No nest was discovered and they were no longer heard after the month of May, likely having moved out of the area.

The proposed Project will temporarily affect 4.3 acres, and permanently affects 0.4 acres of designated flycatcher critical habitat. This area (4.7 acres in total) is located along the edge of designated critical habitat, and encroachment by giant reed (*Arundo donax*; arundo) has reduced the density of native riparian vegetation needed to support flycatcher. The values lost from the removal of these acres will be replaced by post-Project invasive vegetation control described in conservation measures CM 2 and CM 4. Additionally, any riparian habitat that is temporarily impacted will be restored with native riparian vegetation upon Project completion (CM 5).

Breeding flycatchers have not been recently detected within the Project area despite annual surveys. The area of designated critical habitat to be affected by the Project is small and the loss of flycatcher critical habitat function will be more than offset by the benefit of long-term invasive vegetation suppression. We therefore concur with the Corps' determination that the proposed Project is not likely to adversely affect the flycatcher or its critical habitat, and this subspecies will not be further discussed within this biological opinion.

Santa Ana Sucker Critical Habitat

In its biological assessment of the Project, the Corps determined that the proposed action is not likely to adversely affect designated sucker critical habitat. The proposed Project area includes 53.0 acres of sucker critical habitat, which is less than 1 percent of the 7,097 acres comprising Unit 1 (Santa Ana River). The designated critical habitat within the Project footprint currently does not exhibit the physical and biological features (e.g., water depth and velocity, instream habitat) to support sucker. The Corps has designed this Project to avoid adjacent sucker critical habitat, which does contain those physical and biological features. Once completed, the Project will not preclude the hydrological features needed to support sucker from returning to the Project area, should conditions change following large flow events. Therefore, we do not anticipate a loss of function and value to designated critical habitat and concur with the Corps' determination

that the proposed Project is not likely to adversely affect sucker critical habitat, and it will not be discussed further.

The analyses and conclusions provided in this biological opinion are based on information provided in your letter requesting reinitiation of consultation, the Biological Assessment for the Lower Norco Bluffs Toe Protection Project, and email correspondence between the Corps and the Service between February 19, 2020 and February 18, 2021. The complete project file for the SARP is maintained at the Carlsbad Fish and Wildlife Office (CFWO).

CONSULTATION HISTORY

The Service has issued a series of biological opinions (i.e., Service 1980, 1989, 2001, 2004, 2012, 2013, 2015, 2017a, 2018) addressing the effects of constructing, operating, and maintaining the SARP on federally listed species and their respective designated critical habitats. The Project was previously addressed within the 2001 biological opinion titled Prado Mainstem and Santa Ana River Reach 9 Flood Control Projects and Norco Bluffs Stabilization Project (FWS-SB-909.6). Conservation measures for the SARP were described in that biological opinion, as well as the Final Supplemental Environmental Impact Statement/Environmental Impact Report for Prado Basin and Vicinity, Including Reach 9 and Stabilization of the Bluff Toe at Norco Bluffs (2001 SEIS/EIR; Corps 2001). Those conservation measures were subsequently updated in an amendment to the SARP dated March 28, 2012 (FWS-SB/WRIV/OR-08B0408-11F0551). On February 2, 2020, the Corps held a teleconference with the Service to discuss the Project, including design modifications, and potential measures that could be implemented to avoid or minimize impacts to listed species and designated critical habitat within the Project vicinity. On April 29, 2020, we received the biological assessment and DSEA/EIR Addendum along with the request to initiate formal consultation on the effects of the revised Project. On June 29, 2020, we received a .kmz file depicting 2020 vireo territory locations within the Project footprint. On August 24, 2020, the Corps and Service held a conference call with Melody Aimar of the Santa Ana Watershed Association (SAWA) in attendance to discuss the potential impacts of Project noise on vireo, and methods to measure and offset those impacts. On January 14, 2021, we received from the Corps the results of a Santa Ana sucker survey within the vicinity of the Project.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed Project is just one feature of the SARP, which has been modified from the initial Project proposal. The proposed Project site is located on the south bank of the Santa Ana River just west of Hamner Avenue in the City of Norco, California (Figure 1). Upon completion of the SARP, all of the area below 566 feet in elevation will be subject to inundation during a 190-year flood event. This contour line extends to the Norco Bluffs, which are currently unreinforced and eroding. The Project entails constructing an approximately 1.5-mile-long flood control feature (i.e. an embankment) along the toe of the bluffs to protect residential housing at the top of the bluffs. Construction of the Project is scheduled to begin in the fall of 2021 and is expected to

take at least 24 months to complete. The schedule is subject to change due to adverse weather conditions, funding shortages, or other contracting issues.

The construction area will be accessed via a temporary ramp leading from Corydon Avenue at the southern end of the Project site into the Santa Ana River floodplain. The area at the toe of the slope will be graded and excavated in order to add and compact fill to construct the embankment feature (Figure 2). Fill material will be obtained from a borrow area near the California Institution for Women in Chino, and brought to the proposed Project site via existing paved roads. This borrow area has previously been used for other SARP projects and restored with native vegetation between uses.

Excavation for the width of the embankment will occur between approximately 2.5 to 4.5 feet below the existing grade, depending on topography. Launchable stone (large loose rocks ranging in size) will be placed at the toe of the embankment in front of the riprap slope to provide scour protection. The width of the launchable rock area will range between approximately 5 and 25 feet measured horizontally from the toe of riprap. The launchable stone will be capped by approximately 2.5 feet of compacted fill below the existing grade (Figure 2). The face of the embankment will be constructed at a 2:1 slope, and lined with 1.5 feet of bedding material and 3.5 feet of riprap.

One small natural side drainage will be graded and filled to facilitate runoff from the top of the bluff. A network of concrete v-ditches and side drains will also be constructed on top of the embankment. A permanent, asphalt maintenance road will be constructed atop the finished embankment and run the length of the entire feature for maintenance purposes. A permanent access ramp comprised of fill and paved with concrete, will also be constructed from the top of the embankment to the toe of the slope to allow access for emergency maintenance from Shadow Canyon Circle. The maintenance road and ramp will be protected by a series of gates and fences to separate uses for public and maintenance access. A secondary dirt ramp will be constructed for equestrian use and maintained by the City of Norco. Construction equipment to be used include graders, loaders, dozers, dump trucks, excavators, pavers, rollers, and scrapers.

This Project has been updated from that described in the 2001 Final SEIS/EIR and analyzed in our 2001 biological opinion to include launchable stone and riprap rather than soil cement, which eliminates the need to dewater or divert the river, minimizing impacts. Additionally, a system of v-ditches, catch basins, side drains and culverts have been added to facilitate drainage and the Temporary Construction Easement (TCE) has been adjusted to include the new staging area off Corydon Avenue.

Approximately 1,000 feet of temporary sheet pile shoring will be constructed to protect against river migration into the project footprint. The sheet pile shoring will be installed atop a temporary earthen berm, which will extend for the length of the TCE. The temporary berm will be constructed out of onsite material (or imported fill) and will act as a flood barrier inside the north TCE border adjacent to the low flow channel of the Santa Ana River. The earthen berm will be lined with straw wattles and lined with a hardened material such as gravel bags or riprap to inhibit erosion. The contractor's berm design will be subject to Corps' approval.

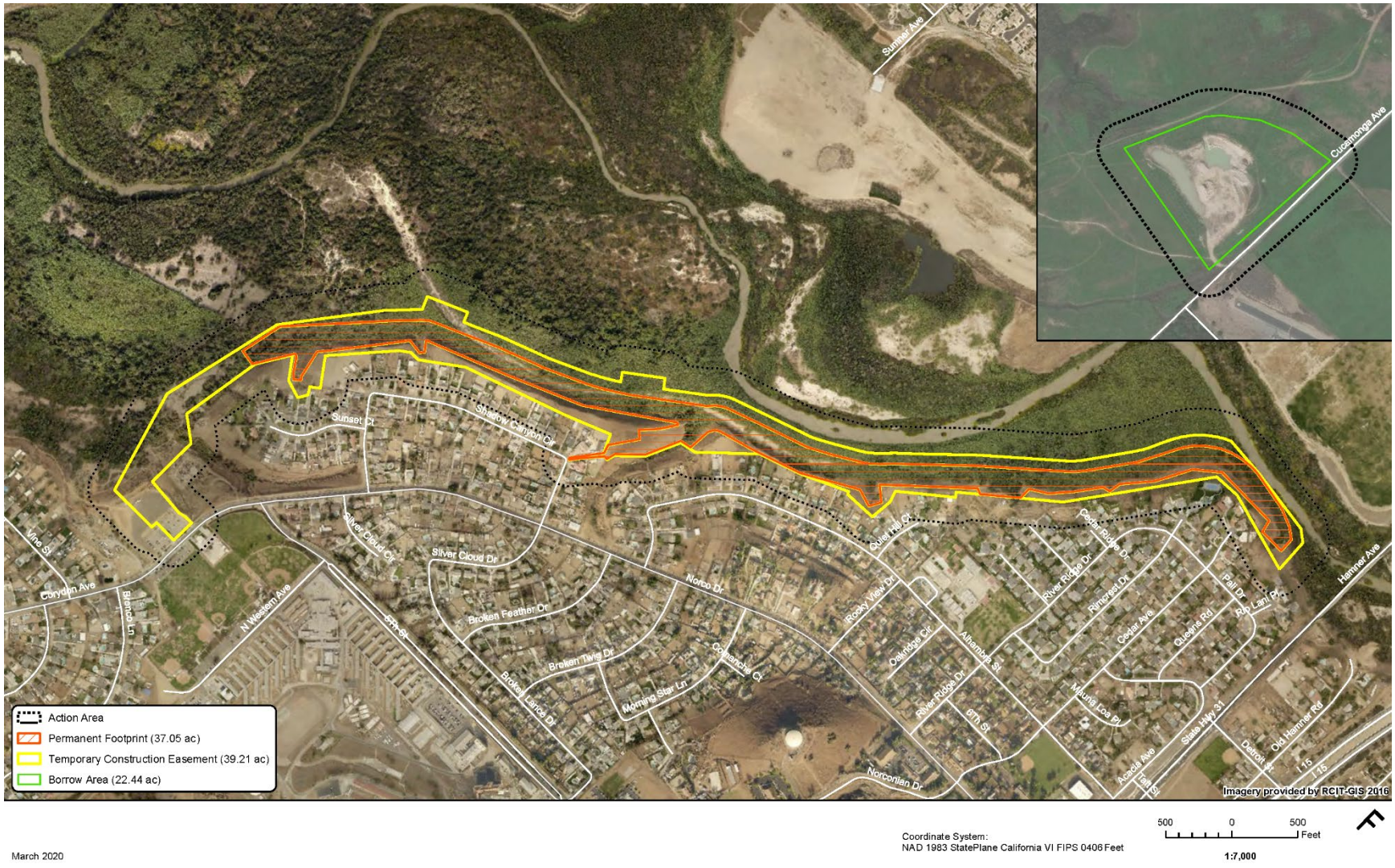

Figure 1. Norco Bluffs Project Footprint.

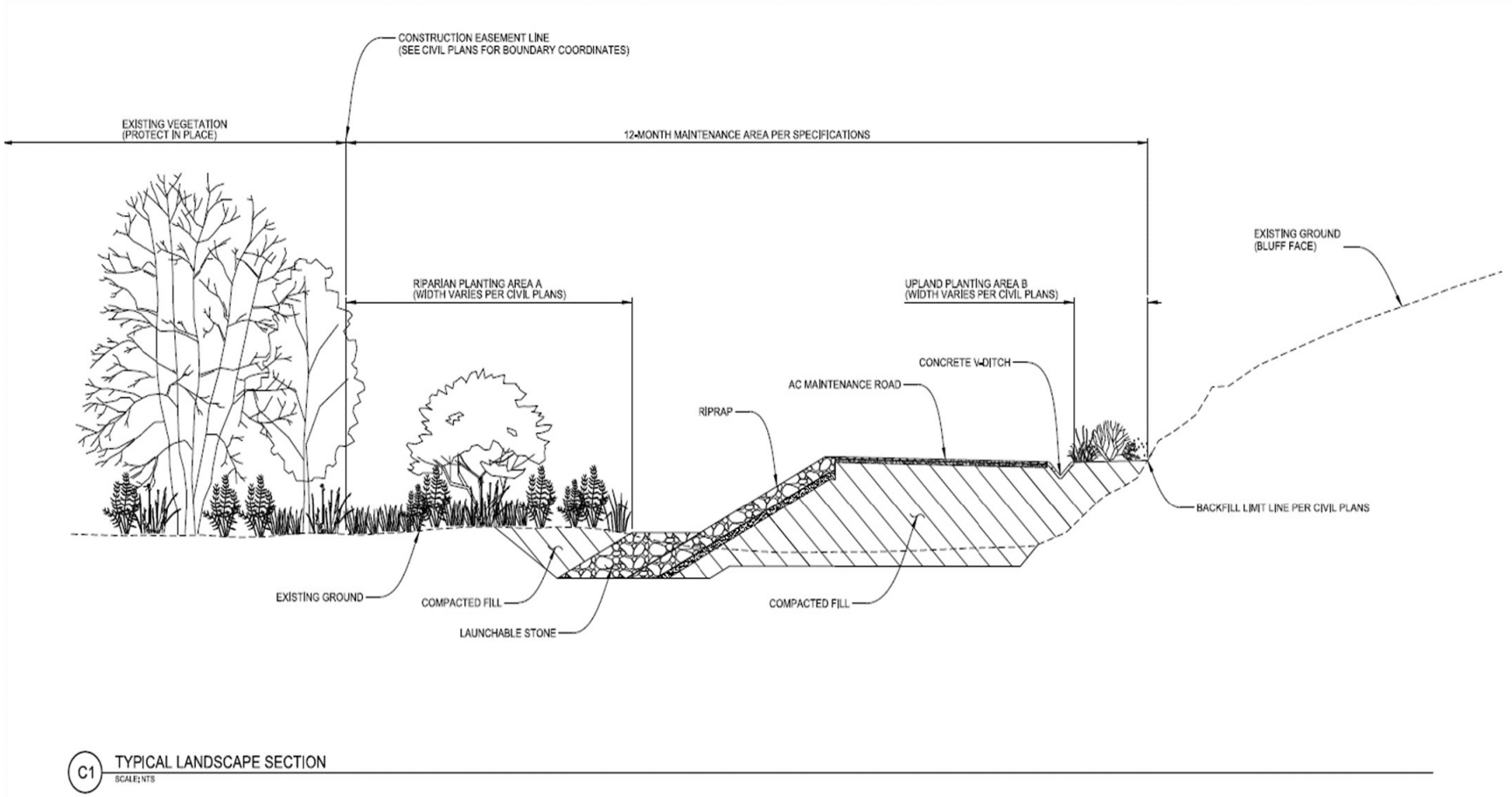

Figure 2. Cross Section of the Embankment

The proposed sheet pile shoring would be installed by pile driving. This activity is scheduled to occur outside of the nesting season to avoid potential noise effects to listed species within the project vicinity. In addition, the contractor will construct a sound wall prior to the vireo nesting season (i.e., February 28) along the entire north side of the earthen berm/TCE bordering the riparian habitat and low flow channel of the Santa Ana River. The sound wall will be constructed of material typically used to lessen general noise impacts and at a height tall enough to account for construction equipment. Upon Project completion, the berm, shoring, and sound wall will be removed and all disturbed habitat within the TCE (excluding the 15-foot clearance zone mentioned below) will be restored with native vegetation corresponding to the vegetation community that was removed (i.e., sage scrub or riparian vegetation).

Project inspection and maintenance is expected to occur. These activities will include:

1. Routine and special inspection with pickup trucks and sport utility vehicles, as needed, and up to daily during flood events;

2. Infrequent use of dump trucks and hydraulic excavators outside of the nesting bird season to place stones along eroded areas of the embankment to protect and reinforce the embankment as necessary during flood fighting activities;

3. Periodic weeding, patching stone, and asphalt road pavement maintenance from the top of the embankment;

4. Periodic vegetation clearing outside of the bird nesting season to maintain a 15-foot clearance zone from the toe of the structure;

5. Periodic clearing of debris around drainage structures; and

6. Periodic mending of fencing and painting metal gates.

It is anticipated that major repairs would not be able to be made from the access road at the top of the embankment. Therefore, if large equipment (i.e., larger than a pickup truck or SUV) is needed within the floodplain, this action will be considered a major repair and is not covered by the proposed Project. In these cases, a temporary work area will need to be established within the floodplain and ground disturbance will occur. The non-Federal sponsor would be required to obtain all applicable permits and approvals for such work.

Table 1. Summary of Anticipated Habitat Impacts and Offsetting Mitigation

Habitat	Impact Type[1]	Acres Impacted	Mitigation Ratio[2]	Acres of Mitigation
Riparian/Wetland - Southern Riparian Woodland	Permanent	3.90	5:1	19.50
Riparian/Wetland - Southern Riparian Woodland	Temporary	6.22	1:1	6.22
Riparian/Wetland - Disturbed Southern Riparian Woodland	Permanent	2.18	5:1	10.90
Riparian/Wetland - Disturbed Southern Riparian Woodland	Temporary	12.93	1:1	12.93
Riparian/Wetland - Disturbed Mulefat Scrub	Permanent	0.12	5:1	0.60
Riparian/Wetland - Disturbed Mulefat Scrub	Temporary	1.38	1:1	1.38
Riparian/Wetland - Arundo Riparian	Permanent	20.60	5:1	103.00
Riparian/Wetland - Arundo Riparian	Temporary	0.60	1:1	0.60
Riparian/Wetland - Sandy Wash	Permanent	1.27	5:1	6.35
Riparian/Wetland - Sandy Wash	Temporary	0.32	1:1	0.32
Non-Riparian (Upland) - Ruderal	Permanent	8.22	3:1	24.66
Non-Riparian (Upland) - Ruderal	Temporary	NA[3]	NA[3]	0
Non-Riparian (Upland) - Nonnative Woodland	Permanent	0.28	3:1	0.84
Non-Riparian (Upland) - Nonnative Woodland	Temporary	NA[3]	NA[3]	0
Total				**187.30**

[1] All temporary impacts will also be restored onsite.

[2] Mitigation ratios following those identified in the March 28, 2012, amendment to the SARP (FWS-SB/WRIV/OR-08B0408-11F0551).

[3] No offsite mitigation is required for temporary impacts to non-riparian habitat.

Conservation Measures

General and species-specific conservation measures pertaining to the Project, a component of the SARP, are listed below. These conservation measures (CM) were designed to avoid, minimize, and offset impacts to federally listed species and their designated critical habitats. Several conservation measures listed in previous biological opinions for the SARP (e.g., Service 2001, 2012) have been updated for clarity here but their original intent remains the same [**deletions are in ~~strikeout~~, additions are underlined below**]. All of the conservation measures from the 2001 SEIS/EIR and SEA/EIR Addendums, as listed in our 2001 biological opinion and revised 2012 amendment remain in effect even if not listed here.

General Conservation Measures

CM 1. The construction contractor shall keep grading activities associated with Project construction to a minimum, and existing root systems will be left intact to the extent feasible.

CM 2. The Corps will remove five acres of invasive vegetation ~~arundo~~ from the upper Santa Ana River floodplain ~~watershed~~ for each acre of riparian vegetation that is permanently destroyed or isolated from the floodplain during construction-related activities (for enhancement of an estimated total of 134.0 acres by invasive plant control ~~of arundo removal~~[1]); actively monitor and manage this acreage for a period of five (5) years; and then arrange for the local sponsor (i.e., OCPW) and/or another approved entity such as SAWA to maintain this acreage as arundo-free for the life of the SARP ~~project~~; and conduct cowbird (*Molothrus ater*; cowbird) removal trapping in the vicinity of the enhanced ~~restored~~ habitat[2] for the life of the SARP ~~project~~.

CM 3. Enhancement ~~Creation and restoration~~ of riparian habitat will be considered successful when the following target/threshold objectives are met: (a) a minimum of 30 percent absolute ground cover of native plant species; (b) less than 10 percent absolute ground cover of exotic plant species (including 0 percent arundo); (c) the absolute ground cover of native species must be represented by at least five dominant or co-dominant plant species; (d) the recruitment of native plant seedlings must be documented to occur within the replanted areas; (e) a positive trend in the diversity and absolute ground cover of native plant species must be observed based on appropriate statistical analyses that account for natural, year to year variations; and (f) the structure and composition of the revegetated area is statistically similar (i.e., not significantly different) to habitat occupied by vireo in the vicinity. Alternatively, riparian revegetation efforts can be considered

[1] See Table 1. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.

[2] Note: this is within the off-site mitigation area, separate from the trapping effort that would occur within the project vicinity through CM 20.

successful if the habitat is occupied by a breeding pair of vireo, flycatcher, and/or yellow-breasted chat (*Icteria virens*). In addition, habitat must sustain itself for 2 consecutive years without supplemental water.

CM 4. The Corps will remove 1 acre of invasive vegetation ~~arundo~~ from the upper Santa Ana River floodplain ~~watershed~~ for each acre of riparian/wetland vegetation that is temporarily disturbed during construction-related activities (for enhancement of an estimated 21.1 acres by invasive plant control ~~of arundo removal~~);[3] actively monitor and manage this acreage for a period of one (1) year; and then arrange for the local sponsor (i.e., OCPW) and/or another approved entity such as SAWA to maintain this acreage as arundo-free for the life of the SARP ~~project~~;

OR

Remove 3 acres of invasive vegetation ~~arundo~~ for each acre of temporary impact and maintain this enhanced acreage arundo-free for a minimum of 5 years.

CM 5. The Corps will restore each acre of riparian vegetation that is temporarily disturbed during construction-related activities. All temporarily disturbed areas will be kept free of exotic plants until riparian vegetation is re-established.

a. Success will be considered a minimum of 30 percent native ground cover with less than 10 percent invasive plant cover.

b. If the site(s) have not begun to recover within 5 years (i.e., 50 percent of the disturbed areas are not vegetated with young riparian vegetation), then the site(s) will be replanted with cuttings from native riparian species.

CM 6. The Corps will remove three acres of invasive vegetation ~~arundo~~ from the upper Santa Ana River floodplain ~~watershed~~ for each acre of non-riparian habitat that is permanently destroyed or isolated from the floodplain during construction-related activities (for enhancement of an estimated total of 25.50 acres by invasive plant control ~~of arundo removal~~[4]); actively monitor and manage this acreage for a period of five (5) years and then arrange for the local sponsor (i.e., OCPW) and/or another approved entity such as SAWA to maintain this acreage as arundo-free for the life of the SARP ~~project~~; and conduct cowbird removal trapping in the vicinity of the enhanced ~~restored~~ habitat[5] for the life of the SARP ~~project~~.

CM 7. Construction personnel will strictly limit their activities, vehicles, equipment, and construction materials to the TCE including designated borrow areas, staging

[3] See Table 1. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.
[4] See Table 1. Acreage of actual disturbance will be documented and compared to acreage restored; any shortfalls will be addressed through additional mitigation.
[5] Note: this is within the off-site mitigation area, separate from the trapping effort that would occur within the project vicinity through CM 20.

areas or routes of travel. The construction area(s) will be the minimal area necessary to complete the proposed Project and will be specified in the construction plans. Highly visible barriers (such as orange construction fencing or sound walls) will be installed around all riparian and sensitive habitats adjacent to the TCE to designate limits of construction activities. These barriers will be maintained until the completion of all construction activities.

CM 8. The Corps biologist (or qualified, contracted biologist) will monitor construction activities to ensure compliance with environmental commitments.

CM 9. Prior to construction activities, a Corps biologist (or qualified, contracted biologist) shall conduct pre-construction environmental training for all construction personnel. The training shall focus on required avoidance/minimization measures and conditions of regulatory agency permits and approvals. The training shall also include a summary of sensitive species and habitats potentially present within and adjacent to the proposed Project area and borrow area.

CM 10. A storm water pollution prevention plan (SWPPP) and soil erosion and sediment plan will be developed prior to construction to minimize erosion and identify measures to eliminate or control pollution sources onsite during and following the construction phase. The SWPPP will determine specific Best Management Practices (BMPs) needed during and after the project construction phase to minimize erosion, identify specific pollution prevention measures to eliminate or control potential point and nonpoint pollution sources onsite and avoid causing or contributing to any water quality standard exceedances.

CM 11. Dust control measures will be implemented during the construction phase to reduce excessive dust emissions. Methods for reducing dust emissions may include wetting work areas, such as dirt access roads and sediment stockpiles, on a regular basis, as well as covering truck beds carrying material and stockpiles.

CM 12. A monitoring protocol will be developed and implemented for raptor monitoring, including bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) in both the proposed Project footprint and borrow site area during construction. If eagles are foraging, the Corps will coordinate with the Service to develop appropriate avoidance measures.

CM 13. Prior to any ground-disturbing activities (e.g. mechanized clearing or rough grading) for all project related construction activities, a Corps biologist (or qualified, contracted biologist) shall conduct pre-construction surveys of the proposed Project area and borrow area for terrestrial special-status, including Multiple Species Habitat Conservation Plan (MSHCP)-covered wildlife species. During these surveys, the biologist will:

a. Inspect the proposed Project area (and borrow area) for any sensitive wildlife species;

b. In the event of the discovery of a non-listed, special-status ground-dwelling animal, such as a burrowing owl or special-status reptile, attempts will be made to recover and relocate the animal to adjacent suitable habitat within the Proposed Project area at least 200 feet from the limits of construction activities. Burrowing owl surveys and relocations would follow established protocols.

CM 14. The Corps or qualified, contracted biologists will continue to monitor and survey the proposed Project area, borrow area, and adjacent habitats throughout construction and restoration activities for the presence of special status species, and shall confirm that conservation measures are sufficient to avoid or minimize impacts to these species, or shall recommend additional measures as warranted.

CM 15. Upon construction completion, the contractor will immediately re-vegetate bare and disturbed areas with a native hydroseed mix, which matches the existing habitat type (e.g., coastal sage scrub). Depending on the time of year the hydroseed is placed, temporary supplemental watering may be needed. Watering need and frequency for hydroseeded areas will be determined to ensure successful germination and establishment of native vegetation. These temporarily disturbed non-riparian areas will be maintained free of exotic plants for 8 years. Areas currently designated as disturbed habitat will be restored to an improved quality. These activities will avoid disturbance of vireo during the bird-nesting season.

CM 16. Operations and maintenance activities occurring within the 15-foot corridor at the toe of the embankment will be conducted outside of the bird nesting bird season. If soil disturbance of 2 inches or more is anticipated within this area, the Service will be contacted for approval.

CM 17. BMPs shall be implemented to reduce impacts to native habitats, including the following:

a. All equipment maintenance, staging, and dispending of fuel, oil, coolant, or any other toxic substances will occur in developed or designated non-sensitive upland areas. These areas will implement best management practices to prevent runoff carrying toxic substances from entering the Santa Ana River and associated drainages. If a spill occurs outside of a designated area, the cleanup will be immediate and documented.

b. Fire suppression equipment, including shovels, water, and extinguishers, will be available onsite during the fire season (as determined by Riverside County Fire Department) and when activities may produce sparks. Emergency contacts for the Norco Fire Station No. 57 on Corydon Avenue will be established.

c. To the extent feasible, the contractor will prevent exotic weeds from establishing within the work site during construction. Construction

equipment will be cleaned of mud or other debris prior to mobilizing and before leaving the site to reduce the potential spread of invasive plants and/or seeds.

Least Bell's Vireo and Southwestern Willow Flycatcher-Specific Measures

CM 18. The Corps will have surveys for vireo and flycatcher performed in spring and early summer during years when construction will occur to document territory numbers and locations within the Project vicinity.

CM 19. The construction contractor will clear vegetation associated with Project construction within potential vireo or flycatcher habitat outside the nesting season only (nesting season is February 28 through August 15).

CM 20. The Corps or OCPW will contract with an outside entity to implement a cowbird trapping removal program during the construction of the Project and for five years after construction completion. The contract shall maintain at least five traps during vireo egg-laying season (i.e., March 15 to July 30) within the vicinity of the Norco Bluffs area.

CM 21. Noise barriers will be constructed where the proposed Project borders riparian habitat or at the recommendation of a qualified biologist prior to February 28 of each year to minimize impacts to listed species and nesting birds. Pile driving activities will be conducted outside of the vireo nesting season.

CM 22. The construction contractor will be required to monitor noise regularly when activities approach within 500 feet of riparian habitat before 11 am during the nesting season. Ambient noise levels will be recorded by a qualified contractor prior to construction for the adjacent Hamner Avenue Bridge Replacement Project (FWS-WRIV-12B0287-19F0719). If construction noise levels exceed authorized limits (per the 2001 BO and 2012 amendment, or as otherwise agreed to by the Service), the construction contractor will construct or modify the sound barriers, equipment, or procedures (including construction schedules) to the extent practicable to meet these conditions, ensuring that: (a) noise does not exceed 60 A-weighted decibels (dBA) Leq per half hour, or an otherwise agreed upon and documented limit with the Service, within occupied vireo habitat; or, (b) noise does not exceed 5 dBA above ambient conditions if said levels are above 60 dBA Leq per half hour, or another agreed upon and documented limit.

If construction noise levels within riparian habitat areas outside of the Project footprint cannot be reduced to or below 60 dBA Leq per half hour, 5 dBA over ambient noise levels, or another agreed upon and documented limit during the period of February 28 through August 15 of any year, the Corps will offset impacts at a 1:1 ratio per breeding season affected by such noise levels. This 1:1 ratio will be based on the acreage of riparian habitat outside the Project footprint subject to noise levels over 60 dBA Leq per half hour, or 5 dBA above

ambient, or other agreed upon limit, during the noted period, per the number of breeding seasons affected (e.g., 1 acre of riparian, habitat affected by noise in two breeding seasons will result in 2 acres of restoration). This offsetting measure will consist of riparian habitat restoration (non-native invasive vegetation control) for 5 years from the upper Santa Ana River watershed and/or action area. The area affected will be determined by the regular Project noise monitoring.

Santa Ana Sucker-Specific Measures

CM 23. To avoid impacts to sucker, no work will take place within the wetted channel of Santa Ana River. In addition, during the construction phase the contractor will construct a temporary earthen berm with sheet pile shoring on the inside edge of the TCE, but outside the sound wall, where the project is within at risk of flooding from the Santa Ana River. The purpose of the berm is to reduce the likelihood of channel flows entering the proposed Project area during a storm event, thus avoiding impacts to sucker by exclusion from the proposed Project area. The berm will be constructed of fill material either from onsite grading activities or from the borrow area. The contractor will be responsible for designing the berm and will get approval by the Corps. If the berm fails and channel flows enter the proposed Project area, all work in the flooded area will cease until a qualified biological monitor confirms with the Corps that work can recommence. The decision to restart will be based on the following:

a. Assessment of sucker presence within the proposed Project area, via surveys employing techniques such as block nets and electro-fishing;

b. Removal of fish within the construction area by a qualified sucker biologist;

c. Lack of channel flows entering the proposed Project area within the foreseeable immediate future; and

d. Coordination with the Service.

CM 24. During construction, the construction contractor will implement measures to control sedimentation, including recontouring, sandbagging, sediment basins, and other appropriate erosion control measures developed on a site-specific basis.

CM 25. To further reduce impacts to sucker, the Corps will contract localized sucker predator removal for five years. The location within Santa Ana River and methodologies will be developed in coordination with the Service (in coordination with other entities actively conducting predator removal), and will include five person-days (not less than 35 hours in the river) per year of mechanical removal of predatory aquatic species, within one year of the start of the proposed Project.

ANALYTICAL FRAMEWORK FOR THE SECTION 7(A)(2) DETERMINATIONS

Jeopardy Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the range-wide conditions of the species, the factors responsible for that condition, and their survival and recovery needs; (2) the Environmental Baseline, which analyses the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the Effects of the Action, which are all consequences to listed species caused by the proposed action that are reasonably certain to occur; and (4) the Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the species.

For the section 7(a)(2) determination regarding jeopardizing the continued existence of the species, the Service begins by evaluating the effects of the proposed Federal action and the cumulative effects. The Service then examines those effects against the current status of the species to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the species in the wild.

Adverse Modification Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat of listed species. "Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

In accordance with policy and regulation, the adverse modification analysis in this biological opinion relies on four components: (1) the status of critical habitat, which describes the condition of all designated critical habitat in terms of its physical and biological features, the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the environmental baseline, which analyzes the condition of the designated critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the effects of the action, which analyze all consequences to critical habitat caused by the proposed action that are reasonably certain to occur and their influence on the recovery role of the affected designated critical habitat units; and (4) cumulative effects, which evaluate the effects of future non-Federal activities in the action area on the physical and biological features of critical habitat and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the designated critical habitat are evaluated in the context of the range wide condition of the critical habitat, taking into account any cumulative effects, to determine if the consequences of the proposed action are likely to appreciably reduce the value of critical habitat as a whole for the conservation of the species.

STATUS OF THE SPECIES AND CRITICAL HABITAT

Least Bell's Vireo

The following section summarizes information about the federally endangered least Bell's vireo pertinent to its legal status and biology as it pertains to the Project. For more detailed information on the vireo's biology, ecology, range wide status, threats, and conservation needs, please refer to the draft recovery plan (Service 1998) and 5-year review (Service 2006). Additional information is also available in the final rule designating critical habitat for vireo (59 FR 4845). These documents are available on the least Bell's vireo species' profile.

Numbers

The vireo was listed as endangered on May 2, 1986 (51 FR 16474), in response to a dramatic decline in population and widespread loss of riparian habitat. By 2006, we recommended that the vireo be downlisted from endangered status to threatened status in our 5-year review because of a ten-fold increase in population size since its listing. Numbers of documented vireo have continued to climb and 3,413 territories were recorded range-wide in 2018 (Kus *et al*. 2019).[6] Within the Santa Ana River watershed, the number of vireo territories observed has increased to 2,293 in 2020 (Zembal *et al*. 2020). It is important to keep in mind that the numbers reported here are for territories observed and reported; they are not exhaustive and do not necessarily represent pairs. The recorded territories are the minimum number of territorial males observed and reported within an area. It is also important to note that the survey effort, both within the Santa Ana River watershed and range-wide, has varied widely from year to year and therefore numbers of territories presented may underestimate true abundance. Year-to-year comparisons should be made with caution.

Reproduction

The vireo is an obligate riparian species during the breeding season, occupying a number of riparian habitat types, including cottonwood-willow woodlands/forests, oak woodlands, and mulefat scrub. However, vegetation structure is an important determinant of vireo site use and they prefer a diverse array of early successional riparian vegetation. Occupied breeding habitat generally includes dense shrub cover within 3 to 6 feet from the ground for nesting and a structurally diverse canopy for foraging (Service 1998). Plant species composition does not appear as important a determinant in nesting site selection as habitat structure. As riparian vegetation matures, the tall stands tend to shade out the shrub layer, making the sites less suitable

[6] More recent range-wide data is not yet available.

for vireo nesting. In addition, vireo nests tend to occur in openings and along the riparian edge, where exposure to sunlight allows the development of shrubs (Service 1998).

Vireo generally begin to arrive from their wintering range in southern Baja California and establish breeding territories by mid to late March, departing from their breeding grounds by the third week of September (Garrett and Dunn 1981; Salata l983a, 1983b; Hays 1989; Pike and Hays 1992). Data collected for color-banded birds indicate that site fidelity is high among adults, with many birds not only returning to the same territory, but also placing nests in the same shrub used the previous year (Salata 1983b).

Although the vireo occupies home ranges that typically vary in size from 0.5 to 4.5 acres (RECON 1988), a few may be as large as 7.5 acres (Service 1998). In general, it appears likely that areas that contain relatively high proportions of degraded habitat have lower reproductive success than areas that contain high quality riparian woodland (Jones 1985; RECON 1988; Pike and Hays 1992).

Ecological processes that contribute to the formation of early successional riparian habitat include channel scour and deposition associated with periodic storm events. Occupied vireo habitat that is adjacent to highly urbanized areas or within major river systems and subject to flood control measures can be impacted by flood control and water impoundment projects, and these areas may be subject to ongoing and future habitat loss or degradation due to alteration of vegetation structure.

One of the immediate threats to the remaining riparian habitat is invasion by arundo. This large grass occupies much of the floodplain previously vegetated by willows and other native wetland species if not kept in check. Arundo has little value as either wildlife food or nesting substrate. In addition, it provides a major source of fuel for wildfire and consumes much more water than native vegetation. Arundo has formed vast thickets in southern California, and its removal has become a primary focus of riparian restoration. Much of the potential habitat remaining for vireo is infested with arundo and other invasive plants and animals (e.g., cowbirds). There have been extensive efforts to manage these threats and conserve suitable breeding habitat throughout the vireo's range (Service 2006).

A new threat that could significantly affect vireo nesting habitat has emerged. A disease complex involving two species of ambrosia beetles, the polyphagous shot hole borer and Kurushio shot hole borer (*Euwallacea* spp.), a mix of associated fungi (Lynch *et al*. 2016), and other pathogens is causing widespread damage to trees in riparian ecosystems throughout southern California (Eskalen *et al*. 2013). These beetles create tunnels (galleries) in trees and inoculate the galleries with fungal spores. The fungus (*Fusarium* sp.) causes significant damage to trees, and the galleries open up trees to attack from other pathogens that may be even more damaging. The combination of structural damage from the galleries and tissue damage from the pathogens causes limbs to break and trees to die. Willow species are particularly susceptible to damage from infestation by these beetles.

Distribution

The number of locations with breeding vireo has increased throughout southern California since listing, and there has been a slight shift northward in the subspecies overall distribution, but it remains restricted to the southern portion of its historic range (Service 2006). Vireo historically occupied willow riparian habitats from Tehama County in northern California, southward to northwestern Baja California, Mexico, and as far east as Owens Valley, Death Valley, and the Mojave River (Grinnell and Miller 1944; Service 1998). Greater than 99 percent of remaining vireo still nest in southern California, south of the Tehachapi Mountains (Service 2006). Widespread habitat losses have fragmented most remaining populations into small, disjunct, and widely dispersed subpopulations.

Designated Critical Habitat

The Service designated critical habitat for the vireo on February 2, 1994 (59 FR 4845), in 10 areas encompassing approximately 38,000 acres in southern California, including the Santa Ana River in San Bernardino and Riverside Counties. About 49 percent of the vireo population in the United States occurs within these 10 areas.

Physical and biological features (PBFs) are used to designate critical habitat in accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12. These habitat features can be described as riparian woodland vegetation that generally contains both canopy and shrub layers, and includes some associated upland habitats, which support feeding, nesting, roosting, and sheltering vireo. Vireo meet their survival and reproductive needs (food, cover, nest sites, nestling and fledgling protection) within the riparian zone in most areas. In some areas, they also forage in adjacent upland habitats.

Activities that disturb or remove the PBFs within proposed critical habitat areas may constitute destruction or adverse modification of critical habitat. In the case of the vireo, these activities include: (1) Removal or destruction of riparian vegetation; (2) thinning of riparian growth, particularly near ground level; (3) removal or destruction of adjacent chaparral or other upland habitats used for foraging; and (4) increases in human-associated or human-induced disturbance. General threats to the function of vireo critical habitat include habitat loss through urban development and related land-use practices, water diversions, dams, intensive recreation, and introduction of nonnative vegetation.

Recovery

The 1998 Draft Recovery Plan identified the extensive loss and degradation of vireo breeding habitat, and brood parasitism by the cowbird, as the two most serious threats to the recovery of the vireo. Cowbird distribution substantially expanded into the historic and current range of the vireo about 100 years ago, and brood parasitism by brown-headed cowbirds remains a significant threat to vireo recovery (Service 2006). Cowbird trapping has proven to be an effective technique for improving vireo population status where it is implemented; however, Kus and Whitfield (2005) argue that trapping programs are a stop-gap measure and may not be the best way to achieve long-term recovery of the vireo. The expansion and continued cowbird

propagation is closely related to human land use that is proximal to riparian areas that are existing/potential vireo breeding areas within the species historic and current range (Robinson *et al*. 1995; Service 1998; Jewell and Arcese 2008). Cowbird abundance and parasitism rates of hosts are typically distributed as a declining gradient based on distance from cowbird feeding sites and that reduction or isolation from feeding sites can reduce the effects of parasitism on host populations (Goguen and Mathews 2000). Additional research is needed to identify the best way to manage this threat over the long term.

The overall positive trend for vireo since its listing is primarily due to efforts to reduce threats such as wholesale loss and degradation of riparian habitat and cowbird parasitism. Cowbird parasitism has been greatly reduced in managed populations, but remains a threat to breeding vireo range wide. Several large, regional habitat conservation plans in southern California have addressed the effects of urban development on this species. These plans are expected to provide long-term protection of core occurrences of vireo in western Riverside, southern Orange, and San Diego counties. The control of arundo has been effective at improving habitat since the listing of the vireo. Continued control will be needed to achieve local eradications and to address invasions by other exotic plants that continue to degrade existing riparian habitat. Shot-hole borer beetles are a new threat to the health of riparian forests, and programs to reduce the impacts of the beetles are still being developed as we learn more about their life history and natural predators.

To be considered for downlisting, the Draft Recovery Plan identifies 11 sites that must be protected and managed, with stable or increasing vireo populations/metapopulations consisting of several hundred or more breeding pairs. The Santa Ana River and Camp Pendleton/Santa Margarita River populations have met this criterion due to the extensive efforts described above, but most of the other locations have not. As numbers increase, the goal is that these "source populations" will expand into the northern portion of its current range, eventually recolonizing riparian woodlands of the California Central Valley.

Santa Ana Sucker

The sucker was listed as threatened on April 12, 2000 (65 FR 19686). The following section summarizes information about the Santa Ana sucker pertinent to its legal status and biology. We focus on the status of sucker in the Santa Ana River because we determined that a healthy, viable population of sucker is needed within the Santa Ana River to recover the species (see Recovery section below). For detailed information on the sucker's biology, ecology, range wide status, threats, and conservation needs, please refer to the recovery plan (Service 2017b) and 5-year review (Service 2011). Additional information is also available in the revised final rule designating critical habitat for sucker (75 FR 77962). These documents are available on the Santa Ana sucker's species' profile.

Numbers

Population estimates are based on surveys conducted in the upper portion of the species range within the Santa Ana River, generally between Rialto Drain and Mission Boulevard. The

floodplain and meander zone between Rialto Drain and Mission Boulevard is confined by levees to a width of about 800 to 900 feet for the majority of the reach. Below Mission Boulevard, the river becomes wider and few adult sucker occur due to generally poor habitat conditions (see *Baseline* section for detailed information).

Surveys for sucker were conducted annually in the Santa Ana River using 3-pass depletion methods (electroshocking) in three 328-foot (100-meter) reaches above Prado Dam between 2001 and 2011 (Even *et al*. 2012). Population estimates for the 4.8-mile section of river between Rialto Drain and about 0.4 miles downstream from Mission Boulevard ranged from 9,248 in 2002 to 2,256 in 2009[7]. No clear pattern of increasing or decreasing numbers was discernable, given the wide fluctuations across years.

The U.S. Geological Survey (USGS) began conducting annual Native Fishes Surveys in the Santa Ana River in 2015, using a combination of survey methods (electroshocking and snorkeling), in many (15 to 27) short segments (164 feet, 50 meters) located primarily above Riverside Avenue.[8] They calculated preliminary population estimates for the reach between Rialto Drain and about 0.2 miles below Highway 60 in the years from 2015 to 2019 as 6,802, 7,208, 6,424, 935, and 4,149, respectively. These numbers are not directly comparable to estimates by Even *et al*. (2012) due to differing methodologies; however, both sets of data indicate that sucker populations can dramatically fluctuate with in response to ecological conditions (discussed further below).

Reproduction

Sucker typically spawn in the first spring following hatching. Spawning generally begins in mid-March, peaks in April and May, and concludes by July, although spawning has been noted as early as February in the Santa Ana River (Haglund *et al*. 2003; Russell *et al*. 2019). Spawning takes place over gravel riffles where fertilized eggs adhere to substrate and hatch within 15 days (Greenfield *et al*. 1970). Based on a review of length frequency data between 2001 and 2008, sucker in the Santa Ana River generally survive only to 2+ years, which is 1 year less than in the San Gabriel and Santa Clara River systems (Haglund *et al*. 2010).

Sucker have several life history traits (early sexual maturity, a protracted spawning season, and high fecundity) that allow populations to survive through periods of unfavorable environmental conditions associated with the dynamic fluvial systems they inhabit (Greenfield *et al*. 1970; Moyle 2002). The streams they inhabit are naturally subject to periodic, severe flooding as well as extended drought conditions typical of southern California climate. Researchers hypothesized that tributaries were once the primary source of spawning habitat in the Santa Ana River (Chadwick Ecological Consultants 1996; Haglund *et al*. 2002); however, these areas no longer support sucker due to the inconsistent presence of surface flows and the prevalence of non-native aquatic species (Russell *et al*. 2019). Spawning is limited to portions of the mainstem where there is appropriate gravel/cobble substrate. The distribution of suitable spawning substrate

[7] Estimates calculated by multiplying reach length in miles (4.75 miles) by fish per mile for each year.
[8] Preliminary data received from L. Brown (USGS) on March 26, 2020.

ranged from about 2 to 8 river miles in the period between 2006 and 2018 (Santa Ana Sucker Conservation Team 2019).

Distribution

Santa Ana sucker are located in four watersheds but the listed entity is confined to three watersheds in southern California: (1) Santa Ana River in San Bernardino, Riverside, and Orange counties; (2) San Gabriel River in Los Angeles County; and (3) Big Tujunga Creek, a tributary to the Los Angeles River in Los Angeles County (Service 2000). The population in the Santa Clara River in Ventura County is not the listed entity. At the time of listing, we estimated that the sucker had lost at least 70 percent of its range in each watershed and that the range and distribution of sucker was primarily limited by habitat modifications attributed to urbanization (e.g., dams, road crossings, cement-lined channels) (Service 2000). In September of 2020, the Bobcat Fire burned 116,000 acres along the West Fork of the San Gabriel River (InciWeb 2020), which is now under imminent threat of mudflows that could make the stream uninhabitable for sucker. We had previously considered the San Gabriel River population to be the most viable of the populations in the three watersheds because of the area suitable habitat available and less extensive threats affecting the species compared to the other two watersheds (Service 2017b).

Sucker were historically documented in the mainstem of the Santa Ana River from near the current location of Seven Oaks Dam to approximately 14 miles below Prado Dam, and in tributaries including City Creek, Warm Creek, Lytle Creek, Rialto Channel, Evans Lake drain, Tequesquite Arroyo, Sunnyslope Creek, Anza Park drain, and Chino Creek (Service 2017b). At the time of listing, barriers to migration restricted the range of sucker to approximately 34 miles from South La Cadena Drive to near Imperial Highway (California State Route 90). Prado Dam bisects the remaining range and the new dam outlet structure that was completed in 2008 is a barrier to fish passage. The species was last observed below Prado Dam in 2010 (RCRCD 2010) and is likely extirpated from that part of its range. We estimate the current range is now limited to about 26 miles above Prado Dam.

The distribution of the population in the Santa Ana River is much more limited than the accessible range and corresponds primarily with areas of gravel and cobble (Haglund *et al*. 2001; Thompson *et al*. 2010; SAWA 2014). Above Prado Dam, the extent of gravel/cobble substrate varies from year to year but ranged from about 2 miles (measured in 2014 and 2018) to 8 miles (measured in 2016) between 2006 and 2018 (Santa Ana Sucker Conservation Team 2019).

Recovery

The 2017 Recovery Plan identifies three recovery units (RU) for the sucker, corresponding to the three watersheds in where the listed entity is present: (1) the Santa Ana River Watershed RU, (2) the San Gabriel River Watershed RU, and (3) the Los Angeles River Watershed RU. To have sufficient levels of resiliency, redundancy, and representation for recovery, the sucker must comprise healthy, viable populations within each of the three RUs.

The primary threat to sucker is range-wide modification, fragmentation, and loss of habitat through hydrological modifications. The key challenge to recovery of the sucker in the Santa

Ana River will be developing a recovery strategy that can be implemented in consideration of the continuing water needs of people in the region and the requirements for flood control operations to maintain human health and safety. The remaining isolated population in the Santa Ana River has limited ability to avoid habitat areas degraded by hydrologic modifications, reduced water quality, invasive plants and predatory animals. They are also particularly vulnerable to stochastic events, such as wildfire, severe flooding, or a chemical spill because they have very limited access to tributaries that could provide a refuge during such events. Moreover, the small size of the population reduces genetic exchange, which may result in decreased fitness. A detailed evaluation of all threats, conservation efforts, and conservation needs is included in the recovery plan (Service 2017b).

ENVIRONMENTAL BASELINE

The regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action (in this consultation, both the Plan and the Project). The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR § 402.02).

Action Area

Regulations implementing the Act (50 CFR § 402.02) describe the action area as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The action area includes the entire Project footprint that contains Project actions including the permanent footprint, TCE, staging area, the borrow area and haul route, and a 200-foot buffer around each area (Figure 1). The action area was determined by accounting for direct impacts of project actions within the footprint and indirect impacts from project actions such as noise and vibrations that extend beyond the project footprint.

The action area (Figure 1) of the Project lies on the south edge of the Santa Ana River floodplain to the top of the bluff slope and to Shadow Canyon Circle. This section of the Santa Ana River is surrounded by residential housing, and the majority of the action area has been disturbed or degraded by equestrian use, restoration activities, and/or invasive and exotic plants. The topography ranges from flat within the floodplain and secondary (i.e., unwetted) channel to the steep slopes of the bluff. Several small drainages carry flows from the top of the bluff down to the floodplain. The secondary channel substrate is comprised of thick, soft sand with little to no coarse gravel or cobbles. Vegetation surveys were conducted in spring and fall of 2019 (Figures 3–7). The borrow area is vegetated by recently disturbed and restored grassland with gentle slopes. Nonnative grasses and forbs dominate the vegetation in the surrounding area.

There is low potential for listed species to occupy or forage in the borrow area. The haul route is on existing paved roads that have consistent use by vehicles.

Least Bell's Vireo

Status of the Species in the Action Area

In 2020, surveys performed by Aspen Environmental documented 11 vireo territories within the action area, including 1 approximately 20 feet outside the 200-foot buffer defining the action area (Maggio 2020, pers. comm.; Figure 8). Of these, seven were within the Project footprint, including the TCE, and four were within (or just outside) the 200-foot buffer used to account for noise impacts. The Project is expected to permanently remove a total of 26.8 acres of riparian vegetation (Table 1), the majority of which the Corps has categorized as disturbed and is dominated by invasive arundo. The Project is expected to result in the temporary loss of 21.1 acres of riparian habitat, the majority of which is also disturbed.

Data from surveys conducted just outside of the action area in 2020 indicate vireo territory size in the Norco Bluffs area ranged from approximately 0.4 to 2.0 acres (Zembal *et al*. 2020).

Cowbird trapping was carried out in the Norco Bluffs region (from Interstate 15 downstream to River Road) from 2013 through 2018 by a Corps-funded contractor. In both 2019 and 2020, only one cowbird trap was placed in this area by SAWA. No cowbirds were detected in vireo habitat over the course of the 2020 season, and parasitism was not observed in 2020 or previous survey years (Zembal *et al*. 2020).

The Hamner Avenue Bridge Replacement Project (Hamner Bridge Replacement; FWS-WRIV-12B0287-19F0719) is expected to be constructed concurrently with the proposed Project. The Hamner Bridge Replacement is upstream of the proposed Project action area. Because pile driving (a louder than average construction-generated noise), is anticipated during the Hamner Bridge Replacement, a 500-foot buffer was used to assess associated impacts to listed species and critical habitats. The 500-foot Hamner Bridge Replacement buffer extends into the proposed Project's TCE for an overlap of approximately 2 acres. Based on 2020 survey data, there are two vireo territories documented within both the Hamner Bridge Replacement's 500-foot buffer (ICF 2019) and the proposed Project's action area (i.e., including the Project's 200-foot noise buffer). The Hamner Bridge Replacement will remove breeding habitat prior to the arrival of vireos in the spring, but vireo may be displaced by vegetation removal and remaining vireo may be negatively affected by construction noise. In particular, pile driving may result in detrimental effects to breeding vireo in the proposed Project action area. See the discussion within *Effects to the Species* section below for a discussion of combined effects that may occur as a result of both projects.

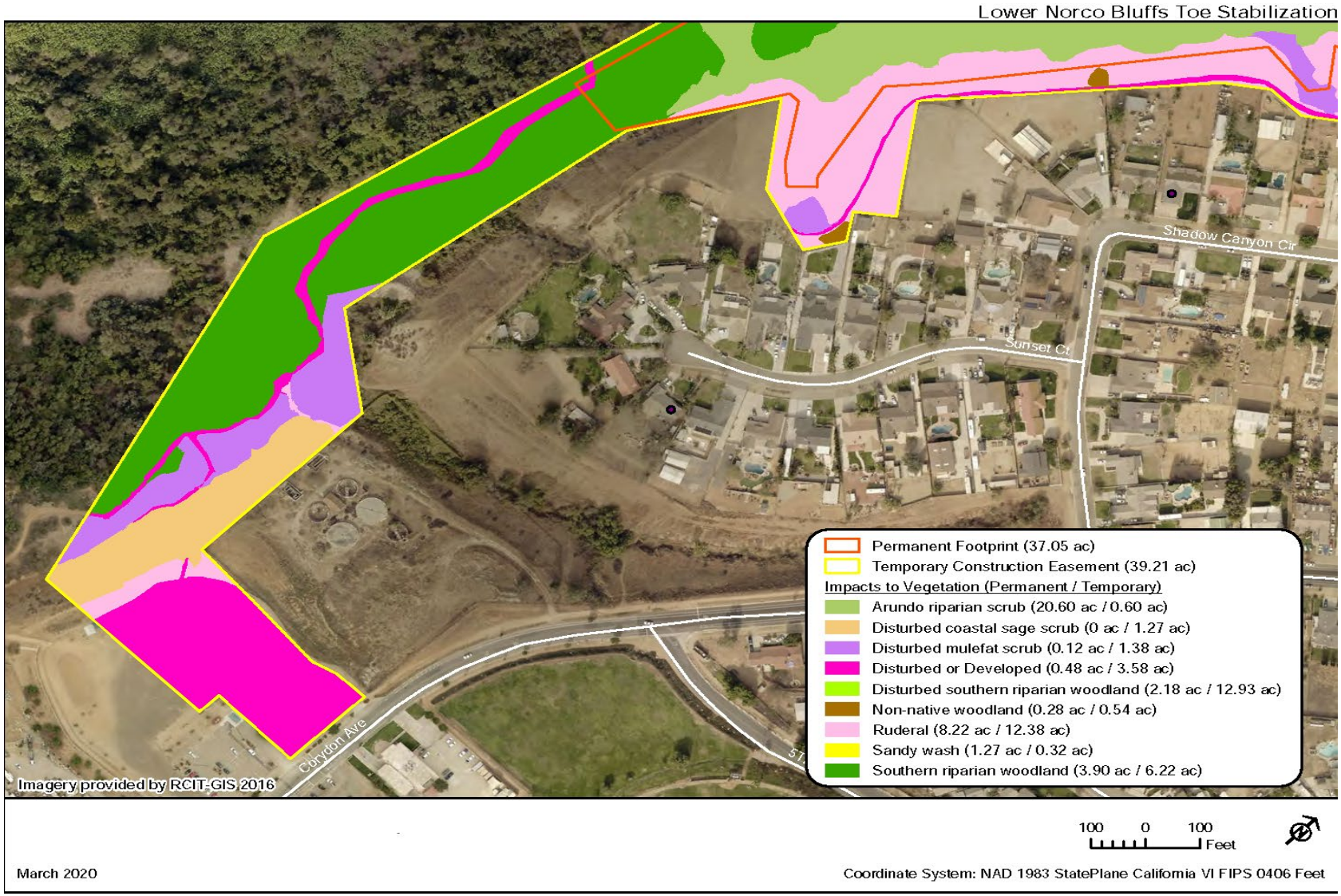

Figure 3. Permanent and temporary impacts to vegetation communities in the southern portion of the project footprint.

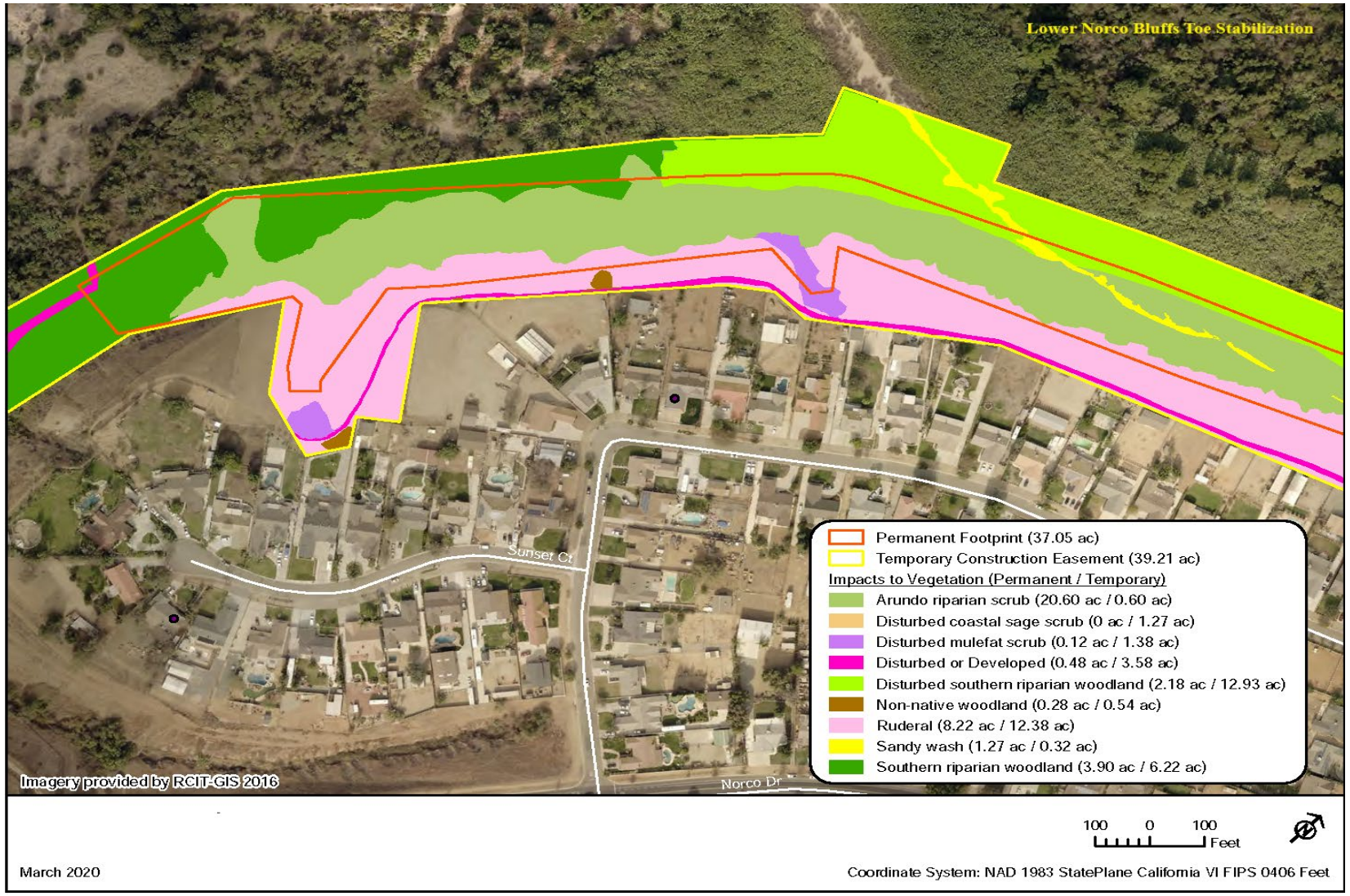

Figure 4. Permanent and temporary impacts to vegetation communities in the second-to-southern-most portion of the project footprint.

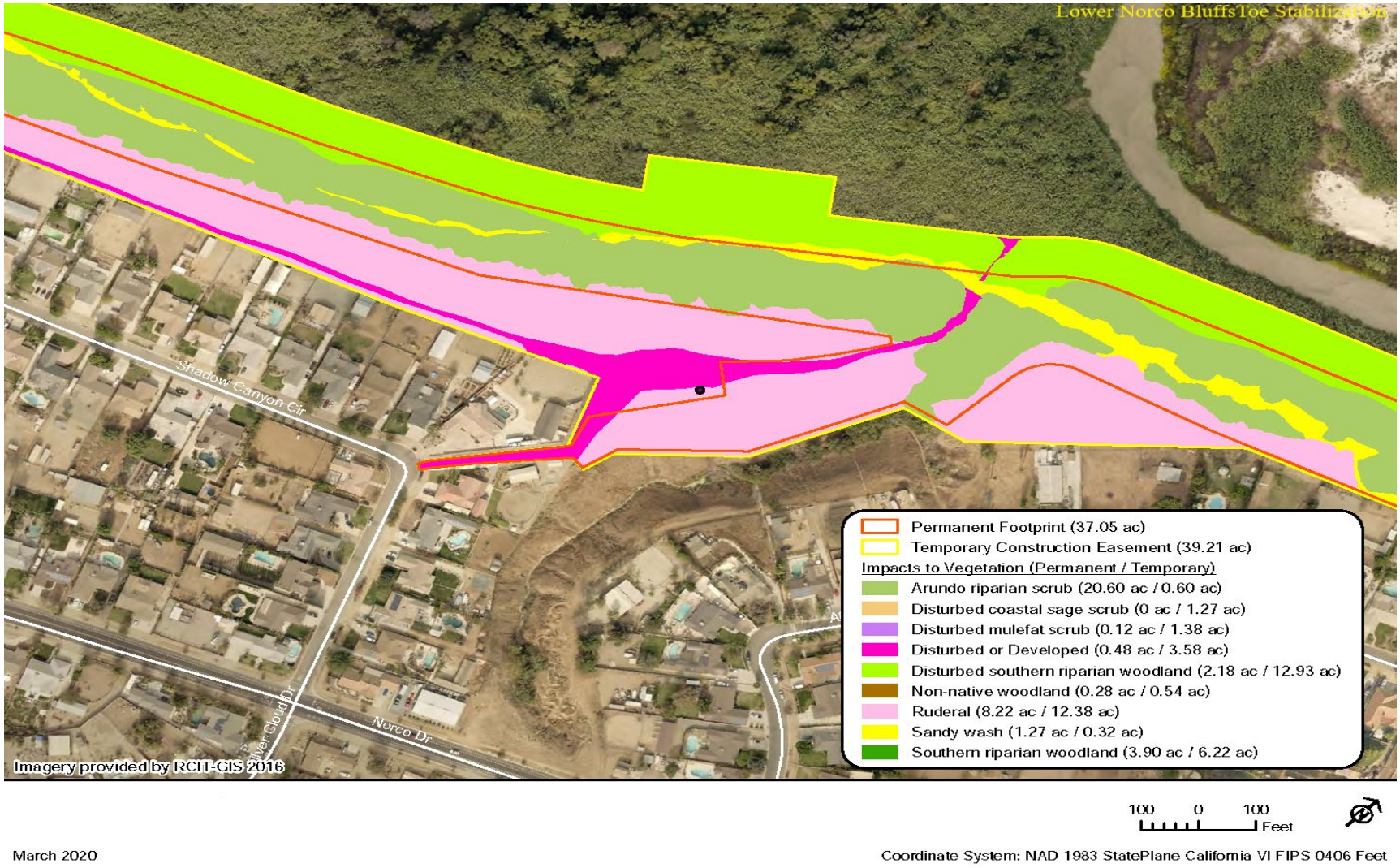

Figure 5. Permanent and temporary impacts to vegetation communities in the middle portion of the project footprint.

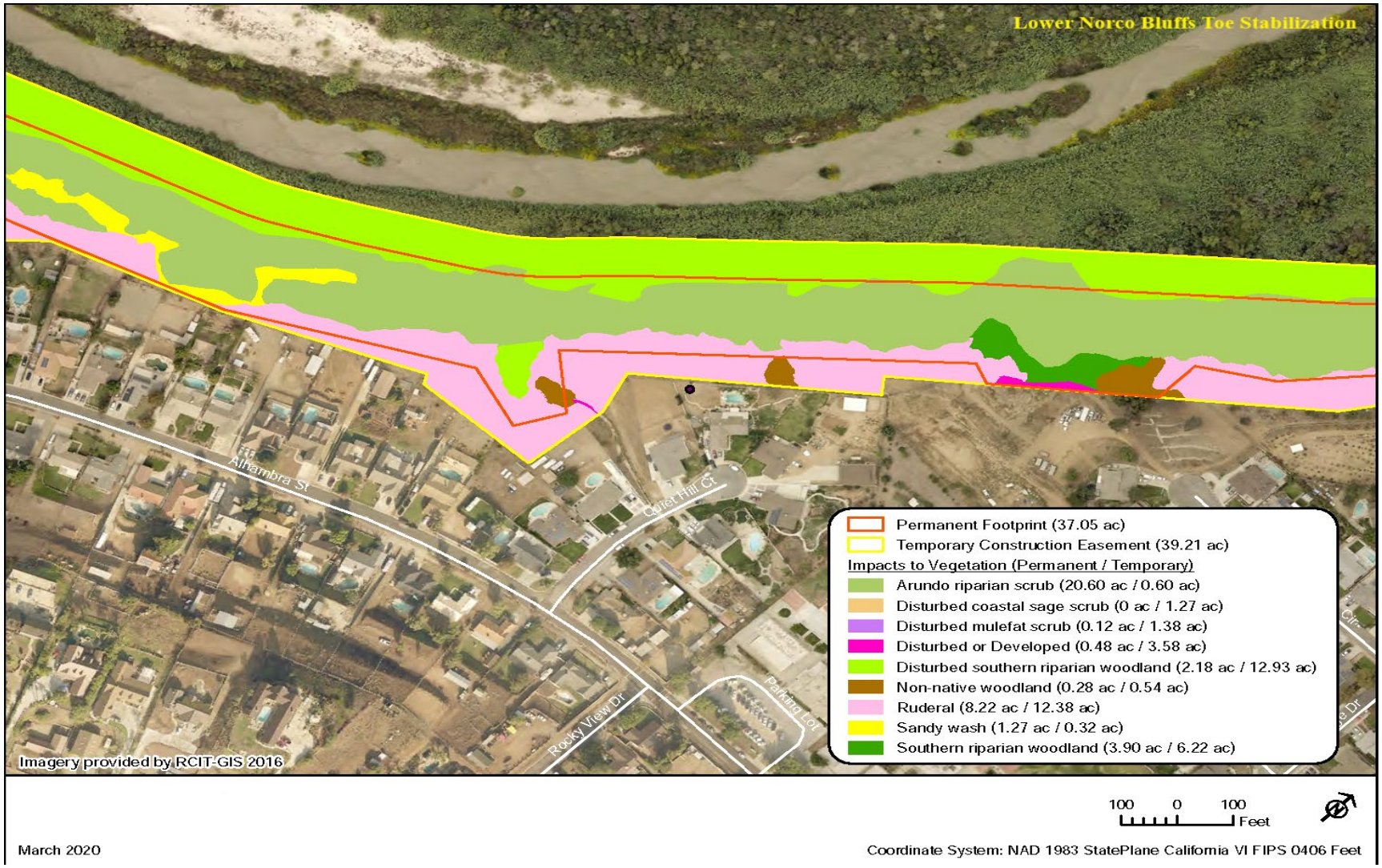

Figure 6. Permanent and temporary impacts to vegetation communities in the second-to-northern-most portion of the project footprint.

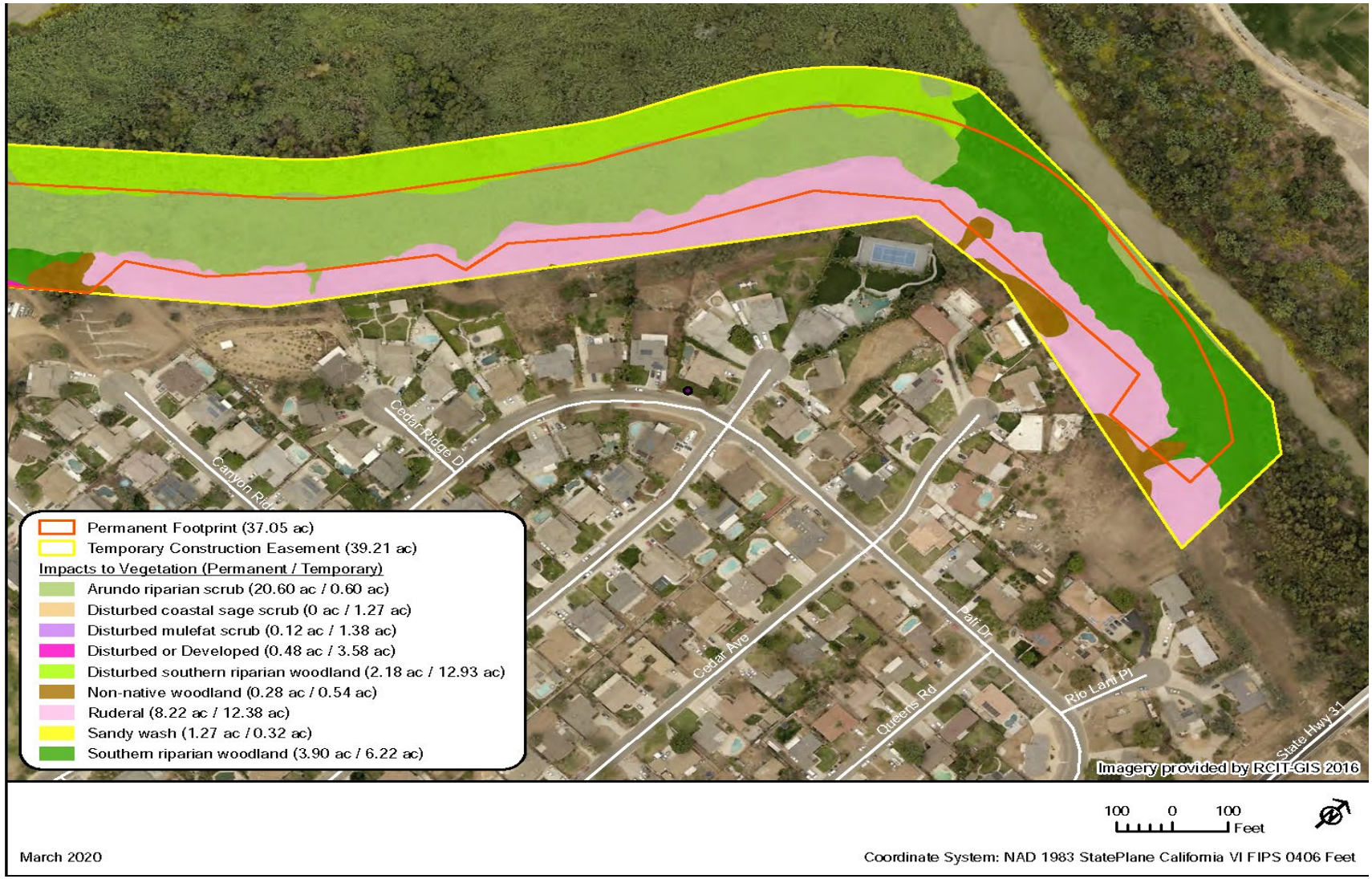

Figure 7. Permanent and temporary impacts to vegetation communities in the northern portion of the project footprint.

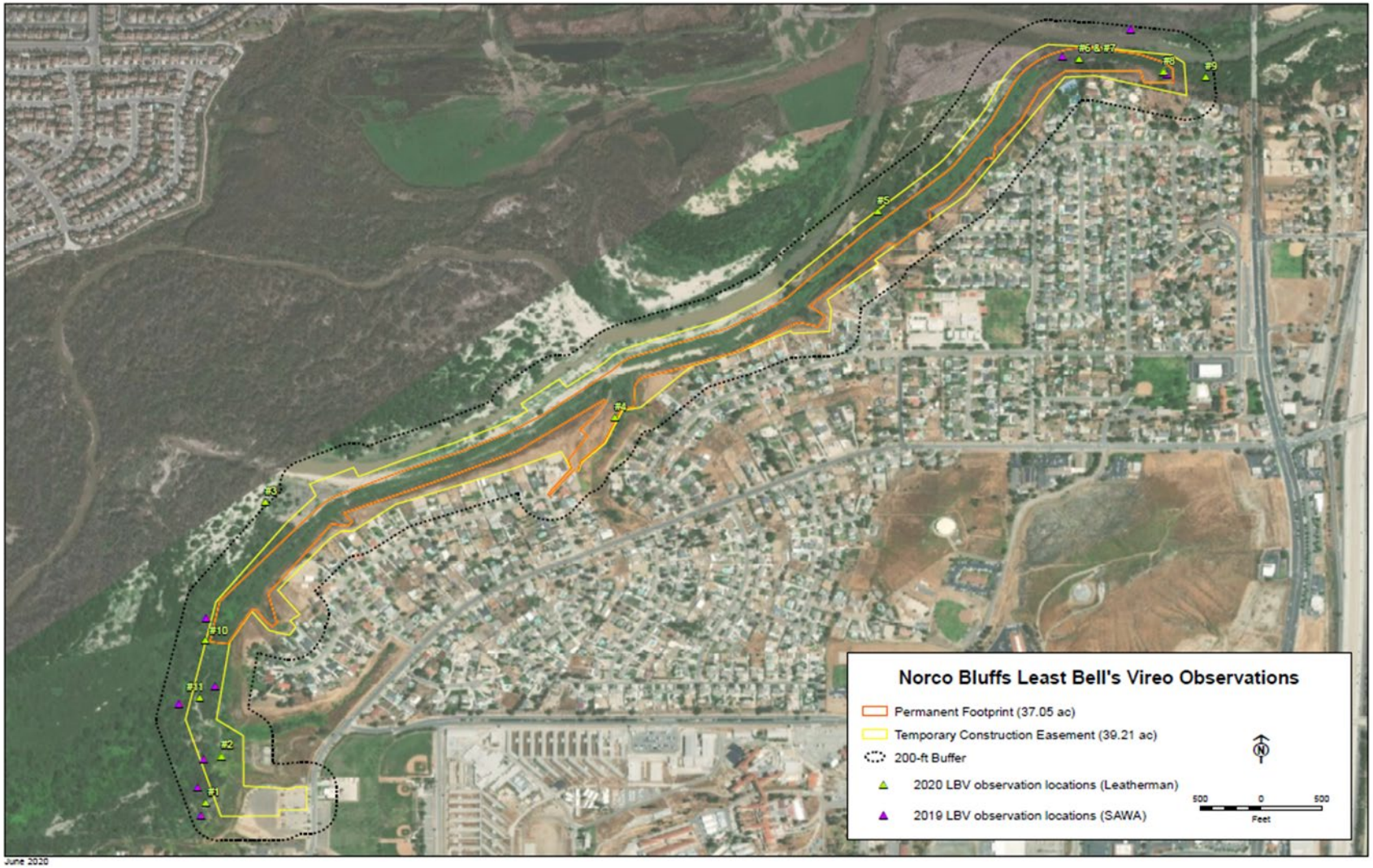

Figure 8. 2019 and 2020 vireo locations within the action area.

Status of Designated Critical Habitat in the Action Area

The Project is expected to permanently remove 36.9 acres of designated vireo critical habitat within the Santa Ana River: approximately 0.4 percent of this 9,892.5-acre critical habitat area within Riverside and San Bernardino Counties. These 36.9 acres represent less than 0.1 percent of the 38,000-acre designated critical habitat over the species range. The Project is expected to temporarily affect 35.6 acres of designated critical habitat. The Corps has estimated that approximately 48 acres of the 72.4 total acres of vireo critical habitat contain the PBFs to support vireo, namely riparian woodland vegetation that generally contains both canopy and shrub layers, including some associated upland habitats for foraging. The majority (roughly 38 acres) of these 48 acres of designated critical habitat is currently functioning at a reduced value; however, due to the abundance of arundo and other non-native species throughout the riparian habitat within the action area.

The immediately adjacent Hamner Bridge Replacement is anticipated to permanently remove up to 0.26 acres, and temporarily affect up to 4.33 acres, of designated vireo critical habitat with the PBFs to support vireo. However, none of these acres overlap with the proposed Project's action area. These impacts are expected to occur simultaneously with, or immediately prior to the implementation of the proposed Project.

Recovery

The Santa Ana River population of vireo meets the downlisting criteria specified in the 1998 Draft Recovery Plan; the population is currently protected and managed, although the primary threats to the population are still present and show no signs of abating should the management cease. The number of vireo has been increasing since the Draft Recovery Plan was written. The number of observed vireo pairs within the watershed was 1,199 in 2020 (Pike 2020; Zembal *et al*. 2020), satisfying the stated goal of several hundred or more breeding pairs in the Santa Ana River watershed.

The Project footprint is heavily infested with arundo, but there are ongoing efforts to remove the plant immediately outside the project footprint. In 2016, the Riverside-Corona Resource Conservation District (RCRCD) began to remove arundo from the adjacent Altfillisch Property in association with multiple mitigation projects and their In-Lieu Fee Program. Follow-up spot treatments and pole cuttings are still being used to facilitate the regeneration of native habitat in the area. This restoration work is expected to continue for at least another 3 years. Upon meeting the project's success criteria, this Altfillisch Property will be managed in perpetuity to retain the habitat values and prevent re-infestation. Arundo removal by the Corps and other partners has been greatly beneficial to the Santa Ana River, but ongoing management efforts are required to control the invasive plant.

The polyphagous shot-hole borer beetle is an ongoing concern as their infestation is expanding and there are currently no viable large-scale control methods. Local biologists have found that arroyo willows and red willows seem to be the most affected, while the black willows appeared

less impacted. The Norco Bluffs area seems to be particularly impacted by the beetle (Zembal *et al*. 2020), but no associated change in vireo distribution and numbers has been reported.

Santa Ana Sucker

Status of the Species in the Action Area

Sucker in the Santa Ana River are most numerous above Mission Boulevard. There has been less effort to collect information on the distribution, numbers, and reproduction of sucker below Mission Boulevard (i.e., within the action area) due to the generally poor quality of habitat found there. Within the vicinity of action area, the river is generally a wide, low gradient stream. The shifting sand substrate that occurs throughout this area provides low food resources and does not support spawning. The Project footprint itself is just adjacent to the current wetted reach that could support sucker.

It appears that the wetted reach in the vicinity of the action area has provided appropriate habitat to larval sucker in some years. Between the Hamner Avenue crossing of the Santa Ana River (just upstream of the Norco Bluffs construction site) and the Prado Dam, researchers caught 3 fish in 1991, 76 fish in 1997, 22 fish in 1998, 5 fish in 1999, and 3 fish in 2000 (Chadwick Ecological Consultants 1996; Swift 1997, 1998, 1999, 2001). All 76 fish caught in the Norco Bluffs area in 1997 were between 0.8 and 2.8 inches (20 and 70 millimeters) in Standard Length. Therefore, Swift (1997) hypothesized that this area was a nursery for the sucker. The fish caught in this area during other years were adults or the length information was not provided. Within the past decade, one fry was detected near the Hamner Avenue Bridge in 2013 (SAWA 2014), and three adult sucker were caught and released via electrofishing within a 0.5-mile survey area adjacent to the Project footprint in November 2020 (Aspen Environmental Group 2021).

Sucker habitat quality and quantity in the action area vicinity have been reduced by sedimentation upstream of the Prado Dam, and the construction and maintenance of flood control structures. Sedimentation reduces available spawning habitat and food sources by covering favorable cobble and gravel substrate. The installation of hard bank stabilization structures upstream of the action area within the Santa Ana River has also contributed to habitat loss. Hard bank stabilization structures reduce habitat quality and quantity by reducing bank vegetation and increasing flow, thus facilitating the downstream mobilization of larger-sized substrate. Habitat quality is further reduced when bank stabilization structures stabilize flow patterns and remove pool-riffle complexes.

The Water Resources Development Act (WRDA) of 1986 authorized construction of Seven Oaks Dam and modifications to Prado Dam as part of the SARP. Cumulative modifications to the hydrologic system in the Santa Ana River from implementation of the SARP have diminished the frequency and extent of channel shaping flow events and interrupted the transport of coarse sediment from the headwaters to the ocean. As much as 40 feet of sediment has deposited along the Santa Ana River, including as much as 12 feet near Hamner Avenue, since the Prado Dam was constructed (Scheevel Engineering 2018). Modeling conducted by Golder Associates, Inc. (2015), using 2008 topographic surveys, predicts about 6 feet of deposition near Hamner Avenue

within a 10-year period. Most of the deposition has or is expected to occur on the floodplain adjacent to the active channel. Topographic surveys of the low flow channel invert show little change between 1988 and 2015 (Scheevel Engineering 2020). Water is expected to be held behind Prado Dam at a higher elevation, and sediment deposited upstream will cause the stream gradient to become progressively flatter, slower, and wider, reducing channel complexity and expanding the extent of backwater pools upstream to Hamner Avenue (Scheevel Engineering 2020). Backwater pools favor exotic species that predate on sucker, and the fine substrate that settles out in still water is unsuitable for sucker breeding and/or foraging.

A majority of the existing base surface flow in the action area is derived from wastewater sources. The general trend in the Santa Ana River is a reduction in surface flows due to water capture for groundwater recharge and extraction for human use. A significant threat to the Santa Ana River population of sucker is poor water quality, including perennially warm surface flow. Increased temperatures and reduced velocities associated with a reduction in wastewater discharges have created conditions more suitable for non-native predatory fish, which have increased exponentially since 2017 (Brown *et al*. 2019). The most common non-native fish species found in this lower portion of the river (above Prado) were fathead minnow (*Pimephales promelas*), green sunfish (*Lepomis cyanellus*), bullhead catfish (*Ameiurus* spp.), largemouth bass (*Micropterus salmoides*), and mosquitofish (*Gambusia affinis*) (Swift 2001). Reducing threats from poor water quality, reduced surface flow, and extreme fluctuations in water supply will improve the status of sucker within the vicinity of the action area.

The Hamner Bridge Replacement will occur immediately upstream of the Project's action area and has the potential to cause reduced water quality due to erosion and road runoff, increased turbidity, temporary changes to bed materials or existing channel contours or slope, and downstream siltation (ICF 2019). However, these impacts are expected to be greatly reduced with implementation of BMPs. A qualified biological monitor will be present during all relevant construction and will ensure that BMPs will be followed and applied to minimize siltation, changes to channel bed and bank contours, and avoid measurable adverse effects on sucker. Operation of the expanded bridge and roadway is not anticipated to result in any relevant changes to volumes, flow regimes, point sources, or the quality of upland water (e.g., stormwater flows). The project will implement BMPs for permanent operating conditions, including a SWPPP and water quality control measures. These will maintain or improve water volumes and quality from bridge and roadway surface flows at the Hamner Avenue Bridge.

Recovery

Since the species was listed as threatened in 2000, significant efforts to increase the quality of habitat for sucker, including habitat restoration and non-native aquatic species removal programs, have contributed to preventing extirpation of the species from the Santa Ana River. However, these efforts often require disturbance to sucker and their habitat, provide only short-term benefit to the species, and have not reversed, stabilized or improved the species status in the Santa Ana River. The scale of the habitat restoration projects in the Santa Ana River have not been sufficient to compensate for underlying river morphology (i.e., deep sand bed) and hydrology. Increasing efforts and associated disturbances to sucker will be required to compensate for

increases in non-native aquatic species, as habitat becomes progressively more suitable for those species. Naturally sinuous river channels should be encouraged throughout the historic range of the sucker, and ponded water should be reduced to a minimum and/or managed in such a way as to discourage entry by the sucker.

EFFECTS OF THE ACTION

Regulations implementing the Act (50 CFR § 402.02) define the effects of the action as all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR § 402.17).

The regulations for section 7(a)(2) note that "a conclusion of reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available" [50 CFR § 402.17(a)]. When considering whether activities caused by the proposed action (but not part of the proposed action) or activities reviewed under cumulative effects are reasonably certain to occur, we consider factors such as (1) past experiences with activities that have resulted from actions that are similar in scope, nature, and magnitude to the proposed action; (2) existing plans for the activity; and (3) any remaining economic, administrative, and legal requirements necessary for the activity to go forward.

Least Bell's Vireo

Effects to the Species

Vegetation Clearing

Surveys conducted in 2020 documented 11 vireo territories within the action area (Figure 8). The pair status within these territories is unknown; each territory may represent one or more vireo. Of these territories, seven occur within the area of vegetation clearing within the Project footprint. Four of the seven are within the permanent impact area, and three are within the temporary impact area. These seven territories represent approximately 0.3 percent of the vireo territories documented within the Santa Ana River watershed in 2020 (n=2,293) and 0.2 percent of the vireo territories documented range-wide in 2018 (n=3,413).

The clearing of riparian habitat for Project construction will occur outside of the vireo breeding season (CM 19); therefore, we do not expect that vireo adults, eggs, or nestlings will be killed or injured during riparian habitat removal. However, vireos are territorial and exhibit site fidelity. So the seven affected vireo males (or pairs) will lose their respective territories and be forced to relocate in 2022. The male vireos will probably be able to establish new territories elsewhere in the vicinity. Although, as vireo are distributed throughout much of the suitable habitat, and there will be an ongoing adjacent construction project (see below), the displaced birds will be forced to compete with residents which may delay territory establishment and decrease their reproductive fitness. The displaced birds represent approximately 0.3 percent of the vireo in the Santa Ana

River watershed. They are expected to survive displacement and some of them may be able nest the year they are displaced. Any decrease in reproductive output should be temporary. Therefore, we do not anticipate a lasting or significant effect to vireo numbers, distribution, or reproduction. The ongoing restoration at the neighboring Altfillisch Property project will provide additional riparian habitat for displaced vireos to occupy.

The estimated 26.8 acres of occupied riparian vegetation to be permanently removed will not be available to vireo in the future. However, the Corps' vegetation surveys identified the majority of this (20.6 acres) as dominated by non-native arundo, which is considered low-quality riparian habitat. Only 3.9 acres were identified as (undisturbed) native riparian habitat. In addition, to offset the permanent loss of riparian habitat, the Corps will remove arundo elsewhere in the Upper Santa Ana River watershed at a 5:1 ratio, actively monitor and manage this acreage for a period of 5 years, and then arrange for this acreage to be maintained as arundo-free for the life of the SARP (CM2). This would result in the removal of an estimated 134 acres of arundo, which can be expected to be replaced by regrowth of native riparian habitat. Thus, we do not expect a measurable loss to available riparian habitat due to the permanent Project impacts.

The majority of the 21.1 acres of riparian habitat to be temporarily affected is categorized as disturbed by the Corps (12.9 acres). The 21.1-acre temporary impact area will be restored upon Project completion (CM 5), and vireo are expected to return to this habitat in 3 to 5 years. The Corps will also remove arundo elsewhere in the Upper Santa Ana River watershed at a 1:1 ratio, and manage it for 1 year before transferring long-term maintenance to SAWA or another approved entity (CM 4). Alternatively, the Corps will remove arundo elsewhere in the Upper Santa Ana River watershed at a 3:1 ratio, maintaining the area for at least 5 years (CM 4). This conservation measure will result in an estimated 21.1 acres or 63.3 acres of arundo removal, respectively. With the replacement of riparian habitat on-site and the improvement of riparian habitat offsite, we do not expect a measurable loss to the riparian habitat available to vireo in the Upper Santa Ana River watershed.

To further support the vireo population in and around the action area, the Corps or local sponsor will perform cowbird trapping during, and for the 5 years following construction, within the vicinity of Norco Bluffs during vireo egg-laying season (CM 20). We expect this measure will help offset any decrease in productivity caused by the displacement of birds from the construction area.

Effects Due to Noise

The Corps used a distance of 200 feet from the Project footprint to estimate potential noise disturbance impacts from construction activities. Four of the 11 vireo territories documented within the action area were within (or just outside) the 200-foot buffer. Increased noise could disturb these breeding vireo, affecting their ability to establish and defend territories, or locate their young and mates. If disturbed while actively nesting, construction activities could result in nest failure or abandonment. To minimize noise impacts, the Corps will construct a sound wall or other noise barrier at the edge of riparian habitat within the TCE prior to February 28 (CM 21). While pile driving will be used to install the sheet pile shoring on top of the flood barrier berm,

this activity will occur outside of vireo nesting season, and we expect no effects to vireo from pile driving.

The construction equipment expected to be in use during the nesting season would generate a maximum sound level (L_{max}) of 85 dBA at 50 feet from the source (Federal Highway Administration 2006, Table 1). L_{max} is the highest instantaneous sound level measured during a specified period. Construction noise is commonly reported in maximum noise levels, which are not typically sustained over long periods of time. Construction equipment generally acts like a point source and will typically reduce at a rate of 6 dB per doubling of distance, without considering additional attenuation that varies with the environment (CalTrans 2016). Additionally, a break in the line of sight between the noise source and the receptor using sound walls can result in a 5 dBA reduction (Federal Highway Administration 1995).

The Corps and Service have previously agreed upon 60 dBA Leq per half hour, or 5 dBA above ambient conditions, as the threshold to assess impacts to vireo due to noise. A study examining the effects of helicopter noise at Camp Pendleton in San Diego County found that vireo vocalization rates were significantly reduced when noise levels exceeded 60 dBA Leq and breeding success was 3 to 11 percent higher outside of the zone exposed to 60 dBA (Mock and Tavares 1997), although we note that this effect is difficult to tease apart from external factors. The authors still found an exponential increase of vireo following cowbird management and habitat restoration at Camp Pendleton, suggesting that the impacts of noise are minor compared to cowbird parasitism and habitat degradation. Additionally, it should be noted that the Service has been unable to track the specific methods and analysis used by Mock and Tavares. However, with the lack of other study data indicating that the 60 dBA threshold is inappropriate to use for this species, we will not deviate from our standard practice.

Our rationale for allowing construction noise up to 5 dBA over ambient is in recognition that vireo habituation to elevated ambient noise has been documented at some locations of the SARP (e.g., adjacent to State Route 91). In general, we do not expect elevated ambient noise at the Project location, as it is surrounded by a riparian corridor and residential neighborhoods; however, pre-construction noise monitoring will occur to determine the actual threshold to be used. It should be noted that the construction of the Hamner Bridge Replacement just upstream of the action area will result in elevated noise conditions (due to pile driving), so pre-construction noise monitoring was conducted before construction on the Hamner project began (in January 2021).

By reducing the expected maximum noise level by 5 dBA due to the sound wall (i.e., 80 dBA on the opposite side of the sound wall from construction), then doubling the distance from the point source of the sound to 100 feet (74 dBA with the 6 dB reduction), and further to 200 feet, the sound could still be as much as 68 dBA L_{max} within the 200-foot buffer impact estimate by the Corps. Additionally, Mock and Tavares (1997) note that while sound walls are effective at sufficiently reducing noise to acceptable levels within the understory habitat where most nests are placed, vireos vocalize mostly from the upper canopy layers (above 8 feet), where noise barriers are ineffective at moderating noise levels to below 60 dBA Leq. For these reasons, we anticipate that all four vireo territories within the 200-foot buffer will be affected by construction

noise, and one of them will also be affected by noise from the Hamner Bridge Replacement (see below).

To assess this temporary effect, the Corps will create a soundscape to record both ambient and construction noise at increasing distances from the Project footprint within the adjacent riparian habitat. Based on this soundscape and regular noise monitoring (CM 22), the Corps will provide an estimate of occupied vireo habitat that was subjected to noise above 60 dBA Leq per half hour, or 5 dBA above ambient. Noise monitoring will be conducted in the morning to capture the most active calling time, and when potential masking could have the greatest effects. In the past, the Corps' contractor calculated the distance at which noise levels would be in compliance by using a line distance calculator, collected noise exceedance/distance information, and knowledge of the point course (construction activities). The resulting acreage impacted could be more or less than that what occurs within the Corps' estimated 200-foot buffer. This acreage of temporary effects will be offset through arundo removal at 1:1 acre ratio, per year of impact (i.e., if more than one breeding season was affected). With implementation of CM 22, we do not expect a significant effect to vireo due to noise impacts due to the proposed Project.

Combined Effects with the Hamner Avenue Bridge Replacement

The Hamner Bridge Replacement has completed vegetation removal and will have begun construction by the start date of the proposed Project. The loss of up to 0.26 acres of adjacent occupied riparian habitat by the adjacent Hamner Bridge Replacement is not anticipated to have measureable additive effects with the proposed Project. Based on 2017 and 2020 survey results, four vireo territories in the action area may be impacted by noise from the Hamner Bridge Replacement (see below), prior to vegetation removal for the proposed Project.

The additional temporary (noise) impacts to 4.33 acres of occupied vireo habitat due to the Hamner Bridge Replacement will likely reduce the presence of vireo in the Norco Bluffs action area until these roughly 25 acres (i.e., 4.33 + 21.1 acres) of habitat are sufficiently restored. Restoration plans for the Hamner Bridge Replacement will be implemented within 12 months of the completion of major construction activities. Vireo generally re-establish territories in restoration sites that are on the edge of existing riparian habitat in 3 to 5 years. Therefore, under the best-case-scenario vireo may begin to return to the respective construction sites within 3 years, once the proposed Project is completed.

As the Hamner Bridge Replacement is anticipated to be constructed concurrently with the proposed Project, we foresee that it will be difficult to separate out noise effects between the two projects at the northeast (i.e., upstream end) of the proposed Project. Pre-construction ambient noise monitoring was conducted prior to the start date for the Hamner Bridge Replacement to get an accurate representation of noise in the area. As pile driving activities are proposed for the Hamner Bridge Replacement, negative noise impacts from this project are expected to far outweigh measurable effects from the proposed Project at the northeastern extent. Previous noise monitoring along the Santa Ana River measured 5 dBA over ambient exceeded at 700-1400 feet from pile driving activities (Service 2020). However, the distance pile driving noise travels will vary due to the pile-driving equipment type, elevation contours within the river corridor,

vegetation thickness, and other variables. Based on the 700-1400-foot estimate of pile driving noise influence and the location of territories documented in 2020, it appears that four territories at the far east (upstream) end of the Project will already be negatively affected by noise from the Hamner Bridge Project. Any vireo that are forced to relocate due to either vegetation clearing or excessive noise may face increased competition to establish new territories within the area, until both projects are completed and the temporarily affected habitat restored.

Effects to Vireo Critical Habitat

Although there are 72.4 acres of designated critical habitat within the Project footprint, only 47.9 acres contain the PBFs to support vireo. Additionally, the area of impact is less than 1 percent of the Prado Basin/Santa Ana River critical habitat unit. The riparian woodland vegetation (PBF) that comprises the vireo critical habitat within the Project footprint is currently functioning at a reduced value due to the prevalence of non-native vegetation, especially arundo. The loss of function from the permanent loss of 26.8 acres of riparian vegetation, and the temporary loss of 21.1 acres of riparian vegetation within vireo critical habitat will be mitigated with implementation of conservation measures CM 2 and CM 4, as outlined above in *Effects to the Species*. Additionally, the 21.1 acres of riparian habitat to be temporarily removed will be replaced on-site upon project completion (CM 5). Upon the successful creation and/or restoration of riparian habitat through invasive vegetation removal, we expect an increased function and value of the vireo critical habitat within the Upper Santa Ana River watershed. We do not anticipate measurable combined effects to designated vireo critical habitat due to the concurrent construction and temporary removal of riparian habitat associated with the Hamner Bridge Replacement.

Effects to Vireo Recovery

The number of vireo in the vicinity of the Project's action area has been steadily increasing, although substantial threats requiring ongoing management remain. A Draft Recovery Plan for the species was outlined in 1998 and coordinated actions by several agencies have been taken to promote the recovery of the vireo since it was listed in 1986. The primary goals of the draft vireo recovery plan are stated as: (1) maintain stable or increasing vireo metapopulations, each consisting of several hundred or more breeding pairs; (2) protect and manage riparian and adjacent upland habitats within the historic range of the vireo, (3) control non-native plant species, (4) control cowbird parasitism, and, (5) conduct habitat restoration. Population surveys indicate that the Santa Ana River population has achieved the downlisting criterion from the draft recovery plan, although most of the other populations/ metapopulations of vireo have not. This Project will contribute to vireo recovery by furthering the stated goals of controlling non-native plant species on- and off-site (especially arundo) and controlling cowbird parasitism. Much of the Project footprint consists of non-native arundo, which will be removed.

Santa Ana Sucker

Effects to the Species

The wetted reach in the vicinity of the action area will be avoided (CM 23) and we do not anticipate direct effects to sucker. The Project has specifically been designed to avoid stream

diversion, incorporating temporary earthen berms to help direct flow away from the Project footprint. However, the Santa Ana River watershed is known for flashy high flow events and dynamic hydrology within the floodplain. As such, there remains a fairly high likelihood that a large flow event could erode or overwash the berm and inundate the work area. If this were to occur, work will be halted until a qualified sucker biologist can survey the area, safely remove any sucker present within the work area, and secure the river flow direction (CM 23). A breach in the construction work area would likely have substantial construction consequences as well, and the Service anticipates that further coordination would be needed if such an event occurs.

The wetted reach of the river in the vicinity of the action area does support adult sucker, as evidenced by a November 2020 survey. However, the shallow, sandy habitat is more appropriate for larval sucker and in the past, this stretch of the Santa Ana River was thought to be a potential nursery for larval and early juvenile sucker (Swift 1997). There were observations of numerous larval or early juvenile sucker within the vicinity of the action area in 1997 (Swift 1997) and one larval sucker detected in 2013 (SAWA 2014). However, there have not been regular surveys for sucker in this reach of the Santa Ana River. If the berm is overwashed and sucker are washed into the Project footprint, adult sucker would be identified and removed. Should a late season high flow event (e.g., in February, March, or April) wash larval sucker into the Project footprint, we expect these larvae would be killed regardless of this Project. Precautions will be taken to prevent overwashing into the Project footprint and adult suckers are fecund, therefore, we do not anticipate a measurable loss to the number of sucker in the Santa Ana River due to this Project.

Prado Basin continues to fill with sediment deposited from upstream at a rate of approximately 0.5 to 0.7 feet each year (Scheevel Engineering 2015) which affects the gradient upstream. Scheevel Engineering (2020) predicts a general trend of aggradation over time with transient periods of degradation, based on sediment transport modeling conducted thus far, historical survey data, field observations, and his professional judgment (Scheevel 2020, pers. comm.). As discussed above, the increase in fine sediment deposition is anticipated to expand the extent of backwater pools which favor exotic predators upstream to Hamner Avenue (Scheevel Engineering 2020). Suitable habitat for adult sucker is already compromised in this wide and sandy area, with slow-moving, shallow, warm water. We anticipate no change in reproduction or distribution of sucker due to this Project.

The Corps has included 5 years of aquatic predator removal for the benefit of sucker in the project description (CM 25). This action may occur within the vicinity of the proposed Project or further upstream where sucker are more frequently observed. The location and specific methodology for removal will be coordinated between the Service and the Corps within 1 year of when the Project initiates to determine the actions that would most benefit the Santa Ana River sucker population. We expect this aquatic predator removal will also offset any potential impacts should a storm event wash sucker into the work area.

Common methods for aquatic predator removal include electroshocking and dewatering sections of the stream, which in turn may injure or kill some small number of sucker. The trade-off for conducting these activities in areas that are most suitable for sucker means that the risk to sucker is greater than within unoccupied reaches of stream. We do not have specifics on where and

when this may occur yet; therefore, the density of sucker and resultant number of fish that may be affected is difficult to quantify. Our best estimate is that up to two sucker will be injured or killed due to exotic aquatic species removal events. This few number of sucker that may be killed or injured will be compensated for by the resulting decrease in predation of sucker by exotic fishes. Electroshocking and other exotic eradication events will only occur outside the spawning season to avoid affecting eggs and larval sucker.

Sedimentation caused by construction activities adjacent to the wetted channel could bury larval sucker or cause spawning beds to become covered (an unlikely scenario this far downstream within the river). However, with implementation of CM 24, we do not anticipate impacts from sedimentation. We do not anticipate additional impacts due to the concurrent Hamner Bridge Replacement, as both projects will use BMPs to minimize siltation and other negative effects to sucker and its habitat.

Effects to Recovery

The proposed Project is not expected to have a measurable effect on the recovery of the species. Sucker are doing poorly within the Santa Ana River due to many external factors, including the decreasing river gradient, loss of gravel/cobble beds, decreased baseflows, increased water temperatures, loss of connectivity within their former range due to dam construction and shortening of the wetted length of river, and increasing exotic aquatic predator abundance. The Project will alleviate some pressure from non-native predators for 5 years, which is expected to have a small, but beneficial effect on the local population.

CUMULATIVE EFFECTS

Cumulative effects are effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur in the action area of the Federal action subject to consultation (50 CFR § 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service has no information regarding any future State, local, private, or tribal actions that are reasonably certain to occur in the action area that would have an adverse effect on vireo or sucker that would result in a loss to reproduction, numbers, and distribution in the action area.

CONCLUSION

After reviewing the current status of the vireo and sucker, the environmental baseline for the action areas, the effects of the proposed activities, and the cumulative effects, we have determined that the activities considered in the biological opinion are not likely to jeopardize the continued existence of the least Bell's vireo or Santa Ana sucker, nor result in the destruction or adverse

modification of designated critical habitat for the vireo. We reached these conclusions by considering the following:

Least Bell's Vireo

1. Implementation of the proposed conservation measures will ensure the restoration achieved as part of the Norco Bluffs feature of the SARP is consistent with conservation anticipated in the 2001 and 2012 amendments to the biological opinion.

2. We expect vireo occupying seven territories to be displaced by this Project. These seven territories represent approximately 0.3 percent of the vireo territories within the Santa Ana River watershed and 0.2 percent of vireo territories range-wide. These displaced birds may suffer from reduced reproductive fitness but will still have the opportunity to nest in the concurrent and following years, therefore we do not expect a measurable effect on the population.

3. Habitat supporting an additional four vireo territories may be affected by construction noise, which may reduce the fitness and productivity of these birds. However, any associated impacts will be temporary, lasting the 2-3 years during which the Project is constructed.

4. The 26.8 acres of designated vireo critical habitat (i.e., riparian) to be permanently removed is currently functioning at a reduced value and will be replaced by an increase in habitat function elsewhere within the designated vireo critical habitat along the Santa Ana River. Because the project includes substantial enhancement of riparian vegetation, both on and off-site, we anticipate that the project will result in a net increase of functioning vireo critical habitat.

Santa Ana Sucker

1. The proposed Project is not expected to affect sucker if there are no large high flow events during the 2-3 years in which construction takes place, due to the avoidance measures proposed.

2. If a large flow event inundates the work area, adult sucker will be protected and relocated back into the main channel. If larval sucker are washed into the Project footprint, we do not anticipate a measureable loss to the population due to the proposed Project. Any loss will be offset by the proposed predator removal measure.

3. The loss of up to two sucker per aquatic predator removal event is expected to have a minimal effect due to the fecundity of the species, and will be compensated for with the overall benefit of predator eradication.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. The Service further defines "harm" to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the proposed protective measures and the terms and conditions of an incidental take statement and occurs as a result of the action as proposed.

The measures described below are non-discretionary, and must be undertaken by the Corps for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Least Bell's Vireo

We anticipate take in the form of harm for up to seven vireo territories due to the loss of their breeding, feeding, and sheltering habitat within 47.9 acres (26.8 acres permanent and 21.1 acres temporary). These vireo are expected to become displaced, which will subject them to increased competition, greater risk of predation/nest parasitism, and decreased reproductive success. If the habitat of more than seven vireo territories is removed by this Project, the take limit will have been exceeded and consultation reinitiated.

We anticipate take in the form of harm for up to four vireo territories that may be affected by construction noise, as anticipated by the Corps, within a 200-foot buffer of the Project' footprint. These birds are expected to suffer a reduction in fitness and productivity occurring during Project construction, for up to 3 years. The take exemption will be exceeded if more than four vireo territories are determined to be impacted by noise above 60 dBA Leq or another agreed upon and documented limit with the Service, or noise greater than 5 dBA above ambient conditions if said levels are above 60 dBA Leq, or another agreed upon and documented limit.

Santa Ana Sucker

We are not setting an upper limit on anticipated take limit for relocating stranded adult sucker should a salvage effort be necessary following a high flow event, as this measure is solely beneficial. The sucker relocation effort should be performed by a Service-approved sucker biologist. We are anticipating take in the form of wounding or killing up to two adult sucker as a

result of relocation activities while moving them into the active stream channel. The majority of fish are expected to survive relocation activities.

We are anticipating take in the form of wounding or killing up to two adult sucker per aquatic predator removal event as a result of electroshocking or associated activities.

EFFECT OF TAKE

Least Bell's Vireo

Seven vireo territories is approximately 0.3 percent of the territories recorded in the Santa Ana River watershed in 2020 (n=2,293) and 0.2 percent of the territories recorded range-wide in 2018 (n=3,413). As these are a fraction of the greater vireo numbers, we do not anticipate a measurable effect on the subspecies. We anticipate most displaced or disturbed vireo will still be able to nest within the same or following years, and any temporary effect on reproduction and distribution of vireo will be short-lived. In the accompanying biological opinion, the Service determined that this level of anticipated incidental take is not likely to result in jeopardy to the vireo, or destruction or adverse modification of its critical habitat.

Santa Ana Sucker

In the accompanying biological opinion, the Service determined that this level of anticipated incidental take is not likely to result in jeopardy to the sucker as a species or destruction or adverse modification of its critical habitat. The overall fecundity of sucker and the beneficial effect of the aquatic predator removal are expected to negate any impacts to this small number of individuals.

REASONABLE AND PRUDENT MEASURES

To minimize the effects of incidental take on the vireo and sucker, the Corps will continue to fully implement the reasonable and prudent measures (RPM) established in the 2001 biological opinion (FWS-SB-909.6):

1. Your agency and/or the local sponsors will ensure that adverse effects to the vireo and sucker resulting from the implementation of the proposed action are minimized to the maximum extent practicable.

2. Your agency and/or the local sponsors will monitor and report on compliance with, and the effectiveness of, project avoidance and minimization measures.

In addition, we have determined that the following reasonable and prudent measures, specific to the construction of the Norco Bluffs feature of the SARP, are necessary and appropriate to minimize the impact of the incidental take of vireo and sucker:

RPM 1. The Corps and/or OCPW shall implement the Project as described in the sections entitled "Description of the Proposed Action", including "Conservation Measures".

RPM 2. The effect of take of individual vireo will be minimized through the habitat restoration programs described in this, and the 2001 and 2012 biological opinions.

RPM 3. The effect of take of individual vireo will be minimized through the implementation of the cowbird trapping program.

RPM 4. The effect of take of individual sucker will be minimized through the implementation of the aquatic predator removal program.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Corps shall comply with the terms and conditions (TC) established in the 2001 biological opinion. In addition, the following terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements must be followed. These terms and conditions are non-discretionary.

TC 1.1 The Corps and/or OCPW shall incorporate into the quarterly and annual reports (see FWS-SB-909.6, Service 2001, Terms and Conditions 2.1 and 2.2) reporting on any new or updated conservation measure listed within this opinion when reporting on construction activities occurring within the Norco Bluffs feature of the SARP.

TC 2.1 The Corps and/or OCPW shall provide an estimate of vireo take that has occurred as a result of habitat loss or noise impacts due to the Norco Bluffs construction Project. The annual report provided to the Palm Springs Fish and Wildlife Office (PSFWO) should detail any observed impacts to vireo.

TC 2.2 The Corps and/or OCPW shall continue to restore habitat and report on restoration progress following the Terms and Conditions outlined in the 2001 biological opinion.

TC 3.1 The status and outcome of the cowbird trapping program shall be reported to the Service in the annual construction monitoring reports.

TC 4.1 The Corps and/or OCPW shall coordinate regularly with the Service regarding the aquatic predator removal effort.

TC 4.2 Aquatic predator removal measures shall only occur outside the sucker spawning season (i.e., they will occur between September 16 and January 15).

TC 4.3 The Corps and/or OCPW shall provide a report to the Service annually, describing the aquatic predator removal efforts undertaken.

TC 4.4 The Corps, OCPW, or their agents shall obtain all necessary local, State, and Federal permits to implement the aquatic predator removal program. In particular,

the Corps and OCPW must obtain any necessary permits from the California Department of Fish and Wildlife. The incidental take authorization in this biological opinion is not in effect in the absence of any or all such permits.

DISPOSITION OF SICK, INJURED, OR DEAD SPECIMENS

Pursuant to 50 CFR § 402.14(i)(1)(v), the Corps and/or OCPW must notify the PSFWO at 760-322-2070 within 3 working days if any endangered or threatened species is found dead or injured as a direct or indirect results of this Project's implementation. Notification must include the date, time, location, and photograph of the injured animal or carcass, and any other pertinent information. In addition, mark dead animals appropriately, photograph, and leave the carcass on site; transport injured animals to a qualified veterinarian; and contact the PSFWO regarding the final disposition of any treated animals that survive.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations (CR) are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, help implement recovery plans, or to develop information. We recommend the following actions:

CR 1. The Corps, Service, SARP local sponsors, and other appropriate parties should enter into a working group or memorandum of agreement regarding management of the Santa Ana River for conservation of listed species, flood risk management, and water conservation. The Corps plays an important role in assisting with coordination among stakeholders where activities require Corps assistance or approval (e.g., the manner that riparian vegetation is managed within the river, etc.).

CR 2. Further monitoring and research needs to be conducted for the long-term management of the invasive, non-native shot hole Borer beetle (both Polyphagous and Kuroshio varieties) in order to minimize the long-term effects of this insect-fungal pathogen on the riparian plant community. Vireo, flycatcher, sucker, and other riparian-associated species would benefit from these actions. We recommend the Corps funding or contributing other resources that would supplement the current volunteer monitoring program started in 2016. Long-term monitoring of shot hole borer along the Santa Ana River and its upper tributaries, including the establishment, maintenance, and monitoring of funnel or other type of insect traps at 1-mile intervals along stream corridors, is needed in order to follow the invasion of this insect across the Santa Ana River watershed. Funding is also needed for research focused on control of the shot hole borer insect, its symbiotic fungi, and/or biocontrol agents as part of a long-term management strategy for the species.

REINITIATION NOTICE

This concludes formal consultation regarding the Lower Norco Bluffs Toe Stabilization Project as described in materials submitted to us. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount of extent of incidental take specified in the incidental take statement is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

For further information about this biological opinion, please contact Rebecca Christensen[9] of the PSFWO at 760-322-2070, extension 416.

Sincerely,

Scott A. Sobiech
Field Supervisor

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Appendix E - Environmental Justice Analysis

ENVIRONMENTAL JUSTICE ANALYSIS

Introduction

The 1994 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations, requires all federal agencies to conduct "programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, an activities do not have the effect of excluding persons (including populations) from participation, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin." Section 1-101 of the Executive Order 12898 requires federal agencies to identify and address "disproportionately high and adverse human health or environmental effects" of programs on minority and low-income populations (Executive Order 1994).

CEQ identifies minority groups as Asian, American Indian and Alaskan Native, Native Hawaiian and Pacific Island, Black or African American, and Latino. CEQ further defines minority population as any group of minorities that exceed 50 percent of the existing population within an area where a minority group comprises a meaningful greater percentage of the local population than in the general population.

Methodology

Demographic data from the EPA's EJSCREEN, an online environmental justice screening and mapping tool, served as the source data for evaluation. EJSCREEN incorporates demographic data from the U.S. Census Bureau. Two analyses recommended by the CEQ Guidance, Meaningfully Greater analysis and Fifty Percent analysis, were used to determine whether cities adjacent to the project area had a notable presence of minority or low-income population. Notable presence of either population would require either of the following results:

Fifty Percent Analysis: The ratio of minority or low-income population of the area of analysis equals to or exceeds 50% of the total population of the area of analysis.

Meaningfully Greater Analysis: The percentage of minority or low-income population relative of the area of analysis equals to or exceeds 50 percentile relative to the surrounding area.

The area of analysis encompassed an approximately 1-mile radius.

Results

<u>Minority and Low-Income Populations (Fifty Percent Analysis)</u>

The area of analysis encompassed an approximately 1-mile area extending from the project area. Minority and low-income populations within the assessed area are as follows: The ratio of minority population relative to the total population of the area of analysis is approximately 65%. The ratio of low-income population relative to the total population of the area of analysis is approximately 16%.

Minority Population (%)	Low-income Population (%)
65	16

Minority and Low-Income Populations (Meaningfully Greater Analysis)

Comparison of minority and low-income demographics from the area of analysis to those of the surrounding cities are shown below. Adjacent cities considered in the analysis included Eastvale and Corona.

The 50th percentile for minority and low-income populations are 73% and 20%, respectively. Compared to the 50th percentile values, the area of analysis for the project is lower than the 50th percentile for minority population and for low-income population.

Locations	Minority Population (%)	Low-Income Population (%)
Norco	45	21
Corona	83	62
Eastvale	81	19
Project Area of Analysis (1-mile)	65	16
50th Percentile	73	20

Conclusions

Presence of Minority and Low-Income Populations

For the Fifty Percent Analysis, the percentage of minority populations in the area is higher than the 50% threshold, and the percentage of low-income populations in the area is lower than the 50% threshold.

For the Meaningfully Greater Analysis both populations are lower than the the 50% threshold.

Based on the above, there is no notable presence of minority and low-income populations within the area of analysis for the project.

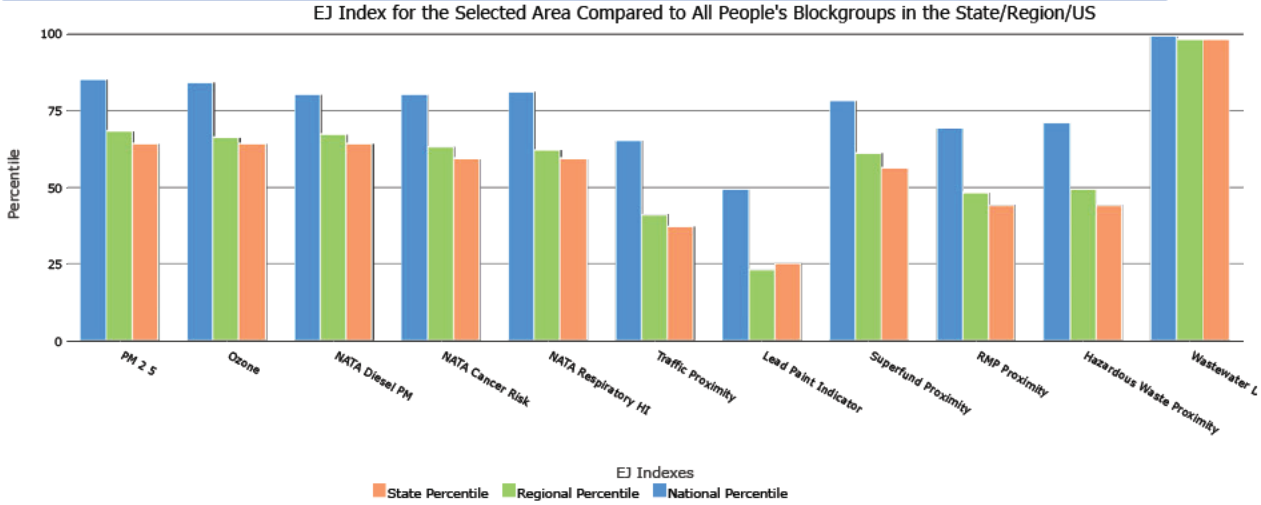
Save as PDF

EJSCREEN Report (Version 2019)

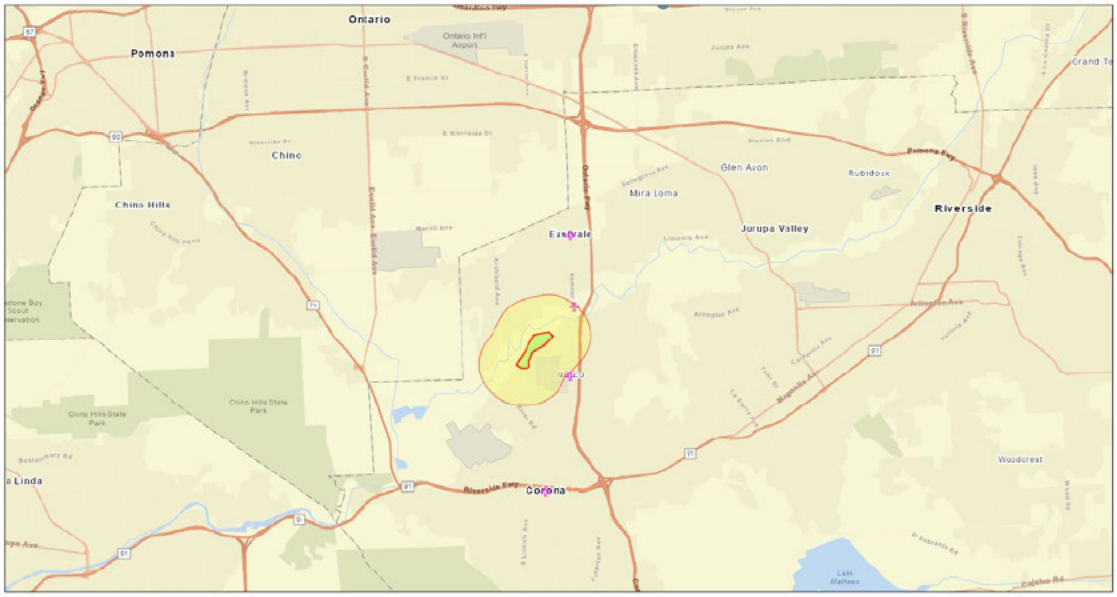
1 miles Ring around the Area
CALIFORNIA, EPA Region 9
Approximate Population: 18,113
Input Area (sq. miles): 6.44

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	64	68	85
EJ Index for Ozone	64	66	84
EJ Index for NATA* Diesel PM	64	67	80
EJ Index for NATA* Air Toxics Cancer Risk	59	63	80
EJ Index for NATA* Respiratory Hazard Index	59	62	81
EJ Index for Traffic Proximity and Volume	37	41	65
EJ Index for Lead Paint Indicator	25	23	49
EJ Index for Superfund Proximity	56	61	78
EJ Index for RMP Proximity	44	48	69
EJ Index for Hazardous Waste Proximity	44	49	71
EJ Index for Wastewater Discharge Indicator	98	98	99

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State		EPA Region		USA	
		Avg.	%tile	Avg.	%tile	Avg.	%tile
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	13.2	9.78	97	9 21	98	8.3	99
Ozone (ppb)	62.1	48.2	86	48.9	88	43	98
NATA* Diesel PM (µg/m³)	0 566	0.468	68	0.479	60-70th	0.479	70-80th
NATA* Air Toxics Cancer Risk (risk per MM)	38	36	61	35	50-60th	32	70-80th
NATA* Respiratory Hazard Index	0.56	0.55	55	0 53	50-60th	0.44	80-90th
Traffic Proximity and Volume (daily traffic count/distance to road)	180	2000	17	1700	23	750	46
Lead Paint Indicator (% pre-1960s housing)	0 028	0.29	21	0 24	29	0 28	21
Superfund Proximity (site count/km distance)	0 069	0.18	42	0.15	48	0.13	53
RMP Proximity (facility count/km distance)	0.26	1.1	30	0 99	36	0.74	45
Hazardous Waste Proximity (facility count/km distance)	0.65	3.4	30	2.9	38	4	56
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	10	17	97	31	97	14	98
Demographic Indicators							
Demographic Index	41%	48%	41	47%	43	36%	65
Minority Population	65%	62%	50	59%	54	39%	76
Low Income Population	16%	34%	24	34%	24	33%	24
Linguistically Isolated Population	6%	9%	48	8%	53	4%	76
Population with Less Than High School Education	16%	18%	55	17%	58	13%	70
Population under Age 5	6%	6%	43	6%	43	6%	47
Population over Age 64	9%	13%	33	14%	33	15%	25

*The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa gov/environmentaljustice (http://www epa.gov/environmentaljustice)

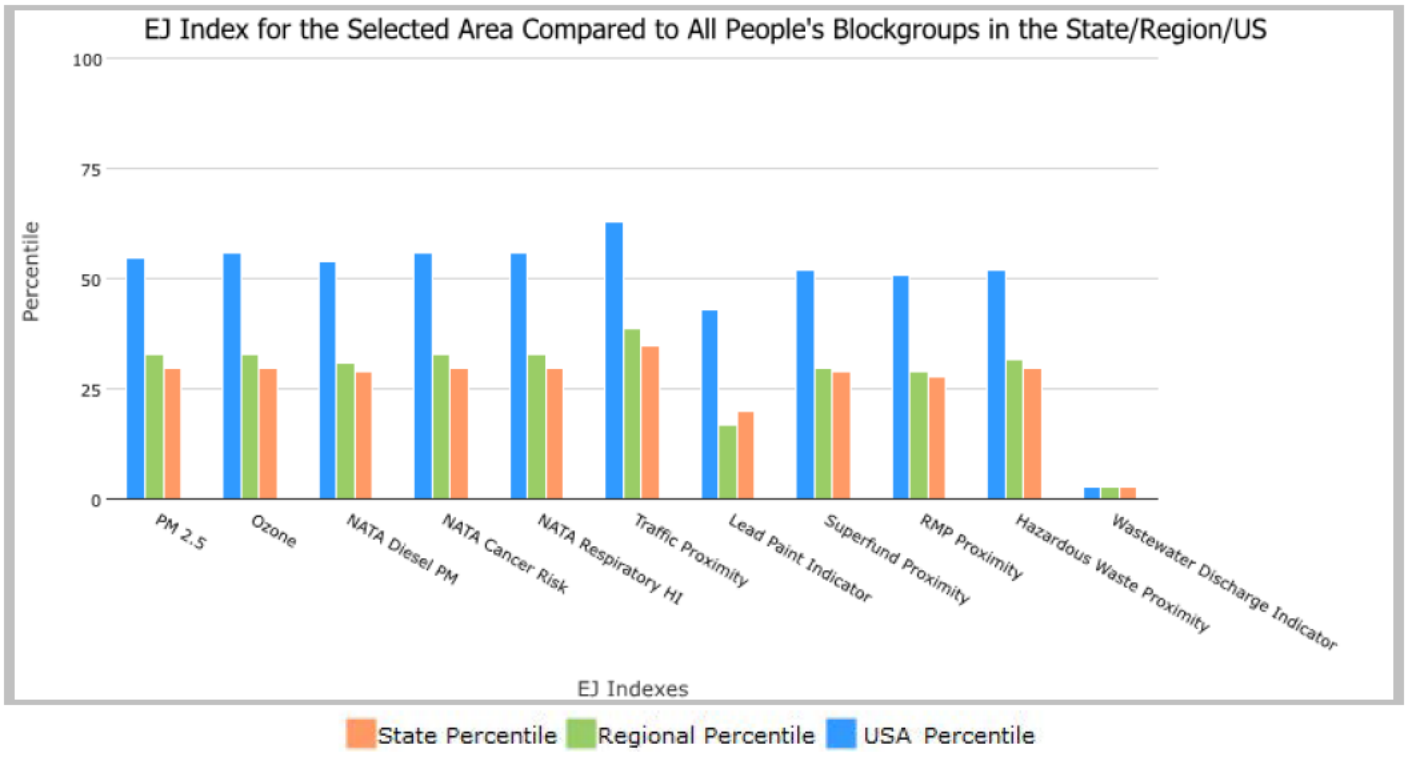
EJSCREEN Report (Version 2019)

the User Specified Area, CALIFORNIA, EPA Region 9

Approximate Population: 26,737

Input Area (sq. miles): 14.00

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	30	33	55
EJ Index for Ozone	30	33	56
EJ Index for NATA* Diesel PM	29	31	54
EJ Index for NATA* Air Toxics Cancer Risk	30	33	56
EJ Index for NATA* Respiratory Hazard Index	30	33	56
EJ Index for Traffic Proximity and Volume	35	39	63
EJ Index for Lead Paint Indicator	20	17	43
EJ Index for Superfund Proximity	29	30	52
EJ Index for RMP Proximity	28	29	51
EJ Index for Hazardous Waste Proximity	30	32	52
EJ Index for Wastewater Discharge Indicator	3	3	3



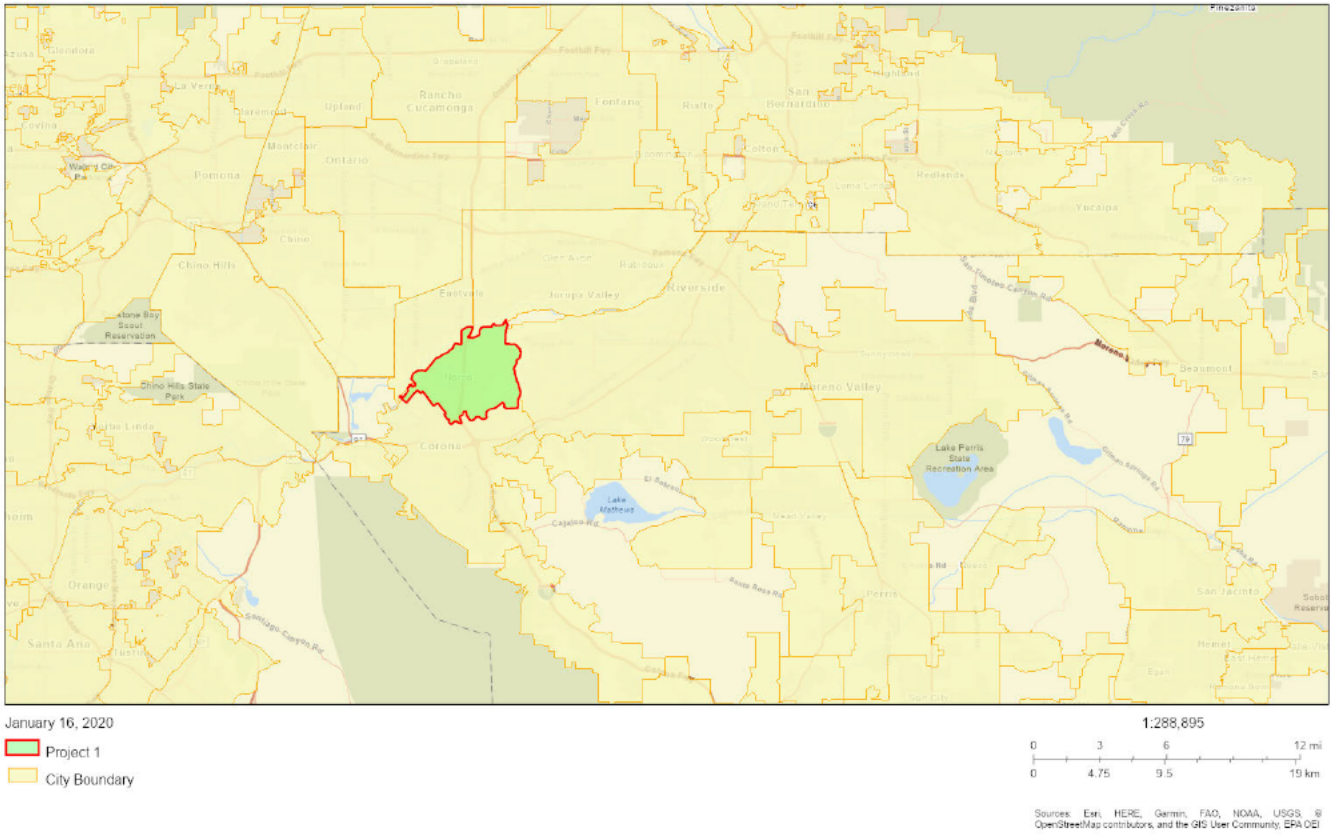
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report (Version 2019)

the User Specified Area, CALIFORNIA, EPA Region 9

Approximate Population: 26,737

Input Area (sq. miles): 14.00



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2019)

the User Specified Area, CALIFORNIA, EPA Region 9

Approximate Population: 26,737

Input Area (sq. miles): 14.00

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	13.1	9.78	97	9.21	97	8.3	99
Ozone (ppb)	62.3	48.2	86	48.9	89	43	98
NATA* Diesel PM (µg/m^3)	0.526	0.468	64	0.479	60-70th	0.479	60-70th
NATA* Cancer Risk (lifetime risk per million)	37	36	56	35	50-60th	32	70-80th
NATA* Respiratory Hazard Index	0.54	0.55	49	0.53	50-60th	0.44	70-80th
Traffic Proximity and Volume (daily traffic count/distance to road)	630	2000	39	1700	48	750	73
Lead Paint Indicator (% Pre-1960 Housing)	0.19	0.29	49	0.24	56	0.28	51
Superfund Proximity (site count/km distance)	0.072	0.18	43	0.15	50	0.13	55
RMP Proximity (facility count/km distance)	0.33	1.1	36	0.99	42	0.74	51
Hazardous Waste Proximity (facility count/km distance)	1	3.4	36	2.9	45	4	64
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	1.1	17	90	31	91	14	95
Demographic Indicators							
Demographic Index	33%	48%	28	47%	31	36%	54
Minority Population	45%	62%	29	59%	33	39%	63
Low Income Population	21%	34%	34	34%	34	33%	34
Linguistically Isolated Population	2%	9%	24	8%	29	4%	56
Population With Less Than High School Education	17%	18%	56	17%	60	13%	71
Population Under 5 years of age	4%	6%	29	6%	29	6%	32
Population over 64 years of age	13%	13%	58	14%	57	15%	48

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

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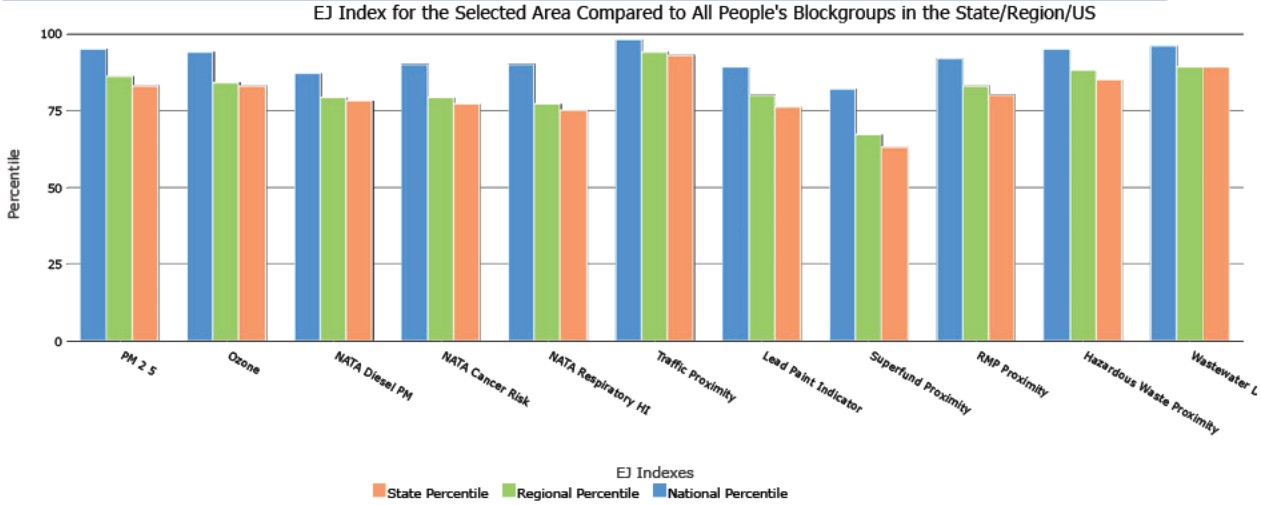
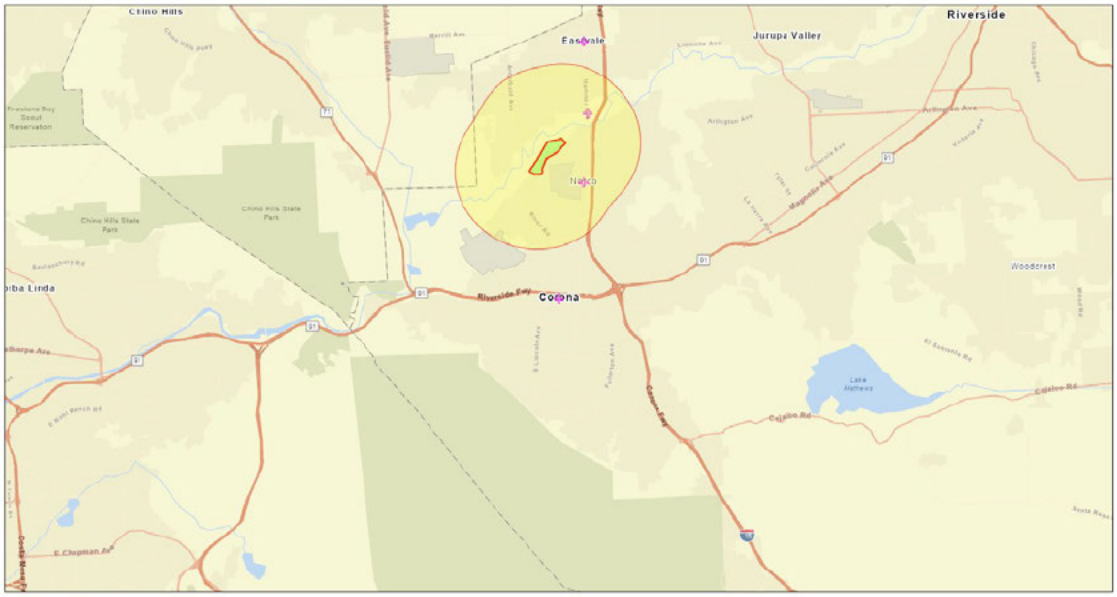
EJSCREEN Report (Version 2019)

1 miles Ring Centered at 33.879250,-117.574830
CALIFORNIA, EPA Region 9
Approximate Population: 20,916
Input Area (sq. miles): 3.14

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	83	86	95
EJ Index for Ozone	83	84	94
EJ Index for NATA* Diesel PM	78	79	87
EJ Index for NATA* Air Toxics Cancer Risk	77	79	90
EJ Index for NATA* Respiratory Hazard Index	75	77	90
EJ Index for Traffic Proximity and Volume	93	94	98
EJ Index for Lead Paint Indicator	76	80	89
EJ Index for Superfund Proximity	63	67	82
EJ Index for RMP Proximity	80	83	92
EJ Index for Hazardous Waste Proximity	85	88	95
EJ Index for Wastewater Discharge Indicator	89	89	96



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	2

Selected Variables	Value	State		EPA Region		USA	
		Avg.	%tile	Avg.	%tile	Avg.	%tile
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	12.6	9.78	94	9 21	95	8.3	99
Ozone (ppb)	60.1	48.2	82	48.9	86	43	97
NATA* Diesel PM (µg/m³)	0.488	0.468	60	0.479	50-60th	0.479	60-70th
NATA* Air Toxics Cancer Risk (risk per MM)	36	36	51	35	50-60th	32	70-80th
NATA* Respiratory Hazard Index	0.52	0.55	42	0 53	<50th	0.44	70-80th
Traffic Proximity and Volume (daily traffic count/distance to road)	4400	2000	87	1700	90	750	96
Lead Paint Indicator (% pre-1960s housing)	0.28	0.29	56	0 24	63	0 28	60
Superfund Proximity (site count/km distance)	0 051	0.18	30	0.15	36	0.13	42
RMP Proximity (facility count/km distance)	1.2	1.1	70	0 99	74	0.74	80
Hazardous Waste Proximity (facility count/km distance)	4.9	3.4	75	2.9	80	4	90
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.1	17	82	31	83	14	89
Demographic Indicators							
Demographic Index	73%	48%	84	47%	85	36%	91
Minority Population	83%	62%	70	59%	73	39%	85
Low Income Population	62%	34%	87	34%	86	33%	89
Linguistically Isolated Population	11%	9%	66	8%	70	4%	85
Population with Less Than High School Education	34%	18%	81	17%	83	13%	92
Population under Age 5	9%	6%	81	6%	81	6%	82
Population over Age 64	7%	13%	23	14%	23	15%	17

*The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa gov/environmentaljustice (http://www epa.gov/environmentaljustice)

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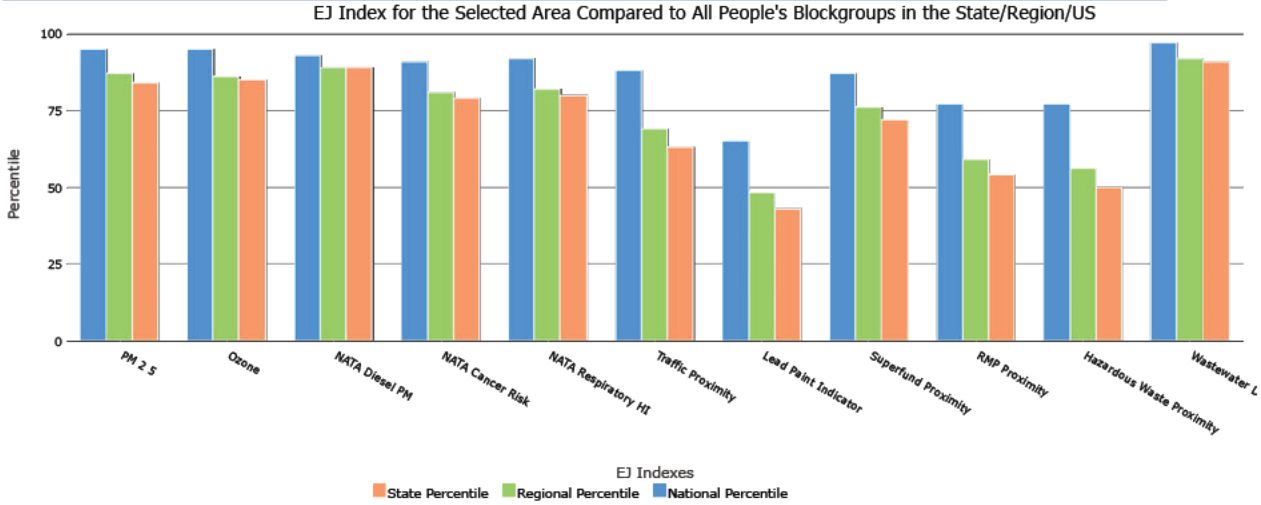
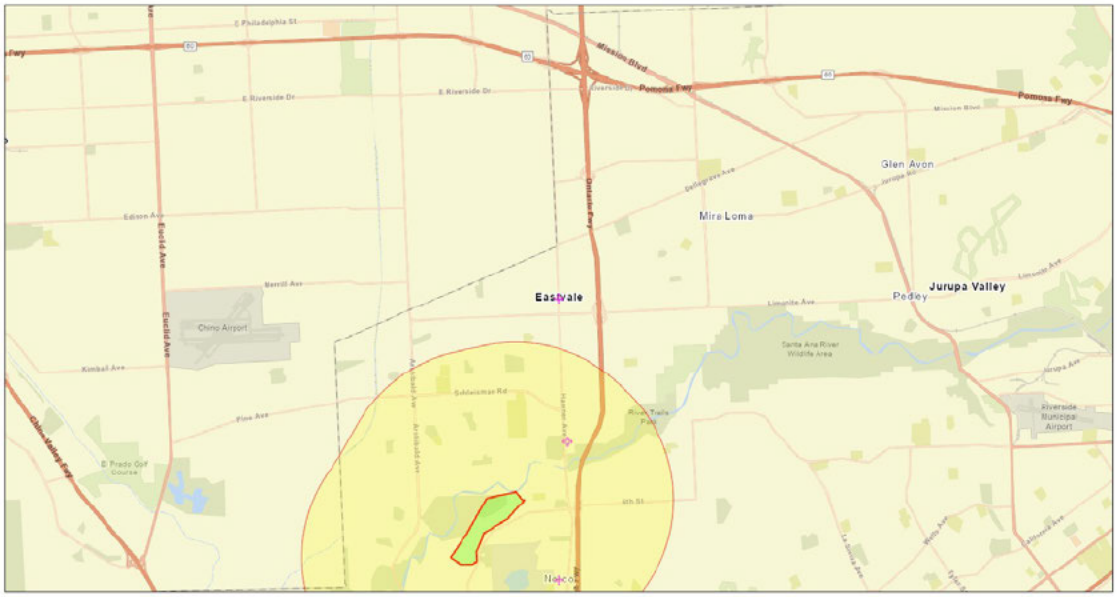
EJSCREEN Report (Version 2019)

1 miles Ring Centered at 33.978420,-117.558280
CALIFORNIA, EPA Region 9
Approximate Population: 16,148
Input Area (sq. miles): 3.14

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	84	87	95
EJ Index for Ozone	85	86	95
EJ Index for NATA* Diesel PM	89	89	93
EJ Index for NATA* Air Toxics Cancer Risk	79	81	91
EJ Index for NATA* Respiratory Hazard Index	80	82	92
EJ Index for Traffic Proximity and Volume	63	69	88
EJ Index for Lead Paint Indicator	43	48	65
EJ Index for Superfund Proximity	72	76	87
EJ Index for RMP Proximity	54	59	77
EJ Index for Hazardous Waste Proximity	50	56	77
EJ Index for Wastewater Discharge Indicator	91	92	97



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



April 6, 2020

- Project 4
- Project 3
- Project 2
- Project 1

1:72,224

0 0.75 1.5 3 mi
0 1.25 2.5 5 km

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State		EPA Region		USA	
		Avg.	%tile	Avg.	%tile	Avg.	%tile
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	13.3	9.78	98	9.21	98	8.3	99
Ozone (ppb)	64.2	48 2	90	48 9	92	43	98
NATA* Diesel PM (µg/m³)	0.822	0.468	90	0.479	80-90th	0.479	80-90th
NATA* Air Toxics Cancer Risk (risk per MM)	40	36	69	35	60-70th	32	80-90th
NATA* Respiratory Hazard Index	0 62	0.55	71	0.53	70-80th	0.44	80-90th
Traffic Proximity and Volume (daily traffic count/distance to road)	790	2000	45	1700	53	750	77
Lead Paint Indicator (% pre-1960s housing)	0.0084	0.29	12	0.24	19	0.28	12
Superfund Proximity (site count/km distance)	0.092	0.18	53	0.15	60	0.13	63
RMP Proximity (facility count/km distance)	0.2	1.1	22	0.99	28	0.74	38
Hazardous Waste Proximity (facility count/km distance)	0 33	3.4	22	2 9	28	4	45
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.47	17	87	31	87	14	93
Demographic Indicators							
Demographic Index	50%	48%	54	47%	56	36%	73
Minority Population	81%	62%	67	59%	70	39%	84
Low Income Population	19%	34%	31	34%	30	33%	31
Linguistically Isolated Population	9%	9%	59	8%	63	4%	81
Population with Less Than High School Education	14%	18%	50	17%	53	13%	64
Population under Age 5	8%	6%	71	6%	70	6%	73
Population over Age 64	8%	13%	28	14%	28	15%	21

*The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa gov/environmentaljustice (http://www epa.gov/environmentaljustice)

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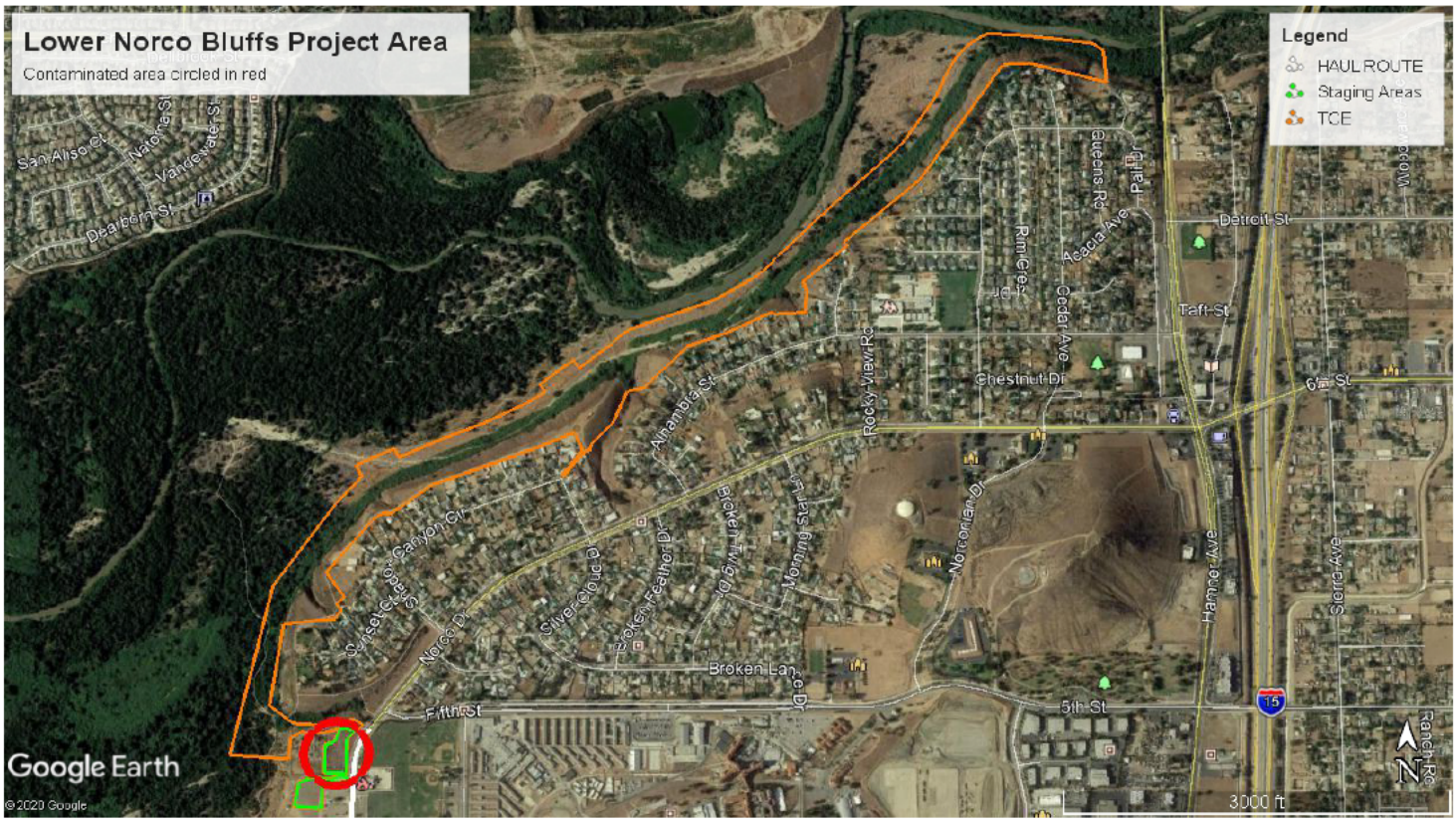
Appendix F – HTRW Report

U.S Army Corps Of Engineers Los Angeles District

Geotechnical Branch, Geology & Investigations Section

HTRW Survey Report of the Lower Norco Bluffs PED Project, Corona, CA

March 2020



ACRONYMS REFERENCE WITHIN THIS REPORT

AAI: All Appropriate Inquiry (ASTM abbreviated ESA method)

ASTM: American Society for Testing and Materials

CAA: Clean Air Act (federal environmental law)

CDC: California Department of Corrections

CERCLA: Comprehensive Environmental Response Cleanup and Liability Act (federal environmental law)

CFR: Code of Federal Regulations

CWA: Clean Water Act (federal environmental law)

DTSC: Department of Toxic Substances Control (California environmental regulatory agency for soil)

EA: Environmental Assessment

EDR: Environmental Data Resources (private environmental data search record storehouse)

EIR: Environmental Impact Report (state environmental impact report)

EIS: Environmental Impact Statement (federal environmental reporting requirement)

ER: Engineering Regulation (Corps of Engineers internal regulations)

ERA: Ecological Risk Assessment

ESA: Environmental Site Assessment (general environmental reporting guideline by ASTM)

ESASs: Environmental Site Assessment Standards (category of environmental ASTM standards within the ASTM standards)

F4: Feasibility 4 (level 4 of the Corps of Engineers feasibility study process)

FS: Feasibility Study (CERCLA step)

GSA: United States General Services Administration

HHRA: Human Health Risk Assessment

HTRW: Hazardous, Toxic and/or Radioactive Waste (Corps of Engineers program terminology)

IRA: Interim Removal Action (CERCLA step)

IRAP: Interim Removal Action Plan (CERCLA step)

LARWQCB: Los Angeles Regional Water Quality Control Board (California regulatory agency for Los Angeles area water)

LUST: Leaking Underground Storage Tank

NEPA: National Environmental Policy Act (federal environmental law)

NPL: National Priority List (list of USEPA Superfund sites)

OMRRR: Operation and Maintenance Repair, Rehabilitation, and Replacement (Corps of Engineers operations and maintenance phase for Civil Works projects)

OSHA: Occupational Safety and Health Act (federal safety law)

PAH: Poly Aromatic Hydrocarbon

PCE: Tetrachloroethylene

PED: Planning Engineering Design (Corps of Engineers combined planning and engineering process/phase; occurs prior to actual construction of project)

Phase I ESA: Phase I Environmental Site Assessment (ASTM method)

Phase II ESA: Phase II Environmental Site Assessment (ASTM method)

PPA: Project Partnership Agreement (Agreement between Corps and non-Federal Sponsor to construct, operate and maintain a project)

PRP: Potential Responsible Party

RAP: Remedial Action Plan (CERCLA step)

RCRA: Resource Conservation and Recovery Act (federal environmental law)

REC: Recognized Environmental Condition

RI: Remedial Investigation (CERCLA step)

RP: Responsible Party

SARA: Superfund Amendments and Reauthorization Act (federal environmental law amending CERCLA)

SFVSS: San Fernando Valley Superfund Site (CERCLA-USEPA regulated)

SI: Site Investigation (CERLCA step)

SWRCB: State Water Resources Control Board (California environmental regulatory agency for water)

TCE: Trichloroethylene

TSCA: Toxic Substances Control Act (federal environmental law)

LADUSACE: Los Angeles District U.S. Army Corps of Engineers

USDOT: U.S. Department of Transportation

USEPA: U.S. Environmental Protection Agency (federal environmental regulatory agency)

UST: Underground Storage Tank

VOC: Volatile Organic Carbon

TABLE OF CONTENTS

1.0 PURPOSE

The Corps of Engineers Los Angeles District has prepared a report that studies and outlines the alternative conceptual plans/features for the Lower Norco Bluffs Civil Works PED project. The purpose of this survey report is to identify and list potential hazardous, toxic, and radioactive waste (HTRW) impacts to this PED project.

2.0 SCOPE

This survey report was prepared in accordance with USACE ER 1165-2-132, "Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects", dated June 26, 1992.

The ER does not require a specific method for performing this HTRW Survey Report, but does require that HTRW concerns be assessed and impacts and their costs reported and/or approximated, as necessary for each Civil Works project. HTRW is a programmatic definition used throughout the USACE to assess impacts, list and approximate costs associated with environmental pollutants released to the environment on Corps property and Corps Civil Works projects. For this report, HTRW impact costs were not approximated. The relative impacts of HTRW to the project were assessed according to the Engineering Regulation ER 1165-2-132 According to this ER, HTRW definition includes both CERCLA Hazardous Substances and other non-CERCLA local/state pollutants. The Engineering Regulation Hazardous Substance definition is equivalent to the ASTM definition of Hazardous Substance, as they both originate from CERCLA. The Engineering Regulation definition of other local/state pollutants is equivalent to the ASTM and USEPA definition of other contaminants and petroleum contaminants as they both are non-CERCLA related.

The full ASTM Phase I ESA or AAI procedure was not followed and RECS were not identified for any HTRW concerns/impacts while preparing this report. Therefore, none of the following was performed: site specific reconnaissance/property visit; Sanborn Maps; historical aerial photos and topographic maps; personal property owner interviews; search of a commercial CERCLA/RCRA/other local/state pollutants environmental database; City Directory.

The analysis performed in this report is instead based on the summarized environmental pollutant information found and gathered only from the California State Water Resources Control Board (SWRCB) internet "Geotracker" environmental database and from the LADUSACE Real Estate Division's disclosure of HTRW distressed property. This report only considers known project-area HTRW impacts from HTRW releases onto those properties/sites listed on the Geotracker database and from the real estate HTRW disclosure that may pose a threat to human health or the environment.

It is important to note that there may be unknown HTRW or pollutant impacts to the study area which were not fully disclosed and listed from Geotracker database or the LADUSACE Real Estate Division. These types of unknown HTRW impacts could also consist of newly discovered HTRW or buried historical type HTRW that is not observed on the land surface or not found from the Geotracker list. Newly discovered HTRW is sometimes encountered during the PED or future construction phases of work for a typical Civil Works project. Also, newly discovered HTRW can sometimes be derived from residual (leftover) forms of contamination existing within the soils, soil

vapor, air, surface water and groundwater media from releases of HTRW from known and listed HTRW sites. This occurs when undefined portions of the remaining known residual HTRW releases are encountered at known HTRW properties.

The HTRW analysis for this report focused on the known residual and active releases of HTRW into the adjacent property and environment within a ¼ mile distance of the study area. The analysis does not include evaluation of hazardous materials stored or used at or near the study area. Generally, hazardous materials are not considered part of HTRW impacts, unless or until they have been released to the environment, at which point they would be considered a hazardous substance or waste, according to CERCLA and RCRA. Further details on how hazardous materials, hazardous waste and hazardous substances are regulated by law and addressed in Federal and State or Local environmental regulations and laws.

3.0 HTRW SURVEY REPORT

The Lower Norco Bluffs project area is contained mostly along the bedrock bluffs along the eastern flood plain channel boundaries of the Santa Ana River behind Prado Dam. The current land use is a flood impoundment basin behind Prado Dam, a river floodplain and an open natural drainage basin of the Santa Ana River. The eastern perimeter of the river is bounded by medium to light industrial land use and heavy residential use and California State Highway 91 and U.S. Interstate 15 and the large properties of the CDC Rehabilitation and U.S. Navy Norco Sea Systems Command. The land use history of the study area indicates that HTRW impacts would be moderate primarily because of the light industrial activities.

A cursory review of the Geotracker environmental database and LADUSACE Real Estate Division HTRW disclosure was performed and listed HTRW sites (properties) of potential concern were judged as to their significance according to type of HTRW active/residual releases and their impacts to human health and the environment.

The listed sites/properties of concern were moved forward for recommendation for either a follow up ASTM Phase I or Phase II ESA HTRW survey. The Phase I ESA would include the full commercial environmental database review; historical topographic map and aerial map review; Sanborn Map and City Directory review; land/title search and could include a property owner interview and site visit as applicable. Low to medium impact RECs properties are typically not recommended for follow up Phase II ESA survey, but may require some additional monitoring, inspection and/or site visit or property owner survey.

The Phase II ESA site investigation is typically reserved only after conducting a full Phase I ESA. However, it could be implemented if RECs from the AAI screening are conclusively evident enough to preclude or skip the use of a Phase I ESA. In such case, the Phase II would involve additional steps of providing a field work plan and performing an actual environmental HTRW field site assessment. A Phase II site assessment would involve the collection and laboratory analysis of environmental samples to confirm the presence, extent and concentration of hazardous substances believed to have been released into the environmental media such as soil, sediment, groundwater, air and surface water.

3.1 Summary of Geotracker Environmental Database Search Listing and LADUSACE Real Estate Division HTRW Disclosure

The following table below shows the Geotracker listings and LADUSACE Real Estate Division's disclosures of all known CERCLA/RCRA type environmental records and data from potential HTRW sites or properties, with addresses that could be mapped within approximately ¼ mile distance of the project study area. It contains only those listings that have HTRW impact to the project.

This search yielded a list of approximately two properties that are considered as having a potential HTRW impact to the project. Both of these properties have had releases of hazardous substances or other pollutants into the environment and were being managed as contaminated properties by environmental regulatory agencies of either the CA DTSC and/or RWQCB. Both of these properties have undergone previous HTRW investigations equal to either an ASTM Phase II or Phase I ESA. Both of the properties have also undergone some form of remedial action to reduce or remove the pollutants from the environment. Analysis of the releases, past and present and future property use indicates that one of the sites has more of a potential HTRW impact to the study project than the other site. One of the two is of low HTRW impact and the other is of high impact. The low HTRW impact property is the California Department of Corrections Rehabilitation Center. The high HTRW impact property is the U.S. General Service Administration open lot property. Both impacted HTRW properties are shown on Map Figure 1 at back of this report.

Table 1
Results of the Geotracker Database and LADUSACE Real Estate Division Disclosure/Search

Database	Brief Database and/or Disclosure Description	Records Found
SWRCB and DTSC Geotracker	California Department of Toxic Substances Control and Santa Ana Regional Water Control Board Listed: • California Department of Corrections Rehabilitation Center, at the southwest corner of 5th Street and Western Avenue, Norco, CA 91760. includes 6 LUST sites) (**Low Impact**)	1
LADUSACE Real Estate Divsion	• U.S. General Services Administration open lot property at the west side corner of Corydon Avenue and 5th Street, Norco Ca 91760 (**High Impact**)	1
	Total <u>Mapped and Listed</u> Records Found	**2**

Further discussion of the results, project conditions and recommendations for this HTRW Survey Report are found in the following sections.

4.0 DISCUSSION OF THE GEOTRACKER ENVIRONMENTAL DATABASE AND LADUSACE REAL ESTATE DIVISION HTRW DISCLOSURE SITES THAT ARE IMPACTS

The Geotracker environmental database inquiry/search results reported within this HTRW Survey Report include one listed HTRW site total (Table 1). The LADUSACE Real Estate Division disclosure included one HTRW property total (Table 1). Both of these listed and mapped sites are properties with low and high HTRW impact or concern. This is because each property or site still has residual pollutants or hazardous substances that continue to remain a threat to the study project and both sites have been in open environmental regulatory file status and are still subject to ongoing enforcement by DTSC or SARWQCB. For these two properties, the past releases and residual pollutants consist specifically of a combination of fuel, solvents (VOCs), metals that exist as residual contamination in the surrounding groundwater and/or soils adjacent to these sites.

Of the two properties (sites), one is of high HTRW impact concern for the project, while the other is of low impact. The one high impact site is the GSA open lot property. The high impact ranking is given because this property has releases of petroleum and/or VOCs and/or metals to this property's groundwater and/or soils. This property poses a threat to the project, since it is in early active remedial status according to DTSC and SARWQCB records and its remediation is being managed by one or both of these regulatory agencies. Also one of the staging areas for the project directly overlies this property. The other site, the CDC Rehabiliation Center, is approximately 1,800 feet farther east from the project footprint. This site is also undergoing remediation of past releases of petroleum and/or VOCs and/or metals to its groundwater and soils. The remediation of the CDC property is also under active oversight of the DTSC and/or SARWQCB. The remediation at this property is advanced and well defined within this property's boundaries and poses a low threat to the surrounding environment. The discussion for the three medium impacted HTRW sites is as follows:

GSA Open Lot (High Impact): Releases of petroleum and/or VOCs and/or metals exist at this property as a result of past use by the owner and lessee. The HTRW releases have occurred primarily onto the surface and subsurface soils at this property. An ASTM Phase I and II ESA was conducted at this property by the GSA to determine the character and extent of the HTRW release. A follow up remediation plan and action for the release is currently being undertaken by GSA for this property. The DTSC and/or SARWQCB are performing review and oversight of the plan and action. This property is identified as one of the staging areas for the project and would be a significant impact to the project if used for this purpose. The staging area use will interfere with the ongoing remediation planned for this property by the GSA and would cause disturbance of the surface and/or subsurface soils which may cause further release of HTRW at this property.

CDC Rehabilitation Center (Low Impact): The HTRW contamination at the Rehabilitation Center is primarily a partially mapped plume of petroleum and/or VOCs and/or metals releases to groundwater and soils from six former leaking underground fuel storage tanks that werre once part of maintenance and service buildings on the east end of this property. All six UST along with a limited amount of petroleum contaminated soil surrounding it were removed in the 1990s. A follow up site investigation consisting of soil and groundwater well installation and quarterly groundwater sampling occurred from the late 1990s to present. The site is actively undergoing remediation via

soil10 vapor extraction and long term groundwater monitoring and monitored natural attenuation. The status of the remediation is of low threat according to the SARWQCB. The remediation is actively being overseen by the DTSC and/or SARWQCB. The site is approximately 1,800 feet east of the project and the release is well monitored and has thus far been successfully contained within the property boundaries of the Rehabilitation Center. Because of this and the great distance to the project, it is a low HTRW impact to the project.

5.0 PROJECT IMPACTS

- The HTRW Impact is: There is one known high impact HTRW and/or hazardous substance and/or petroleum contaminant site to the project. The high impact site is the GSA open lot property. There is a significant potential of disturbance to the surface and subsurface soils at this site from the use of this property as a staging area for the project. Project staging use of this property would significantly interfere with ongoing investigation and remediation plans for this property by the GSA.

6.0 SUMMARY OF HTRW SURVEY REPORT

This report identifies two separate properties that are impacted by HTRW and contamination within 1/4 mile the study project. One of these properties is high HTRW impact to the project. The other is of low impact to the project.

The severity of threat to the project from both impacted HTRW sites exists is based solely on the Geotracker environmental database screening and record listing and the LADUSACE Real Estate Division HTRW disclosure that still shows residual petroleum/solvent and metals related contamination exists at each of these sites. A high HTRW impact to the project exists from the GSA open lot property because this property is identified as a staging area for the project. Significant disturbance and interference with ongoing investigation and remediation of HTRW releases of the environment at this property will occur if project staging activities are allowed to occur on this property.

A low HTRW threat to the project will occur from the CDC Rehabilitation Center property because it is 1,800 feet east of the project footprint and the HTRW releases at this property are well contained within this property's boundaries and are being successfully remediated.

7.0 RECOMMENDATIONS

The GSA open lot property is a high HTRW impact to the property and cannot be used as a staging area for this project. The CDC Rehabilitation Center property is a low HTRW impact to the project and is not further considered as a HTRW concern for the project. HTRW from the three medium impact listed HTRW sites/properties.

7.3 HTRW Environmental Compliance during Construction of Lower Norco Bluffs.

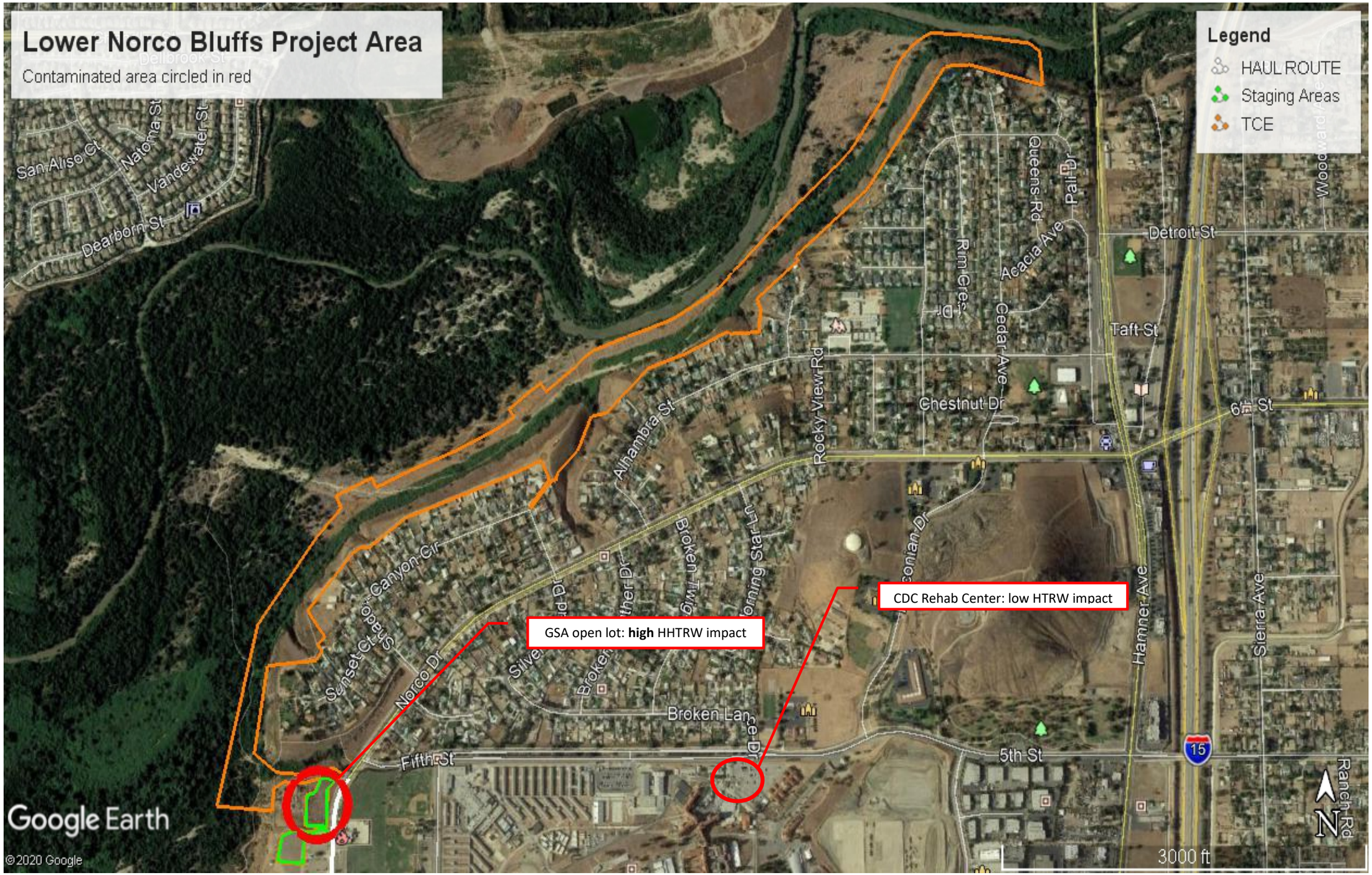
Prior to construction, the construction contractor will need to prepare a pollution prevention plan to reduce the potential for accidental release of fuels, pesticides, and other materials. This plan will include the designation of refueling locations, emergency response procedures, and definition or

reporting requirements for any spill that occurs. Equipment for immediate cleanup shall be kept at the staging area for immediate use. This plan will also include pesticide application activities such as storage, handling of herbicides, and application methods. This will be needed to reduce the potential for an accidental release of toxic materials from construction vehicles (e.g., oil and diesel fuel).

The pollution prevention plan must be added by the LADUSACE to the PED construction specifications as required submittal. This will ensure that the plan is included as part of the future study project construction activities. The plan should require the following: fueling and servicing of construction vehicles only in protected areas; the protected areas should be contained within an isolated or impervious area located a safe distance from the active flow path of the Santa Ana River or related surface waters; spills or leaks should be cleaned up immediately, reported properly and any contaminated soil should be disposed of properly.

Also, the plans and specifications should include a section describing the requirements for HTRW sampling and chemical testing and management of offsite import borrow sources of fill and/or soils for use as construction fill etc. The specifications should include detailed procedures for collection of soil samples and environmental chemistry laboratory testing according to the 2001 DTSC guideline for Clean Imported Fill Material. Sampling and testing should only be allowed to be undertaken for above ground ready to import stockpiles of soil.

Map Figure 1: Showing one low and one high HTRW impact Sites.



Map Figure 1. Two HTRW sites: GSA open lot property; CDC Rehabilitation Center property.

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Appendix G - Cultural Resources Report

Enclosure One

PROGRAMMATIC AGREEMENT
AMONG
THE LOS ANGELES DISTRICT, CORPS OF ENGINEERS,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING IMPLEMENTATION OF THE SANTA ANA RIVER FLOOD CONTROL PROJECT

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

April 23, 1993

Robert S. Joe
Chief, Planning Division
Department of the Army
Los Angeles District
Corps of Engineers
P.O. Box 2711
Los Angeles, CA 90053-2325

REF: Programmatic Agreement regarding the Santa Ana River Flood Control Project, California.

Dear Mr. Joe:

The enclosed Programmatic Agreement regarding the Santa Ana River Flood Control Project has been executed by the Council. This action constitutes the comments of the Council required by Section 106 of the National Historic Preservation Act and the Council's regulations. Please send copies of the signed Agreement to the California State Historic Preservation Officer and your Federal Preservation Officer.

The Council appreciates your cooperation in reaching a satisfactory resolution of this matter.

Sincerely,

Claudia Nissley
Director, Western Office
of Review

Enclosure

PROGRAMMATIC AGREEMENT
AMONG
THE LOS ANGELES DISTRICT, CORPS OF ENGINEERS,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING IMPLEMENTATION OF THE SANTA ANA RIVER FLOOD CONTROL PROJECT

WHEREAS, the Los Angeles District, Corps of Engineers (COE) proposes to administer the Santa Ana River Flood Control Project, authorized by the Water Resources Development Act of 1986 (Public Law 99-662); and

WHEREAS, the Santa Ana River Project (the Project) will involve flood control improvements as described in *Supplemental Environmental Impact Statement, Santa Ana River Mainstem Including Santiago Creek, Phase II General Design Memorandum* (1988); and

WHEREAS, the COE, has determined that the Project may have an effect on properties included in or eligible for inclusion in the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council) and the California State Historic Preservation Officer (SHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) and Section 110(f) of the same Act (16 U.S.C. 470h-2(f)); and

WHEREAS, the Flood Control Districts of the Counties of Orange, Riverside, and San Bernardino, and the local Native American community participated in the consultation and have been invited to concur in this Programmatic Agreement; and

WHEREAS, the definitions given in 36 CFR 800.2 are applicable throughout this agreement;

NOW, THEREFORE, the COE, the Council, and the SHPO agree that the project shall be administered in accordance with the following provisions in order to satisfy the COE's responsibility under Section 106 for all individual aspects of the project.

STIPULATIONS

The COE will ensure that the following measures are carried out:

1. Archeological Survey.

Almost all of the project's area of potential effects has been surveyed. If there are additional lands that need to be surveyed for reasons such as, for example, project redesign or previously denied access, then the COE shall ensure that an archaeological survey of these lands is conducted. The survey shall be conducted in a manner consistent with the *Secretary of the Interior's Standards and Guidelines for Identification* (48 FR 44720-23) and taking into account NPS publication, *The Archeological Survey: Methods and Uses* (1978:GPO stock #024-016-00091). The survey shall be conducted in consultation with the SHPO, and a report of the survey, meeting the standards of the SHPO, shall be submitted to the SHPO for review and approval.

2. Recording.

Archeological site record forms shall be completed for all locations where cultural materials are identified. The site record forms will be completed in accordance with the California *Archeological Inventory Handbook for Completing An Archeological Site Record* (DPR 422-A-I, Rev. 5/86).

3. Evaluation.

Regional context summaries have been developed Goldberg and Arnold (1988), and Greenwood and Foster (1990) for local prehistoric districts, historic archeological districts, and a number of individual historic archeological properties and historic structures. The COE shall use the Goldberg and Arnold, and Greenwood and Foster summaries to develop an evaluation plan to evaluate properties identified within the Project's Area of Potential Effects (APE) for eligibility for inclusion in the National Register of Historic Places (NRHP). This evaluation plan shall detail site- or area-specific studies for the archival, architectural or subsurface testing which may be necessary to resolve questions of eligibility and to identify the values that qualify a property as eligible. The COE shall submit the evaluation plan to the SHPO for review and comment. Unless the SHPO objects within thirty days after receipt of the plan, the COE shall ensure that it is implemented.

Once an evaluation plan is accepted by the SHPO, the COE shall, in consultation with the SHPO, apply the National Register Criteria (36 CFR 60.4) to determine whether the properties are eligible. Should the COE and the SHPO determine that any of the properties are eligible for listing in the NRHP, the properties shall be considered eligible for purposes of this agreement. Should the COE and SHPO disagree that some or any of the properties are eligible, the COE shall submit documentation to the Keeper of the National Register for a formal determination of eligibility. Should COE and SHPO agree that a property is not eligible, such concurrence shall be, for the purposes of this Agreement, deemed conclusive that the property is not eligible and need not be the subject of further consideration.

4. Treatment Plan.

The COE shall assess the effects of the project on all National Register eligible properties in accordance with 36 CFR 800.5. A Treatment Plan (TP) shall be developed to take into account the effects of the project on historic properties that are determined to be eligible for listing in the NRHP.

The TP shall be consistent with the Secretary of the Interior's *Standards and Guidelines for Archeological Documentation* (48 FR 44734-37) and take into account the Council's publication, *Treatment of Archeological Properties - A Handbook* (Advisory Council on Historic Preservation, draft 1980), subject to any pertinent revisions the Council may take in the publication prior to completion of the TP. It shall also take into account the Secretary of Interior's *Guidelines for Historical and Architectural Engineering Documentation* (48 FR 44729-34).

The TP shall include, but not be limited to:

A. Measures to be taken to ensure avoidance and protection of historic properties, including floodproofing where feasible;

B. Data recovery plans founded on research designs to guide data recovery at historic properties significant for their information potential and which cannot be avoided by the effects of the project, or otherwise preserved in place. The research designs shall be developed in accordance with the standards and guidelines attached as Appendix 1.

C. A plan for historical documentation for historic archeological properties;

D. A plan for the relocation and interpretation of suitable historic structures that cannot be preserved in place;

F. A curation agreement that ensures that all materials and data from archeological sites are curated in accordance with 36 CFR 79. Materials recovered from privately owned lands that are to be returned to their owners will be maintained in accordance with 36 CFR 79 until their analysis is complete;

G. A plan for the treatment and disposition of items of cultural patrimony and human remains developed in consultation with the SHPO and representatives of relevant local Native American groups;

H. A plan for the treatment of historic properties that may be discovered during the implementation of the undertaking;

I. A schedule for the submission and review by the SHPO of progress reports, and the methods by which the consulting parties, and interested persons, including relevant Native American groups will be kept informed of the work and afforded the opportunity to participate;

5. Review of Treatment Plan.

The COE shall submit the TP to the SHPO, Council, and concurring parties to this Agreement for review and comment. The reviewers shall have thirty (30) days from receipt of the Treatment Plan to respond to the COE with comments. Failure to respond by any consulting party within the 30-day comment period shall not prohibit the COE from implementing the Treatment Plan.

6. Historic Properties Management Plan.

Within one year of the implementation of the TP, the COE will develop a Historic Properties Management Plan (HPMP) for Prado Basin in accordance with the standards and guidelines attached as appendix 2. The COE will provide copies of the draft HPMP to the SHPO and the Council for review and acceptance. Upon acceptance of the HPMP by the SHPO and the Council, the COE will finalize and implement it in lieu of compliance with 36 CFR 800.4 through 800.6 and 36 CFR 800.11. The COE will prepare an annual report on its implementation, and provide the report to the SHPO and Council for review, comment and consultation as needed.

7. Archeological Report Dissemination.

The COE shall ensure that all final archeological and historic reports resulting from actions

pursuant to this agreement will be provided to the SHPO and to the National Park Service for possible peer review and submission to the National Technical Information Service (NTIS). The agency official shall ensure that all reports are responsive to contemporary professional standards and to the Department of Interior's *Format Standards for Final Reports of Data Recovery Programs* (42 FR 5377-79). Precise locational data may be provided only in a separate appendix, if it appears that their release could jeopardize archeological sites.

8. Provision of Information to Data Base.

The COE will ensure that information resulting from the archeological data recovery project provided for in Stipulation 4.A is provided to the Orange, San Bernardino, and Riverside Counties Information Centers of the California Archeological Inventory.

9. Disputes.

Should the Council, SHPO, or consulting parties object within 30 days to any plans provided for review pursuant to the Programmatic Agreement, the COE shall consult with the objecting party to resolve the objection. If the COE determines that the objection cannot be resolved, the COE shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all documentation, the Council will either:

A. provide the COE with recommendations, which the COE will take into account in reaching a final decision regarding the dispute; or

B. notify the COE that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any comment provided in response to such a request will be taken into account by the COE in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

10. Amendment of this Agreement.

Any party to this agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR 800.13 to consider such amendment.

11. Termination of this agreement.

Any party to this agreement may terminate it by providing thirty (30) days notice to the other parties, provided that the other interested parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the COE will comply with 36 CFR 800.4 through 36 CFR 800.6 with regard to individual activities covered by this agreement.

12. Expiration of Agreement.

This agreement shall expire upon completion of the project. COE shall provide the parties to this agreement within thirty (30) days notice of a final project date.

Execution and implementation of this agreement evidences that the COE has satisfied its Section 106 responsibilities and taken into account the effects of the undertaking on historic properties.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: Robert D. Bush Date 4/16/93

U.S. ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT

BY: R. L. VanAntwerp Date 8/17/92

R. L. VanAntwerp,
Colonel, Corps of Engineers
District Engineer

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

BY: Steade X. Craigo Date August 19, 1992.

Concur:

ORANGE COUNTY FLOOD CONTROL DISTRICT

BY: William L. Gunn Date: 2-3-93

APPROVED AS TO FORM
TERRY C. ANDRUS, County Counsel
ORANGE COUNTY, CALIFORNIA
By Daniel P. Jones
Deputy

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BY:_____ Date:_____

SAN BERNARDINO FLOOD CONTROL DISTRICT

BY:_____ Date:_____

Concur:

ORANGE COUNTY FLOOD CONTROL DISTRICT

BY:_____ Date:_____

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BY: Kenneth L. Edwards Date: 3-16-93

FORM APPROVED.
COUNTY COUNSEL

FEB 2 3 1993

BY K. Watts-Bazan

SAN BERNARDINO FLOOD CONTROL DISTRICT

BY:_____ Date:_____

Concur:

ORANGE COUNTY FLOOD CONTROL DISTRICT

BY:_____ Date:_____

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BY:_____ Date:_____

SAN BERNARDINO FLOOD CONTROL DISTRICT

BY: Larry Walker Date: NOV 30 1992

LARRY WALKER
Chairman, Board of Supervisors

92-1155

SIGNED AND CERTIFIED THAT A COPY OF THIS DOCUMENT HAS BEEN DELIVERED TO THE CHAIRMAN OF THE BOARD.

EARLENE SPROAT
Clerk of the Board of Supervisors
of the County of San Bernardino

By Mary Louise Lovano
Deputy

BOARD OF SUPERVISORS SAN BERNARDINO COUNTY, CA

NATIVE AMERICAN REPRESENTATIVE

BY: Vera Rocha Date: 4-7-93
Chief Ya Anna Gabrielino Nation

NATIVE AMERICAN REPRESENTATIVE

BY: Manuel Rocha Date: 4/7/93
Spiritual Leader

APPENDIX 1
STANDARDS AND GUIDELINES FOR RESEARCH DESIGNS

The research designs shall be consistent with the Secretary of the Interior's *Standards and Guidelines for Archeological Documentation* (48 FR 44734-37) and take into account the Council's publication, *Treatment of Archeological Properties* (Advisory Council on Historic Preservation (draft) 1980), subject to any pertinent revisions the Council may make in the publication prior to completion of the research design, and the SHPO Preservation Planning Bulletin No. 5, *Guidelines for Archaeological Research Designs* (1991). They shall specify, at a minimum:

- the property, properties, or portions of properties where data recovery is to be carried out;
- any property, properties, or portions of properties that will be destroyed without data recovery;
- the research questions to be addressed through the data recovery, with an explanation of their relevance and importance;
- the methods to be used, with an explanation of their relevance to the research questions;
- the methods to be used in analysis, data management, and dissemination of data, including a schedule;
- the proposed disposition of recovered materials and records;
- proposed methods for involving the interested public in the data recovery;
- proposed methods for disseminating results of the work to the interested public;
- proposed methods by which the participants to the Programmatic Agreement, including the Gabrielino Indian representatives, will be kept informed of the work and afforded the opportunity to participate; and
- a proposed schedule for the submission of progress reports to the SHPO.

APPENDIX 2
STANDARDS AND GUIDELINES FOR THE HISTORIC PROPERTIES MANAGEMENT PLAN

The Historic Properties Management Plan (HPMP) for Prado Dam Basin shall be prepared in accordance with the following guidelines.

1. The HPMP will be prepared by or under the supervision of an individual who meets, or individuals who meet, at a minimum, the "professional qualifications standards" for archeologist, historian, and architect in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

2. The HPMP will be prepared with reference to: (a) the Secretary of Interior's *Standards and Guidelines for Preservation Planning* (48 FR 44716-20); (b) the *Section 110 Guidelines* (53 FR 4727-46); and (c) U.S. Army Corps of Engineers regulations, *Project Construction and Operation Historic Preservation Program*, ER1130-2-438.

3. The HPMP will be prepared in consultation with the San Bernardino County Museum and Native Americans representing the Gabrielino people.

4. The essential purpose of the HPMP will be to establish processes for integrating the preservation and use of historic properties with the mission and programs of the Los Angeles District, Corps of Engineers (COE) in a manner appropriate to the nature of the historic properties involved, the nature of Prado Dam Basin, and the nature of the COE's mission, programs, and planning processes.

5. In order to facilitate such integration, the HPMP, including all maps and graphics, will be made consistent with the data base management system used by the COE.

6. The HPMP will include the following:

   a. Foreword. The foreword shall explain the basis upon which the HPMP is being prepared.

   b. Introduction. The introduction shall explain the organization and use of the various sections of the HPMP.

   c. Overview. This element of the HPMP will synthesize available data on the history, prehistory, architecture, architectural history, landscape architecture, past and present environment, and ethnography of Prado Dam Basin and its surrounding area, to provide a context in which to evaluate and consider alternative treatment strategies for different classes of historic properties. It will also include a brief description of previous archeological, historic, and ethnographic investigations conducted within the basin.

   d. Inventory. This element of the HPMP will include descriptions of all properties within the basin that are known or thought to meet the National Register criteria (36 CFR 60.4), including but not limited to the following information on each property: (1) the class of historic property; (2) the location and areal extent of the property; (3) the current status and integrity of the property; and (4) the National Register

criteria that the property is known or thought to meet and the documentation supporting this determination.

e. Predictions. Based on the overview, this element of the HPMP will predict the distribution and nature of buried properties that have been identified through old maps and other historic archives, and, if applicable, structures that are not of sufficient age, but should be evaluated for National Register eligibility in the future. This element will also offer an estimate of the accuracy of the predictions, and outline ways and the conditions under which the predictions will be tested, refined, and verified to the extent needed through test excavations, remote sensing, architectural, historic, and other further research.

f. Identification system. Based on the overview and predictions, this element of the HPMP will establish procedures for the identification and evaluation of historic properties that may be affected by operations, maintenance and land use activities within the basin. This element of the HPMP will take into account the *Section 110 Guidelines*, Section 110(a)(2), Discussion (b)(2) through (b)(10) as applicable, and will provide for identification and evaluation to take place in a timely manner during the planning of any actions that might affect historic properties.

g. Management system. This element of the HPMP will establish procedures for the management of historic properties within the basin, including but not limited to:

i. procedures for the use of historic properties for agency purposes or the purposes of others, in a manner that does not cause significant damage to or deterioration of such properties, with reference to the *Section 110 Guidelines*, Section 110(a)(1), Discussion (b), and specifically providing for interpretation;

ii. procedures for affirmatively preserving historic properties, with reference to the *Section 110 Guidelines*, Section 110(a)(1), Discussion (c);

iii. procedures for the maintenance of historic properties, with reference to the *Section 110 Guidelines*, Section 110(a)(2), Discussion (d)(1)(i);

iv. procedures for the avoidance or mitigation of adverse effects on historic properties, with reference to the *Section 110 Guidelines*, Section 110(a)(2), Discussion (d)(1)(iii);

v. procedures for the treatment of properties discovered during any future undertaking; and

vi. procedures for consultation with relevant parties during implementation of the HPMP, with reference to the *Section 110 Guidelines, Part III.*

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Appendix H – Correspondence, Public Comments and Responses

Agency	Letter Dated	Nature of Comments	Responses to Comments/Changes to SEA/Status
City of Norco	Letter dated 05/05/2020	Section 2.3.2.3 (Haul Routes) Haul route must follow established truck route on River Road to Corydon Avenue. Hauling of material within the City of Norco shall only occur between the hours of 7 am and 4 pm.	Per the Settlement Agreement Section 3a between Orange County and City of Norco, the haul route consists of an approximately two-mile segment that includes a portion of Sixth Street, Hamner Avenue, Fifth Street, and Corydon Street leading to the Corydon Staging Area. The hours of operation are between 7 am and 6 pm. See Figure 2.3-11 in the Environmental Assessment
		Section 2.3.2.8 (Construction Duration and Phasing) Hauling of materials with the designated haul route shall only occur between the hours of 7 am and 4 pm.	Per Settlement Agreement Section 3d between Orange County and City of Norco, haul route hours of operation are 7am-6pm Monday through Friday.
		Table 3-10 (Utility and Service Providers by Jurisdiction) Remove "City of Corona" from Water Category.	Table 3-10 has been updated to remove City of Corona as the provider for water services. The Corps and the contractor will be responsible for providing water.
		Section 4.12.2 (Environmental Consequences) Bluff Street shall be excluded from the haul route. Corydon Avenue is currently rated with a Pavement Condition Index of 25 and would be significantly impacted with the addition of 300+ trucks a day using this road. Therefore, the contractor should be required to maintain the roadway during the duration of the project (fill potholes, resolve vehicle claims, etc). At the conclusion of the project the contractor shall repave (reconstruct) all of Corydon Avenue (curb to curb) from River Road to the Corydon Staging Area.	Bluff St. has been excluded from the haul route. In the agreement for haul route maintenance during construction, the Settlement Agreement Section 3d states that the road must be maintained to acceptable pavement standards at all times, large cracks or potholes will be repaired within 48 hours, and the contractor will be responsible for all damage claims submitted to the City related to the Project use of the Haul Route
CalTrans District 8	Letter dated 05/27/2020	We have determined that Bluff Toe stabilization and construction of the 1.5-acre staging area located at Corydon Avenue south of 5th Street in the City of Norco will have no adverse impact to the SHS. However, if delivery and/or removal of oversize construction equipment or site materials is required along nearby SHS routes, we do suggest that you contact the Caltrans Transportation Permit Office at the link listed below for guidance or permits as needed: https://traffic.onramp.dot .ca.gov/cvo	The Construction Contractor will be required to make all notifications and obtain any permits required for modification to traffic movements within CALTRANS, Riverside County, and/or the City of Norco jurisdictions. The Contractor will be required to meet all requirements of the highway authority before moving oversized and slow-moving vehicles.
CalTrans District 12	Letter dated 05/27/2020	The ACOE will need to apply for a Transportation Permit for any oversized/overweight vehicles and equipment that will be using the State Highway system during, before or after construction, for any project construction activities. Refer to this link for more information about Transportation permit https://dot.ca.gov/programs/trafficoperations/ transportation-permits	The Construction Contractor will be required to make all notifications and obtain any permits required for modification to traffic movements within CALTRANS, Riverside County, and/or the City of Norco jurisdictions. The Contractor will be required to meet all requirements of the highway

		Any project work proposed in the vicinity of the State Right-of-Way will require an encroachment permit, and all environmental concerns must be adequately addressed. Please coordinate with Caltrans in order to meet the requirements for any work within or near State Right-of-Way. A fee may apply. If the cost of work within the State right of way is below one Million Dollars, the Encroachment Permit process will be handled by our Permits Branch; otherwise the permit should be authorized through the Caltrans's Project Development Department. When applying for Encroachment Permit, please incorporate all Environmental Documentation, SWPPP/ WPCP, NPDES, Hydraulic Calculations, R/W certification and all relevant design details including design exception approvals. For specific details for Encroachment Permits procedure, please refer to the Caltrans's Encroachment Permits Manual. The latest edition of the Manual is available on the web site: http://www.dot.ca.gov/hq/traffops/developserv/permits/	authority before moving oversized and slow-moving vehicles.
City of Norco	Letter dated 01/07/2021	In addition to the May 5, 2020 letter, The City of Norco is concerned about the daily and long term roadway maintenance for the haul route located within the City of Norco. The Addendum suggests that only minor maintenance and roadway repairs will be needed. The City, however, suggests that a two-year project with 300-plus daily truck trips will significantly damage the roadway beyond the need for simple roadway maintenance. We are requesting that the Addendum study this issue in more detail, as well as examining using the existing riverbed as an alternative haul route, avoiding the use of public streets in the City all together.	Per the Settlement Agreement the contractor will be limited to 125 truck trips per day Monday through Friday, unless the City of Norco approves a request for weekend work. In addition, no trucks or heavy equipment will be staged on public streets.
		The Santa Ana River is an important recreational feature for the City of Norco. This area has horse riding trails, hiking trails, and a significant open space feature used on a daily basis. During the two year construction project what impacts will the construction do to the public access to this important recreational amenity?	Section 4.8 of the SEA describes the impacts to recreation within the project area. The project would temporarily preclude access to equestrian and pedestrian trails located along Alhambra Street and Shadow Canyon Circle (on top of the Norco Bluffs) and the informal trails occurring within the Santa Ana River floodplain. The Corps would coordinate with the City of Norco to ensure the appropriate signage is displayed to notify the public of temporary trail closures. The temporary closure of trail access along Alhambra Street, Shadow Canyon Circle, and within the Santa Ana River floodplain would be unavoidable, under the Proposed Action, due to safety reasons. However, it would not be considered significant considering the large number of alternative trail access options available. The Corps would coordinate with the City of Norco to post appropriate signage to indicate the temporary closure of trail access located along the top of Norco Bluffs.
		Furthermore, the City suggests that the scope of the Addendum should model the roadway damage created by the size and frequency of construction activities for the proposed project. We believe that the analysis will show that the project will create significant degradation to the haul route roadways, especially roadways located in the City of Norco. In short, the Addendum fails to address this activity at a level of detail that adequately discloses the actual degradation to the roadway, and stops short of proposing adequate mitigation measures to offset roadway impacts.	Per the Settlement Agreement Section 3e, restoration of the haul route includes: "At the conclusion of the use of the Haul Route by the Corps and the Contractor, the District, the Corps, and/or the Contractor shall restore the Haul Route to a condition equal to or better than the condition (for reference, the standard condition of the Haul Route "as new" is a minimum of 4 inches

			of new asphalt concrete) it enjoyed before its use for the Project. To satisfy this requirement, the District shall pay the City of Norco to restore the Haul Route to its before condition. The City agrees to accept payment of the cost to restore the Haul Route as its sole remedy for restoring the Haul Route. The District shall provide the City an opportunity to speak with the expert(s) before the expert(s) finalizes his or her opinions..."
		We strongly encourage the Corps to address a longer term remedy for this activity, including, but not limited to, a city accepted post project roadway treatment as determined by the roadway analysis. We look forward to reviewing the proposed roadway mitigation measures.	Per the Settlement Agreement Section 3e, restoration of the haul route includes: "At the conclusion of the use of the Haul Route by the Corps and the Contractor, the District, the Corps, and/or the Contractor shall restore the Haul Route to a condition equal to or better than the condition (for reference, the standard condition of the Haul Route "as new" is a minimum of 4 inches of new asphalt concrete) it enjoyed before its use for the Project. To satisfy this requirement, the District shall pay the City of Norco to restore the Haul Route to its before condition. The City agrees to accept payment of the cost to restore the Haul Route as its sole remedy for restoring the Haul Route. The District shall provide the City an opportunity to speak with the expert(s) before the expert(s) finalizes his or her opinions..."

Correspondence from City of Norco, Caltrans District 8, and Caltrans District 12

CITY OF NORCO
HORSETOWN USA

May 5, 2020

U.S. Army Corps of Engineers
Planning Division
Los Angeles District

Attn: Jenna May, Civ USARMY CESPL, Biologist

Re: Draft SEA/EIR (Santa Ana River: Lower Norco Bluffs Toe Protection)

Ms. May,

The City of Norco Public Works Department has the following comments regarding the U.S. Army Corps of Engineers Draft Supplemental Environmental Assessment and Environmental Impact Report Addendum:

Section 2.3.2.3 (Haul Routes)

Haul route must follow established truck route on River Road to Corydon Avenue. Hauling of material within the City of Norco shall only occur between the hours of 7 am and 4 pm.

Section 2.3.2.8 (Construction Duration and Phasing)

Hauling of materials with the designated haul route shall only occur between the hours of 7 am and 4 pm.

Table 3-10 (Utility and Service Providers by Jurisdiction)

Remove “City of Corona” from Water Category.

Section 4.12.2 (Environmental Consequences)

Bluff Street shall be excluded from the haul route.

Corydon Avenue is currently rated with a Pavement Condition Index of 25 and would be significantly impacted with the addition of 300+ trucks a day using this road. Therefore, the contractor should be required to maintain the roadway during the duration of the project (fill potholes, resolve vehicle claims, etc). At the conclusion of the project the contractor shall repave (reconstruct) all of Corydon Avenue (curb to curb) from River Road to the Corydon Staging Area.

Should you have any questions regarding the Public Works Department's comments feel free to contact me at your earliest convenience. Thank you.

Chad Blais

Director of Public Works

CITY OF NORCO
HORSETOWN USA

(Delivered Via E-Mail)

January 7, 2021

U.S. Army Corps of Engineers
Planning Division
Los Angeles District

Attn: Ms. Jenna May, Civ USARMY CESPL, Biologists
Jenna.C.May@usace.army.mil
Phone (213) 452-3698

Subject: Draft SEA/EIR (Santa Ana River, Lower Norco Bluffs Toe Protection)

Ms. May:

The City of Norco is responding to the aforementioned project for which the comment period closes On January 8, 2021.

The City is on the record regarding this project in a letter (dated May 5, 2020) from Chad Bias, Norco's Public Works/Engineering Department Director. I have attached a copy of the letter for your convenience.

In addition to the May 5, 2020 letter, The City of Norco is concerned about the daily and long term roadway maintenance for the haul route located within the City of Norco.

The Addendum suggests that only minor maintenance and roadway repairs will be needed. The City, however, suggests that a two-year project with 300-plus daily truck trips will significantly damage the roadway beyond the need for simple roadway maintenance. We are requesting that the Addendum study this issue in more detail, as well as examining using the existing riverbed as an alternative haul route, avoiding the use of public streets in the City all together.

The Santa Ana River is an important recreational feature for the City of Norco. This area has horse riding trails, hiking trails, and a significant open space feature used on a daily basis. During the two year construction project what impacts will the construction do to the public access to this important recreational amenity?

Furthermore, the City suggests that the scope of the Addendum should model the roadway damage created by the size and frequency of construction activities for the proposed project. We believe that the analysis will show that the project will create significant degradation to the haul route roadways, especially roadways located in the City of Norco. In short, the Addendum fails to address this activity at a level of detail that

adequately discloses the actual degradation to the roadway, and stops short of proposing adequate mitigation measures to offset roadway impacts.

We strongly encourage the Corps to address a longer term remedy for this activity, including, but not limited to, a city accepted post project roadway treatment as determined by the roadway analysis. We look forward to reviewing the proposed roadway mitigation measures.

Please contact me should you have any questions and comments (Phone; 951-270-5682).

Regards,

Alma Robles, Interim Planning Director
attachment;

cc: Andy Okoro, City Manager
Brian Petree, Deputy City Manager/Director of Parks and Recreation
Chad Bias, Director of Public Works/Engineering
Sam Nelson, Deputy Director of Public Works

CITY OF NORCO
HORSETOWN USA

May 5, 2020

Attachment

U.S. Army Corps of Engineers
Planning Division
Los Angeles District

Attn: Jenna May, Civ USARMY CESPL, Biologist

Re: Draft SEA/EIR (Santa Ana River: Lower Norco Bluffs Toe Protection)

Ms. May,

The City of Norco Public Works Department has the following comments regarding the U.S. Army Corps of Engineers Draft Supplemental Environmental Assessment and Environmental Impact Report Addendum:

Section 2.3.2.3 (Haul Routes)

Haul route must follow established truck route on River Road to Corydon Avenue. Hauling of material within the City of Norco shall only occur between the hours of 7 am and 4 pm.

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Should you have any questions regarding the Public Works Department's comments feel free to contact me at your earliest convenience. Thank you.

Chad Blais

Director of Public Works

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
PLANNING (MS 722)
464 WEST 4th STREET, 6th Floor
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4557
FAX (909) 383-5936
TTY (909) 383-6300
www.dot.ca.gov/dist8

Make Conservation
A California Way of Life.

May 27, 2020

Eduardo T. De Mesa
Chief Planning Division
U.S. Army Crop of Engineer
Los Angles District
ATTN: Jenna May (CESPL-PDA-N)
915 Wilshire Boulevard, Suite 936
Los Angeles, CA 90017-3489

Supplemental Environmental Assessment/Environmental Impact Report Addendum (SEA/EIR Addn.) for the Lower Norco Bluffs Toe Restoration Project

Mr. De Mesa,

We have received and reviewed the SEA/EIR Addn. for the above-named feature of the Santa Ana River Mainstem Project (SARMP,) and we thank you for giving us the opportunity to comment on this proposal. As the owner and operator of the State Highway System (SHS), it is our responsibility to coordinate and consult with our Federal Agency partners when proposed project activity may impact our facilities. Under the California Environmental Quality Act (CEQA), we are required to make recommendations to offset potential impacts associated with the project and ensure mitigation measures comply, where relevant, with the policies and regulations that govern the SHS.

We have determined that Bluff Toe stabilization and construction of the 1.5-acre staging area located at Corydon Avenue south of 5th Street in the City of Norco will have no adverse impact to the SHS. However, if delivery and/or removal of oversize construction equipment or site materials is required along nearby SHS routes, we do suggest that you contact the Caltrans Transportation Permit Office at the link listed below for guidance or permits as needed:

https://traffic.onramp.dot.ca.gov/cvo

We appreciate the opportunity to offer comments concerning this project. If you have any questions regarding this letter, please contact Talvin Dennis at (909) 806-3957 or me at (909) 806-3923 for assistance.

Sincerely,

Rosa F. Clark

ROSA F. CLARK
Office Chief
Land Development/Intergovernmental Review

DEPARTMENT OF TRANSPORTATION
DISTRICT 12
1750 EAST FOURTH STREET, SUITE 100
SANTA ANA, CA 92705
PHONE (657) 328-6268
FAX (657) 328-6510
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

May 27, 2020

Eduardo T. De Mesa
Chief, Planning Division
U.S. Army Corps of Engineers, Los Angeles District
Attn: Jenna May (CESPL-PDR-N)
915 Wilshire Blvd, Suite 930
Los Angeles, CA. 90017-3489

File: IGR/CEQA
ID# 12-ORA-2020-01377
SR 91
I-15

Dear Mr. De Mesa,

Thank you for including the California Department of Transportation (Caltrans) in the review of the Supplemental Environmental Impact Statement (SEIS)/EIR for Prado Basin and Vicinity Project. The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

The purpose of this Project is to provide flood risk reduction to areas susceptible to flooding within the counties of San Bernardino, Riverside, and Orange. The Corps is the lead agency for compliance with NEPA, and Orange County Public Works (OCPW) is the lead agency for compliance with CEQA. The Lower Norco Bluffs Project is part of the Prado Basin flood control improvement separable element of the Santa Ana River Mainstream Project (SARMP). The project was analyzed in the 2001 Final SEIS/EIR. During preparation of the project's Plans and Specifications, the design of the Lower Norco Bluffs Project was further refined. The main objective of the Proposed Action would be the same as the previously approved Lower Norco Bluffs Project, which is to prevent further erosion of the bluff toe and, thus, preventing the movement of the Prado Dam 566-ft elevation line. An approximately 1.5-mile long embankment structure comprised of launchable rock, riprap, bedding material, and fill measuring and extending about 2.5 ft. below the riverbed to the top of bank protection of 100-year water surface elevation at a 2:1 angle. Filling of one side canyon and a system of v-ditches, catch basins, side drains, and culverts at 3 canyon areas. An approximately 1.5-acre staging area would be located just south of abandoned wastewater treatment plant site, located off of Corydon Avenue. A permanent

maintenance road would be constructed on top of the project access road off of Shadow Canyon Circle and extend along the top of the embankment. In addition, a temporary access ramp would be constructed at the toe of the bluff and adjacent to the staging area at the southern end of the project area. The modified TCE would also measure approximately 75 acres, however the Corydon Equestrian Staging Area would be included instead of the abandoned wastewater treatment plant. The resulting TCE would extend from approximately 450 ft. downstream of Hamner Avenue to the Corydon Equestrian Staging Area off of Corydon Ave.

The Lower Norco Bluffs Project is located in the City of Norco, Riverside County adjacent to the Santa Ana River. The Santa Ana River is an approximately 100-mile long waterway that runs from the San Bernardino Mountains to Huntington Beach in Southern California. The Lower Norco Bluffs Project construction would occur along an approximate 1.54-mile reach of the Santa Ana River near the northwest boundary of the City of Norco. The project area is approximately 8 miles north of Prado Dam Embankment and about 40 miles southeast of Los Angeles. The site of the Proposed Action is located along the southern bank of the Santa Ana River, southwest of Interstate 15 (I-15), and comprises three reaches. The project area boarders State Route 91 (SR 91) and Interstate I-15. Both the Interstate and the State Routes are overseen by Caltrans. Caltrans is a responsible agency and has the following comments:

Traffic Operations:

1. The ACOE will need to apply for a Transportation Permit for any oversized/overweight vehicles and equipment that will be using the State Highway system during, before or after construction, for any project construction activities. Refer to this link for more information about Transportation permit https://dot.ca.gov/programs/traffic-operations/transportation-permits

Permits:

1. Any project work proposed in the vicinity of the State Right-of-Way will require an encroachment permit, and all environmental concerns must be adequately addressed. Please coordinate with Caltrans in order to meet the requirements for any work within or near State Right-of-Way. A fee may apply. If the cost of work within the State right of way is below one Million Dollars, the Encroachment Permit process will be handled by

our Permits Branch; otherwise the permit should be authorized through the Caltrans's Project Development Department. When applying for Encroachment Permit, please incorporate all Environmental Documentation, SWPPP/ WPCP, NPDES, Hydraulic Calculations, R/W certification and all relevant design details including design exception approvals. For specific details for Encroachment Permits procedure, please refer to the Caltrans's Encroachment Permits Manual. The latest edition of the Manual is available on the web site: http://www.dot.ca.gov/hq/traffops/developserv/permits/

Please continue to coordinate with Caltrans for any future developments that could potentially impact State transportation facilities. If you have any questions, please do not hesitate to contact Julie Lugaro at 657-328-6368 or Julie.lugaro@dot.ca.gov.

Sincerely,

SCOTT SHELLEY
Branch Chief, Regional-IGR-Transit Planning
District 12