APPENDIX D

BIOLOGICAL RESOURCES REPORT

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BIOLOGICAL RESOURCES REPORT

YORBA LINDA BOULEVARD WIDENING PROJECT

CITY OF YORBA LINDA, CALIFORNIA

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LSA Project No. HNT1901.02

LSA

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EXECUTIVE SUMMARY

LSA has prepared this biological resources report for the proposed Yorba Linda Boulevard Widening Project (proposed project) located on the border between the cities of Yorba Linda and Anaheim along Yorba Linda Boulevard between La Palma Avenue and the State Route 91 (SR-91) westbound on-ramp and along South Weir Canyon Road between the SR-91 eastbound off-ramp and Santa Ana Canyon Road (see Figure 1). The City of Yorba Linda (City), as the Lead Agency under the California Environmental Quality Act (CEQA), in cooperation with the City of Anaheim, is proposing roadway improvements along Yorba Linda Boulevard as well as a Class I bike path along La Palma Avenue and Yorba Linda Boulevard, which includes the widening of the bridge over the Santa Ana River. The proposed bike path would also extend along La Palma Avenue and would connect with the existing Santa Ana River Trail. The proposed project would improve corridor operations and provide additional storage for turning movements, as the intersections within the proposed project limits have inadequate vehicle storage due to short turn pocket lengths. Improvements within the proposed project limits include intersection and lane reconfiguration, restriping, and roadway widening. The proposed project limits are shown in Figure 2.

The proposed project includes other improvements such as excavation, paving, curbs and gutters, grading, drainage, curb ramps, utility relocations, signing and striping, street lighting, traffic signal modifications, retaining walls, and landscaping.

In August 2019, LSA biologists conducted a literature review and records search to identify the existence and potential for occurrence of special-status plant and animal species in the vicinity of the proposed project. Federal and State lists of special-status species were also examined. Current electronic database records reviewed included the California Natural Diversity Database (CNDDB), the California Native Plant Society's Inventory of Rare and Endangered Plants of California, and the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Online System and National Wetlands Inventory. Historic and current aerial imagery, existing environmental reports for developments in the vicinity of the proposed project, and regional habitat conservation plans and local land use policies related to biological resources were also reviewed. A field survey covering the biological survey area (BSA) was conducted on November 7, 2019. The BSA included the original proposed project footprint, which did not include the bicycle trail improvements on La Palma Avenue, and a 500 foot (ft) buffer around the Yorba Linda Boulevard bridge over the Santa Ana River from La Palma Avenue to Crystal Drive, and a 100 ft buffer around the rest of the proposed project footprint. An additional field survey of the BSA for the bike path improvements on La Palma was conducted on December 12, 2019. These proposed bicycle trail improvements were added to the project description subsequent to the time of the original field survey.

The condition of the BSA ranges from developed areas to special-status natural communities. While the majority of the BSA has already been paved, a portion of the BSA occurring at and adjacent to the Santa Ana River consists of a variety of habitat types that may support special-status animal species. Native riparian vegetation exists within the Santa Ana River's streambanks, and native scrub and woodland habitats occur adjacent to the Santa Ana River and along La Palma Avenue. A portion

of the BSA immediately east of Yorba Linda Boulevard and south of La Palma Avenue consists of native upland scrub habitat from an existing mitigation enhancement site.

The historic and ongoing anthropogenic disturbances in the BSA (e.g., disking, highways, and urban development) have greatly altered, eliminated, or impacted the presettlement habitats needed to support many of the special-status animal species identified in the CNDDB and USFWS queries (refer to Appendix D). However, there are known occurrences of special-status animal species within the BSA, and one, the coastal California gnatcatcher (*Polioptila californica californica*), was observed during the November 2019 field survey. Suitable habitat for several regionally occurring special-status species is also present within the BSA, and those species are listed in this document. The BSA contains foraging habitat for common and special-status raptors; perennial shrubs and mature trees that serve as potential raptor nesting habitat are present within the proposed project footprint, particularly within the Santa Ana River streambank. Suitable nesting habitat for the coastal California gnatcatcher is found adjacent to the intersection of Yorba Linda Boulevard and La Palma Avenue. Suitable nesting habitat for a variety of common and special-status bird species occurs within the BSA within the mature riparian woodland associated with the Santa Ana River, as well as ornamental trees throughout the BSA.

There is potential for special-status animal species and natural communities to be indirectly and directly affected by construction of the proposed project. There is also potential for bat habitat, critical habitat (for the Santa Ana sucker [*Catostomus santaanae*]), jurisdictional aquatic resources, and wildlife movement to be affected. However, with regard to postconstruction maintenance, or operational activities pertaining to the bridge or other roadway facilities, there would be no adverse impacts to biological resources that did not exist prior to implementation and completion of the identified proposed project features. Potential impacts during operation would result from increased stormwater runoff as a result of the additional impervious surfaces required for the proposed bridge and roadway widening. However, these operational impacts would be addressed by the drainage improvements included in the project design. Furthermore, the proposed intersection, pedestrian, and bicycle improvements would not increase vehicular traffic or introduce new uses within the project limits. Therefore, the proposed project would not result in any new or increased operational impacts to biological resources.

With the implementation of recommended measures provided in this report, including compliance with all applicable local, regional, State, and federal policies and regulations related to biological resources, impacts to biological resources resulting from the proposed project would be reduced to the greatest extent practicable.

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INTRODUCTION

LSA has prepared this biological resources report for the proposed Yorba Linda Boulevard Widening Project (proposed project) located in the eastern portion of the City of Yorba Linda, Orange County, California (refer to Figure 1, Project Location; all figures are provided in Appendix A). The purpose of this report is to describe and document biological resources—including special-status species—known to occur or with the potential to occur in the biological study area (BSA). This technical information is provided for proposed project planning purposes and preliminary review under the California Environmental Quality Act (CEQA), California Endangered Species Act (CESA), Federal Endangered Species Act (FESA), and other pertinent regulations.

The biological resources assessment conducted for the proposed project involved the following components:

- Reviewing existing relevant scientific literature and other pertinent information related to the survey area
- Creating a list of regionally occurring special-status species determined to occur or have the potential to occur in the vicinity of the proposed project
- Characterizing and mapping the vegetation communities present within the survey area
- Evaluating the potential for the occurrence of special-status plant and animal species within the survey area
- Assessing the potential for proposed activities to adversely impact existing biological resources
- Recommending measures and/or avoidance or minimization measures regarding any potential impacts to biological resources

PROJECT LOCATION AND DESCRIPTION

The proposed project is located in the eastern portion of the City of Yorba Linda on the border between the cities of Yorba Linda and Anaheim. The proposed project limits measure approximately 0.40 mile (mi) along Yorba Linda Boulevard between La Palma Avenue and the State Route 91 (SR-91) westbound on-ramp and 0.10 mi along South Weir Canyon Road between the SR-91 eastbound off-ramp and Santa Ana Canyon Road. The proposed project limits also extend approximately 0.65 mi east along La Palma Avenue from the Yorba Linda Boulevard intersection. The proposed project location is shown in Figure 1.

Adjacent land uses within the vicinity of the proposed project consist of commercial/retail development on the east and west sides of Yorba Linda Boulevard and South Weir Canyon Road. The Santa Ana River is within the proposed project limits and BSA running under Yorba Linda Boulevard between La Palma Avenue and Savi Ranch Parkway. The Santa Ana River Trail (SART) is a Class I, off-street bike path located on the northern side of the river, and a flood control access road is located on the south side of the river.

PROJECT CHARACTERISTICS

The City of Yorba Linda (City), as the Lead Agency under CEQA, in cooperation with the City of Anaheim, is proposing roadway improvements along Yorba Linda Boulevard as well as bicycle and pedestrian improvements along La Palma Avenue and Yorba Linda Boulevard. The proposed project would improve corridor operations and provide additional storage for turning movements, as the intersections within the proposed project limits have inadequate vehicle storage due to short turn pocket lengths. The proposed project limits and proposed improvements are shown in Figure 2 and described in further detail below.

Yorba Linda Boulevard—La Palma Avenue to Savi Ranch Parkway

Northbound

Northbound Yorba Linda Boulevard at the La Palma Avenue intersection currently consists of two northbound through lanes, one combination through/right-turn lane, one right-turn lane, and two left-turn lanes. The proposed project would include the following improvements:

- Widen northbound Yorba Linda Boulevard, including the bridge over the Santa Ana River, in order to provide a fourth through lane at the Savi Ranch Parkway intersection.
- Restripe northbound Yorba Linda Boulevard to extend the northbound right-turn and left-turn pockets at La Palma Avenue.
- Convert the northbound shared through/right-turn lane to a through-only lane, and provide a second exclusive northbound right-turn lane while maintaining the overlap signal phasing at La Palma Avenue.
- Provide a barrier-separated 20-foot-wide Class I bike path along the east side of Yorba Linda Boulevard from La Palma Avenue to Savi Ranch Parkway.

The widening of the bridge would require lengthening of the pier walls and replacement of the existing pier wall debris nosing further upstream. The bridge would be widened a maximum of 40 feet (ft). Depending on the pile type selected, either pile-driving or drilling equipment would be required in the river channel, and special foundation design detail will be needed to avoid any impacts to the existing underground utilities.

Southbound

Southbound Yorba Linda Boulevard at the Savi Ranch Parkway intersection currently consists of one left-turn lane, three through lanes, and one right-turn lane. The proposed improvements would restripe southbound Yorba Linda Boulevard to provide a second left-turn lane and to extend the right-turn and left-turn pockets at Savi Ranch Parkway.

Yorba Linda Boulevard—Savi Ranch Parkway to SR-91 Westbound Off-Ramp

Northbound Yorba Linda Boulevard at Savi Ranch Parkway currently consists of one left-turn lane, three through lanes, and a free right-turn lane. The proposed project would include the following improvements:

- Widen northbound Yorba Linda Boulevard, and remove the existing free northbound right-turn lane at Savi Ranch Parkway to provide a combination through/right-turn and a standard right-turn lane.
- Provide an 18 ft Class I bike path along the east side of Yorba Linda Boulevard that would connect to a proposed 12 ft bike path along the south side of Old Canal Road, ending at Mirage Street.
- Reconfigure and extend the raised median from the westbound SR-91 on- and off-ramps to Savi Ranch Parkway.

Yorba Linda Boulevard/Weir Canyon Road—SR-91 Eastbound Ramps to Santa Ana Canyon Road

Southbound Weir Canyon Road currently consists of two left-turn lanes, two through lanes, one through/right-turn lane, and one right-turn lane. The proposed project would include the following improvements:

- Widen southbound Weir Canyon Road between the eastbound SR-91 off-ramp and Santa Ana Canyon Road to accommodate a second right-turn lane.
- Restripe southbound Weir Canyon Road to extend the right-turn pocket.
- Convert the existing southbound through/right-turn lane to a through-only lane at Santa Ana Canyon Road.
- Reconfigure the raised median to extend the southbound left-turn pocket at Santa Ana Canyon Road.
- Restripe Santa Ana Canyon Road from Roosevelt Avenue to Weir Canyon Road to convert one through lane to become a third left-turn lane.
- Widen the northeast corner of Weir Canyon Road and Santa Ana Canyon Road to extend the entrance lane to the eastbound SR-91 on-ramp and accommodate the proposed third left-turn lane from Santa Ana Canyon Road.

La Palma Avenue

La Palma Avenue would be reconfigured in the eastbound direction from Yorba Linda Boulevard for approximately 0.65 mi to accommodate a 16 ft wide Class I bike path on the south side of La Palma Avenue from Yorba Linda Boulevard and would connect to the existing SART, a Class I bike path. All

work related to the reconfiguration of La Palma Avenue for the Class I bike path (i.e., restriping) would be accomplished within the existing right-of-way, and construction access would occur from the roadway.

Other Improvements

The proposed project includes improvements such as excavation, paving, curbs and gutters, grading, drainage, curb ramps, utility relocations, signing and striping, street lighting, traffic signal modifications, retaining walls, and landscaping.

Drainage Improvements

Drainage improvements for the proposed project include four Modular Wetlands System Linear vaults on Savi Ranch Parkway between Pullman Avenue and Yorba Linda Boulevard. Right-of-way acquisition would be required for these vaults since the existing sidewalk is 8 ft wide and the proposed vaults are 9 ft wide. Right-of-way acquisition would also need to include additional width to provide the desired sidewalk width around the back of the planted vault. It shall also be noted that these four vaults are located within Anaheim. One Modular Wetlands System is also proposed along Weir Canyon Road between the SR-91 off-ramp and Santa Ana Canyon Road. The right-of-way to be acquired for the widening of Weir Canyon Road north of Santa Ana Canyon Road would also need to include right-of-way for the proposed vault.

Construction Activities and Access

Construction activities would include grading, open excavations, and vibration-generating activities. Temporary construction easements (TCEs) would be required for access to the construction areas and a construction staging area for materials and equipment storage.

Construction of the proposed project would require short-term temporary closures of a portion of the SART for widening of the bridge. The SART includes a Class I bike path on the northern side of the Santa Ana River in the vicinity of the improvements. There is also a flood control access road on the southern side of the Santa Ana River. The portion of the SART affected by construction of the proposed project would need to be temporarily closed for the protection of the SART users during certain construction activities, particularly overhead operations such as demolition, erection of temporary falsework, installation of girders, and placement of concrete. It is anticipated that the SART would be closed approximately five times, up to a maximum of 5 days for each closure. During these periods, SART users would be detoured, and signage would be provided to display the dates of the closures and to identify the detour routes. Other short-term closures of up to 15 minutes would be allowed with flagmen.

Construction is anticipated to be 18 months and be completed in 2023.

PROJECT SETTING

The proposed project is located within the northwestern quarter of the United States Geological Survey (USGS) *Black Star Canyon, California*, 7.5-minute topographic quadrangle map and the southwestern quarter of the USGS *Prado Dam, California,* 7.5-minute topographic quadrangle map (refer to Figure 1). The land within the BSA ranges from 320 to 440 ft above mean sea level.

The proposed project limits are situated primarily within developed land on existing roadways. The section of the proposed project extending over the Santa Ana River, which runs through the northern portion of the BSA under Yorba Linda Boulevard and south of La Palma Avenue, contains undeveloped open space. The SART, a Class I bike path, runs parallel to the Santa Ana River and underneath the Yorba Linda Boulevard bridge. Open space and commercial/retail development occur adjacent to the proposed project limits.

Regional access to the proposed project limits is provided by SR-91, State Route 90 (SR-90), and State Route 241 (SR-241). The proposed project limits are located directly to the north and south of SR-91, which extends in an east–west direction. SR-90 heads southeast, ending at SR-91, and is approximately 3 mi west of the proposed project limits. SR-241 is approximately 2 mi east of the proposed project limits and runs in a north–south direction.

METHODS

REGULATORY SETTING

Jurisdiction Subject to Section 401 of the Clean Water Act

The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the Clean Water Act (CWA). Typically, the areas subject to RWQCB jurisdiction coincide with those subject to United States Army Corps of Engineers (USACE) jurisdiction (i.e., wetland and nonwetland waters of the United States). The RWQCB also asserts authority over waters of the State under waste discharge requirements pursuant to the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Jurisdiction Subject to Section 404 of the Clean Water Act

USACE regulates discharge of dredged or fill material into waters of the United States. These waters include wetlands and nonwetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction, pursuant to Section 404 of the CWA, is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce), or it may be indirect (through a nexus identified in the USACE regulations). In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic must meet a specific set of mandatory wetland criteria. The discharge of dredged or fill material (temporarily or permanently) into waters of the United States (including wetlands) requires authorization from USACE pursuant to Section 404 of the CWA.

Federal Endangered Species Act Section 7 Consultation

Under provisions of Section 7(a)(2) of FESA, a federal agency that permits, licenses, funds, or otherwise authorizes a proposed project activity must consult with the United States Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) if the activity may affect a listed endangered or threatened species or its designated critical habitat. The purpose of this consultation is to ensure that a federal agency's actions would not jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat.

Migratory Bird Treaty Act

Native bird species and their nests are protected under the Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] 703–712). The MBTA states that all migratory birds and their parts (including eggs, nests, and feathers) are protected. The MBTA prohibits the take, possession, import,

export, transport, sale, purchase, barter, or offering for sale, purchase, or barter, of any migratory bird or its eggs, parts, or nests, except as authorized under a valid permit.[1]

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 661–666c) applies to federal projects for which any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the California Department of Fish and Wildlife (CDFW).

Executive Order 11990—Protection of Wetlands

Executive Order (EO) 11990 establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative.

California Endangered Species Act

CESA is administered by CDFW and prohibits the "take" of plant and animal species identified as either threatened or endangered in the State of California by the Fish and Game Commission (California Fish and Game Code Sections 2050–2097). "Take" is defined to mean hunt, pursue, catch, capture, or kill or to attempt those activities. Sections 2080.1 and 2081 of CESA allow CDFW to authorize exceptions to the "take" prohibition for State-listed threatened or endangered plant and animal species for purposes such as public and private development, provided the take is incidental to an otherwise lawful activity and the take is minimized and fully mitigated.

Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code designate 37 fully protected species and prohibit the take or possession at any time of such species with certain limited exceptions.

Bird Protections

Sections 3503, 3503.5, and 3513 of the California Fish and Game Code protect birds. Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by code or any regulation made pursuant thereto. Section 3503.5 prohibits the take, possession, or destruction of any nests, eggs, or birds in the orders Falconiformes (New World vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls). Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.

Jurisdiction Subject to Section 1600 of the California Fish and Game Code

Section 1600 et seq. of the California Fish and Game Code requires notifying CDFW prior to any project activity that might do the following: (1) substantially divert or obstruct the natural flow of

[1] According to the U.S. Department of the Interior Solicitor's Opinion M-37050 dated December 22, 2017, the MBTA applies only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs.

any river, stream or lake; (2) substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material where it may pass into any river, stream, or lake. If, after this notification, CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will need to be obtained. CDFW has not defined wetlands for jurisdictional purposes. CDFW generally includes within the jurisdictional limits of streams and lakes any riparian habitat present. Typical riparian habitat includes willows, alders, sycamores, cottonwoods, and other vegetation associated with stream banks or lake shorelines. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFW jurisdiction based on riparian habitat will automatically include any wetland areas. Wetlands not associated with a lake, stream, or other regulated areas generally are not subject to CDFW jurisdiction.

California Native Plant Protection Act

The California Native Plant Protection Act (NPPA) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. The NPPA gives CDFW the power to designate native plants as "endangered" or "rare," and prohibits the take of such plants, with certain exceptions.

LITERATURE REVIEW AND RECORDS SEARCH

LSA biologists conducted a literature review and records search in August 2019 to identify the existence and potential for occurrence of special-status[1] plant and animal species in the vicinity of the BSA. Federal and State lists of special-status species were also examined. Current electronic database records reviewed included the following:

- **California Natural Diversity Database (CNDDB—RareFind 5) information** is administered by the California Department of Fish and Wildlife (CDFW), formerly known as the California Department of Fish and Game (CDFG). This database covers special-status plant and animal species as well as sensitive natural communities that occur in California. Records from nine USGS quadrangles surrounding the proposed project limits (*Yorba Linda, Prado Dam, Corona North, Orange, Black Star Canyon, Corona South, Tustin, El Toro, and Santiago Peak*) were obtained from this database to inform the field survey.

- **The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California** utilizes four specific categories or "lists" of sensitive plant species to assist with the conservation of rare or endangered botanical resources (CNPS 2020). All of the plants constituting California Rare Plant Ranks 1A, 1B, 2A, and 2B are intended to meet the status

[1] For the purpose of this report, the term "special-status species" refers to those species that are listed or proposed for listing under the California Endangered Species Act and/or Federal Endangered Species Act, California Fully Protected Species, and California Species of Special Concern. It should be noted that "Species of Special Concern" is an administrative designation made by the California Department of Fish and Wildlife and carries no formal legal protection status. However, Section 15380 of the *California Environmental Quality Act Guidelines* indicates that these species should be included in an analysis of proposed project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

definitions of "threatened" or "endangered" in CESA and the CDFG Code, and are considered by CNPS to be eligible for State listing. At the discretion of the CEQA Lead Agency, impacts to these species may be analyzed as such, pursuant to *State CEQA Guidelines* Sections 15125(c) and 15380. Plants in Rank 3 (limited information; review list) or Rank 4 (limited distribution; watch list) or that are considered Locally Unusual and Significant may be analyzed under CEQA if there is sufficient information to assess potential significant impacts. Records from the four USGS quadrangles surrounding the proposed project limits were obtained from this database to inform the field survey.

- **The United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) online system** lists all proposed, candidate, threatened, and endangered species managed by the Endangered Species Program of the USFWS that have the potential to occur on or near a particular site. This database also lists all known critical habitats, national wildlife refuges, and migratory birds that could potentially be impacted by activities from a proposed project. An IPaC Trust Resource Report (USFWS 2019a) was generated for the BSA.

- **The USFWS Critical Habitat Mapper** was reviewed to determine whether critical habitat has been designated within or in the vicinity of the BSA (USFWS 2019b).

- **The USFWS National Wetlands Inventory** was reviewed to determine whether any wetlands or surface waters of the United States have been previously identified in the survey area (USFWS 2019c).

In addition to the databases listed above, historic and current aerial imagery, regional habitat conservation plans, and local land use policies related to biological resources were reviewed. Several resources for nearby projects were also referenced: Santa Ana River Mainstem Project: Reach 9 Phases 4, 5A, 5B, & BNSF Bridge, Final Supplemental Environmental Assessment and Environmental Impact Report Addendum (USACE/AECOM 2015), Biological Technical and Jurisdictional Delineation Report for the Santa Ana River Parkway Project (AECOM 2014), Biological Opinion on the Prado Mainstem and Santa Ana River Reach 9 Flood Control Projects and Norco Bluffs Stabilization Project (USFWS 2001), Habitat Mitigation Plan for the Weir Canyon Road/La Palma Avenue Roadway Improvement Project (BonTerra 2006), and Santa Ana River Canyon Habitat Management Plan Maintenance and Monitoring Report (LSA 2014).

FIELD SURVEY

A general biological survey of the BSA was conducted by LSA Senior Biologist Bo Gould and LSA Assistant Biologist Jessica Lieuw on November 7, 2019. After this initial biological survey, the City of Yorba Linda added to the proposed project the reconfiguration of a portion of La Palma Avenue to accommodate a Class I bike path, which subsequently expanded the BSA. A follow-up survey to assess this additional portion of the BSA was conducted by LSA Senior Biologist Jim Harrison and LSA Assistant Biologist Jessica Lieuw on December 12, 2019. The BSA included the original proposed project footprint and a 500 foot (ft) buffer around the Yorba Linda Boulevard bridge over the Santa Ana River from La Palma Avenue to Crystal Drive, and a 100 ft buffer around the rest of the proposed project footprint. The BSA was surveyed on foot, and all biological resources observed were noted. Suitable habitat for any species of interest or concern was noted, and general site

conditions were recorded. The field survey took place on clear mornings with weather conditions conducive to the detection of plant and animal species.

A daytime bat roosting habitat suitability assessment was conducted by LSA Senior Biologist and bat specialist Jill Carpenter and LSA Assistant Biologist Jessica Lieuw on September 12, 2019, to evaluate whether roosting habitat for bats was present at or adjacent to the Yorba Linda Boulevard bridge. A follow-up nighttime acoustic and emergence survey was conducted on October 1, 2019, to quantify and identify species of any bats emerging from the bridge. The Bat Roosting Habitat Suitability Assessment and Nighttime Survey Report is included here as Appendix E.

All wildlife species observed or otherwise detected (e.g., by scat, footprints, or other sign) during all surveys described above were recorded. An inventory of all plant and animal species observed within the BSA during the November and December 2019 surveys is contained in Appendix B.

RESULTS

This section summarizes the environmental setting and provides further analysis of the data collected in the field. Discussions regarding the existing BSA conditions, soils, vegetation communities, potentially occurring special-status biological resources, and habitat connectivity are presented below.

The BSA ranges from developed land cover to native vegetation types. While the majority of the BSA has already been paved, land adjacent to the Santa Ana River consists of a variety of habitat types that may support special-status species. Native riparian vegetation exists within the Santa Ana River's streambanks, and native scrub and woodland habitats occur adjacent to the Santa Ana River and along La Palma Avenue. A portion of the BSA immediately east of Yorba Linda Boulevard and south of La Palma Avenue consists of native upland scrub habitat from an existing habitat mitigation restoration and enhancement site (BonTerra 2006).

Habitat outside the Santa Ana River channel is considered low quality with respect to most of the special-status species identified during the literature review. However, habitat within the Santa Ana River channel, adjacent scrub habitat, and the habitat enhancement site are suitable for several special-status animal species. No special-status plant species have a moderate or high potential to occur, although several special-status plant species have a low potential to occur within scrub and riparian habitat associated with the Santa Ana River. An inventory of plant and animal species observed during the November and December 2019 surveys is provided in Appendix B.

VEGETATION COMMUNITIES AND LAND COVER TYPES

The BSA contains developed and ornamental landscape areas, along with some upland areas and riparian and/or wetland vegetation communities. Native vegetation communities occur primarily within or adjacent to the Santa Ana River channel and along La Palma Avenue. A small portion of coast live oak woodland occurs near Old Canal Road, outside the proposed project disturbance limits. Mature riparian woodland and other riparian and/or wetland habitats associated with the Santa Ana River continue beyond the BSA within the channel banks.

The acreage of each vegetation community and land cover type occurring in the BSA is shown in Table A. Figure 3 provides a map of these vegetation and land cover types within the BSA. Representative photographs of the BSA are presented in Appendix C.

A total of 154 vascular plant species were identified within the BSA during the November and December 2019 field surveys (refer to Appendix B)[1]. A total of 94 (approximately 61 percent) of these plant species represent nonnative taxa, reflecting a high level of disturbance within the BSA.

[1] This list does not include all introduced/ornamental plant species that occur on private properties throughout the biological study area.

Descriptions of the vegetation and land cover types occurring within the BSA are listed below, using the Orange County Habitat Classification System (HCS) as articulated by Jones & Stokes Associates, Inc. (1993). A complete list of plant species identified within the BSA is contained in Appendix B.

Table A: Vegetation and Land Cover Types within the Biological Study Area

Vegetation/Land Cover Type	Acreage[1]	Global/State Rarity Rank
Sagebrush Scrub	0.26	G4, S4
Disturbed Sagebrush Scrub	0.04	-
Coyote Brush Scrub	0.72	G4, -
Mixed CSS	1.33	G3, S3
Disturbed Mixed CSS	1.40	-
California Encelia Scrub	0.08	G3, -
Disturbed California Encelia Scrub	0.16	-
Scrub-Chaparral Ecotone	1.82	-
Ruderal	1.31	-
Ruderal Herbaceous	4.76	-
Freshwater Marsh	0.42	G5, S5
Disturbed Freshwater Marsh	0.87	-
Herbaceous Riparian	0.17	-
Willow Riparian Scrub	0.29	G4, S4
Mulefat Scrub	0.24	G5, S5
Cottonwood-Willow Riparian Forest	3.00	G4, S3
Coast Live Oak Woodland	0.36	G5, S4
Elderberry Woodland	0.21	G3, S3
Eucalyptus Woodland	0.43	-
Open Water	2.00	-
Unvegetated Riverbed	2.92	-
Disturbed	1.07	-
Ornamental Landscaping	12.52	-
Developed	44.51	-
Total Biological Study Area	**80.89**	-

Source: Compiled by LSA Associates, Inc. (2020).
[1] All presented acreages are approximate and based on GIS measurements.
CSS = coastal sage scrub
GIS = geographic information systems

Sagebrush Scrub (2.3.6 of the HCS)

Sagebrush scrub within the BSA is dominated almost exclusively by California sagebrush (*Artemisia californica*). One area mapped as sagebrush scrub occurs adjacent to the intersection of La Palma Avenue and Yorba Linda Boulevard, within an existing habitat enhancement area (BonTerra 2006).

Disturbed Sagebrush Scrub

One area mapped as disturbed sagebrush scrub within the BSA occurs next to the area classified as sagebrush scrub. This small section is distinguished based on the prevalence of weedy, nonnative species such as tree tobacco (*Nicotiana glauca*) and shortpod mustard (*Hirschfeldia incana*).

Coyote Brush Scrub (2.3.9 of the HCS)

Areas mapped as coyote brush scrub are dominated by coyote brush (*Baccharis pilularis*) with occasional occurrences of California encelia (*Encelia californica*), shortpod mustard, and tocalote (*Centaurea melitensis*). This habitat type occurs primarily at the intersection of Yorba Linda Boulevard and La Palma Avenue, within the existing enhancement area. Another two sections of coyote brush scrub are found adjacent to La Palma Avenue.

Mixed Coastal Sage Scrub (CSS) (2.3.10 of the HCS)

Areas classified as mixed CSS within the BSA are dominated by an even mix of species including California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), California encelia, laurel sumac (*Malosma laurina*), California sagebrush, and coyote brush. Some areas mapped as mixed CSS at the intersection of Yorba Linda Boulevard and La Palma Avenue also contain coastal prickly pear (*Opuntia littoralis*), while other areas existing adjacent to La Palma Avenue contain an occasional western sycamore (*Platanus racemosa*) individual.

Disturbed Mixed CSS

Several areas within the BSA are mapped as disturbed mixed CSS. These areas contain native scrub species as described above but also have a prevalence of weedy, nonnative species including shortpod mustard, tree tobacco, and tocalote.

California Encelia Scrub (Not Within the HCS)

While this habitat type is not described by Jones & Stokes, one area along La Palma Avenue was dominated almost entirely by California encelia (>80 percent).

Disturbed California Encelia Scrub

One area within the BSA consisted of over 50 percent cover of California encelia with a codominant ruderal component consisting of shortpod mustard. Tocalote was also observed within this habitat community in lower amounts.

Scrub-Chaparral Ecotone (3.1 of the HCS)

Scrub-chaparral ecotone within the BSA represents a gradation and intermingling of CSS types and chaparral types. These represent ecotonal areas between chaparral and scrub communities with component species of both. This habitat type was mapped immediately south of La Palma Avenue, adjacent to several retention ponds, and consists of species including California sagebrush, California buckwheat, black sage, California croton (*Croton californicus*), California encelia, and toyon (*Heteromeles arbutifolia*). Several Peruvian pepper trees (*Schinus molle*) were also observed within this vegetation community.

Ruderal (4.6 of the HCS)

Areas classified as ruderal within the BSA consist of regularly disturbed grassland areas dominated by weedy or pioneering plant species including Russian-thistle (*Salsola tragus*), shortpod mustard,

nonnative grasses (*Bromus* spp., *Avena* sp., etc.), and telegraph weed (*Heterotheca grandiflora*), among many others.

Ruderal Herbaceous (Not Within the HCS)

Areas mapped as ruderal herbaceous within the BSA were dominated by weedy, nonnative herbaceous forbs. This habitat type is differentiated from "ruderal" due to the lack of grasses. Two distinct areas were mapped as ruderal herbaceous. The upland area immediately south of La Palma Avenue is dominated by shortpod mustard and includes some tocalote. The area classified as ruderal herbaceous within the Santa Ana River channel banks is codominated by shortpod mustard, black mustard (*Brassica nigra*), castor bean (*Ricinus communis*), common horseweed (*Erigeron canadensis*), and giant reed (*Arundo donax*). During the November 2019 field survey, biologists observed stands of giant reed being treated with herbicide.

Freshwater Marsh (6.4 of the HCS)

Areas categorized as freshwater marsh within the BSA consist of seasonally or permanently flooded low-lying areas. Cattails (*Typha* spp.) were the dominant plant species in these areas.

Disturbed Freshwater Marsh

Areas categorized as disturbed freshwater marsh within the BSA occur to the west of Yorba Linda Boulevard. These sections differ from the areas mapped as freshwater marsh because they are dominated by weedy and/or nonnative species, such as Spanish sunflower (*Pulicaria paludosa*), willow weed (*Persicaria lapathifolia*), and common cocklebur (*Xanthium strumarium*).

Herbaceous Riparian (7.1 of the HCS)

Areas mapped as herbaceous riparian within the BSA are located adjacent to the active channel of the Santa Ana River. Herbaceous riparian vegetation is an early successional stage of riparian scrub and forest. Flooding often scours woody riparian vegetation away, and the site is rapidly colonized by pioneer wetland herbaceous plants such as willow weed, tall umbrella-sedge (*Cyperus eragrostis*), Spanish sunflower, common cocklebur, and mulefat (*Baccharis salicifolia*).

Willow Riparian Scrub (7.2 of the HCS)

Areas categorized as willow riparian scrub within the BSA contain species including arroyo willow (*Salix lasiolepis*) and mulefat. A small patch of willow riparian scrub is found adjacent to the active channel of the Santa Ana River, west of the bridge.

Mulefat Scrub (7.3 of the HCS)

Several small patches of mulefat scrub are present within BSA along the Santa Ana River channel banks. These areas are dominated by mulefat, with lesser amounts of willow species and mugwort (*Artemisia douglasiana*). Shortpod mustard was also present within areas classified as mulefat scrub.

Cottonwood-Willow Riparian Forest (7.8 of the HCS)

Cottonwood-willow riparian forest is present within the BSA and is comprised of a multilayered forest community dominated by cottonwoods and willows. Vegetation found in the areas mapped as cottonwood-willow riparian forest include Fremont cottonwood (*Populus fremontii*), Goodding's black willow (*Salix gooddingii*), arroyo willow, and mulefat.

Coast Live Oak Woodland (8.1 of the HCS)

A small section of coast live oak woodland is found within the BSA adjacent to Old Canal Road. This area has a canopy cover of approximately 50 percent and is dominated by coast live oak (*Quercus agrifolia*). Other species observed include toyon and blue elderberry (*Sambucus nigra*).

Elderberry Woodland (8.4 of the HCS)

Elderberry woodland occurs within the BSA in a ravine within the existing habitat enhancement area adjacent to the intersection of La Palma Avenue and Yorba Linda Boulevard. Several arroyo willows occur within the area mapped as elderberry woodland. Other species present in this habitat type include coyote brush and mulefat.

Eucalyptus Woodland (not within the HCS)

While not described by Jones & Stokes, this habitat type occurs within the BSA adjacent to the plaza immediately south of La Palma Avenue. This strip of vegetation is dominated by eucalyptus (*Eucalyptus* spp.), with an understory composed of a mix of native scrub and weedy nonnatives including California sagebrush, tocalote, and shortpod mustard.

Perennial Rivers and Streams (13.1 of the HCS)

The Santa Ana River is classified as a perennial river. Within the BSA, the Santa Ana River is divided into two subcategories: open water and unvegetated riverbed.

Open Water

The portion of the Santa Ana River within the BSA is mapped as open water is the active channel. This area is a deep-water aquatic habitat that is permanently inundated and does not support rooted-emergent or woody plant species.

Unvegetated Riverbed

Sections of the Santa Ana River within the BSA that support less than 5 percent vegetation cover and are not permanently inundated are mapped as unvegetated riverbed. These sections do not include any wetlands as defined by the United States Army Corps of Engineers.

Disturbed or Barren (16.1 of the HCS)

Disturbed or barren areas within the BSA either lack vegetation entirely or exhibit a sparse cover of ruderal vegetation. Weedy or pioneering plant species noted as occurring in these areas include Russian-thistle, shortpod mustard, and tocalote.

Ornamental Landscaping (15.5 of the HCS)

Areas classified as ornamental landscaping exist within the developed portions of the BSA. Ornamental landscaping is regularly maintained and consists primarily of planted, nonnative species including Mexican fan palms (*Washingtonia robusta*), Chinese elms (*Ulmus parvifolia*), hottentot-figs (*Carpobrotus edulis*), crimson fountain grass (*Pennisetum setaceum*), pines (*Pinus* spp.), Peruvian pepper trees, acacias (*Acacia* spp.), and many others. One area, on the eastern end of La Palma Avenue within the BSA, contains a mixture of native species including coast live oak and western sycamore, and ornamental nonnatives including nonnative oaks and Chinese elms. The ornamental areas along La Palma Avenue also occasionally have an understory consisting of nonnatives including shortpod mustard, tocalote, and tree tobacco.

Developed (15.0 of the HCS)

The BSA is composed largely of streets including Yorba Linda Boulevard, La Palma Avenue, Old Canal Road, Weir Canyon Road, and East Santa Ana Canyon Road, as well as associated sidewalks. These areas are mostly paved, lack vegetation, and are mapped as developed.

SOILS

According to the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) online soil survey of Orange County, 15 soil units belonging to 10 soil series occur within the BSA (NRCS 2019) (Figure 4, Soils). The soil types include the following: Anaheim loam, 30 to 50 percent slopes; Capistrano sandy loam, 2 to 9 percent slopes; Cieneba sandy loam, 15 to 30 percent slopes; Corralitos loamy sand; Myford sandy loam, 2 to 9 percent slopes; Myford sandy loam, 9 to 30 percent slopes, eroded; Riverwash; San Emigdio fine sandy loam, 0 to 2 percent slopes; San Emigdio fine sandy loam, 2 to 9 percent slopes; Soper gravelly loam, 30 to 50 percent slopes, Major Land Resource Area (MLRA) 20; Soper cobbly loam, 15 to 15 to 50 percent slopes; Xeralfic arents, loamy, 2 to 9 percent slopes; Yorba gravelly sandy loam, 2 to 9 percent slopes; Yorba cobbly sandy loam, 9 to 30 percent slopes, eroded; and Yorba cobbly sandy loam, 30 to 50 percent slopes. The soil series are discussed in greater detail below.

Anaheim Series

The Anaheim series consists of well-drained, moderately deep soils that formed in material weathered from fine-grained sandstone and shale. These soils are found on moderately steep to very steep foothills at elevations of 100 to 2,500 ft. Runoff is rapid to very rapid, and permeability is moderate to moderately slow. Anaheim soils are typically used for production of pasture, range, and barley and for watershed. Vegetation found on these soils is mostly brush, with an undercover of annual grasses and forbs in some areas. Anaheim loam, 30 to 50 percent slopes, occurs at the northeastern portion of La Palma Avenue within the proposed project footprint.

Capistrano Series

The Capistrano series consists of very deep, well-drained soils that formed in alluvium from sedimentary or granitic sources. These soils are on alluvial fans and flood plains in small valleys at elevations of 25 to 2,500 ft. Capistrano soils have slow to medium runoff and moderately rapid permeability. These soils are used for citrus and dry land barley, pasture, and range. Uncultivated

areas have annual grasses and forbs with scattered brush; some areas have a few oak trees. Capistrano sandy loam, 2 to 9 percent slopes, occurs at the northeastern portion of La Palma Avenue within the proposed project footprint.

Cieneba Series

The Cieneba series consists of very shallow and shallow, somewhat excessively drained soils that formed in material weathered from granitic rock. These soils are found on hills and mountains at elevations of 500 to 4,000 ft. Cieneba soils have low to high runoff and moderately rapid permeability in the soils that is much slower in weathered bedrock. Soils in this series are typically used for wildlife, recreation, watershed, and incidental grazing. Vegetation found on these soils is mainly chaparral and chemise with widely spread foothill pine or oak trees, with small areas of annual grasses and weeds. Cieneba sandy loam, 15 to 30 percent slopes, occurs at the intersection of Mirage Street and Old Canal Road.

Corralitos Series

The Corralitos series consists of deep, somewhat excessively drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. These soils are found on alluvial fans and in small valleys at elevations of 25 to 1,000 ft. Corralitos soils have slow runoff and rapid permeability, with some areas subject to localized flooding and deposition. These soils are typically used for range, dryland crops, and urban development and for growing truck crops, alfalfa, citrus, and other fruits under irrigation. Uncultivated areas have a cover of annual grasses, forbs, coyote bush, other shrubs, and a few live oak trees. Corralitos loamy sand occurs under the northwestern portion of Yorba Linda Boulevard, partially within the riverbed.

Myford Series

The Myford series consists of deep, moderately well-drained soils formed on terraces at elevations of less than 1,500 ft. These soils have medium to rapid runoff and very slow permeability. Soils in the Myford series are used for production of citrus, pasture, range, and barley and for urban development. Vegetation found on these soils is typically annual grasses and forbs with some scattered low-growing brush. Myford sandy loam, 2 to 9 percent slopes, occurs at Santa Ana Canyon Road west of Weir Canyon Road. Myford sandy loam, 9 to 30 percent slopes, eroded, occurs at the southern portion of Weir Canyon Road within the proposed project footprint, south of SR-91.

Riverwash

Riverwash consists of areas of unconsolidated alluvium, generally stratified and varying widely in texture, recently deposited by intermittent streams, and subject to frequent changes through stream overflow. These sandy, gravelly, cobbly, and bouldery deposits support little or no vegetation. Runoff is generally rapid and erosion hazard is high. Riverwash has little to no agricultural value; however, it does have beneficial functions and values when associated with watercourses, ground water recharge, sand and gravel pits, and wildlife habitat. Riverwash occurs within the Santa Ana River riverbed and extends toward Savi Ranch Parkway within the proposed project footprint.

San Emigdio Series

The San Emigdio series consists of very deep, well-drained soils that formed in dominantly sedimentary alluvium. These soils are on alluvial fans, on floodplains, and in narrow valleys at elevations of 100 to 2,000 ft. San Emigdio soils have negligible to low runoff and moderately rapid permeability. Soils in this series are used for growing citrus fruit, alfalfa, truck crops, and dryland grain, with some areas used in homesites. Uncultivated areas have vegetation consisting of grasses and forbs. San Emigdio fine sandy loam, 0 to 2 percent slopes, occurs in a few portions of the proposed project footprint at La Palma Avenue and Yorba Linda Boulevard north of SR-91. San Emigdio fine sandy loam, 2 to 9 percent slopes, occurs at the intersection of Old Canal Road and Yorba Linda Boulevard.

Soper Series

The Soper series consists of moderately deep, well-drained soils that formed in material weathered from conglomerate and sandstone. These soils are on hills and uplands at elevations of 100 to 2,500 ft. They have rapid runoff and moderately slow permeability. Soils in the Soper series are used for dryland pasture, rangeland, watershed, and homesites. Principal vegetation consists of annuals and forbs, with some native shrubs and a few oak trees. Soper gravelly loam, 30 to 50 percent slopes, MLRA 20, occurs at the southern portion of Weir Canyon Road within the proposed project footprint, south of SR-91. Soper cobbly loam, 15 to 50 percent slopes, occurs on the southern portion of the proposed project footprint, at Santa Ana Canyon Road west of Weir Canyon Road.

Xeralfic Arents, Loamy

Xeralfic Arents, loamy, are moderately well drained or well-drained soils. Soils in this series are mostly cut-and-fill land with some portions of undisturbed soil. Elevation ranges from 50 to 1,500 ft. Permeability is slow to very slow depending on compaction and mixing during construction. Runoff is rapid and the erosion hazard is high. These soils are used primarily for apartment houses, single-family houses, shopping centers, and industrial buildings. Xeralfic Arents, loamy, 2 to 9 percent slopes, occurs at the intersection of Weir Canyon Road and the SR-91 eastbound ramps.

Yorba Series

The Yorba series consists of deep, well-drained soils formed in gravelly and cobbly mixed alluvium from a variety of rocks. They are found on terraces in the coastal plain of southern California at elevations of 100 to 2,500 ft. These soils have medium to rapid runoff with slow permeability. Yorba soils are typically used for dryland native pasture or range, with some areas used for urban development. Naturalized vegetation is scattered chemise, flattop buckwheat, sumac, California sage, and annual grasses and forbs. Yorba gravelly sandy loam, 2 to 9 percent slopes, and Yorba cobbly sandy loam, 30 to 50 percent slopes, occur at La Palma Avenue within the proposed project footprint. Yorba cobbly sandy loam, 9 to 30 percent slopes, eroded, occurs at the eastern portion of Old Canal Road within the proposed project footprint.

SPECIAL-STATUS BIOLOGICAL RESOURCES

The BSA supports various sensitive natural communities, as well as special-status plants and animals. Appendix D provides tables that identify those special-status plant and animal species known to

occur or that potentially occur in the BSA and the surrounding area (based on the literature review and professional experience in the region) and includes detailed information about each species' habitat and distribution, State and federal status designations, and probability of occurrence within the BSA. As stated in the Methods section above, the background research included occurrence records from nine USGS topographic quadrangles surrounding the BSA. A nine-USGS-quadrangle search covers a large, variable geographic and topographic area containing numerous habitat types not found within or around the BSA. As such, many of the species listed in Appendix D are not anticipated to occur in the BSA due to historic and ongoing anthropogenic disturbances and/or the lack of suitable habitat.

The following subsections provide specific discussions for sensitive natural communities, special-status plant and animal species, and habitats of concern (including critical habitat, jurisdictional aquatic resources, wildlife movement corridors, and regional and local habitat conservation plans).

Sensitive Natural Communities

The CNDDB search identified occurrences of 12 sensitive natural (i.e., plant) communities within the nine-quadrangle search area: California Walnut Woodland, Canyon Live Oak Ravine Forest, Riversidean Alluvial Fan Sage Scrub, Southern Coast Live Oak Riparian Forest, Southern Coastal Salt Marsh, Southern Cottonwood Willow Riparian Forest, Southern Interior Cypress Forest, Southern Riparian Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, Southern Willow Scrub, and Valley Needlegrass Grassland.

However, only the following sensitive plant communities were observed within the BSA during the field survey. Southern Cottonwood Willow Riparian Forest associated with the Santa Ana River exists within the BSA, east of Yorba Linda Boulevard. Southern Willow Scrub is also present within the BSA in the Santa Ana River channel, west of Yorba Linda Boulevard; while the vegetation association consisting of arroyo willow has a Global and State rank of 4, the association was still marked as "sensitive" by CDFW. Other sensitive plant communities that did not occur in the CNDDB search were observed within the BSA, including Mixed CSS, California Encelia Scrub, and Elderberry Woodland. While Scrub-Chaparral Ecotone does not have a rarity rank, it may be considered a sensitive natural community because of the CSS components present within this habitat type. There are also several disturbed scrub types, including Disturbed Mixed CSS and Disturbed California Encelia Scrub that may be considered sensitive natural communities but were differentiated based on the disturbed nature of those areas.

Special-Status Plants

The literature review identified 43 special-status plant species that are known to occur within a nine-quadrangle radius of the BSA (refer to Appendix D). Nine of the special-status plant species that were identified in the databases have specialized habitat requirements that do not occur within the BSA, and were not included in the species table. Those species include the following: Munz's onion (*Allium munzii*), white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*), heart-leaved pitcher sage (*Lepechinia cardiophylla*), felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*), Jokerst's monardella (*Monardella australis* ssp. *jokerstii*), intermediate monardella (*Monardella hypoleuca* ssp. *intermedia*), Hall's monardella (*Monardella macrantha* ssp. *hallii*), California beardtongue (*Penstemon californicus*), and Santiago Peak phacelia (*Phacelia keckii*).

Historic anthropogenic disturbances have greatly altered the natural hydrologic regimes and have either eliminated or greatly impacted the presettlement habitats needed to support most of the special-status plant species identified in the CNDDB and CNPS queries. As such, the specific habitats, soil substrates, or microclimates necessary for these specific special-status plant species to occur are largely absent within the boundaries of the BSA. Based on site observations coupled with the habitat suitability analysis, no special-status plant species are likely to occur (i.e., have a Moderate or greater probability of occurrence) within the BSA.

Special-Status Animals

As stated above for special-status plant species, the historic and ongoing anthropogenic disturbances (e.g., disking, highways, and urban development) in the BSA and adjacent areas have greatly altered, eliminated, or impacted the presettlement habitats needed to support many of the special-status animal species identified in the CNDDB and USFWS queries (refer to Appendix D). However, there are known occurrences of special-status animal species within the BSA, and one, the coastal California gnatcatcher (*Polioptila californica californica*), was observed during the November 2019 field survey. It is important to point out that coastal California gnatcatchers were moving (presumably foraging) between the Santa Ana River habitat and the adjacent upland scrub habitat near the corner of Yorba Linda Boulevard and La Palma Avenue (where they are known to occur).

Suitable habitat for several regionally occurring special-status animal species is also present adjacent to the BSA, and those species are listed below.

Several special-status animal species have a moderate or higher potential to occur within the BSA at the Santa Ana River. Suitable habitat is present within or adjacent to the proposed project limits (e.g., within and/or associated with the Santa Ana River) for the following species:

- **Invertebrates:** Crotch bumble bee (*Bombus crotchii*)
- **Fish:** Santa Ana sucker (*Catostomus santaanae*)
- **Reptiles:** Red-diamond rattlesnake (*Crotalus ruber*) and coast horned lizard (*Phrynosoma blainvillii*)
- **Birds:** Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), white-tailed kite (*Elanus leucurus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-breasted chat (*Icteria virens*), coastal California gnatcatcher, yellow warbler (*Setophaga petechia*), and least Bell's vireo (*Vireo bellii pusillus*)

The BSA contains foraging habitat for common and special-status raptors such as the white-tailed kite; perennial shrubs and mature trees that serve as potential raptor nesting habitat is present within the proposed project footprint, particularly within the Santa Ana River streambank. Suitable nesting habitat for the coastal California gnatcatcher is found adjacent to the intersection of Yorba Linda Boulevard and La Palma Avenue. Suitable nesting habitat for a variety of common and special-status bird species occurs adjacent to the site within the mature riparian woodland associated with the Santa Ana River, as well as ornamental trees throughout the BSA.

The evaluation of special-status animal species occurrence within BSA was based on a habitat suitability analysis. It did not include exhaustive surveys to determine their presence or absence, but did include direct observation of on-site and off-site conditions and a review of the CNDDB records documenting recorded occurrence data from the area to conclude whether or not a particular species could be reasonably expected to occur. Based on this analysis, it is unlikely that the remaining special-status animal species listed in Appendix D (other than those specifically listed above) occur within the BSA.

Bat Habitat

Crevice habitat suitable for night-roosting and day-roosting bats, including maternity colonies, was identified at a single hinge near the middle of the bridge structure. Field biologists were unable to extrapolate potential use of the hinge from presence and quantity of bat sign because the presence of water beneath the hinge prevents sign from accumulating. Biologists were also unable to find a vantage point allowing visibility into the crevice to confirm the depth of the crevice and presence/absence of bats. Consequently, a nighttime emergence survey was performed to determine whether bats roost within the hinge. Several other potentially suitable habitats for bats were identified, including a crevice at the northern bridge abutment, weep holes, cliff swallow mud nests, and mature riparian trees.

During the nighttime emergence survey, an estimated 159 bats were observed emerging from the Yorba Linda Boulevard bridge structure. The majority of bats exited the bridge on the western, or downstream, side. Based upon visual observation and analysis of the acoustic data collected during this survey, the bridge was occupied primarily by Mexican free-tailed bats (*Tadarida brasiliensis*), with some Yuma myotis bats (*Myotis yumanensis*) also present. Refer to Appendix E for further information regarding bats and the specific bat surveys conducted for the proposed project.

Critical Habitat

Critical-habitat areas, as designated by the USFWS for specific federally listed species, are considered to be essential to the conservation of such species and may need special management or protection (USFWS 2017). Critical habitat is designed to protect the essential physical and biological features (PBFs) of a landscape and essential areas in the appropriate quantity and spatial arrangement that a species needs to survive and reproduce and ultimately be conserved. However, designated critical-habitat polygons often include large areas that do not include PBFs (such as developed or highly disturbed lands). Critical-habitat designations affect only federal agency actions or federally funded or permitted activities. Critical-habitat designations do not affect activities by private landowners if there is no federal nexus (e.g., no federal funding or authorization). Federal agencies are required to avoid “destruction” or “adverse modification” of designated critical habitat. FESA requires the designation of “critical habitat” for listed species when “prudent and determinable.” Since the proposed project includes a federal nexus due to the proposed work within the jurisdiction of the USACE, the proposed project is subject to regulations pertaining to critical habitat designations.

As shown on Figure 5, Santa Ana Sucker Critical Habitat, the portion of the BSA at the Santa Ana River is located within Revised Final Critical Habitat for the Santa Ana sucker (USFWS 2010). No other designated or proposed critical habitat occurs within the BSA.

The PBFs of Santa Ana sucker critical habitat include the following:

1. A functioning hydrological system within the historical geographic range of the Santa Ana sucker that experiences peaks and ebbs in the water volume (either naturally or regulated) necessary to maintain all life stages of the species in the riverine environment, including breeding site selection, resting, larval development, and protection in cool-water refuges (i.e., tributaries)

2. Stream channel substrate consisting of a mosaic of loose sand, gravel, cobble, and boulder substrates in a series of riffles, runs, pools, and shallow sandy stream margins

3. Water depths greater than 3 cm (1.2 in) and bottom water velocities greater than 0.03 m per second (0.01 ft per second)

4. Clear or only occasionally turbid water

5. Water temperatures less than 30 degrees Centigrade (86 degrees Fahrenheit)

6. In-stream habitat that includes food sources (such as zooplankton, phytoplankton, and aquatic invertebrates), and associated vegetation such as aquatic emergent vegetation and adjacent riparian vegetation to: (a) reduce water temperature when ambient temperatures are high; (b) provide shelter; and (c) provide protective cover from predators; and (7) areas within perennial stream courses that may be periodically dewatered but that serve as connective corridors between occupied or seasonally occupied habitat and through which the species may move when the habitat is wetted (USFWS 2009).

Portions of the Santa Ana River within the proposed project footprint contain several of these PBFs.

Jurisdictional Aquatic Resources

Section 1600 et seq. of the California Fish and Game Code requires notifying CDFW prior to any activities of the proposed project that might do the following: (1) substantially divert or obstruct the natural flow of any river, stream or lake; (2) substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material where it may pass into any river, stream, or lake. If CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will need to be obtained.

In addition to the jurisdictional limits of any rivers, streams, or lakes, CDFW also typically asserts jurisdiction over associated riparian vegetation occurring within or adjacent to those rivers, streams, or lakes. Typical riparian habitat includes willows, alders, sycamores, cottonwoods, and other vegetation associated with stream banks or lake shorelines. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFW jurisdiction based on riparian habitat in this instance will automatically include any federally-defined wetland areas. Wetlands not somehow associated with a river, stream, or lake generally are not subject to CDFW jurisdiction.

CDFW jurisdiction within the BSA is associated with the Santa Ana River portion of the proposed project and extends from bank to bank across the entire span of the riverbed. This CDFW jurisdiction is composed of both riparian and nonriparian streambed areas within the Santa Ana River (see Appendix F for details). Delineated aquatic resources within the BSA subject to USACE jurisdiction under Section 404 of the CWA include wetland and nonwetland waters of the United States associated with the Santa Ana River. In this particular case, the wetland and nonwetland waters of the United States are wholly within the CDFW jurisdictional streambed limits associated with the Santa Ana River. The Jurisdictional Delineation (JD) Report provides further detailed information regarding these federal- and State-delineated jurisdictional features and is provided as Appendix F.

Wildlife Movement and Habitat Connectivity

Wildlife movement of species such as coyote (*Canis latrans*) and bobcat (*Lynx rufus*) is expected within portions of the BSA, particularly riparian habitat associated with the Santa Ana River, which connects Chino Hills State Park and the Santa Ana Mountains with resources downstream along the river. There is also a low potential for wildlife movement of mountain lions (*Puma concolor*) within the Santa Ana River near Yorba Linda Boulevard. While the BSA is near Chino Hills State Park and the Santa Ana Mountains, where mountain lions are known to occur, areas adjacent to the Santa Ana River at Yorba Linda Boulevard are mostly developed, and no habitat for mountain lion exists downstream. Migratory bird species may also utilize habitat within the BSA for foraging and nesting during the bird breeding season.

Regional Habitat Conservation Plans and Local Policies

The portion of the proposed project limits south of SR-91 along Weir Canyon Road and Santa Ana Canyon Road is located within the County of Orange Central/Coastal Subregion Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) (Figure 6). These plans represent collaborative planning efforts among a variety of parties, including land owners, developers, local governments, and resource agencies. The NCCP/HCP covers a variety of habitat types and plant and animal species, designates conservation areas, and provides regulatory processes for plan signatories for projects impacting covered resources within specific land designations. No construction or operations/maintenance work associated with the proposed project would occur within designated reserve lands, special linkages, existing-use areas, or other conservation areas identified in the NCCP/HCP.

A regional conservation plan, the Santa Ana River Canyon Habitat Management Plan (SARCHMP; OCFCD 2009), was developed from Prado Dam downstream to the Weir Canyon Road/Yorba Linda Boulevard overpass and is administered by OC Public Works. SARCHMP aims to maintain the baseline amount of riparian habitat. Projects within the SARCHMP area are required to maintain habitat or provide mitigation for impacted riparian habitat. The proposed project is expected to result in a small quantity of permanent impacts to native riparian habitat in the Santa Ana River that will require replacement of an equal or greater amount of native riparian habitat, subject to OC Public Works approval. Existing conditions corresponding to areas of temporary impacts to habitat in the management area would be restored in place at a quality equal to or greater than the previous habitat conditions. The location of the SARCHMP area in proximity to the proposed project limits is shown on Figure 7.

The City of Anaheim's Habitat Mitigation Plan for the Weir Canyon Road/La Palma Avenue Roadway Improvement Project (BonTerra Consulting 2006) is a local habitat mitigation plan that will be affected by the proposed project. In this case, the proposed project would result in permanent impacts to a portion of the coastal sage scrub (CSS) habitat that was previously and is currently utilized by coastal California gnatcatchers and that was previously mitigated for in the 2006 mitigation plan referred to above. This CSS habitat in Anaheim's Habitat Mitigation Plan is located at the southeast corner of Yorba Linda Boulevard and La Palma Avenue, as shown on Figure 8. The City of Yorba Linda, in cooperation with the City of Anaheim, would implement appropriate mitigation of these impacts to this CSS habitat, subject to the approval of the United States Fish and Wildlife Service and California Department of Fish and Wildlife following future Section 7 consultation.

The BSA contains mature native trees as well as ornamental trees. The following ordinances address the removal of trees in each respective city.

Section 18.18.040 of the Anaheim Municipal Code states the following:

> Preservation of significant stands and single specified trees in the Scenic Corridor (SC) Overlay Zone is necessary to preserve the natural beauty of the Santa Ana Canyon environment, increase the visual identity and quality of the area, and protect the remaining natural amenities from premature removal or destruction.
>
> Except as provided in subsection .030, it shall be unlawful for any person to destroy or otherwise direct or permit the destruction of one (1) or more Specimen Trees[1] growing within the boundaries of the "SC" Overlay Zone, without a permit issued by the City of Anaheim pursuant to the provisions of this section.

Section 13.12.060 of the Anaheim Municipal Code states the following regarding street trees:

> Any street tree removed shall be replaced if a replacement is deemed possible. The replacement specie shall be selected in accordance with the Official Tree Specie [sic] List and Tree Master Plan.

Section 13.12.060 of the Anaheim Municipal Code states the following regarding street trees:

> No person shall cut, trim, prune, plant, remove, spray, or in any other manner interfere with any street tree within the City of Anaheim without first having secured written permission from the Director of Community Services or his or her designee.

Section 16.08.030 of the Yorba Linda Municipal Code states the following:

[1] Anaheim Municipal Code Section 18.18.040.0101 "Specimen Tree" shall mean any tree of the Quercus varieties (Oak) with a trunk measuring twenty-five (25) inches or greater in circumference; or any tree of the Schinus varieties (Pepper) and Platanus varieties (Sycamore), with trunks measuring fifty (50) inches or greater in circumference; measurements of circumference shall be taken at a point four (4) feet above ground level.

> No person shall cut down, destroy or remove any tree growing within the City limits in the public right-of-way without a permit issued by the Community Development Director.

As the applicants for the proposed project are the City of Yorba Linda and the City of Anaheim, the tree ordinances for each city would be adhered to.

IMPACT FINDINGS AND RECOMMENDED MEASURES

The following impact assessment and recommended measures are intended to support the CEQA review process. The proposed project description, coupled with LSA's survey results, professional experience in the region, and review of biological literature, provided the basis for this analysis. The impact discussion below addresses the range of impacts that could result from the proposed project, as well as recommended measures that would address potential impacts. The impacts are based on the proposed project design shown in Figure 2; changes to this design may affect the impacts conclusions presented below.

The analysis below describes impacts that would occur during construction activities as well as during operational activities. Construction activities are also discussed in terms of permanent impacts that would occur from the physical disturbance required for restriping for the proposed bicycle and pedestrian facilities, pavement widening, bridge pier installation, additional shading, and retaining wall installation. Construction activities are also discussed in terms of direct temporary impacts that may occur from activities such as construction access, construction equipment staging, and grading as well as indirect temporary impacts that may occur from construction noise, lighting, traffic, and air quality pollutant emissions. Operational impacts are discussed in terms of indirect impacts as a result of increased stormwater runoff. Operation of the proposed improvements would not alter change existing conditions resulting in direct impacts.

SENSITIVE NATURAL COMMUNITIES

Construction Impacts

Permanent Impacts

As shown in Figure 3, Vegetation, the majority of the proposed project limits along Santa Ana Canyon Road, Weir Canyon Road, Old Canal Road, and Savi Ranch Parkway are surrounded by developed land, ornamental landscaping, or ruderal vegetation. Therefore, the proposed intersection, drainage, and pedestrian and bicycle facility improvements along these portions of the proposed project limits would not impact sensitive natural communities or habitats that have the potential to support special-status species. In addition, construction activities associated with the proposed bike path along La Palma would occur within the existing right-of-way and no permanent impacts would occur to adjacent vegetation would result from the proposed restriping. Sensitive natural communities and habitat types within the BSA are located largely within the Santa Ana River channel and would be permanently impacted by construction associated with widening of the Yorba Linda Boulevard bridge.

Table B provides a summary of impacts to vegetation types within the proposed project limits. Southern Cottonwood Willow Riparian Forest, a sensitive natural community associated with the Santa Ana River channel, exists within the proposed project development footprint east of Yorba Linda Boulevard; 0.12 acres (ac) of Southern Cottonwood Willow Riparian Forest would be permanently impacted by construction of pier walls required for bridge widening, as well as permanent shading impacts resulting from the additional pavement of the widened bridge. A small amount of Mixed CSS (<0.01 ac) would be permanently impacted by shading impacts resulting from

the widened bridge. Measure BIO-1 requires restoration or compensation for the loss of this habitat type from the direct loss from pier wall installation and permanent shade from the expanded bridge structure.

This sensitive natural community may also be permanently impacted by the introduction of invasive-plant material tracked in on equipment, clothing, and shoes as part of construction activities, which has the potential to alter the habitat suitability for native plant and animal species. Measure BIO-2 includes measures for the construction contractor to employ to avoid and minimize the spread of invasive species and maintain habitat suitability.

BIO-1 **Restoration and/or Compensatory Habitat Replacement.** Temporary and permanent impacts to sensitive natural communities and habitats that may support special-status species will be restored at no less than a 1:1 ratio, and/or mitigation bank credits will be purchased to offset impacts.

Native habitats that are temporarily impacted by construction activities will be restored to preconstruction quality following the conclusion of all construction. Areas that are permanently impacted by construction activities would require compensatory mitigation. Mitigation may occur in applicable areas adjacent to the proposed project limits, and/or mitigation bank credits may be purchased to compensate for permanent impacts (e.g., through the Soquel Canyon Mitigation Bank). Permittee-responsible mitigation areas would be monitored for 5 years post-restoration to ensure successful establishment of plant communities.

Table B: Impacts to Vegetation and Land Cover Types

Vegetation/Land Cover Type	Temporary Impacts[1] (acre)	Permanent Impacts[1] (acre)	Total Impacts[1] (acre)
Sagebrush Scrub	-	0.13	0.13
Disturbed Sagebrush Scrub	-	0.01	0.01
Coyote Brush Scrub	0.03	0.09	0.12
Mixed CSS	0.01	<0.01	0.01
Ruderal	0.25	0.07	0.32
Ruderal Herbaceous	0.10	0.13	0.23
Freshwater Marsh	0.06	0.02	0.08
Cottonwood-Willow Riparian Forest	0.18	0.12	0.30
Open Water	0.04	0.06	0.10
Unvegetated Riverbed	<0.01	0.07	0.07
Disturbed	0.01	0.01	0.02
Ornamental Landscaping	0.35	0.81	1.16
Developed	1.33	12.57	13.90
Total Impact Area	**2.36**	**14.09**	**16.44**

Source: Compiled by LSA Associates, Inc. (2020).

[1] All presented acreages are approximate and based on GIS measurements.

CSS = coastal sage scrub

GIS = geographic information systems

BIO-2 **Invasive-Species Control.** Prior to ground disturbance and during construction activities, measures will be included to ensure invasive-plant material is not spread to areas outside the proposed project limits by tracking seed on equipment, clothing, and/or shoes. Equipment/material imported from an area where invasive plants exist must be identified, and measures (e.g., equipment cleaning) must be implemented to prevent importation and spreading of nonnative plant material within and outside the proposed project limits. All construction equipment accessing unpaved areas would be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving at and leaving the proposed project limits. Only certified weed-free straw, mulch, and/or fiber rolls would be used for erosion control.

Temporary Impacts

Construction access required for the proposed bridge widening would result in 0.18 ac of direct temporary impacts to Southern Cottonwood Willow Riparian Forest. As described above, Measure BIO-1 requires the restoration of all temporarily impacted habitat to pre-construction conditions. Therefore, no adverse effects would occur to Southern Cotton Willow Riparian Forest as a result of temporary construction activities. This sensitive natural community, along with Southern Willow Scrub, which occurs downstream of the BSA, would also be subject to indirect temporary impacts due to increased levels of dust, erosion, and potentially decreased water quality, during proposed project construction activities. Several sensitive natural communities also occur adjacent to La Palma Avenue or at the intersection of La Palma Avenue and Yorba Linda Boulevard, including Mixed CSS, California Encelia Scrub, and Elderberry Woodland. These habitat types may also be subject to temporary indirect impacts due to dust and erosion for the restriping associated with the proposed bike path along La Palma as well as the widening of Yorba Linda Boulevard. Measure BIO-3 includes erosion control measures that would be implemented during construction activities to addresses indirect erosion and sedimentation impacts. Measure BIO-4 includes best management practices during construction to offset indirect impacts, such as fueling of equipment, construction traffic, and introduction of trash on site.

BIO-3 **Erosion Control and Exclusionary Fencing.** Grading and construction resulting in ground disturbance should occur within the typical dry season (April 15–October 15), as feasible, to avoid erosion and sedimentation impacts to the river and water quality. The Construction Contractor will also install adequate erosion and sedimentation barriers (e.g., silt fencing, as described below) prior to ground disturbance to prevent any sediment-laden runoff or debris from entering adjacent waterways and potentially making it to the Pacific Ocean during the wet season or periods of rain. This silt fencing will also serve as a temporary barrier to further minimize the potential for special-status amphibians, reptiles, and other wildlife from entering work areas during construction. The barriers will consist of 3 foot (ft) tall silt fencing buried to a depth of at least 6 inches below the soil surface along the outer limits of all work areas (or as otherwise required by the storm water pollution and prevention plan). These barriers will be inspected daily by construction personnel and maintained and repaired as necessary for the duration of construction to ensure that they are functional and are not a hazard to wildlife on

the outer side of the fence. A qualified biologist will monitor all fence installation. All barriers will be removed following completion of construction.

BIO-4 **Best Management Practices During Construction.** Habitat subject to permanent and temporary construction disturbances and other types of ongoing proposed project-related disturbance activities will be minimized by adhering to the following measures:

a. The proposed project disturbance limits will be clearly marked with construction fencing (or other highly visible material), and construction/materials staging and vehicle/equipment maintenance and fueling areas will be located at least 200 ft away from riparian habitat associated with the Santa Ana River, where feasible.

b. To minimize temporary disturbances, all construction-related vehicle traffic will be restricted to established roads, construction areas, and other designated areas.

c. Construction vehicles will observe a daytime speed limit of 20 miles per hour (mph) throughout the site in all proposed project areas, except on paved county roads and State and federal highways. Nighttime construction will be minimized to the extent possible. However if it does occur, then the speed limit will be reduced to 10 mph. Off-road traffic outside of designated proposed project limits will be prohibited.

d. To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 2 ft deep will be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. In the case of trapped animals, escape ramps or structures will be installed immediately to allow the animal(s) to escape.

e. For the duration of construction activities, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed at least daily from the construction site.

f. Pets, such as dogs or cats, will not be permitted in the proposed project limits during construction to prevent harassment, injury, or death of wildlife in the vicinity of the proposed project.

g. Use of rodenticides and herbicides in proposed project areas will be restricted. This is necessary to prevent primary or secondary poisoning of predators and the depletion of prey populations on which they depend. All uses of such compounds will observe label and other restrictions mandated by the United

States Environmental Protection Agency, California Department of Food and Agriculture, and other State and federal legislation.

Operational Impacts

With regard to post-construction maintenance, or operational activities (e.g., tree trimming and road maintenance) pertaining to the proposed improvements, there will be no adverse impacts to sensitive natural communities that did not exist prior to implementation and completion of the proposed project. Operation of the proposed project would result in an increase in stormwater runoff due to the additional impervious surface associated with widening Yorba Linda Boulevard. However, additional drainage improvements in the form of Modular Wetland Systems are proposed to accommodate runoff from the additional pavement. Therefore, any additional runoff as a result of the proposed project would be collected and treated and would not result in erosion or other water quality impacts to adjacent habitat. Therefore, the proposed project will not result in any new or increased operational impacts to sensitive natural communities and would benefit local storm water drainage.

SPECIAL-STATUS PLANT SPECIES

Construction Impacts

No special-status plant species are likely (i.e., have a moderate or greater probability of occurrence) to occur within the BSA or to be adversely affected by construction of the proposed project. However, because there is marginally suitable habitat for some special-status plant species near the Santa Ana River channel and the field surveys were conducted in November and December, outside the typical springtime blooming season, Measure BIO-5 is recommended to confirm absence of annual special-status plant species. If special-status plant species are found within the proposed project disturbance limits during this survey, a compensatory mitigation plan for the species will be developed and approved in consultation with USFWS and/or CDFW, as applicable.

BIO-5 **Springtime Botanical Survey**. Prior to any project-related ground disturbance, a follow-up botanical survey will be conducted by a qualified biologist/botanist during the typical springtime blooming season (April–May 2020) to confirm the absence of annual special-status plant species that bloom during this period. The results of the survey will be documented and submitted to the City of Yorba Linda. For purposes of this measure, "special-status plant species" refers to those plant species that are listed or proposed for listing under the California Endangered Species Act or Federal Endangered Species Act and/or have a California Native Plant Society (CNPS) California Rare Plant Rank of 1A, 1B, 2A, or 2B. CNPS California Rare Plant Rank 3 or 4 plants have been excluded. Should any of these special-status plant species be found within the proposed project disturbance limits, a compensatory mitigation plan must be prepared and approved by the County of Orange prior to project-related ground disturbance. If listed special-status plant species are found, the compensatory mitigation plan must also be approved by the United States Fish and Wildlife Service and/or California Department of Fish and Wildlife, as applicable.

Permanent Impacts

Direct permanent impacts to special-status plant species may occur as a result of lengthening of the pier walls for the widening of Yorba Linda Boulevard bridge, if these species are identified in this area during the springtime botanical surveys. Measure BIO-1 would require compensation or replacement for all permanently impacted habitat that supports special-status species. Other permanent indirect impacts would occur as a result of habitat modification from the spread of invasive species during construction activities. Measure BIO-2 described above includes measures to prevent the introduction and spread of invasive species, particularly in native habitats, during construction. No permanent impacts would occur to special-status species as a result of construction of the bike path along La Palma Avenue and other intersection improvements within the project limits.

Temporary Impacts

Direct temporary impacts to special-status plant species may occur as a result of grading and construction access for the widening of Yorba Linda Boulevard, if these species are identified during the springtime botanical surveys. Measure BIO-1 would require the restoration of all temporarily disturbed areas to pre-construction conditions. Indirect impacts to special-status plant species would also occur as a result of erosion and dust from grading, restriping, and construction associated with widening of the bridge. Measure BIO-4 includes construction best management practices for erosion control.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming and road maintenance) pertaining to the proposed improvements, no adverse impacts to special-status plants would occur that did not exist prior to implementation and completion of the proposed project. As described above, operation of the proposed project would result in an increase in stormwater runoff due to the additional impervious surface associated with widening Yorba Linda Boulevard. Increased runoff may result in erosion, which would have a potential direct impact on special-status species, if identified within habitat adjacent to the roadway. However, additional drainage improvements in the form of Modular Wetland Systems are proposed to accommodate runoff from the additional pavement. The additional runoff would be collected and treated and operations would not result in erosion or other water quality impacts to adjacent habitat. Therefore, the proposed project will not result in any new or increased operational impacts to special-status plant species.

SPECIAL-STATUS ANIMAL SPECIES

Construction Impacts

Permanent Impacts

Several special-status bird species, including the western yellow-billed cuckoo, white-tailed kite, southwestern willow flycatcher, yellow-breasted chat, yellow warbler, Crotch bumblebee, and least Bell's vireo, have the potential to be directly affected by the construction of the proposed project. Widening of the bridge requires lengthening of the pier walls, which would result in permanent

impacts to habitats that support special-status species within the Santa Ana River channel, such as Cottonwood-Willow Riparian Forest and Freshwater Marsh. The widening of the bridge would also result in permanent shade impacts to these vegetation communities, located below the bridge structure. No permanent impacts would occur to special-status species as a result of construction of the bike path along La Palma Avenue as all construction access and staging would occur within the existing roadway. In addition, no permanent impacts would occur to special-status animal species as a result of the intersection improvements within the project limits, as the improvements at Savi Ranch Parkway, the SR-91 ramps and Weir Canyon are not located adjacent to habitat that would support these species.

The coastal California gnatcatcher, a federally threatened species, is known to occur within the sagebrush scrub restoration area located within the proposed project development footprint. Construction activities required for the widening of Yorba Linda Boulevard and improvements at the intersection of Yorba Linda Boulevard and La Palma Avenue would result in 0.13 ac of direct, permanent impacts to sagebrush scrub habitat. Refer to Table B for a summary of impacts to vegetation types within the proposed project limits. Measure BIO-1, above, addresses restoration or compensatory replacement for habitat that may support special-status bird species. These habitat types also have the potential to be permanently impacted from the introduction of invasive-plant material. Measure BIO-2 addresses potential impacts to habitat from invasive species. Invasive plant species materials may be introduced to habitats within and adjacent to the project limits as a result of construction access and equipment staging.

In compliance with Section 7 of the ESA, impacts to any federally listed species, including the western yellow-billed cuckoo, southwestern willow flycatcher, coastal California gnatcatcher, and least Bell's vireo would require consultation with USFWS to identify appropriate avoidance and minimization measures. In addition, consultation with CDFW would also be required for impacts to state-listed species, including the western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo. Measures BIO-6 and BIO-7 describe these consultation requirements. In addition, Measure BIO-8 addresses informing and training of construction personnel about special-status species that may occur in the vicinity of the proposed project and what legal protections they are afforded. Measure BIO-9, which involves a preconstruction clearance survey, and Measure BIO-10, which involves biological monitoring, would ensure that special-status species are not on site or adversely affected during construction of the proposed project.

BIO-6 **Section 7 Consultation.** Consultation with USFWS is required for federally listed special-status species, including the Santa Ana sucker, western yellow-billed cuckoo, southwestern willow flycatcher, coastal California gnatcatcher, and least Bell's vireo.

BIO-7 **CDFW Consultation.** Impacts to any State-listed species will be addressed as part of the Section 2081 incidental-take permit process, as deemed necessary by the California Department of Fish and Wildlife. Restoration and/or replacement of native habitat within Santa Ana River Canyon Habitat Management Plan (SARCHMP) areas will be discussed and agreed upon with OC Public Works. Similarly, habitat restoration and/or replacement for impacts within the City of Anaheim's Habitat Mitigation Plan area will be discussed and agreed upon with the City of Anaheim and the federal and State resource agencies.

BIO-8 **Worker Environmental Awareness Training.** Prior to on-site work (including mobilization), Worker Environmental Awareness Training will be conducted by a qualified biologist to educate all construction personnel on the relevant federal, State, and local laws related to regional special-status species known to occur in adjacent habitat types, particularly habitat associated with the Santa Ana River. The training session will include training on identification of species that may be found in or adjacent to the proposed project limits, the status of those species, and any legal protection afforded to those species. Measures that are being implemented to protect those species will also be explained. Personnel will be advised to report the occurrence of any special-status species promptly. A fact sheet conveying this information will be prepared for display or for distribution to anyone who may enter the proposed project limits.

BIO-9 **Preconstruction Clearance Surveys.** A qualified biologist will conduct preconstruction surveys at the Santa Ana River to confirm the absence of special-status species with a moderate or higher potential to occur, including the Crotch bumble bee, red-diamond rattlesnake, coast horned lizard, western yellow-billed cuckoo, white-tailed kite, southwestern willow flycatcher, yellow-breasted chat, coastal California gnatcatcher, yellow warbler, and least Bell's vireo, within suitable habitat. The surveys will also confirm that other special-status species with a low potential to occur are not on site. The preconstruction surveys will take place no more than 24 hours prior to commencement of work activities. If listed species are observed within the work area (or areas potentially indirectly affected by proposed project activities as determined by the qualified biologist) and the work cannot be postponed until the species is no longer present, the City of Yorba Linda will obtain written approval from the United States Fish and Wildlife Service or the California Department of Fish and Wildlife, as applicable, prior to completing work for the proposed project at these locations.

BIO-10 **Biological Monitoring.** A qualified biologist will monitor construction activities, including clearing, grubbing, and excavation, at the Santa Ana River and within or adjacent to habitat that may support special-status species. The monitor will ensure that construction personnel are within the designated proposed project footprint and that practicable measures are being employed to avoid and minimize incidental disturbance to habitat and special-status species inside and outside the proposed project footprint.

One special-status invertebrate species, the Crotch bumble bee, has a low-to-moderate occurrence potential within the sagebrush scrub restoration area located within the proposed project footprint at the southeastern corner of the Yorba Linda Boulevard and La Palma Avenue intersection. The widening of Yorba Linda Boulevard and intersection improvements proposed here have the potential to permanently impact this species through loss of habitat or direct mortality if it is nesting within the BSA. A preconstruction clearance survey is recommended to confirm the presence or absence of the species as described in Measure BIO-9 above. If the species is found to be present within the proposed project construction footprint, construction activities would be postponed in

the immediate vicinity of the species, and USFWS would be consulted for approval prior to completing construction activities for the proposed project in that location.

Widening of the bridge requires lengthening of the pier walls, which would result in direct impacts in the form of permanent habitat loss that may support special-status reptile species or direct mortality if those species are present. The red-diamond rattlesnake and coast horned lizard have the potential to occur in the proposed project construction footprint within CSS and scrub-chaparral. As described above, a preconstruction clearance survey is recommended to confirm the presence or absence of these species as described in Measure BIO-9, and the erosion control and exclusionary fencing described in Measure BIO-3 will ensure that these species do not enter the proposed project footprint during construction.

One federally listed fish species, the Santa Ana sucker, is presumed present. The widening of the bridge would result in direct impacts in the form of permanent loss of Open Water and Freshwater Marsh habitat due to installation of the pier walls and permanent shade from the widened bridge. These two habitat types that may support the Santa Ana sucker within the Santa Ana River. Measure BIO-11 provides measures to divert the flow of the active channel to avoid permanent direct impacts to the Santa Ana sucker. Restoration of permanently lost Freshwater Marsh habitat would also be required as part of the restoration and compensation of habitat that supports special-status species described in Measure BIO-1, above. Potential impacts to the Santa Ana sucker would also require consultation with USFWS under Measure BIO-6.

BIO-11 **Flow Diversion and/or Channel Realignment.** One special-status aquatic species, the Santa Ana sucker, is presumed to be present within the active channel of the Santa Ana River. To reduce impacts to special-status aquatic species presumed to be present within the active channel of the Santa Ana River, measures will be taken to ensure that a continuous flow of the stream is maintained throughout proposed project construction. Subject to the approval of the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the stream channel will be diverted away from the initial proposed project construction area to minimize adverse effects to the sucker. If there are permanent impacts to channel flow from the extension of pier walls at the Yorba Linda Boulevard bridge, the active channel will be realigned and restored to ensure that flow is not obstructed. Habitat will be restored at no less than a 1:1 ratio. This mitigation measure will be subject to approval by USFWS during Section 7 consultation.

The BSA includes some suitable nesting habitat for raptors or other tree-nesting species, such as the white-tailed kite, as well as some suitable nesting habitat for other actively nesting birds that are protected under the California Fish and Game Code. Riparian woodland adjacent to the proposed project construction limits in the Santa Ana River channel serves as suitable nesting habitat for various common and special-status bird species, including the least Bell's vireo, western yellow-billed cuckoo, southwestern willow flycatcher, yellow-breasted chat, and yellow warbler. Construction activities that occur during the nesting bird season (January 1–September 15) have the potential to result in the direct or indirect take of nesting birds. Measure BIO-12 requires a preconstruction nesting bird survey to avoid take of any nesting birds.

BIO-12 **Avoidance of Breeding Season and Nesting Bird Surveys.** Construction activities for the proposed project will occur outside the nesting season (January 1–September 15) to the fullest practicable extent, particularly in and around the Santa Ana River. If vegetation removal, construction, or grading activities are planned to occur within the active nesting bird season, the City of Yorba Linda will have a qualified biologist conduct a preconstruction nesting bird survey no more than 3 days prior to the start of such activities. If construction activities using heavy equipment (e.g., graders, bulldozers, and excavators) continue through the nesting season, weekly nesting bird surveys will be conducted. Each nesting bird survey will include the construction work area and areas adjacent to the project limits (within 300 feet, as feasible) that could potentially be affected by proposed project-related activities such as noise, vibration, increased human activity, and dust. For any active nest(s) identified, the qualified biologist will establish an appropriate buffer zone around the active nest(s). The appropriate buffer will be determined by the qualified biologist based on species, location, and the nature of the proposed construction activities. Construction activities will be avoided within the buffer zone until the nest is deemed no longer active, as determined by the qualified biologist.

Temporary Impacts

Several special-status animal species, including the red-diamond rattlesnake, coast horned lizard, western yellow-billed cuckoo, white-tailed kite, southwestern willow flycatcher, yellow-breasted chat, coastal California gnatcatcher, yellow warbler, and least Bell's vireo, also have potential to be temporarily indirectly affected during construction activities through increased noise, vibration, lighting, and dust. These temporary impacts would occur as a result of proposed restriping for the bike path along La Palma Avenue and widening of the Yorba Linda Boulevard. While the intersection improvements throughout the remainder of the project limits are not located adjacent to sensitive habitats, ornamental trees are located throughout the project limits and construction activities associated with these improvements may result in indirect impacts to nesting birds. Such indirect disturbance has the potential to affect foraging patterns and disorient special-status animal species occurring in adjacent habitat areas. Increased anthropogenic disturbance and waste (e.g., litter) during and following proposed project construction could also attract predators of special-status animal species, such as domestic and feral dogs and cats, crows/ravens, and coyotes, to the proposed project vicinity. Measure BIO-3 addresses exclusionary fencing to ensure that no special-status reptiles and amphibians enter the construction area. Measure BIO-4 incorporates best management practices for the construction contractor to implement that reduces temporary construction disturbances. Measure BIO-12 would avoid indirect temporary impacts to nesting birds through pre-construction surveys and avoidance of the breeding bird season.

Potential adverse effects to special-status fish, including the Santa Ana sucker, and other aquatic species occurring in adjacent aquatic habitats may occur due to construction-related impacts on hydrology and water quality. Construction of the proposed project would include grading and may result in a potential increase in erosion and sediment transport into adjacent or downstream aquatic areas. Chemical spills or leaks of fuel, transmission fluid, lubricating oil, or motor oil from construction equipment could also contaminate waters and degrade their quality. These potential impacts to hydrology and water quality would be avoided or substantially minimized through the

implementation of Measure BIO-3, which addresses erosion control, and Measure BIO-4, which provides best management practices for construction.

Operational Impacts

With regard to post-construction maintenance, or operational activities (e.g., tree trimming or road maintenance) pertaining to the proposed project, there would be no adverse impacts to special-status animal species that did not exist prior to implementation and completion of the proposed project. The proposed project would improve operations and no additional traffic noise is anticipated that would have indirect impacts on special-status animal species. Operation of the proposed project would result in an increase in stormwater runoff due to the additional impervious surface associated with widening Yorba Linda Boulevard. Increased runoff may result in erosion, which would have a potential direct impact on special-status species, if suitable habitat is present adjacent to the roadway. However, additional drainage improvements in the form of Modular Wetland Systems would accommodate runoff from the additional pavement. The additional runoff would be collected and treated and operations would not result in erosion or other water quality impacts to adjacent habitat that may support special-status animal species. Therefore, the proposed project would not result in any new or increased operational impacts to special-status animal species.

BAT HABITAT

The analysis of bat habitat below provides a discussion of three habitat types: crevice habitat, tree/snag habitat, and swallow nests. As these three habitat types provide different types of suitable foraging and roosting habitat for bat species within the BSA, impacts and measures to address impacts to these habitat types are individually addressed.

Crevice Habitat

Construction Impacts

Permanent Impacts. Crevice habitat suitable for day- and night-roosting bats is present at the Yorba Linda Boulevard bridge over the Santa Ana River. Proposed project construction has the potential to permanently impact bat species through direct mortality or loss of available habitat as a result of disturbance and/or removal of crevice habitat during pier wall construction for bridge widening. During the nighttime acoustic and emergence survey, 159 bats were counted emerging from the bridge hinge. Based upon visual observation and analysis of the acoustic data collected during this survey, the bridge was occupied primarily by Mexican free-tailed bats, with some Yuma myotis bats also present. Given the time of year that the emergence survey was performed, as well as the large number of bats observed, it is likely that the Mexican free-tailed bats use this bridge as a migratory or overwintering roost. Because this focused bat survey was performed outside the bat maternity season (April 1–August 31), and given the suitability of the crevice habitat observed at this structure for maternity roosting, a preconstruction nighttime survey would need to be performed at this location during the summer months (i.e., June–August) in order to confirm whether this structure serves as a maternity roost and to determine the numbers and species of any bats roosting there, as described in Measure BIO-13. If a maternity colony is determined to be present following the nighttime survey described in Measure BIO-13, construction within a pre-determined buffer distance to avoid the recognized bat maternity season as described in Measure BIO-14 would be

required. Measure BIO-15 describes actions to avoid direct mortality to roosting bats from loss of crevice habitat by performing humane evictions and exclusions. If construction of the new pier walls results in a loss of 25% of available roosting crevice habitat during construction, this habitat would also be compensated for as described in Measure BIO-16, which would require the provision of alternate bat roosting habitat.

BIO-13 **Nighttime Survey for Maternity Colony.** A California Department of Fish and Wildlife–approved bat biologist will perform a nighttime acoustic and emergence survey at the Yorba Linda Boulevard bridge over the Santa Ana River during the summer months (i.e., June–August), when maternity colonies are fully established, to confirm the presence of a maternity colony or colonies and to determine the numbers and species of bats present. This information will be used to determine site-specific measures to minimize impacts to roosting bats. This survey should be performed before or during final design to allow adequate time for mitigation planning for the specific species and numbers of bats observed.

BIO-14 **Avoidance of Bat Maternity Season (Construction).** To avoid disturbance of maternity-roosting bats (if confirmed present) during construction activities at the Yorba Linda Boulevard bridge over the Santa Ana River, work activities within a predetermined buffer distance of the maternity roost sites will avoid the recognized bat maternity season (April 1–August 31) unless otherwise directed by CDFW. The buffer distance will be determined by a CDFW-approved bat biologist and will be based on what bat species are found to make up the maternity colony, since different bat species are known to have different tolerance levels for certain construction activities.

BIO-15 **Humane Evictions and Exclusions.** If necessary to avoid direct mortality, humane evictions and exclusions of roosting bats should be performed under the supervision of a California Department of Fish and Wildlife–approved bat biologist in the fall (September or October) prior to the initiation of construction activities at the bridge structure. To avoid potential mortality of flightless juvenile bats, evictions and exclusions of bats cannot be performed during the maternity season (April 1–August 31). Winter months are also inappropriate for bat eviction because not all individuals in a roost will emerge on any given night. In addition, long-distance movements to other roost sites are more difficult during the winter when prey availability is scarce, resulting in high mortality rates of evicted bats.

BIO-16 **Alternate Bat Roosting Habitat.** If bats are excluded from more than 25 percent of the available roosting habitat at the bridge, or if permanent impacts to bat roosting habitat will occur, alternate bat roosting habitat should be provided prior to performing the humane eviction/exclusion. Alternate bat roosting habitat should be provided in a 0.5:1 ratio for temporary impacts and in a 1:1 ratio for permanent impacts. The specifications for this roosting habitat should be designed in consultation with a qualified, California Department of Fish and Wildlife–approved bat biologist. An example of design plans used to create alternate bat roosting

habitat as successful mitigation for other bridge projects on the Santa Ana River is provided on Figure 2 of Appendix E.

Temporary Impacts. Bats utilizing crevice habitat at the Yorba Linda Boulevard bridge over the Santa Ana River are also subject to temporary indirect impacts from noise, vibration, and lighting from construction equipment and activities associated with the proposed bridge widening. Should a maternity colony be confirmed present following the nighttime survey described in Measure BIO-13, construction activities within a predetermined buffer distance would avoid the recognized bat maternity season as described in Measure BIO-14. Impacts from construction that may temporarily exclude bats from crevice habitat are addressed in Measure BIO-16, which addresses alternate bat roosting habitat.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming or road maintenance) pertaining to the proposed project, there would be no new or increased impacts to bat crevice habitat that did not exist prior to implementation and completion of the proposed project. The proposed project would improve operations and no additional traffic noise is anticipated that would impact bats or crevice habitat suitability. In addition, the proposed project does not include additional permanent lighting features that would increase lighting in the project limits during operation. Therefore, proposed project would not result in any new or increased operational impacts to bat crevice habitat.

Swallow Nest Habitat

Construction Impacts

Permanent Impacts. Swallow mud nests, which are considerable suitable roosting habitat for bat species, are present within the proposed project footprint, beneath the Yorba Linda Boulevard bridge along the pier walls. Construction activities on the bridge have the potential to permanently impact swallow mud nest habitat if such habitat is present at the time of construction. Swallow mud nests may be removed or may fall to the ground during bridge construction activities. To avoid permanent impacts to swallow nest habitat, swallow nest inspections are recommended as described in Measure BIO-17.

BIO-17 **Swallow Nest Inspection.** If swallow nests are removed to prevent swallows from nesting within the proposed project limits during construction activities, they should be removed in the Fall (i.e., September or October), prior to expected or potential overwintering use by bats, and in a manner that ensures they do not fall to the ground or are otherwise destroyed, unless the absence of bats is confirmed through inspection by a qualified bat biologist.

Temporary Impacts. . If swallow nests are determined to be present within the project limits, Measure BIO-17 described above would require their removal prior to potential overwintering by bats. Therefore, no temporary impacts to swallow nest habitat would occur during construction as this habitat would either be removed, or the absence of bat species would be confirmed prior to construction activities.

Operational Impacts

Similar to the discussion on crevice habitat above, no additional traffic noise would occur and no permanent lighting fixtures are included that would result in operational impacts to swallows or their nests, which serve as suitable habitat for bat species. Therefore, the proposed project would not result in any new or increased operational impacts to swallow nest habitat.

Tree or Snag Habitat

Construction Impacts

Permanent Impacts. The mature cottonwoods and willows observed to the east of the bridge structure, within the Santa Ana River channel, provide foraging and roosting habitat for bat species that roost in foliage. Removal of trees and snags in the river during construction activities should be minimized to the maximum extent possible. However, if mature trees or snags would be removed for proposed project construction, additional pre-construction surveys may be needed to determine the potential extent of bat-roosting activity within those trees; these surveys should be performed within 1 week prior to tree removal. If any of the trees are identified as bat roosts or likely bat roosts, measures should be implemented to avoid direct mortality and permanent impacts to tree-roosting bats. Any removal of trees and/or snags should be conducted outside the bat maternity season as described in Measure BIO-18. Measure BIO-19 addresses biological monitoring recommended during tree removal, unless tree-roosting bat activity is not detected.

BIO-18 **Avoidance of Bat Maternity Season (Trees).** The removal of mature trees and snags should be minimized to the greatest extent practicable to avoid impacts to tree-roosting bats. However, if trimming or removal of mature trees and/or snags is necessary for construction, LSA recommends that tree trimming/removal activities be performed outside the bat maternity season, which occurs from April 1 through August 31, to avoid direct impacts to nonvolant (flightless) young that may roost in trees within the study area. This period also coincides with the bird nesting season (typically February 15–September 1).

BIO-19 **Biological Monitoring.** If trimming or removal of trees during the bat maternity season (April 1–August 31) cannot be avoided, LSA recommends that a qualified biologist monitor tree removal unless nighttime surveys conducted within 1 week of removal indicate no tree-roosting bat activity within the study area.

Temporary Impacts. Temporary impacts to tree or snag habitat may occur if proposed project construction requires trimming of trees. Trimming of trees should avoid the bat maternity season as described in Measure BIO-18. If tree-roosting bat activity is detected, a biological monitor should be present during tree trimming as described in Measure BIO-19.proposed project

Operational Impacts

Similar to the discussion on crevice and swallow nest habitat above, no additional traffic noise would occur and no permanent lighting fixtures are included that would result in operational impacts to tree or snag habitat for bat species. Therefore, the proposed project would not result in any new or increased operational impacts to tree or snag habitat.

Foraging or Night Roosting Bats

Construction Impacts

Permanent Impacts. Construction activities would not result in any permanent impacts to habitat suitability regarding foraging or night-roosting bat species. Impacts due to construction lighting, noise, and vibration which may impact habitat suitability for bat species would be temporary in nature.

Temporary Impacts. Potential temporary impacts to foraging or night-roosting bats from lighting associated with proposed project construction activities may occur if night work would take place near the bridge structure. Measure BIO-20 address provision of focused night lighting on the direct area of work. Other indirect impacts from noise and vibration during construction of the bride widening would be addressed by the BMPs in Measure BIO-4 described above.

BIO-20 **Focused Night Lighting.** To minimize temporary indirect impacts during nighttime work for construction within 200 feet of the bridge structure, night lighting will be used only in the area actively being worked on and focused on the direct area of work, and airspace access to and from the roost features of a structure will not be obstructed except in direct work areas.

Operational Impacts

Similar to the discussion on bat habitats above, no additional traffic noise would occur and no permanent lighting fixtures are included that would result in operational impacts suitable habitat for bat species. Therefore, the proposed project would not result in any new or increased operational impacts to foraging or night roosting bats.

CRITICAL HABITAT

Construction Impacts

Permanent Impacts

The proposed project would result in 0.49 ac of permanent impacts to designated critical habitat for the Santa Ana sucker due to the installation of pier walls and permanent additional shade as a result of the proposed bridge widening (Figure 5). The designated critical habitat within the BSA contains some of the PBFs necessary for the conservation or recovery of the species, and the species is known to occur in the vicinity of the BSA. Specifically, lengthening of the pier walls and widening of the bridge would result in permanent impacts to aquatic emergent vegetation and adjacent riparian vegetation, which are detailed in Santa Ana sucker PBF 6, described in the Special-Status Biological Resources Critical Habitat section above. Measure BIO-21 describes actions to compensate for loss of Santa Ana sucker critical habitat.

BIO-21 **Restoration and/or Compensatory Habitat Replacement for Santa Ana Sucker Critical Habitat.** Temporary and permanent impacts to Santa Ana sucker critical habitat will be restored at no less than a 1:1 ratio. Section 7 Consultation is expected for Santa Ana sucker critical habitat. Habitat that is temporarily impacted by construction activities will be restored to preconstruction quality following the

conclusion of construction. Areas that are permanently impacted by construction activities will require compensatory mitigation. Any sucker-related restoration areas will be designed to incorporate the physical and biological features of Santa Ana sucker critical habitat described in the Critical Habitat subsection of the Results section of this report. Mitigation may occur in applicable areas within or adjacent to the proposed project limits, subject to United States Fish and Wildlife Service approval during Section 7 Consultation.

Temporary Impacts

The proposed project would result in 0.43 ac of temporary impacts to designated critical habitat for the Santa Ana sucker due to construction access and grading associated with widening the Yorba Linda Boulevard bridge. Measure BIO-21 addresses restoration of temporarily impacted Santa Ana sucker critical habitat. Indirect temporary impacts from construction noise, vibration, lighting and dust may also occur during construction activities associated with the bridge widening and the restriping for the bike path along La Palma Avenue. However, implementation of Measure BIO-4 includes best management practices for construction that would address these temporary construction impacts.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming or road maintenance) pertaining to the proposed project, there would be no adverse impacts to critical habitat that did not exist prior to implementation and completion of the proposed project. Operation of the proposed project would result in an increase in stormwater runoff due to the additional impervious surface associated with widening Yorba Linda Boulevard, which may result in increased erosion and would have a potential direct impact on critical habitat adjacent to the roadway. However, additional drainage improvements in the form of Modular Wetland Systems are proposed to accommodate runoff from the additional pavement. The additional runoff would be collected and treated and operations would not result in erosion or other water quality impacts to adjacent critical habitat. Therefore, the proposed project would not result in any new or increased operational impacts to critical habitat.

JURISDICTIONAL AQUATIC RESOURCES

Construction Impacts

Permanent Impacts

The proposed project is expected to result in permanent impacts to jurisdictional aquatic resources, including wetlands, as shown on Figures 9 and 10, due to the lengthening of the pier walls and additional pavement required for the widening of the Yorba Linda Boulevard bridge. Table C quantifies anticipated permanent and temporary impacts to jurisdictional aquatic resources. Permanent impacts to USACE jurisdiction is restricted to areas of fill resulting from the construction of extended bridge pier wall structures. Permanent impacts to CDFW jurisdictional areas include the extension of the bridge pier walls as well as shading impacts to existing riparian vegetation due to the proposed widening of the bridge deck. Permanent impacts to jurisdictional aquatic resources

require permits as described in Measure BIO-22. Compensatory habitat replacement would also be required to compensate for permanent impacts, as described in Measure BIO-23.

Table C: Impacts to Jurisdictional Aquatic Resources

Drainage	Permanent Impacts (ac)	Temporary Impacts (ac)	Total (ac)
USACE Non-Wetland Waters of the US	0.006	0.186	0.192
USACE Wetland Waters of the US	0.027	0.215	0.241
CDFW Streambed/Riparian	0.191	0.766	0.957

Source: Compiled by LSA Associates, Inc. (2020).
ac = acre/acres
CDFW = California Department of Fish and Wildlife
US = United States
USACE = United States Army Corps of Engineering

BIO-22 **Section 404 and Section 401 Permits, and Streambed Alteration Agreement.** Prior to commencement of construction activities, the City of Yorba Linda (City) will coordinate with the United States Army Corps of Engineers to receive authorization pursuant to Section 404 of the Clean Water Act. The City will also coordinate with the Regional Water Quality Control Board to obtain a Water Quality Certification pursuant to Section 401 of the Clean Water Act. Furthermore, the City will coordinate with the California Department of Fish and Wildlife to obtain a Streambed Alteration Agreement.

BIO-23 **Restoration and/or Compensatory Habitat Replacement for Jurisdictional Aquatic Resources.** Riparian vegetation that is temporarily disturbed during construction-related activities will be successfully restored to preconstruction quality and kept free of exotic plants until riparian vegetation is reestablished. Restoration will be performed at no less than a 1:1 ratio to sufficiently reduce impacts. If the site has not recovered within 5 years, the site will be reseeded or replanted with container plants and/or cuttings from native riparian species.

Jurisdictional areas that are permanently impacted by construction activities will be compensated for at no less than a 1:1 ratio through either on-site or off-site restoration or through the purchasing of mitigation bank credits (e.g., through the Soquel Canyon Mitigation Bank). Permittee-responsible mitigation areas will be monitored for 5 years post-restoration to ensure the successful establishment of plant communities. Exact requirements will be finalized during the permitting process.

Temporary Impacts

Indirect effects could occur during construction, such as a potential increase in erosion and sediment transport into adjacent or downstream aquatic areas. Chemical spills or leaks of fuel, transmission fluid, lubricating oil, or motor oil from construction equipment could also contaminate waters and degrade their quality. Construction activities associated with the bridge widening are also anticipated to result in temporary impacts to jurisdictional aquatic resources. As shown in Table

C above, temporary impacts from grading and construction access would impact approximately 0.186 acre of non-wetland waters of the U.S., 0.215 acre of wetland waters of the U.S., and 0.766 acre of streambed and associated riparian habitat. These temporary impacts would be addressed in the permitting process, which is described in Measure BIO-22. Also, as indicated in Measure BIO-23, all temporarily impacted jurisdictional areas will be restored to preconstruction conditions following completion of all construction activities. The erosion control fencing previously described in Measure BIO-3 and the BMPs previously described in Measure BIO-4 minimizes potential indirect effects to jurisdictional aquatic resources.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming or road maintenance) pertaining to the proposed project, there would be no adverse impacts to jurisdictional aquatic resources that did not exist prior to implementation and completion of the proposed project. Operation of the proposed project would result in an increase in stormwater runoff due to the additional impervious surface associated with widening Yorba Linda Boulevard. Increased runoff may result in erosion and other water quality impacts from sedimentation or transfer of pollutants from the roadway, which would have a potential direct impact on jurisdictional aquatic resources. However, additional drainage improvements in the form of Modular Wetland Systems are proposed to accommodate runoff from the additional pavement. The additional runoff would be collected and treated and operations would not result in erosion or other water quality impacts to jurisdictional features. Therefore, the proposed project would not result in any new or increased operational impacts to jurisdictional aquatic resources and would benefit water quality in the local drainage system.

WILDLIFE MOVEMENT AND HABITAT CONNECTIVITY

Construction Impacts

Permanent Impacts

As described in the Results above, the Santa Ana River serves as a movement corridor within the project limits. The other roadways within the project limits do not support wildlife movement or habitat connectivity. Since the restriping of the bike path along La Palma Avenue would not require construction activities outside of the existing roadway, no construction impacts would occur along that portion of the Santa Ana River channel and adjacent habitat. As construction of the proposed intersection improvements, pedestrian and bicycle facilities, and roadway widening would not include activities that would permanently disrupt access to or movement within the Santa Ana River channel, no permanent impacts to wildlife movement and habitat connectivity are anticipated from construction of the proposed project.

Temporary Impacts

The wildlife species that occur in the BSA and utilize the Santa Ana River as a movement corridor are adapted to the urban–wildland interface, and the proposed project would not introduce new effects to the area. The noise, vibration, light, dust, or human disturbance within construction areas would only temporarily deter wildlife from using areas in the immediate vicinity of construction activities. These temporary indirect effects could temporarily alter migration behaviors, territories, or foraging

habitats in select areas. However, because these are temporary effects, it is likely that wildlife already living and moving in close proximity to urban development would alter their normal functions for the duration of the proposed project construction and then reestablish these functions once all temporary construction effects have been removed. Measure BIO-24 describes restricted construction hours that would minimize temporary effects to wildlife movement. Best management practices to prevent inadvertent entrapment of animals addressed in Measure BIO-4 above would further minimize temporary impacts to wildlife movement.

BIO-24 **Restricted Construction Hours.** Within the Santa Ana River, construction will occur during daylight hours, as feasible, to minimize use of artificial lighting and resulting disturbances to wildlife species that move at night.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming or road maintenance) pertaining to the proposed project, there would be no adverse impacts to wildlife movement and habitat connectivity that did not exist prior to implementation and completion of the proposed project. The proposed roadway improvements would improve operations and no additional traffic noise is anticipated that would have indirect impacts on wildlife movement. No permanent lighting fixtures are proposed that would result in operational lighting are proposed that may impact species utilizing the corridor at night. Additional drainage improvements are proposed to accommodate runoff from the additional pavement, so proposed project operations would not result in erosion impacts to adjacent habitat. As no permanent operational impacts to habitat would occur within the Santa Ana River channel, no changes are to the use of this movement corridor are anticipated to occur. Therefore, the proposed project as proposed would not result in any new or increased operational impacts to wildlife movement and habitat connectivity.

REGIONAL HABITAT CONSERVATION PLANS AND LOCAL POLICIES

County of Orange Central/Coastal Subregion NCCP/HCP

The proposed project would not conflict with the County of Orange Central/Coastal Subregion NCCP/HCP. A portion of the proposed project south of SR-91 is within the NCCP/HCP boundaries but is not within designated reserve lands, special linkages, existing use areas, or other conservation areas identified in the NCCP/HCP and does not contain resources protected by the NCCP/HCP (Figure 6). Therefore, the proposed project would not result in any construction or operational impacts, permanent or temporary, to NCCP/HCP protected resources.

Santa Ana River Canyon Habitat Management Plan (SARCHMP)

Construction Impacts

Permanent Impacts. The SARCHMP is applicable to the portion of the proposed project east of the Yorba Linda Boulevard bridge (Figure 7). The SARCHMP covers most of the Santa Ana River Channel north of Crystal Drive and south of the Santa Ana River Trail. As shown in Figure 3 above, sensitive vegetation communities within the Santa Ana River channel include mixed costal sage scrub and Cotton Willow Riparian Forest. Riparian habitat within the SARCHMP Habitat Management Areas must be maintained at the baseline amount. Therefore, there can be no net loss of existing native

habitat within the SARCHMP area. Permanent impacts due to the bridge widening to sensitive vegetation communities and habitat that supports special-status species in the SARCHMP area would be compensated for, subject to the approval of OC Public Works, which manages the SARCHMP, as described in Measure BIO-25.

BIO-25 **Restoration and/or Compensatory.** Restoration and/or replacement of native habitat within Santa Ana River Canyon Habitat Management Plan (SARCHMP) areas will be discussed and agreed upon with OC Public Works. Similarly, habitat restoration and/or replacement for impacts within the City of Anaheim's Habitat Mitigation Plan area will be discussed and agreed upon with the City of Anaheim and the federal and State resource agencies during Section 7 Consultation.

Habitats that are temporarily impacted by proposed project construction activities will be restored to preconstruction quality following the conclusion of construction. Areas that are permanently impacted by proposed project construction activities will require compensatory mitigation at no less than a 1:1 ratio. Mitigation may occur in applicable areas adjacent to the proposed project limits, and/or mitigation bank credits may be purchased to compensate for permanent impacts (e.g., through the Soquel Canyon Mitigation Bank). Permittee-responsible mitigation areas will be monitored for 5 years post-restoration to ensure successful establishment of plant communities.

Temporary Impacts. Temporary impacts to habitat within the SARCHMP area due to construction activities associated with the bridge widening would be restored to pre-construction conditions, as described in Measure BIO-25.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming or road maintenance) pertaining to the proposed project, there would be no adverse impacts to the SARCHMP Habitat Management Area that did not exist prior to implementation and completion of the proposed project. Additional runoff resulting from the proposed pavement widening would be collected and treated by the proposed drainage improvements. Therefore, operation of the proposed would not result in erosion or water quality impacts to adjacent habitat. The proposed project would not result in any new or increased operational impacts to the SARCHMP Habitat Management Area.

City of Anaheim Habitat Mitigation Plan

Construction Impacts

Permanent Impacts. As described in the previous Special-Status Biological Species section, the City of Anaheim's Habitat Mitigation Plan for the Weir Canyon Road/La Palma Avenue Roadway Improvement Project (BonTerra Consulting 2006) is a local habitat mitigation plan that would be affected by the proposed project. In this case, the proposed project would result in 0.25 ac of permanent impacts to a portion of the CSS habitat that was previously and is currently utilized by coastal California gnatcatchers, a federally-listed special-status species, and that was previously

mitigated for in the 2006 mitigation plan. A portion of the Anaheim's Habitat Mitigation Plan area, approximately 1.37 acres located at the southeast corner of Yorba Linda Boulevard and La Palma Avenue (Figure 8) would be impacted by the proposed project. The City of Yorba Linda, in cooperation with the City of Anaheim, would implement appropriate mitigation of these impacts to this CSS habitat, subject to the approval of the United States Fish and Wildlife Service and California Department of Fish and Wildlife following future Section 7 Consultation. Therefore, potential permanent impacts to coastal California gnatcatchers and their associated CSS habitat in the 2006 Habitat Mitigation Plan area near the intersection of Yorba Linda Boulevard and La Palma Avenue will be mitigated through implementation of Measure BIO-25 to ensure conservation of sensitive biological resources.

Temporary Impacts. The proposed project would result in approximately 0.02 ac of temporary impacts to the CSS habitat in within Anaheim's Habitat Mitigation Plan. Potential temporary impacts to coastal California gnatcatchers and their associated CSS habitat in the 2006 Habitat Mitigation Plan area near the intersection of Yorba Linda Boulevard and La Palma Avenue would be mitigated through implementation of Measure BIO-25 to ensure conservation of sensitive biological resources.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming and road maintenance) pertaining to the proposed project, there would be no new or increased impacts to the Anaheim Habitat Mitigation Plan area that did not exist prior to implementation and completion of the proposed project. While the proposed improvements include the reconfiguration of La Palma Avenue for the proposed Class I bike path adjacent to this mitigation area, no new impervious surfaces would be added for this improvement. The restriping of La Palma Avenue in this area would improve bicycle access current provided by the Santa Ana River Trail, but would not introduce new operational uses that would impact the existing habitat mitigation area. As described above, operation of the proposed project would result in an increase in stormwater runoff due to the additional impervious surface associated with widening Yorba Linda Boulevard. Increased runoff from this additional pavement may result in erosion, which would have a potential direct impact on adjacent habitat. However, drainage improvements in the form of Modular Wetland Systems are proposed to accommodate runoff from the additional pavement. The additional runoff would be collected and treated and would not result in erosion or other water quality impacts to adjacent habitat, including this mitigation area. Therefore, the proposed project would not result in any new or increased operational impacts to the Anaheim Habitat Mitigation Plan.

Tree Trimming/Tree Removal

Construction Impacts

Permanent Impacts. Proposed project construction activities have the potential to result in the removal of trees covered under local tree protection ordinances. Intersection improvements and bicycle and pedestrian facilities along Old Canal Road may impact ornamental and landscaped trees. Other construction activities associated with grading, installation of a retaining wall, and widening of Yorba Linda Boulevard would also require tree removal. As restriping of La Palma Avenue would occur from the existing roadway, no tree removal is anticipated for construction of the Class I bike path. To minimize the impact and ensure consistency with local policies, the City would be required

to comply with conditions described in Measure BIO-26, regarding tree replacement and preservation, for any trees that will be removed. With the replacement of trees removed as a result of construction, no permanent impacts would occur.

BIO-26 **Tree Replacement and Preservation.** Once proposed project grading plans are finalized and approved (and prior to ground disturbance), an inventory of directly and indirectly affected trees will be determined either by referencing existing tree inventory data collected on the subject property or by having a qualified arborist conduct an assessment based on the final, approved limits of development. The tree inventory will determine the species, number, sizes, and health of all trees to be impacted by the approved proposed project, and will be used to determine compensation ratios. The tree inventory includes trees outside the public right-of-way, within the Santa Ana River channel.

For trees within the public right-of-way, the portion of the proposed project within the City of Anaheim will be subject to the City of Anaheim's Street Tree ordinance (Section 13.12.060 of the Anaheim Municipal Code), and the portion of the proposed project within the City of Yorba Linda will be subject to the City of Yorba Linda's Tree Preservation ordinance (Section 16.08.030 of the Yorba Linda Municipal Code). Protected trees will not be removed or trimmed without proper permits from the City of Yorba Linda or the City of Anaheim. Compensation ratios for loss of Specimen Trees within Anaheim's Scenic Overlay Zone will be subject to Section 18.18.040 of Anaheim's Municipal Code. Compensatory planting should be conducted within the portion of the proposed project limits that would remain undeveloped under the approved plans, or at an off-site location as approved by the City.

Temporary Impacts. Proposed project construction activities have the potential to result in temporary impacts due to removal of trees covered under local ordinances. However, as described above, to minimize the impact and ensure consistency with local policies, the City would be required to comply with measures described in Measure BIO-26, regarding tree replacement and preservation, for any trees that would be trimmed.

Operational Impacts

With regard to post-construction maintenance, or operational, activities (e.g., tree trimming or road maintenance) pertaining to the bridge or other roadway facilities, there would be no new or increased impacts to trees covered under local ordinances that did not exist prior to implementation and completion of the identified proposed project features. Additional drainage improvements are proposed to accommodate runoff from the additional pavement, so proposed project operations would not result in erosion impacts to adjacent habitat, including trees. Therefore, the proposed project as proposed would not result in any new or increased operational impacts to trees covered under local ordinances.

CONCLUSION

The implementation of recommended measures detailed above would ensure consistency with local, regional, State, and federal policies related to biological resources, and would address potential direct and indirect impacts on special-status biological resources. The impacts are based on the proposed project design shown in Figure 2; changes to this design may affect the impacts and additional biological studies may be warranted.

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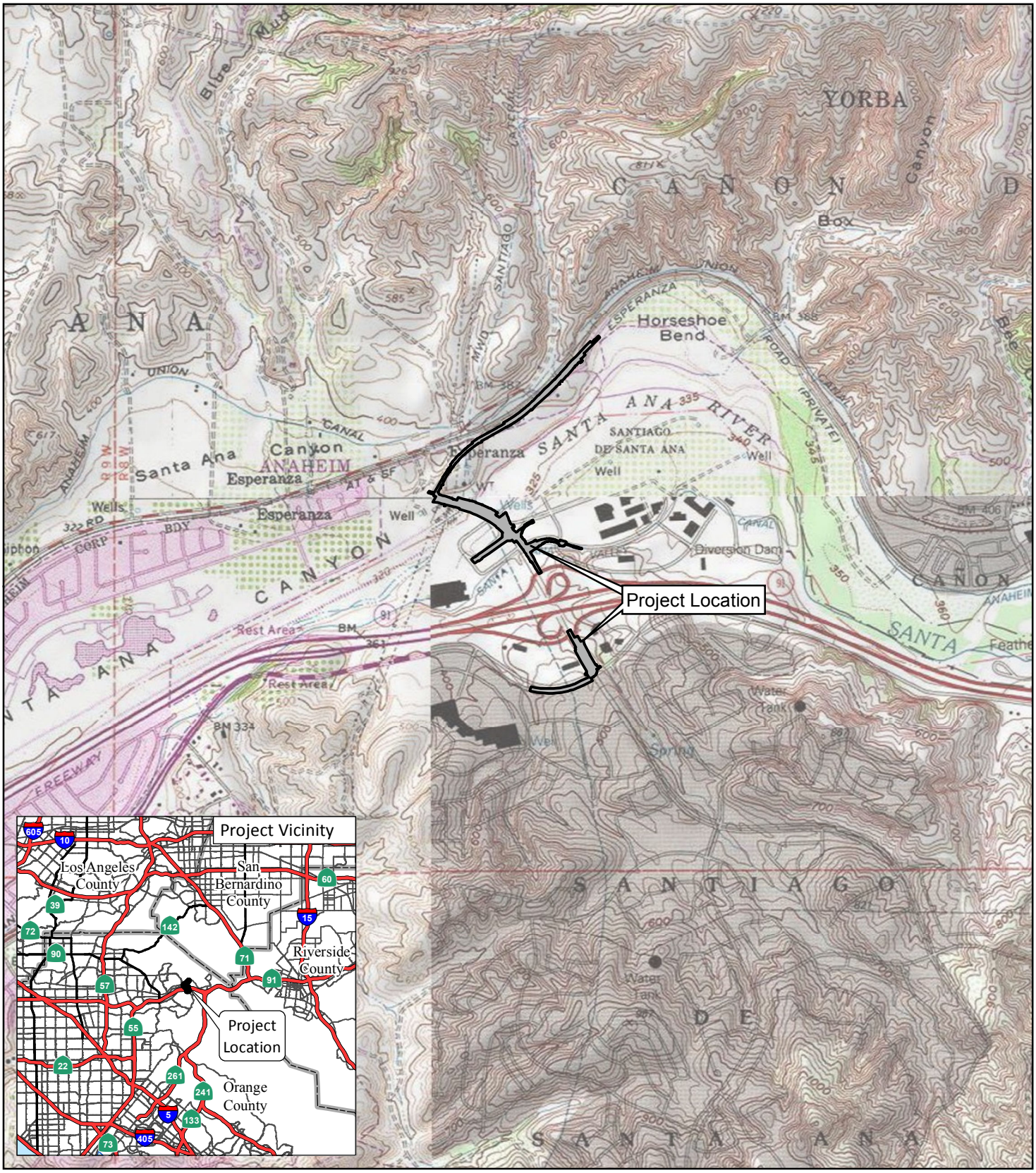
APPENDIX A

FIGURES 1 THROUGH 10



LSA

LEGEND

Project Limits

FIGURE 1

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FEET

Yorba Linda Boulevard Widening Project

Regional and Project Location

SOURCE: USGS 7.5' Quads: Black Star Canyon (1988), Prado Dam (1981), CA

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LSA

LEGEND

- Project Limits
- Proposed Right of Way
- Proposed Striping
- Temporary Construction Easement (TCE)
- Permanent Easement (PE)
- Footing Easement (FE)
- Proposed Retaining Wall
- Proposed Grading Limits
- Proposed Sidewalk
- Proposed Signage

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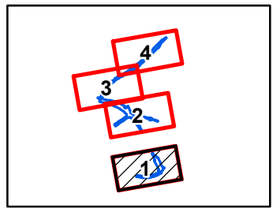


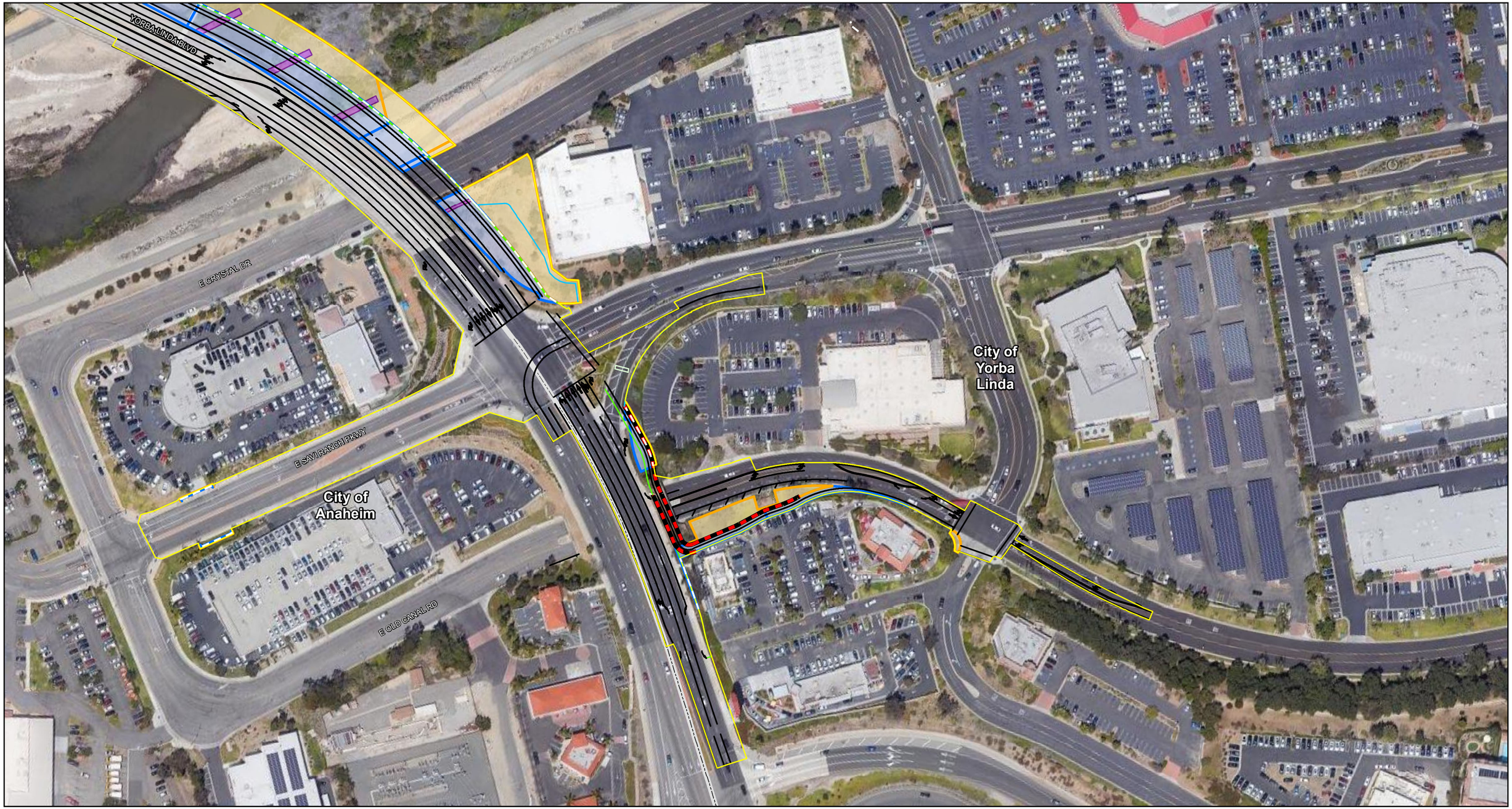
SOURCE: Google (2018), HNTB (2019)

I:\HNT1901\GIS\MXD\YorbaLindaProposedImprovements_Mapbook_withImpacts_NewFiles.mxd (9/11/2020)

FIGURE 2
Sheet 1 of 4

Yorba Linda Boulevard Widening Project

Project Features



LSA

LEGEND

- Project Limits
- Proposed Right of Way
- Proposed Striping
- Temporary Construction Easement (TCE)
- Permanent Easement (PE)
- Footing Easement (FE)
- Proposed Retaining Wall
- Proposed Grading Limits
- Proposed Sidewalk
- Proposed Signage

N

0 75 150
FEET

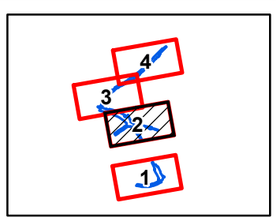


FIGURE 2
Sheet 2 of 4

Yorba Linda Boulevard Widening Project

Project Features

SOURCE: Google (2018), HNTB (2019)

I:\HNT1901\GIS\MXD\YorbaLindaProposedImprovements_Mapbook_withImpacts_NewFiles.mxd (9/11/2020)

LSA

LEGEND

- Project Limits
- Proposed Right of Way
- Proposed Striping
- Temporary Construction Easement (TCE)
- Permanent Easement (PE)
- Footing Easement (FE)
- Proposed Retaining Wall
- Proposed Grading Limits
- Proposed Sidewalk
- Proposed Signage

N

0 75 150
FEET

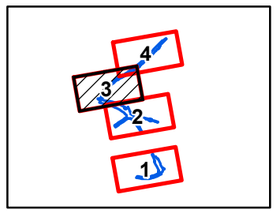


FIGURE 2
Sheet 3 of 4

Yorba Linda Boulevard Widening Project

Project Features

SOURCE: Google (2018), HNTB (2019)

I:\HNT1901\GIS\MXD\YorbaLindaProposedImprovements_Mapbook_withImpacts_NewFiles.mxd (9/11/2020)

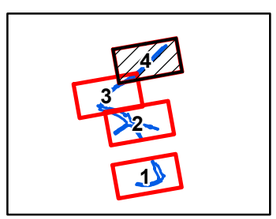
LSA

LEGEND

- Project Limits
- Proposed Right of Way
- Proposed Striping
- Temporary Construction Easement (TCE)
- Permanent Easement (PE)
- Footing Easement (FE)
- Proposed Retaining Wall
- Proposed Grading Limits
- Proposed Sidewalk
- Proposed Signage

N

0 75 150
FEET



SOURCE: Google (2018), HNTB (2019)

I:\HNT1901\GIS\MXD\YorbaLindaProposedImprovements_Mapbook_withImpacts_NewFiles.mxd (9/11/2020)

FIGURE 2
Sheet 4 of 4

Yorba Linda Boulevard Widening Project

Project Features

LSA

LEGEND

- Biological Study Area
- Project Limits
- Vegetation
- Developed
- Ornamental
- Ruderal

N

0 75 150
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Vegetation.mxd (4/6/2020)

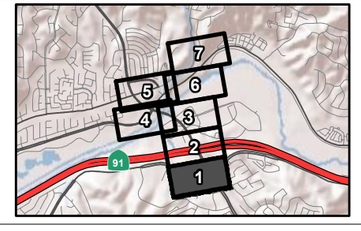
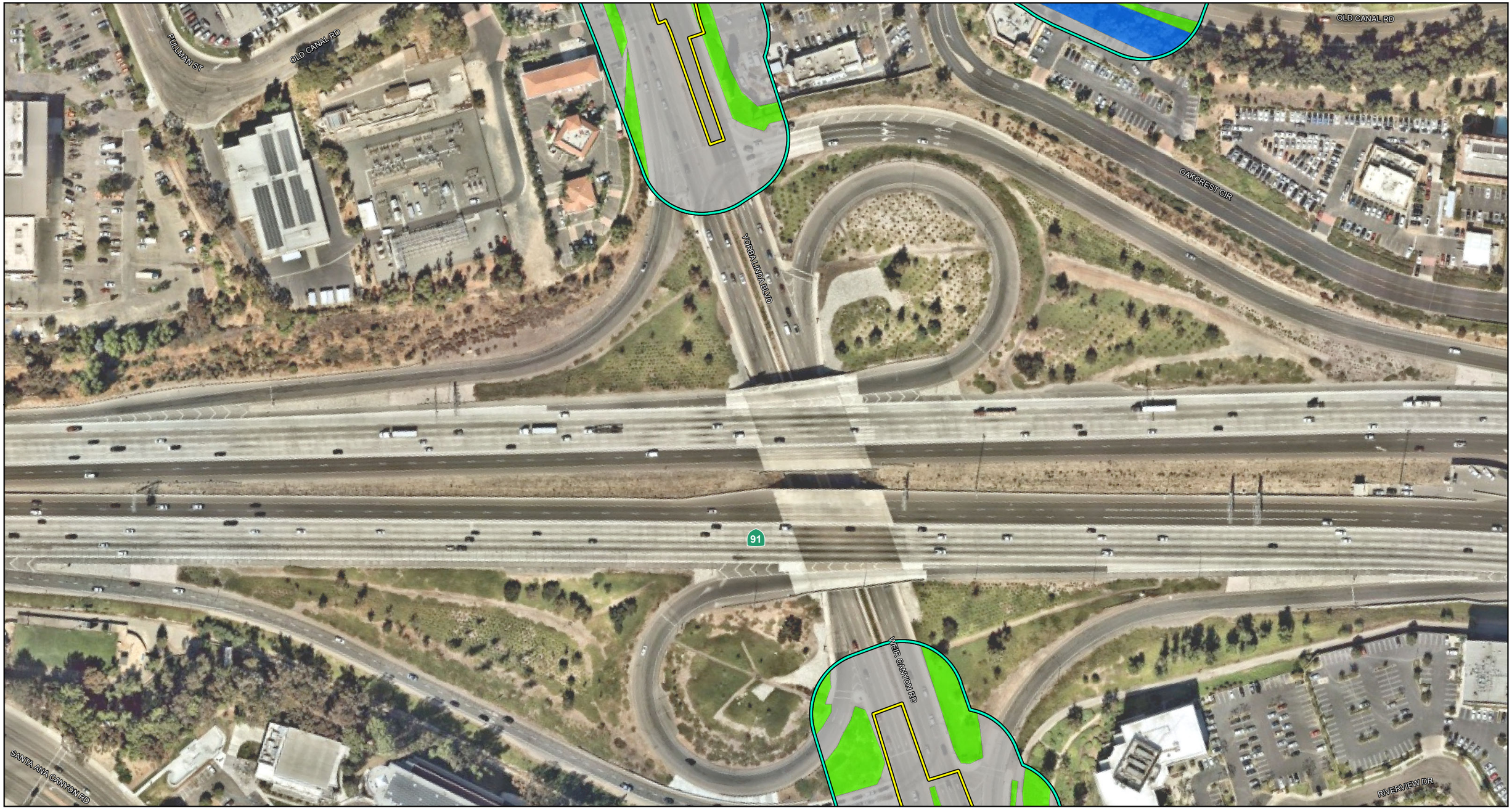


FIGURE 3
Sheet 1 of 7

Yorba Linda Boulevard Widening Project

Vegetation within the Biological Study Area



LSA

LEGEND

- Biological Study Area
- Project Limits

Vegetation

- Coast Live Oak Woodland
- Developed
- Ornamental

0 75 150
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Vegetation.mxd (4/6/2020)

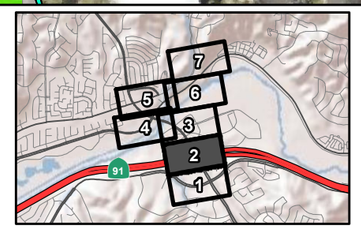
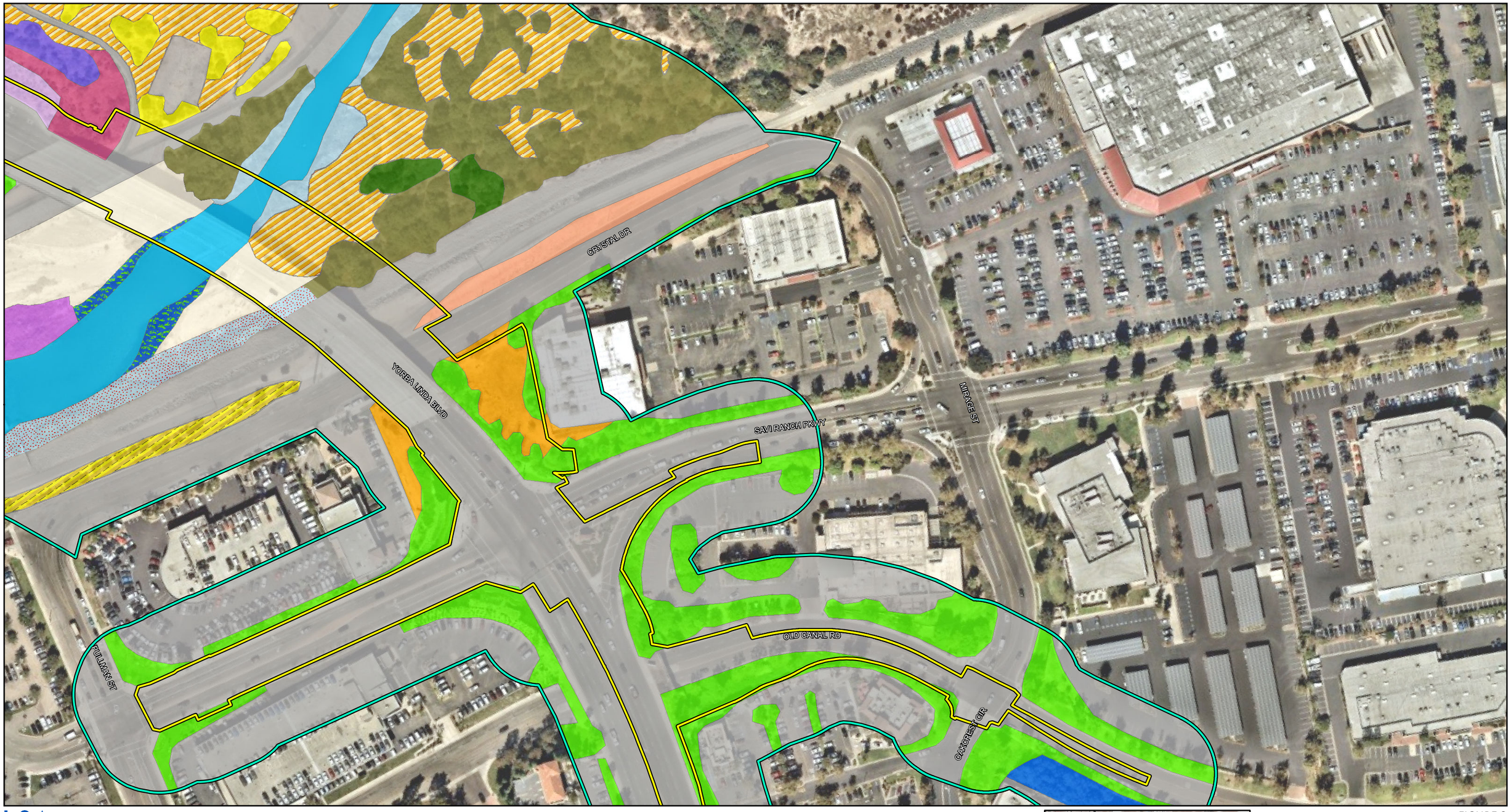


FIGURE 3
Sheet 2 of 7

Yorba Linda Boulevard Widening Project

Vegetation within the Biological Study Area



LSA

LEGEND

- Biological Study Area
- Project Limits

Vegetation

- Coast Live Oak Woodland
- Cottonwood Willow Riparian Forest
- Coyote Brush Scrub
- Developed
- Disturbed
- Elderberry Woodland
- Freshwater Marsh
- Disturbed Freshwater Marsh
- Herbaceous Riparian
- Mixed Coastal Sage Scrub
- Disturbed Mixed Coastal Sage Scrub
- Mulefat Scrub
- Open Water
- Ornamental
- Ruderal
- Ruderal Herbaceous
- Sagebrush Scrub
- Unvegetated Riverbed
- Willow Riparian Scrub

N

0 75 150
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Vegetation.mxd (4/6/2020)

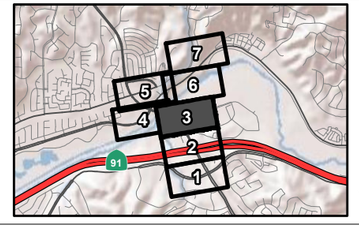


FIGURE 3
Sheet 3 of 7

Yorba Linda Boulevard Widening Project

Vegetation within the Biological Study Area

LSA

LEGEND

- Biological Study Area
- Project Limits

Vegetation

- Cottonwood Willow Riparian Forest
- Coyote Brush Scrub
- Developed
- Elderberry Woodland
- Freshwater Marsh
- Disturbed Freshwater Marsh
- Herbaceous Riparian
- Mixed Coastal Sage Scrub
- Disturbed Mixed Coastal Sage Scrub
- Mulefat Scrub
- Open Water
- Ornamental
- Ruderal
- Ruderal Herbaceous
- Sagebrush Scrub
- Disturbed Sagebrush Scrub
- Unvegetated Riverbed
- Willow Riparian Scrub

N

0 75 150
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Vegetation.mxd (4/6/2020)

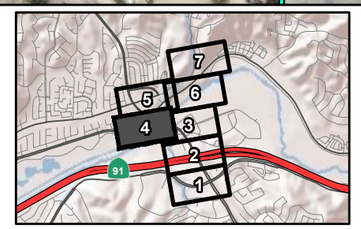


FIGURE 3
Sheet 4 of 7

Yorba Linda Boulevard Widening Project

Vegetation within the Biological Study Area

LSA

LEGEND

- Biological Study Area
- Project Limits

Vegetation

- California Encelia Scrub
- Disturbed California Encelia Scrub
- Cottonwood Willow Riparian Forest
- Coyote Brush Scrub
- Developed
- Disturbed
- Freshwater Marsh
- Mixed Coastal Sage Scrub
- Disturbed Mixed Coastal Sage Scrub
- Open Water
- Ornamental
- Ruderal
- Ruderal Herbaceous
- Scrub-Chaparral Ecotone

N

0 75 150
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Vegetation.mxd (4/6/2020)

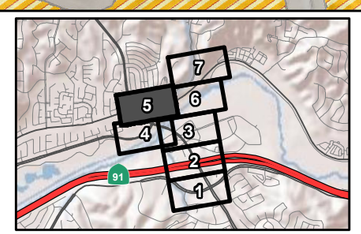
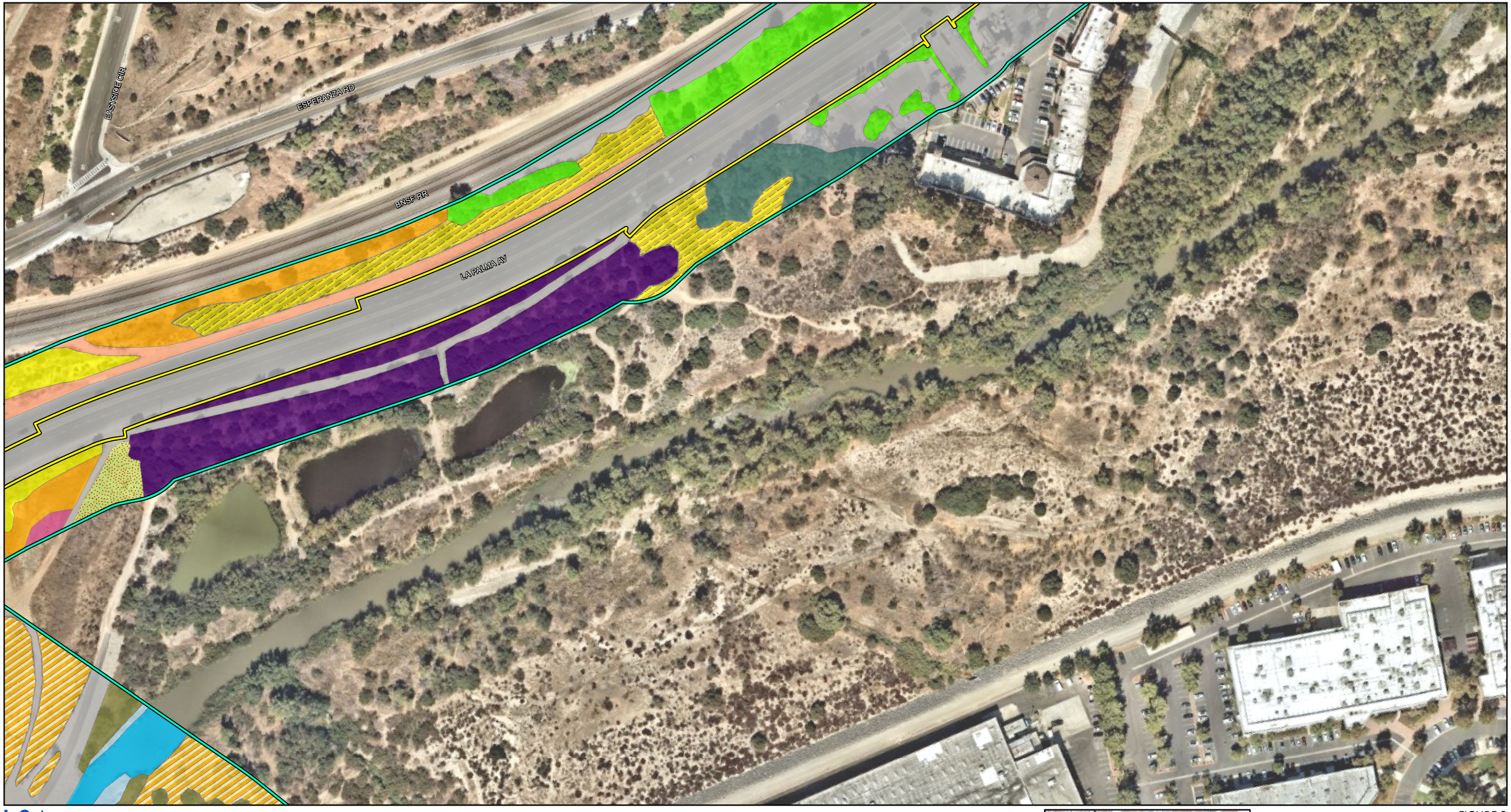


FIGURE 3
Sheet 5 of 7

Yorba Linda Boulevard Widening Project

Vegetation within the Biological Study Area



LSA

LEGEND

Biological Study Area
Project Limits

Vegetation

Disturbed California Encelia Scrub
Cottonwood Willow Riparian Forest
Coyote Brush Scrub
Developed
Disturbed
Eucalyptus Woodland
Freshwater Marsh
Mixed Coastal Sage Scrub
Disturbed Mixed Coastal Sage Scrub
Open Water
Ornamental
Ruderal
Ruderal Herbaceous
Scrub-Chaparral Ecotone

N

0 75 150
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Vegetation.mxd (4/6/2020)

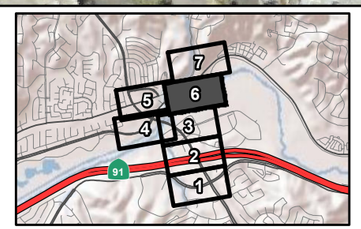


FIGURE 3
Sheet 6 of 7

Yorba Linda Boulevard Widening Project

Vegetation within the Biological Study Area

LSA

LEGEND

- Biological Study Area
- Project Limits

Vegetation

- Coyote Brush Scrub
- Developed
- Mixed Coastal Sage Scrub
- Ornamental

N

0 75 150
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Vegetation.mxd (4/6/2020)

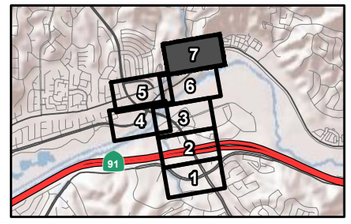


FIGURE 3
Sheet 7 of 7

Yorba Linda Boulevard Widening Project

Vegetation within the Biological Study Area

POTOMAC AV
GRANBY DR
COLUMBIA PL
MILLSTONE PL
CLEARWATER DR
GREENBRIAR DR
AVENIDA ADOBE
WESTFIELD ST
WHITEWATER ST
KING ST
KERN ST
CIMARRON PL
NEW RIVER
ESPERANZA RD
EASTSIDE CIR
AVENIDA DE LA PAZ
HIDDEN HILLS RD
YORBA LINDA BLVD
KINGSDALE LN
BROOKDALE LN
LA PALMA AV
CRYSTAL DR
SAVI RANCH PKWY
OLD CANAL RD
SANTA ANA CANYON RD
WEIR CANYON RD

Soils
- Anaheim loam, 30 to 50 percent slopes
- Capistrano sandy loam, 2 to 9 percent slopes
- Cieneba sandy loam, 15 to 30 percent slopes
- Corralitos loamy sand
- Myford sandy loam, 2 to 9 percent slopes
- Myford sandy loam, 9 to 30 percent slopes, eroded
- Riverwash
- San Emigdio fine sandy loam, 0 to 2 percent slopes
- San Emigdio fine sandy loam, 2 to 9 percent slopes
- Soper cobbly loam, 15 to 50 percent slopes
- Soper gravelly loam, 30 to 50 percent slopes, MLRA 20
- Xeralfic arents, loamy, 2 to 9 percent slopes
- Yorba cobbly sandy loam, 30 to 50 percent slopes
- Yorba cobbly sandy loam, 9 to 30 percent slopes, eroded
- Yorba gravelly sandy loam, 2 to 9 percent slopes

LSA

Legend
- Project Limits

0 200 400
FEET

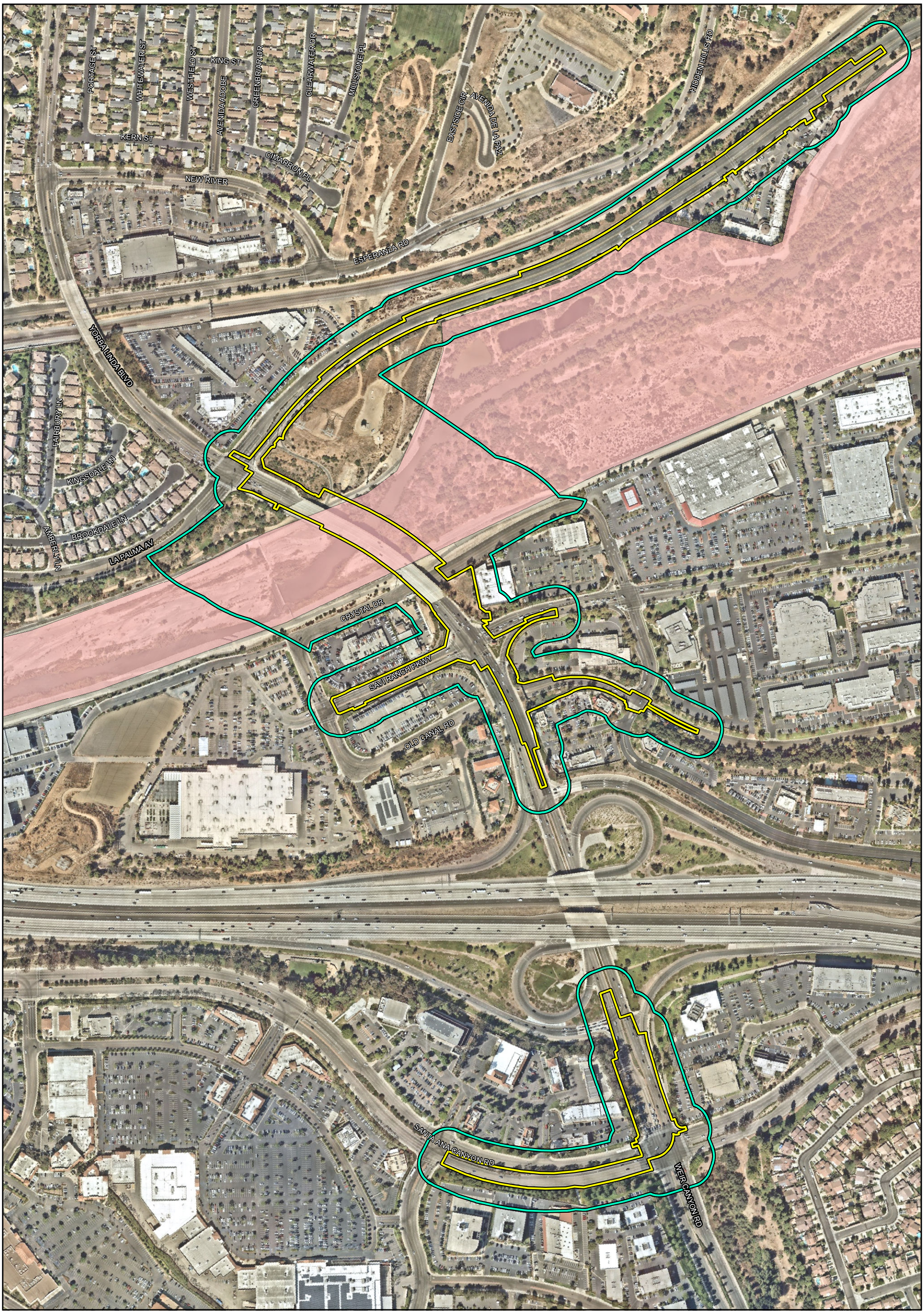
SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\Soils.mxd (3/18/2020)

FIGURE 4

Yorba Linda Boulevard Widening Project

Soils within the Biological Study Area



LSA

LEGEND

- Biological Study Area
- Project Limits
- Santa Ana Sucker Critical Habitat

N

0 200 400
FEET

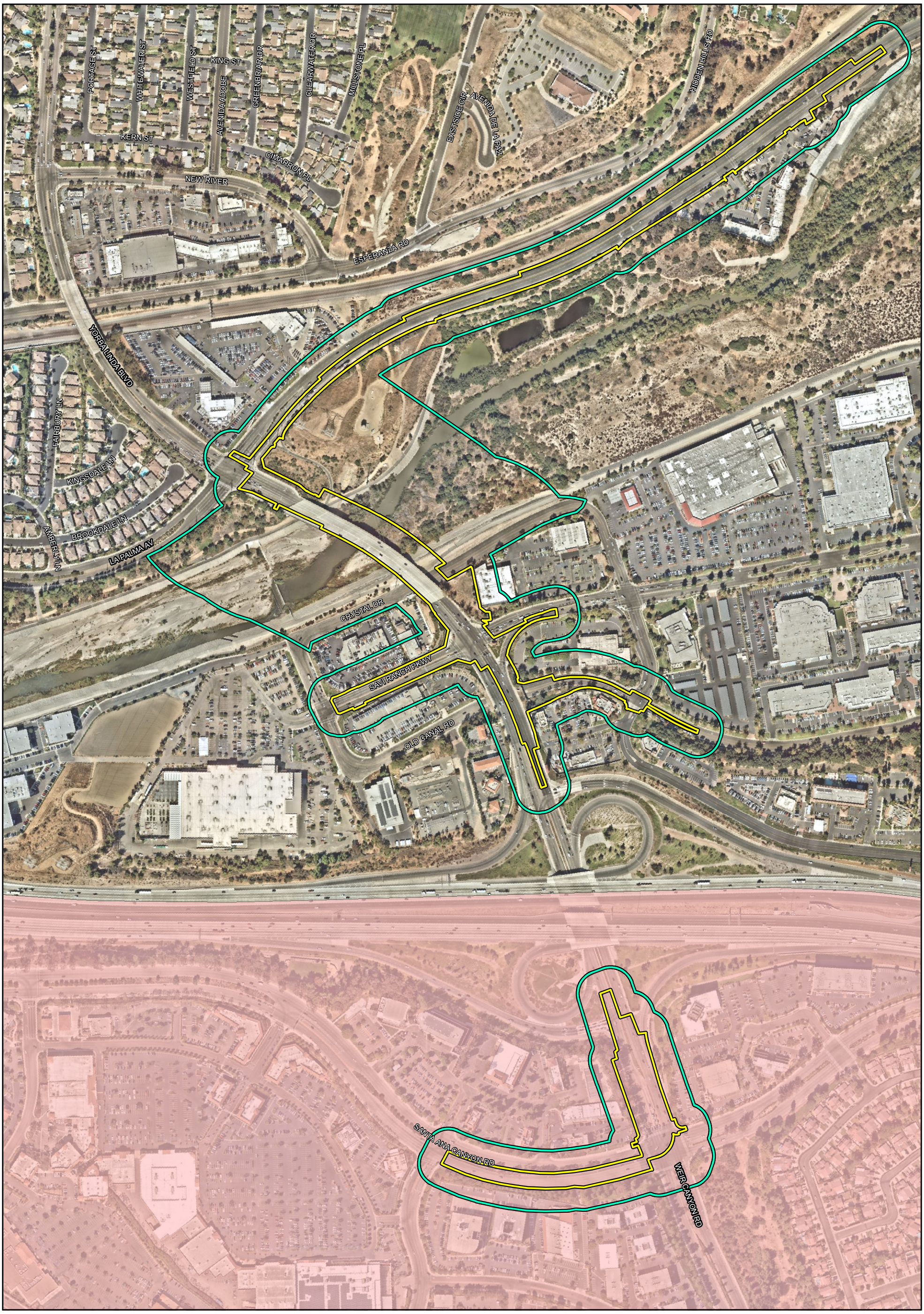
SOURCE: Nearmap (9/23/19); County of Orange (2012)

I:\HNT1901\GIS\MXD\SantaAnaSuckerCritHab.mxd (3/18/2020)

FIGURE 5

Yorba Linda Boulevard Widening Project

Santa ANa Sucker Critical Habitat



LSA

LEGEND

- Biological Study Area
- Project Limits
- Central/Coastal Orange County, NCCP/HCP

FIGURE 6

N

0 200 400

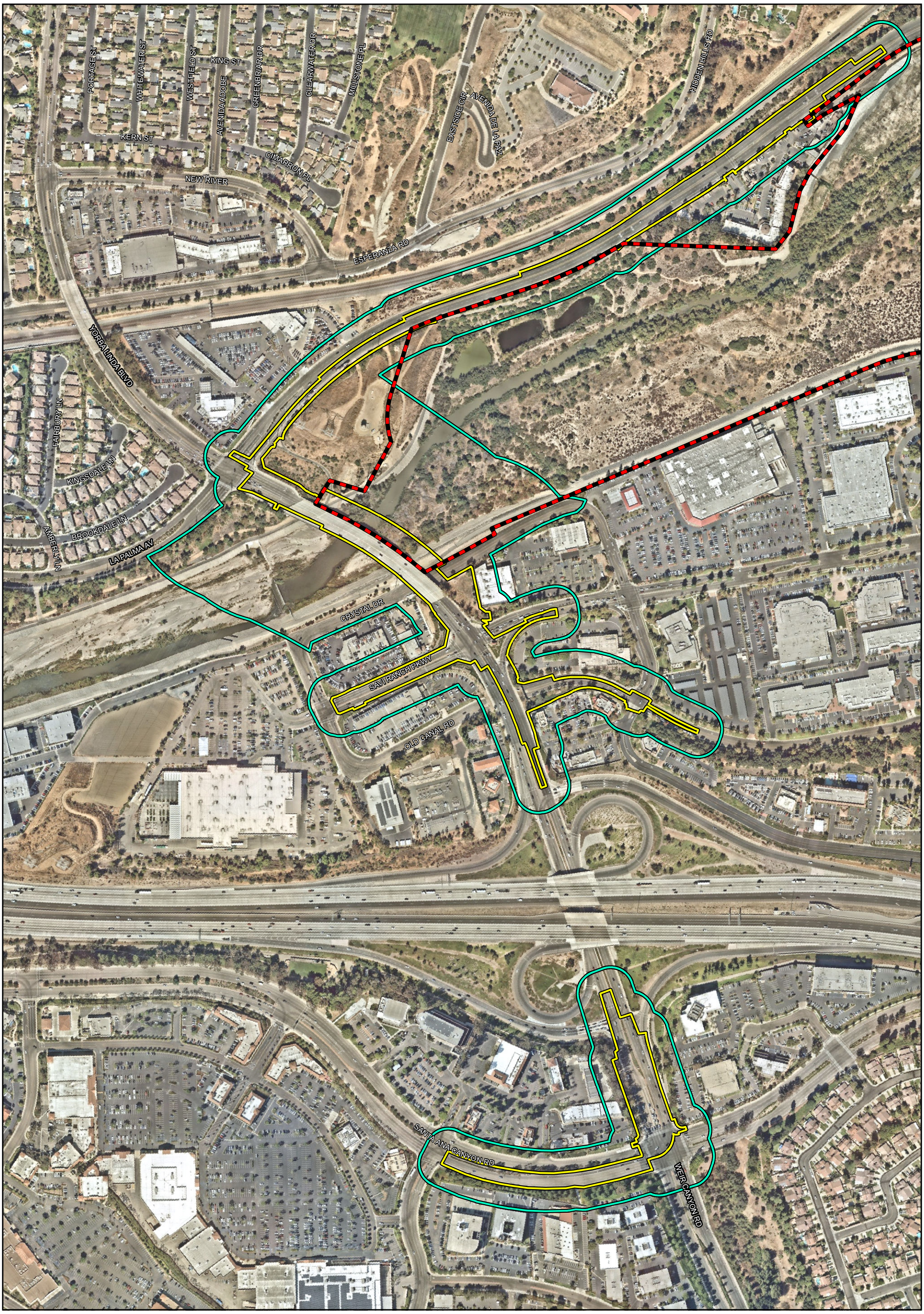
FEET

SOURCE: Nearmap (9/23/19); County of Orange (2012)

I:\HNT1901\GIS\MXD\NCCP.mxd (3/23/2020)

Yorba Linda Boulevard Widening Project

County of Orange Central/COastal NCCP-HCP



LSA

LEGEND

- Biological Study Area
- Project Limits
- Santa Ana River Canyon HMA Boundary (1,123.6 acres)

FIGURE 7

N

0 200 400
FEET

SOURCE: Nearmap (9/23/19); County of Orange (2012)

I:\HNT1901\GIS\MXD\SantaAnaRiverCanyonHabManArea.mxd (3/23/2020)

Yorba Linda Boulevard Widening Project

Santa Ana River Habitat Management Area

LSA

LEGEND

- Biological Study Area
- Project Limits
- CSS Habitat Mitigation Areas

N

0 200 400
FEET

SOURCE: Nearmap (9/23/19); County of Orange (2012)

I:\HNT1901\GIS\MXD\AnaheimHabMitPlan.mxd (3/23/2020)

FIGURE 8

Yorba Linda Boulevard Widening Project

City of Anaheim Habitat Mitigation Plan

LSA

LEGEND

- Jurisdictional Delineation Study Area
- Sample Pits
- Temporary Impact
- Permanent Impact

USACE 404 Jurisdiction

- Wetland Waters of the U.S.
- Nonwetland Waters of the U.S.

0 40 80
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\JD_USACE_Impacts.mxd (4/3/2020)

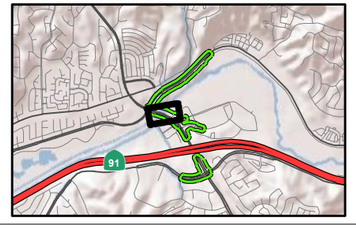
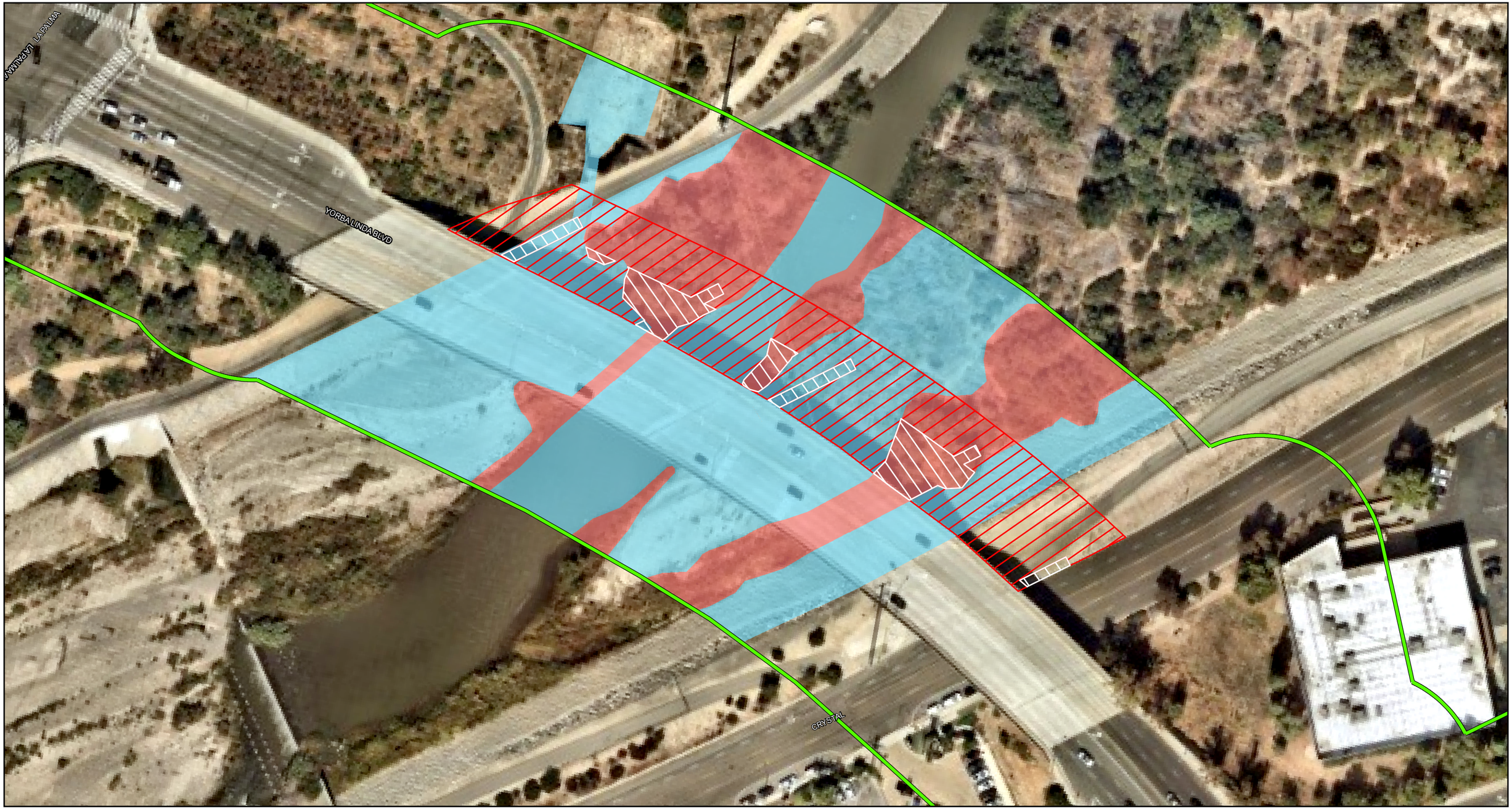


FIGURE 9

Yorba Linda Boulevard Widening Project

Potential Impacts to USACE 404 Jurisdictional Waters of the U.S.



LSA

LEGEND

Jurisdictional Delineation Study Area
Temporary Impact
Permanent Impact

CDFW 1602 Jurisdiction

Nonriparian Streambed
Riparian Vegetation in Streambed

0 40 80
FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\JD_CDFW_Impacts.mxd (4/3/2020)

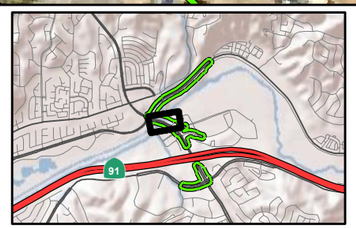


FIGURE 10

Yorba Linda Boulevard Widening Project

Potential Impacts to CDFW 1602 Jurisdictional Waters

APPENDIX B

REPRESENTATIVE SITE PHOTOS

Ornamental landscaping and developed areas are found throughout the project area. Photo taken from the southern end of Weir Canyon Road, looking north. November 7, 2019.

View of coast live oak woodland adjacent to Old Canal Road, looking west. November 7, 2019.

Ruderal herbaceous vegetation adjacent to the Santa Ana River active channel east of the Yorba Linda Boulevard bridge, looking west. November 7, 2019.

View of the pier walls and cottonwood-willow riparian forest on the east side of the Yorba Linda Boulevard bridge, looking south. The proposed project will require lengthening of the pier walls. November 7, 2019.

View of the existing habitat enhancement area at the intersection of Yorba Linda Boulevard and La Palma Avenue, looking southwest. November 7, 2019.

View of the Santa Ana River looking east from the Yorba Linda Boulevard bridge. November 7, 2019.

View of the Santa Ana River looking west from beneath the Yorba Linda Boulevard bridge. November 7, 2019.

View of the existing bike trail along La Palma Avenue and adjacent mixed coastal sage scrub, looking east. November 7, 2019.

View of scrub-chaparral ecotone adjacent to La Palma Avenue, looking east.
December 12, 2019.

View of eucalyptus woodland adjacent to La Palma Avenue, looking north.
December 12, 2019.

APPENDIX C

PLANT AND ANIMAL SPECIES OBSERVED

PLANT SPECIES OBSERVED

* = introduced species not native to California

GYMNOSPERMS

Pinaceae		**Pine Family**
*	*Pinus* spp.	Pine

EUDICOTS

Adoxaceae		**Muskroot Family**
	Sambucus nigra ssp. *caerulea*	Blue elderberry
Aizoaceae		**Iceplant Family**
*	*Carpobrotus edulis*	Hottentot-fig
Amaranthaceae		**Amaranth Family**
*	*Amaranthus albus*	Tumbling pigweed
Anacardiaceae		**Sumac Family**
	Malosma laurina	Laurel sumac
	Rhus integrifolia	Lemonade berry
	Rhus ovata	Sugar bush
*	*Schinus molle*	Peruvian pepper tree
*	*Schinus terebinthifolius*	Brazilian pepper tree
	Toxicodendron diversilobum	Poison oak
Apiaceae		**Carrot Family**
*	*Conium maculatum*	Poison hemlock
	Daucus pusillus	Rattlesnake weed
*	*Foeniculum vulgare*	Sweet fennel
Apocynaceae		**Dogbane Family**
*	*Carissa macrocarpa*	Natal plum
*	*Nerium oleander*	Oleander
*	*Vinca major*	Blue periwinkle
Araliaceae		**Ginseng Family**
*	*Hedera helix*	English ivy
Asteraceae		**Sunflower Family**
	Ambrosia acanthicarpa	Annual bur-sage
	Ambrosia psilostachya	Western ragweed

	Artemisia californica	California sagebrush
	Artemisia douglasiana	Mugwort
	Baccharis pilularis ssp. *consaguinea*	Coyote brush
	Baccharis salicifolia ssp. *salicifolia*	Mulefat
*	*Bidens pilosa*	Common beggar-ticks
*	*Carduus pycnocephalus*	Italian thistle
*	*Centaurea melitensis*	Tocalote
	Encelia californica	California encelia
	Ericameria palmeri	Palmer's goldenbush
	Erigeron canadensis	Common horseweed
*	*Gazania linearis*	Gazania
*	*Glebiones coronaria*	Garland chrysanthemum
	Helianthus annuus	Western sunflower
*	*Helminthotheca echiodes*	Bristly ox-tongue
	Heterotheca grandiflora	Telegraph weed
*	*Hypochaeris glabra*	Smooth cat's-ear
	Isocoma menziesii var. *menziesii*	Menzies' goldenbush
	Lepidospartum squamatum	Scale-broom
	Pluchea odorata	Marsh fleabane
	Pseudognaphalium californicum	California everlasting
*	*Pseudognaphalium lutealbum*	Weedy cudweed
*	*Pulicaria paludosa*	Spanish sunflower
*	*Senecio vulgaris*	Common groundsel
*	*Silybum marianum*	Milk thistle
*	*Sonchus* sp.	Sow-thistle
*	*Taraxacum officinale*	Common dandelion
	Xanthium strumarium	Common cocklebur
Bignoniaceae		**Trumpet–Creeper Family**
*	*Jacaranda mimosifolia*	Jacaranda
Boraginaceae		**Borage Family**
*	*Echium candicans*	Pride of Madeira
	Phacelia cicutaria var. *hispida*	Caterpillar phacelia
Brassicaceae		**Mustard Family**
*	*Brassica nigra*	Black mustard
*	*Hirschfeldia incana*	Shortpod mustard
*	*Lepidium latifolium*	Broad-leaved peppergrass
*	*Sisymbrium irio*	London rocket
Cactaceae		**Cactus Family**
	Opuntia littoralis	Coastal prickly pear

Chenopodiaceae		**Goosefoot Family**
*	*Bassia hyssopifolia*	Five-hook bassia
*	*Chenopodium album*	Lamb's quarters
*	*Chenopodium murale*	Nettle-leaved goosefoot
*	*Salsola tragus*	Russian-thistle
Convolvulaceae		**Morning-glory Family**
*	*Convolvulus arvensis*	Field bindweed
	Cuscuta californica	California witch's hair
Cucurbitaceae		**Gourd Family**
	Cucurbita foetidissima	Calabazilla
	Marah macrocarpus	Wild cucumber
Euphorbiaceae		**Spurge Family**
	Croton californicus	California croton
	Croton setigerus	Doveweed
*	*Euphorbia maculata*	Spotted spurge
*	*Euphorbia peplus*	Petty spurge
*	*Ricinus communis*	Castor bean
Fabaceae		**Legume Family**
*	*Acacia* sp.	Acacia
	Acmispon americanus var. *americanus*	Spanish lotus
*	*Medicago polymorpha*	Common burclover
*	*Melilotus albus*	White sweetclover
*	*Melilotus indicus*	Sourclover
Fagaceae		**Oak Family**
	Quercus agrifolia var. *agrifolia*	Coast live oak
Geraniaceae		**Geranium Family**
*	*Erodium cicutarium*	Redstem filaree
Grossulariaceae		**Gooseberry Family**
	Ribes speciosum	Fuchsia-flowered gooseberry
Hamamelidaceae		**Witch-hazel Family**
*	*Liquidambar styraciflua*	Sweetgum
Lamiaceae		**Mint Family**
*	*Lamium amplexicaule*	Henbit
*	*Marrubium vulgare*	Horehound
	Salvia apiana	White sage
	Salvia mellifera	Black sage
Malvaceae		**Mallow Family**
*	*Hibiscus* sp.	Hibiscus
	Malacothamnus fasciculatus	Chaparral mallow
*	*Malva parviflora*	Cheeseweed

Moraceae	**Mulberry Family**
* *Ficus carica*	Edible fig
* *Morus* sp.	Mulberry
Myrsinaceae	**Myrsine Family**
* *Anagallis arvensis*	Scarlet pimpernel
Myrtaceae	**Myrtle Family**
* *Callistemon* sp.	Bottlebrush
* *Eucalyptus* spp.	Gum trees
* *Eucalyptus camaldulensis*	River red gum
Nyctaginaceae	**Four O'clock Family**
* *Bougainvillea* sp.	Bougainvillea
Onagraceae	**Evening-primrose Family**
Epilobium ciliatum ssp. *ciliatum*	Green willow-herb
Oenothera elata ssp. *hirsutissima*	Marsh evening primrose
Oxalidaceae	**Oxalis Family**
* *Oxalis pes-caprae*	Bermuda buttercup
Phrymaceae	**Lopseed Family**
Mimulus aurantiacus	Bush monkey flower
Plantaginaceae	**Plantain Family**
* *Plantago lanceolata*	English plantain
* *Plantago major*	Common plantain
* *Veronica anagallis-aquatica*	Water speedwell
Platanaceae	**Sycamore Family**
Platanus racemosa	Western sycamore
Plumbaginaceae	**Leadwort Family**
* *Limonium perezii*	Perez's sea-lavender
Polygonaceae	**Buckwheat Family**
Eriogonum fasciculatum	California buckwheat
Persicaria lapathifolia	Willow weed
* *Rumex crispus*	Curly dock
Ranunculaceae	**Buttercup Family**
Clematis ligusticifolia	Western virgin's bower
Rosaceae	**Rose Family**
Heteromeles arbutifolia	Toyon
Rubus ursinus	California blackberry
Salicaceae	**Willow Family**
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Salix gooddingii	Goodding's black willow

	Salix laevigata	Red willow
	Salix lasiolepis	Arroyo willow
Sapindaceae		**Soapberry Family**
*	*Cupaniopsis anacardioides*	Carrotwood
Scrophulariaceae		**Figwort Family**
*	*Myoporum laetum*	Myoporum
*	*Verbascum virgatum*	Wand mullein
Simaroubaceae		**Simarouba Family**
*	*Ailanthus altissima*	Tree of heaven
Solanaceae		**Nightshade Family**
	Datura wrightii	Jimsonweed
*	*Nicotiana glauca*	Tree tobacco
	Solanum douglasii	Douglas' nightshade
Tamaricaceae		**Tamarisk Family**
*	*Tamarix* sp.	Tamarisk
*	*Tamarix ramosissima*	Saltcedar
Tropaeolaceae		**Nasturtium Family**
*	*Tropaeolum majus*	Garden nasturtium
Ulmaceae		**Elm Family**
*	*Ulmus parvifolia*	Chinese elm
Urticaceae		**Nettle Family**
	Urtica dioica ssp. *holosericea*	Hoary nettle
*	*Urtica urens*	Dwarf nettle
Verbenaceae		**Vervain Family**
*	*Lantana camara*	Lantana
Vitaceae		**Grape Family**
	Vitis girdiana	Desert wild grape

MONOCOTS

Arecaceae		**Palm Family**
*	*Phoenix canariensis*	Canary Island palm
*	*Washingtonia robusta*	Mexican fan palm
Cyperaceae		**Sedge Family**
	Carex sp.	Sedge
	Cyperus eragrostis	Tall umbrella-sedge
*	*Cyperus involucratus*	Africa umbrella-sedge
	Schoenoplectus californicus	Southern bulrush

Poaceae		**Grass Family**
*	*Arundo donax*	Giant reed
*	*Avena barbata*	Slender wild oat
*	*Avena fatua*	Wild oat
*	*Brachypodium distachyon*	Purple false brome
*	*Bromus diandrus*	Ripgut grass
*	*Bromus madritensis* ssp. *rubens*	Red brome
*	*Cynodon dactylon*	Bermuda grass
	Distichlis spicata	Salt grass
*	*Echinochloa crus-galli*	Barnyard grass
	Elymus glaucus ssp. *glaucus*	Blue wildrye
	Elymus triticoides	Beardless wild-rye
*	*Festuca myuros* var. *myuros*	Rattail fescue
*	*Hordeum murinum* ssp. *leporinum*	Hare barley
*	*Hordeum vulgare*	Common barley
*	*Lamarckia aurea*	Goldentop
*	*Paspalum dilatatum*	Dallis grass
*	*Pennisetum setaceum*	Crimson fountain grass
*	*Phalaris aquatica*	Harding grass
*	*Poa annua*	Annual blue grass
*	*Polypogon monspeliensis*	Rabbitfoot grass
*	*Schismus barbatus*	Mediterranean grass
*	*Sorghum halepense*	Johnson grass
Typhaceae		**Cattail Family**
	Typha domingensis	Southern cattail
	Typha latifolia	Broad-leaved cattail

ANIMAL SPECIES OBSERVED

ANISOPTERA		**TYPICAL DRAGONFLIES**
Libellulidae		**Skimmers**
	Sympetrum corruptum	Variegated meadowhawk
BIVALVIA		**BIVALVES**
Cyrenidae		**Clams**
*	*Corbicula* sp.	Asian clams
OSTEICHTHEYS		**BONY FISHES**
Cyprinidae		**Minnows**
*	*Cyprinus carpio*	Common carp

REPTILIA	REPTILES
Phrynosomatidae	**Phrynosomatid Lizards**
Sceloporus occidentalis	Western fence lizard
Uta stansburiana	Common side-blotched lizard
AVES	**BIRDS**
Anatidae	**Ducks, Geese, and Swans**
Spatula cyanoptera	Cinnamon teal
Anas platyrhynchos	Mallard
Odontophoridae	**New World Quail**
Callipepla californica	California quail
Podicipedidae	**Grebes**
Aechmophorus occidentalis	Western grebe
Columbidae	**Pigeons and Doves**
Zenaida macroura	Mourning dove
Apodidae	**Swifts**
Aeronautes saxatilis	White-throated swift
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Selasphorus rufus/sasin	Rufous/Allen's hummingbird
Rallidae	**Rails, Gallinules, and Coots**
Fulica americana	American coot
Phalacrocoracidae	**Cormorants**
Phalacrocorax auritus	Double-crested cormorant
Ardeidae	**Herons, Bitterns, and Allies**
Egretta thula	Snowy egret
Accipitridae	**Hawks, Kites, Eagles, and Allies**
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	Red-tailed hawk
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Corvidae	**Crows and Jays**
Corvus brachyrhynchos	American crow
Hirundinidae	**Swallows**
Petrochelidon pyrrhonota	Cliff swallow
Aegithalidae	**Long-Tailed Tits and Bushtits**
Psaltriparus minimus	Bushtit

Troglodytidae
Troglodytes aedon

Polioptilidae
Polioptila caerulea
Polioptila californica californica

Mimidae
Mimus polyglottos

Fringillidae
Haemorhous mexicanus
Spinus psaltria

Passerellidae
Melozone crissalis

Parulidae
Geothlypis trichas
Setophaga coronata

Wrens
House wren

Gnatcatchers and Gnatwrens
Blue-gray gnatcatcher
Coastal California gnatcatcher

Mockingbirds and Thrashers
Northern mockingbird

Fingilline and Cardueline Finches and Allies
House finch
Lesser goldfinch

New World Sparrows
California towhee

Wood Warblers
Common yellowthroat
Yellow-rumped warbler

MAMMALIA

Molossidae
Tadarida brasiliensis

Vespertilionidae
Myotis yumanensis

Canidae
Canis latrans

Procyonidae
Procyon lotor

Cervidae
Odocoileus hemionus

MAMMALS

Free-Tailed Bats
Mexican free-tailed bat

Evening Bats
Yuma myotis

Foxes, Wolves, and Allies
Coyote

Raccoons and Allies
Northern raccoon

Deer, Elk, and Allies
Mule deer

APPENDIX D

SPECIAL-STATUS SPECIES IDENTIFIED AS POTENTIALLY OCCURRING IN THE BIOLOGICAL STUDY AREA

Table D.1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence in the BSA and Rationale
Chaparral sand-verbena	*Abronia villosa* var. *aurita*	US: - CA: - CNPS: 1B.1	Annual herb. Occurs on sandy soils in chaparral, coastal scrub, and desert dune habitats between 75 and 1,600 m in elevation.	January–September	**Not expected.** While marginally suitable habitat is present within the proposed project vicinity[1], the one known occurrence was in 1931, and this species is presumed extirpated.
Braunton's milk-vetch	*Astragalus brauntonii*	US: FE CA: - CNPS: 1B.1	Perennial herb. Occurs in chaparral, coastal scrub, and valley and foothill grassland in recent burns or disturbed areas, usually in sandstone with carbonate layers between 4 and 640 m in elevation.	January–August	**Not expected.** While there are known occurrences in the proposed project vicinity, suitable habitat in the BSA is marginal. The portion of the proposed project area with the most suitable soils has been previously developed.
Coulter's saltbush	*Atriplex coulteri*	US: - CA: - CNPS: 1B.2	Perennial herb. Occurs on alkaline or clay soils in coastal dune, coastal scrub, and valley and foothill grassland habitats up to 460 m in elevation.	March–October	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the proposed project area.
South coast saltscale	*Atriplex pacifica*	US: - CA: - CNPS: 1B.2	Annual herb. Occurs in coastal bluff scrub, coastal dunes, coastal scrub, and playas up to 140 m in elevation.	March–October	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.
Davidson's saltscale	*Atriplex serenana* var. *davidsonii*	US: - CA: - CNPS: 1B.2	Annual herb. Found on alkaline soils in coastal bluff scrub and coastal scrub up to 200 m in elevation.	April–October	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.
Malibu baccharis	*Baccharis malibuensis*	US: - CA: - CNPS: 1B.1	Perennial deciduous shrub. Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland between 150 and 305 m in elevation.	August	**Absent.** This perennial shrub was not detected during the November 2019 field survey, and the BSA is outside this species' elevation range.
Thread-leaved brodiaea	*Brodiaea filifolia*	US: FT CA: CE CNPS: 1B.1	Perennial bulbiferous herb. Often occurs on clay, in chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools between 25 and 1,120 m in elevation.	March–June	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.
Intermediate mariposa lily	*Calochortus weedii* var. *intermedius*	US: - CA: - CNPS: 1B.2	Perennial bulbiferous herb. Occurs in chaparral, coastal scrub, and valley and foothill grassland. Often in dry, rocky soils. From 120 to 855 m in elevation.	May–July	**Low.** While there are multiple occurrence records within the vicinity of the BSA, suitable habitat in the BSA is marginal.

Table D.1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence in the BSA and Rationale
Lucky morning-glory	*Calystegia felix*	US: - CA: - CNPS: 1B.1	Annual rhizomatous herb. Occurs in meadows, seeps, and alluvial riparian scrub habitats (sometimes alkaline soils) up to 215 m in elevation.	March–September	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Lewis' evening-primrose	*Camissoniopsis lewisii*	US: - CA: - CNPS: 3	Annual herb. Occurs on sandy and clay soils in coastal scrub, cismontane woodland, and grassland habitats up to 300 m in elevation.	March–May(June)	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.
Southern tarplant	*Centromadia parryi* ssp. *australis*	US: - CA: - CNPS: 1B.1	Annual herb. Occurs in vernal pools, margins of marshes and swamps, and vernally mesic valley and foothill grasslands, sometimes in disturbed areas with shallow depressions, such as dirt roads and vacant lots. Up to 427 m in elevation.	May–November	**Low.** There are no known occurrences in the vicinity of the BSA, and suitable conditions in the study area are marginal.
Smooth tarplant	*Centromadia pungens* ssp. *laevis*	US: - CA: - CNPS: 1B.1	Annual herb. Found in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland in alkaline soils between 0 and 640 m elevation.	April–September	**Not expected.** There are no known occurrences in the vicinity of the BSA, and suitable habitat is absent from the BSA.
San Fernando Valley spineflower	*Chorizanthe parryi* var. *fernandina*	US: FC CA: CE CNPS: 1B.1	Annual herb. Found on sandy soils in coastal scrub and valley and foothill grasslands between 150 to 1,220 m in elevation.	April–July	**Not expected.** There are no known occurrences in the vicinity of the BSA, and the BSA is outside this species' elevation range.
Long-spined spineflower	*Chorizanthe polygonoides* var. *longispina*	US: - CA: - CNPS: 1B.2	Annual herb. Habitat types include chaparral, CSS, meadows and seeps, valley and foothill grassland, and vernal pools. Often occurs in clay soils between 30 and 1,530 m in elevation.	April–July	**Low.** There is one occurrence record within the vicinity of the BSA, and marginally suitable habitat is present in the BSA.
San Miguel savory	*Clinopodium chandleri*	US: - CA: - CNPS: 1B.2	Perennial shrub. Occurs on rocky, gabbroic, or metavolcanic soils within chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland between 120 and 1,075 m in elevation.	March–July	**Absent.** This perennial shrub was not detected during the November 2019 field survey, and suitable habitat in the BSA is marginal.

Table D.1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence in the BSA and Rationale
Summer holly	*Comarostaphylis diversifolia* ssp. *diversifolia*	US: - CA: - CNPS: 1B.2	Perennial evergreen shrub. Occurs within chaparral and cismontane woodland between 30 and 790 m in elevation.	April–June	**Absent.** This perennial shrub was not detected during the November 2019 field survey, and suitable habitat is absent from the BSA.
Slender-horned spineflower	*Dodecahema leptoceras*	US: FE CA: CE CNPS: 1B.1	Annual herb. Found in chaparral, cismontane woodland, and coastal scrub in alluvial fan sandy soils between 200 and 760 m elevation.	April–June	**Not expected.** There are no known occurrences in the vicinity of the BSA, and the BSA is outside this species' elevation range.
Santa Monica dudleya	*Dudleya cymosa* ssp. *ovatifolia*	US: FT CA: - CNPS: 1B.1	Perennial herb. Occurs on volcanic or sedimentary, rocky soils within chaparral and CSS between 150 to 1,675 m in elevation.	March–June	**Not expected.** There are no known occurrences in the vicinity of the BSA, and the BSA is outside this species' elevation range.
Many-stemmed dudleya	*Dudleya multicaulis*	US: - CA: - CNPS: 1B.2	Perennial herb. Occurs in chaparral, coastal scrub, and valley and foothill grassland usually in heavy, often clayey soils. From 15 to 790 m in elevation.	April–July	**Low.** While there are multiple occurrence records within the vicinity of the BSA, suitable habitat in the BSA is marginal.
Santa Ana River woolly-star	*Eriastrum densifolium* ssp. *sanctorum*	US: FE CA: CE CNPS: 1B.1	Perennial herb. Occurs on sandy substrates within chaparral and alluvial fan scrub habitats between 91 and 610 m in elevation.	April–September	**Low.** While there is one occurrence record within the vicinity of the BSA, potentially suitable conditions in the BSA are lacking.
Los Angeles sunflower	*Helianthus nuttallii* ssp. *parishii*	US: - CA: - CNPS: 1A	Perennial rhizomatous herb. Occurs within marshes and swamps (coastal salt and freshwater) between 10 and 1,525 m in elevation.	August-October	**Not expected.** While suitable habitat is present in the BSA, there are no known occurrences in the vicinity of the BSA, and this species is presumed extirpated.
Tecate cypress	*Hesperocyparis forbesii*	US: - CA: - CNPS: 1B.1	Perennial evergreen tree. Occurs on clay, gabbroic, or metavolcanic soils within close-cone coniferous forest and chaparral between 80 and 1,500 m in elevation.	N/A	**Absent.** This perennial evergreen tree was not detected during the November 2019 field survey, and suitable habitat is absent from the BSA.
Vernal barley	*Hordeum intercedens*	US: - CA: - CNPS: 3.2	Annual herb. Occurs in coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), and vernal pools between 5 and 1,000 m in elevation.	March–June	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.

Table D.1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence in the BSA and Rationale
Mesa horkelia	*Horkelia cuneata* var. *puberula*	US: - CA: - CNPS: 1B.1	Perennial herb. Occurs on sandy and gravelly soils in chaparral, cismontane woodland, and coastal scrub habitats between 70 and 810 m in elevation.	February–September	**Low.** Although there is one known occurrence in the vicinity of the BSA, suitable habitat in the BSA is marginal.
Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*	US: - CA: - CNPS: 1B.1	Annual herb. Occurs in marshes and swamps, playas, and vernal pools up to 1,220 m in elevation.	February–June	**Low.** There are no known occurrences in the vicinity of the BSA, and suitable habitat present in the BSA is highly disturbed.
Mud nama	*Nama stenocarpa*	US: - CA: - CNPS: 2B.2	Annual/perennial herb. Occurs in marshes and swamps (lake margins, riverbanks) between 5 and 500 m in elevation.	January–July	**Low.** There are no known occurrences in the vicinity of the BSA, and suitable habitat present in the BSA is highly disturbed.
Gambel's water cress	*Nasturtium gambelii*	US: FE CA: CT CNPS: 1B.1	Perennial rhizomatous herb. Occurs in marshes and swamps (freshwater or brackish) between 5 and 330 m in elevation.	April–October	**Not Expected.** There are no known occurrences in the vicinity of the BSA, and suitable habitat present in the BSA is highly disturbed.
Chaparral nolina	*Nolina cismontana*	US: - CA: - CNPS: 1B.2	Perennial evergreen shrub. Habitat type includes chaparral and coastal scrub. Occurs on sandstone or gabbro soils between 140 and 1,275 m in elevation.	March–July	**Absent.** This perennial evergreen shrub was not detected during the November 2019 field survey, and the BSA is outside this species' elevation range.
Allen's pentachaeta	*Pentachaeta aurea* ssp. *allenii*	US: - CA: - CNPS: 1B.1	Annual herb. Occurs in chaparral and coastal scrub openings and valley grassland habitats from 75 to 520 m in elevation.	March–June	**Low.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.
White rabbit-tobacco	*Pseudognaphalium leucocephalum*	US: - CA: - CNPS: 2B.S	Perennial herb. Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland between 0 and 2,100 m elevation in sandy, gravelly soils.	July–November	**Low.** While there is one known occurrence in the vicinity of the BSA, suitable habitat in the BSA marginal. This species was not detected during the November 2019 field survey.
Chaparral ragwort	*Senecio aphanactis*	US: - CA: - CNPS: 2B.2	Annual herb. Sometimes occurs on alkaline soils. Occurs in chaparral, cismontane, and coastal scrub habitats between 15 and 800 m in elevation.	January–April	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.

Table D.1: Special-Status Plant Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence in the BSA and Rationale
Salt spring checkerbloom	*Sidalcea neomexicana*	US: - CA: - CNPS: 2B.2	Perennial herb. Found in alkaline and mesic soils within chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas from 15 to 1,530 m in elevation.	March–June	**Not expected.** There are no known occurrences in the vicinity of the BSA, and only marginally suitable habitat is present in the BSA.
Estuary sea-blite	*Suaeda esteroa*	US: - CA: - CNPS: 1B.2	Perennial herb. Found in marshes and swamps (coastal salt) up to 5 m in elevation.	(May) July–October (January)	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.
San Bernardino aster	*Symphyotrichum defoliatum*	US: - CA: - CNPS: 1B.2	Perennial rhizomatous herb. Occurs near ditches, springs, and streams in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, mashes and swamps, and grasslands between 2 and 2,040 m in elevation.	July–November	**Low.** There are no known occurrences in the vicinity of the BSA, and suitable habitat present in the BSA is highly disturbed.

Source: Compiled by LSA Associates Inc. (2020).

[1] Biological Study Area= proposed project limits plus a 3 mi buffer

Listing Status or Designations for special-status plant species:

Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Plant (CSP), California Special Animal (CSA), NCCP Identified Species (IS), NCCP Target Species (TS), NCCP Conditionally Covered Species (CCS), S1 = Critically Imperiled, S2 = Imperiled, S3 = Vulnerable, S4 = Apparently Secure

CNPS Designations:

1A = presumed extirpated in California and either rare or extinct elsewhere
1B = rare, threatened, or endangered in California and elsewhere
2B = rare, threatened, or endangered in California but not elsewhere
3 = not very endangered in California
4 = plants of limited distribution—watch list

Abbreviation/Acronym Definitions:

CA = California
CNDDB = California Natural Diversity Database
CNPS = California Native Plant Society
CSS = coastal sage scrub
ft = foot/feet
m = meter/meters
mi = mile/miles
N/A = not applicable
NCCP = Natural Communities Conservation Plan
US = United States

Table D.2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence in the BSA and Rationale
INVERTEBRATES				
San Diego fairy shrimp	*Branchinecta sandiegonensis*	US: FE CA: -	Endemic to vernal pools in Orange and San Diego Counties. Usually appears in late fall, winter, and spring when rains fill the small, shallow, seasonal pools.	**Not Expected.** There are no occurrence records in the BSA [1], and suitable habitat is absent from the BSA.
Crotch bumble bee	*Bombus crotchii*	US: - CA: CE	Nectars on *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum* in coastal California east to the Sierra-Cascade crest and south into Mexico.	**Moderate.** While there are no occurrence records in the BSA, suitable habitat and food plants are present.
Quino checkerspot butterfly	*Euphydryas editha quino*	US: FE CA: -	Meadows or openings within CSS or chaparral below about 5,000 ft where food plants (*Plantago erecta* and/or *Orthocarpus purpurascens*) are present. Currently known only from southwestern Riverside County, southern San Diego County, and northern Baja California.	**Not Expected.** Not found in Orange County since the 1930s and believed to be extirpated.
Riverside fairy shrimp	*Streptocephalus woottoni*	US: FE CA: -	Restricted to deep vernal pools and ponds within annual grasslands, which may be interspersed with chaparral or CSS vegetation.	**Not Expected.** There are no occurrence records in the BSA, and suitable habitat is absent from the BSA.
FISH				
Santa Ana sucker	*Catostomus santaanae*	US: FT CA: -	Occurs in shallow portions of rivers and streams. Prefers coarse substrates consisting of gravel, rubble, and boulders with growths of algae.	**Presumed Present.** There are multiple occurrence records in the BSA, and suitable habitat is present in the BSA. Because fish surveys were not conducted during the November and December 2019 field surveys, this species is presumed present.
Arroyo chub	*Gila orcuttii*	US: - CA: SSC	Inhabits sandy and muddy bottoms of flowing pools and runs of headwaters creeks and small to medium rivers. Often found in intermittent streams.	**Low.** There are no known occurrences in the vicinity of the BSA, although marginally suitable habitat is present in the BSA.
Steelhead—Southern California DPS	*Oncorhynchus mykiss irideus* pop. 10	US: FE CA: -	Requires streams with adequate dissolved oxygen. Spawning habitat consists of gravel substrates free of excessive silt.	**Not Expected.** While there is suitable habitat within the BSA, this species is presumed extirpated below the Prado Dam.
Santa Ana speckled dace	*Rhinichthys osculus* ssp. 3	US: - CA: SSC	Found mainly in perennial streams fed by cool springs. Prefers substrates dominated by gravel and cobble.	**Not Expected.** There are no occurrence records in the BSA, and suitable habitat is absent from the BSA.
AMPHIBIANS				
Arroyo toad	*Anaxyrus californicus*	US: FE CA: SSC	Prefers shallow pools and open, sandy stream terraces with cottonwoods, oaks, or willows. Gravel or cobbles may be a part of its habitat, but fine sand is essential, since adults and juveniles burrow or overwinter on sandy terraces.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.

Table D.2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence in the BSA and Rationale
Northern leopard frog (native populations only)	*Lithobates pipiens*	US: - CA: SSC	Aquatic habitats with permanent or semipermanent water, submerged and emergent aquatic vegetation, and shoreline cover. Native range is east of the Sierra Nevada/Cascade crest. Not native to Southern California.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA. However, this species is not native to Southern California.
Western spadefoot	*Spea hammondii*	US: - CA: SSC	Occurs primarily in grassland and other relatively open habitats. Found in elevations ranging from sea level to 4,500 ft. Requires temporary pools for breeding.	**Low.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA However, suitable seasonal pond habitat is present adjacent to the BSA.
Coast Range newt	*Taricha torosa*	US: - CA: SSC	Associated with woodlands that are often interspersed with grasslands and chaparral. Breeding takes place in streams, ponds, lakes, and reservoirs. Breeding takes place from December to May. Estivation occurs in underground retreats and perhaps in rotting logs from July to early fall.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
REPTILES				
California glossy snake	*Arizona elegans*	US: - CA: SSC	Found in a wide variety of habitat types, including open desert, grass land, shrublands, chaparrals, and woodlands. Records show that this species occurs in relatively open patches in a surrounding matrix of denser vegetation.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Southern California legless lizard	*Anniella stebbinsi*	US: - CA: SSC	Found in a wide variety of habitat types, including sandy washes, alluvial fans, sparsely vegetated desert scrub, chaparral, and pine-oak woodlands. Requires moisture and leaf litter/surface objects. Most prevalent in coastal dune habitats in coastal counties to Baja California.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Coastal whiptail	*Aspidoscelis tigris stejnegeri*	US: - CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage within chaparral, woodland, and riparian areas.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
San Diego banded gecko	*Coleonyx variegatus abbotti*	US: - CA: SSC	Prefers rocky areas in coastal sage and chaparral. Hides in burrows or under surface objects during daylight.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Red-diamond rattlesnake	*Crotalus ruber*	US: - CA: SSC	Associated with chaparral, woodland, grassland, and desert communities from Los Angeles County to Baja California Sur. Prefers rocky areas with dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects for shelter.	**Moderate.** There are multiple known occurrences in the vicinity of the BSA, and some suitable habitat is present in the BSA.

Table D.2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence in the BSA and Rationale
Western pond turtle	*Emys marmorata*	US: - CA: SSC	Occurs in a variety of habitats, including woodland, grassland, and open forest. Thoroughly aquatic, existing in good-quality ponds, marshes, rivers, streams, and irrigation ditches that have rocky or muddy bottoms. Requires basking sites such as partially submerged logs, vegetation mats, or open mud banks.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Coast horned lizard	*Phrynosoma blainvillii*	US: - CA: SSC	Occurs in CSS, open chaparral, riparian woodland, and annual grassland habitats that support adequate prey species.	**Moderate.** There are known occurrence records in the BSA, and some suitable habitat is present in the BSA.
Coast patch-nosed snake	*Salvadora hexalepis virgultea*	US: - CA: SSC	Occupies desert scrub, coastal chaparral, washes, sandy flats, and rocky areas.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Two-striped gartersnake	*Thamnophis hammondii*	US: - CA: SSC	Aquatic-feeding specialist, inhabiting permanent and intermittent drainages of the seasonally arid regions of southwest California. Prefers watercourses with good riparian stands; feeds on aquatic invertebrates.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
BIRDS				
Tricolored blackbird (nesting colony)	*Agelaius tricolor*	US: - CA: SSC	Highly colonial nester largely endemic to California. Most numerous in the Central Valley and vicinity. Requires open water, protected nesting substrate, and a foraging area with insect prey within a few kilometers of the colony.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Grasshopper sparrow (nesting)	*Ammodramus savannarum*	US: - CA: SSC	Occurs in dense grasslands, preferring native grasslands with a mixture of forbs and shrubs.	**Not Expected.** While there is one known occurrence in the vicinity of the BSA, suitable habitat in the BSA is absent.
Long-eared owl (nesting)	*Asio otus*	US: - CA: SSC	Rare resident in Southern California coastal and foothill areas and uncommon resident in desert areas. Dense willow-riparian woodland and oak woodland. Breeds from valley foothill hardwood up to ponderosa pine habitat.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Golden eagle (nesting & wintering)	*Aquila chrysaetos*	US: FP CA: -	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in Southern California.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.
Burrowing owl (burrow sites and some wintering sites)	*Athene cunicularia*	US: - CA: SSC	Burrows in open, dry, annual or perennial grasslands; deserts; and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.
Swainson's hawk (nesting)	*Buteo swainsoni*	US: - CA: CT	Found in open habitats (e.g., grasslands, sage flats, and prairies) in western North America; migrates south to Argentina during the winter.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.

Table D.2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence in the BSA and Rationale
Coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	US: - CA: SSC	Occurs in CSS habitats. Requires tall *Opuntia* cactus for nesting and roosting.	**Low**. While there are known occurrences within the BSA, suitable cactus habitat in the BSA is absent. Marginal cactus habitat exists adjacent to the BSA.
Northern harrier (nesting)	*Circus hudsonius*	US: - CA: SSC	Breed in wide-open habitats. Nests are concealed on the ground in grasses or wetland vegetation.	**Low.** There are no known occurrences in the vicinity of the BSA, although limited suitable habitat is present within the BSA.
Western yellow-billed cuckoo (nesting)	*Coccyzus americanus occidentalis*	US: FT CA: CE	Nests in riparian forests along the broad lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods with an understory of blackberry, nettle, or grape.	**Moderate.** There are known occurrence records in the BSA, and some suitable habitat is present in the BSA.
Yellow rail	*Coturnicops noveboracensis*	US: - CA: SSC	Occurs in shallow marshes and wet meadows. During winter, may occupy drier freshwater and brackish marshes as well as dense, deep grass and rice fields.	**Low.** While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
White-tailed kite (nesting)	*Elanus leucurus*	US: - CA: CFP	Breeds in riparian trees such as oaks, willows, and cottonwoods in lower-elevation areas, particularly coastal valleys and plains.	**Moderate.** There are known occurrence records in the BSA, and some suitable nesting habitat is present in the BSA.
Southwestern willow flycatcher (nesting)	*Empidonax traillii extimus*	US: FE CA: CE	Occurs in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands including lakes and reservoirs.	**Moderate.** There are known occurrence records in the BSA, and some suitable habitat is present in the BSA.
American peregrine falcon (nesting)	*Falco peregrinus anatum*	US: FD CA: CFP	Occurs in open habitats, usually near water. Generally requires cliffs, very tall buildings, or similar situations for nesting.	**Not Expected.** There are no known occurrences of this species in the BSA, and suitable nesting habitat is absent from the BSA. Moderate potential of foraging in the BSA.
Bald eagle (nesting and wintering)	*Haliaeetus leucocephalus*	US: FD CA: CE	Typically nests in forested areas adjacent to large bodies of water. May congregate around fish-processing plants and dumps, and below dams where fish concentrate.	**Low.** There are no known occurrences in the vicinity of the BSA, and suitable habitat in the BSA is marginal.
Yellow-breasted chat (nesting)	*Icteria virens*	US: - CA: SSC	Live in thickets and other dense, regrowing areas such as bramble bushes, clearcuts, power line corridors, and shrubs along streams.	**Moderate.** There are known occurrence records in the BSA, and some suitable habitat is present in the BSA.
California black rail	*Laterallus jamaicensis coturniculus*	US: FP CA: CT	Nests in tidal salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	**Low.** There are no known occurrences in the vicinity of the BSA, and limited suitable habitat is present in the BSA.
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	US: - CA: CE	Breeds in open areas with low vegetation. Usually found in open meadows, pastures, edges of marshes, alfalfa fields, and pastures.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.
Coastal California gnatcatcher	*Polioptila californica californica*	US: FT CA: SSC	Obligate, permanent resident of CSS habitats below 2,500 ft in elevation in Southern California.	**Present.** There are many known occurrences within the BSA, suitable habitat is present in the BSA, and this species was observed during the November 2019 field survey.

Table D.2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence in the BSA and Rationale
Light-footed Ridgway's rail	*Rallus obsoletus levipes*	US: FE CA: CE	Found primarily in coastal salt marshes but can also be found in brackish and freshwater cattail or bulrush marshes.	**Low.** There are no known occurrences in the vicinity of the BSA, and limited suitable habitat is present in the BSA.
Yellow warbler (nesting)	*Setophaga petechia*	US: - CA: SSC	Requires habitats with riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests. Frequently found nesting and foraging in willow shrubs and thickets and in other riparian plants, including cottonwoods.	**Moderate**. While there are no known occurrences in the vicinity of the BSA, some suitable habitat is present in the BSA.
Least Bell's vireo (nesting)	*Vireo bellii pusillus*	US: FE CA: CE	Occurs in moist thickets and riparian areas that are predominantly composed of willow and mulefat.	**High.** There are many known occurrence records in the BSA, and suitable habitat is present in the BSA.
MAMMALS				
Pallid bat	*Antrozous pallidus*	US: - CA: SSC	Roosts in a variety of places but favors rocky outcrops. Also occurs in oak and pine forested areas and open farmland. Can be found roosting in caves, rock crevices, mines, hollow trees, and buildings.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA
Northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	US: - CA: SSC	Found in sandy herbaceous areas, usually associated with rocks or coarse gravel in coastal scrub, chaparral, grasslands, and sagebrush, from Los Angeles County through southwestern San Bernardino, western Riverside, and San Diego Counties to northern Baja California.	**Low.** There are no known occurrences in the vicinity of the BSA, and limited suitable habitat is present in the BSA.
Mexican long-tongued bat	*Choeronycteris mexicana*	US: - CA: SSC	Occasionally found in San Diego County. Feeds on nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves as well as in and around buildings.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.
Stephens' kangaroo rat	*Dipodomys stephensi*	US: FE CA: CT	Found in open grasslands and CSS habitats. Prefers sparse perennial plant cover. Requires soft, well-drained substrates for building burrows and is typically found in areas with sandy soil.	**Low.** There are no known occurrences in the vicinity of the BSA, and limited suitable habitat is present in the BSA.
Western mastiff bat	*Eumops perotis californicus*	US: - CA: SSC	Inhabits many open, semiarid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral communities. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	**Low.** There are no known occurrences in the vicinity of the BSA, and limited suitable habitat is present in the BSA.
Western yellow bat	*Lasiurus xanthinus*	US: - CA: SSC	Occurs in Southern California in palm oases and in residential areas with untrimmed palm trees. Roosts primarily in trees, especially the dead fronds of palm trees. Forages over water and among trees.	**Low.** There are no known occurrences in the vicinity of the BSA, and limited suitable habitat is present in the BSA.
San Diego desert woodrat	*Neotoma lepida intermedia*	US: - CA: SSC	Found in open habitats from desert to CSS. Feeds on succulent plants, including stems and pad of cholla and prickly pear cactus and leaves of yucca.	**Low.** There are no known occurrences in the vicinity of the BSA, and there is little suitable foraging habitat in the BSA.
Pocketed free-tailed bat	*Nyctinomops femorasaccus*	US: - CA: SSC	Spotty distribution in California, ranging from Southern California south to the Baja Peninsula, and through southwestern Arizona to at least central Mexico. In California, typically found in rocky, desert areas with relatively high cliffs.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.

Table D.2: Special-Status Animal Species Identified as Potentially Occurring or Known to Occur in the Biological Study Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence in the BSA and Rationale
Southern grasshopper mouse	*Onychomys torridus ramona*	US: - CA: SSC	Nests in small burrows; burrows are often deserted by other rodents. Found in shortgrass prairies and desert scrub. Prefers xeric areas at low elevations.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.
Pacific pocket mouse	*Perognathus longimembris pacificus*	US: FE CA: SSC	Occurs in chaparral or shrubland with firm sandy soil. Lives on fine-grain, sandy substrates and historically inhabited coastal dunes, river alluvium, and sage scrub habitats growing on marine terraces within approximately 2.4 mi of the ocean.	**Not Expected.** There are no known occurrences in the vicinity of the BSA, and suitable habitat is absent from the BSA.
Southern California saltmarsh shrew	*Sorex ornatus salicornicus*	US: - CA: SSC	Occurs in coastal marshes with dense vegetative ground cover. Nesting sites are located above the high-tide line.	**Not Expected.** There are no known occurrences in the BSA, and suitable habitat is absent from the BSA.

Source: Compiled by LSA Associates Inc. (2020).

[1] Biological Study Area = proposed project limits plus a 3 mi buffer

Listing Status or Designations for special-status animal species:

Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Plant (CSP), California Special Animal (CSA)

Abbreviation/Acronym Definitions:

CA = California
CSS = coastal sage scrub
DPS = Distinct population segments
ft = foot/feet
mi = mile/miles
US = United States

APPENDIX E

BAT ROOSTING HABITAT SUITABILITY ASSESSMENT AND NIGHTTIME SURVEY REPORT

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: January 20, 2020

TO: Pat Somerville, HNTB Corporation

FROM: Jill Carpenter, LSA Senior Biologist/Bat Specialist

SUBJECT: Bat Roosting Habitat Suitability Assessment and Nighttime Survey at the Yorba Linda Boulevard Bridge over the Santa Ana River for the Yorba Linda Boulevard Widening Project, Orange County, California

This memorandum documents the results of a bat roosting habitat suitability assessment and follow-up nighttime survey conducted at the Yorba Linda Boulevard bridge over the Santa Ana River for the Yorba Linda Boulevard Widening Project (project) in Orange County, California. The bat roosting habitat suitability assessment was conducted to ascertain whether any features suitable for use by roosting bats (including maternity colonies) are present within the Yorba Linda Boulevard bridge, and a follow-up nighttime survey was performed to determine whether bats are roosting within any suitable features observed. In addition to providing the results of the habitat suitability assessment and nighttime emergence survey, this memorandum includes recommendations to minimize potential impacts to bats from activities associated with the proposed widening of the Yorba Linda Boulevard bridge over the Santa Ana River.

Project Summary

The City of Yorba Linda, as the Lead Agency under the California Environmental Quality Act (CEQA), in cooperation with the City of Anaheim, is proposing roadway improvements along Yorba Linda Boulevard as well as a bicycle and pedestrian improvements along La Palma Avenue and Yorba Linda Boulevard, which includes widening the bridge over the Santa Ana River. The proposed bike path would also extend along La Palma Avenue and would connect with the existing SART. The proposed project would improve corridor operations and provide additional storage for turning movements, as the intersections within the project limits have inadequate vehicle storage due to short turn pocket lengths. Improvements within the project limits include intersection and lane reconfiguration, restriping, and roadway widening.

The proposed project includes other improvements such as excavation, paving, curbs and gutters, grading, drainage, curb ramps, utility relocations, signing and striping, street lighting, traffic signal modifications, retaining walls, and landscaping.

BAT NATURAL HISTORY AND REGULATORY FRAMEWORK

Bats are the primary predators of nocturnal flying insects and are largely adapted to a variety of habitats. Bat populations are generally declining throughout Southern California due to various factors, including loss of natural roosting and foraging habitats, exposure to pesticides and pathogens, and extermination (Johnston et al. 2004; Miner and Stokes 2005). Because bats have low reproductive turnover (most species have only one young per year, and only a few species have twins or multiple births) and high juvenile mortality, it can take many years for a colony of bats to recover from any impacts that result in mortality or even in a decrease in reproductive ability. As natural roost sites become scarcer due to urban development and changes in land use, the use of human-made structures (e.g., bridges, culverts, and buildings) for roost sites by some bat species has increased as bats seek alternative roosting options (Keeley and Tuttle 1999; Erickson et al. 2003). The importance and ecological value of anthropogenic structures as roosts has consequently increased to the point that many of these "artificial" roost sites are becoming essential to the survival of local bat populations (Johnston et al. 2004; Smith and Stevenson 2013). However, these human-made roosting sites are also highly vulnerable because bats may be driven out or killed once they are discovered occupying these structures. Therefore, as urban and suburban development occurs across the landscape, many of these areas may act as habitat "sinks"[1] where bats may at first appear to be relatively common and may even be attracted to human-made structures, but then decrease in abundance over time as urbanization of that area continues (Miner and Stokes 2005; Remington 2000). The protection of bat roosting habitat, particularly habitat identified as maternity or nursery sites, is vitally important in preventing adverse effects to, and further loss of, remaining bat populations.

Day roosts protect bats from predators and the elements during the day while they are resting and/or rearing their young. Examples of day-roosting sites include, but are not limited to, human-made structures, trees, cliff or rock crevices, caves, and mines. In human-made structures (e.g., bridges and culverts), day roosts are typically in expansion joints, hinges, or other crevices. Some types of day roosts where bats are particularly vulnerable to disturbance include maternity colonies, where female bats congregate in the spring and summer months to give birth and raise young, and hibernacula, where bats enter a period of hibernation during the winter months. A night roost, on the other hand, refers to a structure or structural feature (natural or human-made) in which bats roost during the evening between foraging bouts. Examples of night roosts include crevices, cavities, corners, and recessed open spaces that are sheltered from the wind. Night roosts are typically situated in or near a foraging area and play an important role in the energetics and social interaction of bats. When a night roost is eliminated, the energetics for bats to successfully use the surrounding foraging area may be negatively affected. Day roosts may also double as night roosts, particularly if they are situated in or near a foraging area.

Many bats use crevices or hollow cavities in bridges and culverts as day roosts and/or the open spaces between bridge beams or girders for night roosting. Bat species that commonly use human-made structures for day and/or night roosting include the Mexican free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), pallid bat (*Antrozous pallidus*), and Yuma myotis

[1] A habitat sink refers to an area where the productivity of a given species is insufficient to offset mortality.

(*Myotis yumanensis*). Other species that may use these types of roosts occasionally include the western small-footed myotis (*Myotis ciliolabrum*), California myotis (*Myotis californicus*), western mastiff bat (*Eumops perotis californicus*), canyon bat (*Parastrellus hesperus*), and Townsend's big-eared bat (*Corynorhinus townsendii*). Because bats have separate roosting and foraging habitat requirements, it is expected that some bats may use one area for foraging and another for roosting. While more extensive and direct impacts to bats occur through roost removal, destruction, or disturbance, indirect impacts (e.g., decline of the prey base due to loss or modification of foraging habitat) can also be substantial. Therefore, when one is assessing an area with regard to proposed alterations to habitat, a landscape-level approach is required to adequately determine potential impacts to bats.

Various regulations afford protections to bats, which are classified as indigenous nongame mammal species regardless of their status under the California or Federal Endangered Species Acts. These regulations include Title 14, Section 251.1, of the California Code of Regulations, which prohibits harassment (defined in that section as an intentional act that disrupts an animal's normal behavior patterns, including breeding, feeding, or sheltering) of nongame mammals (e.g., bats), and California Fish and Game Code Section 4150, which prohibits "take"[1] or possession of all nongame mammals or parts thereof. Any activities resulting in bat mortality (e.g., the destruction of an occupied bat roost that results in the death of bats), disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), or various modes of nonlethal pursuit or capture may be considered "take" as defined in Section 86 of the California Fish and Game Code. In addition, impacts to bat maternity colonies, which are considered native wildlife nursery sites, could be considered potentially significant under the California Environmental Quality Act.

METHODS

Daytime Habitat Assessment

During the daylight hours on September 12, 2019, LSA Senior Biologist and bat specialist Jill Carpenter, accompanied by LSA Assistant Biologist Jessica Lieuw, conducted a daytime bat habitat suitability assessment to evaluate whether roosting habitat for bats was present at the Yorba Linda Boulevard bridge. For purposes of this bat habitat suitability assessment, the study area was confined primarily to the bridge structure but also included existing trees immediately adjacent to the bridge. During the habitat assessment, the structure was visited on foot, and potential bat roosting sites were identified by examining the sides and underside of the bridge with a high-powered light-emitting diode (LED) spotlight for any structural features such as crevices or recessed spaces that may be suitable for use as day- or night-roosting habitat. Structural features suitable for day-roosting bats include crevices (e.g., hinges or expansion joints, weep holes, or cavities), while structural features used by night-roosting bats include features suitable for day roosting as well as recessed areas (e.g., concrete girders that can trap warm air, or the walls of concrete box culverts). The structure was also inspected for the presence of bats or any bat sign (e.g., guano, urine staining, or vocalizations) indicating current or past use of an area by roosting bats. Locations containing

[1] Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

suitable day-roosting habitat were also assessed for potential use as maternity roost sites based on indications that the observed roost feature supports or may support a large congregation of bats.

Potential foraging habitat was assessed within and immediately adjacent to the structures on the basis of vegetation composition, the presence of water, connectivity to other areas providing suitable foraging or roosting habitat, and accessibility. Large trees in the vicinity of the bridge that are suitable for foliage-roosting species were noted during the assessment, but due to the inherent difficulty of confirming bat roosting activity in trees (e.g., foliage-roosting species tend to roost singly, beneath leaves, and may roost in a different location each night), no effort was made to identify or map specific tree roosts during these surveys.

Nighttime Emergence Survey

A follow-up nighttime acoustic and emergence survey was performed by Jill Carpenter and Jessica Lieuw on October 1, 2019. The nighttime emergence survey was initiated 0.5 hour before sunset and continued until 1 hour after sunset, for a total of 1.5 hours. During the emergence period, one observer was stationed on each side of the bridge to watch for bats emerging from the west and east sides of the bridge hinge. Due to lower levels of ambient light after sunset, both observers used night vision goggles (military grade PVS-7, Generation 3) during the latter part of the emergence period. The number of bats exiting or entering the bridge was recorded using handheld tally counters, and species were identified using a combination of visual and acoustic techniques.

Anabat Express (Titley Scientific) ultrasound detectors were used to collect acoustic data to aid in identifying any bat species that may roost within the Yorba Linda Boulevard bridge over the Santa Ana River or that occur in the vicinity, and secure digital (SD) memory cards were used to record the call files. Due to the possibility of theft or vandalism given the evident human traffic beneath the bridge, it was not possible to leave acoustic detectors out overnight at this location to gather more complete information about bat activity throughout the evening. The acoustic detectors were deployed prior to the start of the emergence period at various locations around the bridge and were retrieved at the conclusion of the emergence period. The data collected during the surveys were subsequently analyzed using AnalookW. Species identifications of acoustic data, where possible, were made by comparing call recordings with a library of “voucher” calls from known hand-released bats.

RESULTS AND DISCUSSION

Daytime Habitat Assessment

The Yorba Linda Boulevard bridge is a concrete box girder bridge that carries Yorba Linda Boulevard over the Santa Ana River. Crevice habitat suitable for day-roosting bats, including maternity colonies, is present at a single hinge near the middle of the bridge structure (Figure 1; all figures are attached). This crevice could also be used by night-roosting bats. It was not possible to extrapolate potential use of this hinge from the presence and quantity of bat sign (i.e., guano) because the presence of the Santa Ana River directly beneath the hinge crevice prevents any guano from accumulating. Due to this deep-flowing water, which would have necessitated the use of a boat for access beneath the hinge, it was also not possible to get any vantage point allowing visibility into this crevice to confirm the depth of the crevice and presence/absence of bats. Consequently, a

follow-up nighttime emergence survey was performed to determine whether bats roost within this crevice.

Suitable crevice-roosting habitat was also observed at the northern bridge abutment; however, this crevice habitat was marginal in quality, and no bats or bat sign was observed. This type of bridge also contains hollow interior spaces beneath the roadway that can be accessed by bats using weep holes designed for drainage. Due to the nature of this roosting behavior, in which bats are roosting within the bridge where they are not visible (and any guano would collect inside the bridge structure rather than on the ground below), the presence or absence of bats in this type of roosting situation cannot be confirmed during a daytime assessment. Although bat use of bridge interiors via weep holes is less frequent than use of crevice habitat, the probability of bats using the weep holes is moderate due to the high-quality foraging habitat surrounding the bridge. In addition to the crevice and weep hole roosting habitat observed on the bridge structure, cliff swallow (*Petrochelidon pyrrhonota*) mud nests were present along the pier walls. Although many of these nests were dilapidated, some were suitable for use by roosting bats. Yuma myotis and Mexican free-tailed bats have been documented day roosting in swallow mud nests, and heavy use of swallow nests by Yuma myotis bats has been documented along the Santa Ana River in this area.

Open water beneath the bridge, along with adjacent riparian and wetland vegetation, provides high-quality foraging habitat for a variety of bat species and increases the desirability of the bridge and culvert structures for use by roosting bats. Mature trees including cottonwoods (*Populus fremontii*) and willows (*Salix* spp.) were observed on the east side of the bridge structure. In addition to providing foraging habitat, these trees also provide roosting habitat for bat species that roost in foliage such as the western red bat (*Lasiurus blossevillii*) and hoary bat (*Lasiurus cinereus*).

Nighttime Emergence Survey

During the nighttime emergence survey, an estimated 159 bats were observed emerging from the Yorba Linda Boulevard bridge structure. The majority of bats exited the bridge on the western, or downstream, side. Based upon visual observation and analysis of the acoustic data collected during this survey, the bridge was occupied primarily by Mexican free-tailed bats, with some Yuma myotis bats also present.

CONCLUSIONS AND RECOMMENDATIONS

Crevice habitat suitable for day- and night-roosting bats is present at the Yorba Linda Boulevard bridge over the Santa Ana River. During the nighttime acoustic and emergence survey performed on October 1, 2019, 159 bats were counted emerging from the hinge in this structure. Given the time of year that the emergence survey was performed, as well as the large number of bats observed, it is likely that the Mexican free-tailed bats use this bridge as a migratory or overwintering roost. In addition to confirming the suitability of the hinge crevice for use by large numbers of bats (including maternity colonies), it is also useful to know that large numbers of bats are present during the fall months because September and October are when humane evictions/exclusions are conducted. However, because this focused bat survey was performed outside the bat maternity season (April 1–August 31), and given the suitability of the crevice habitat observed at this structure for maternity roosting, a preconstruction nighttime survey will need to be performed at this location during the

summer months (i.e., June–August) in order to confirm whether this structure serves as a maternity roost and to determine the numbers and species of any bats roosting there.

To minimize potential impacts to maternity-roosting bats at the Yorba Linda Boulevard bridge over the Santa Ana River, the following measures are recommended:

- A bat biologist approved by the California Department of Fish and Wildlife (CDFW) will perform a nighttime acoustic and emergence survey at the Yorba Linda Boulevard bridge over the Santa Ana River during the summer months (i.e., June–August), when maternity colonies are fully established, to confirm the presence of a maternity colony or colonies and to determine the numbers and species of bats present. This information will be used to determine site-specific measures to minimize impacts to roosting bats including a predetermined protective buffer between any maternity colonies and construction work areas during maternity season. This survey should be performed as far in advance of construction as possible to allow adequate time for mitigation planning for the specific species and numbers of bats observed.

- To avoid disturbance of maternity-roosting bats (if confirmed present) during project-related activities at the Yorba Linda Boulevard bridge over the Santa Ana River, work activities within the predetermined buffer distance of the maternity roost sites will avoid the recognized bat maternity season (April 1—August 31) unless otherwise directed by CDFW. The buffer distance will be determined by a CDFW-approved bat biologist and will be based on what bat species are found to make up the maternity colony, since different bat species are known to have different tolerance levels for certain construction activities.

- If necessary to avoid direct mortality, humane evictions and exclusions of roosting bats should be performed under the supervision of a CDFW-approved bat biologist in the fall (September or October) prior to the initiation of project-related construction activities at the bridge structure. To avoid potential mortality of flightless juvenile bats, evictions and exclusions of bats cannot be performed during the maternity season (April 1–August 31). Winter months are also inappropriate for bat eviction because not all individuals in a roost will emerge on any given night. In addition, long-distance movements to other roost sites are more difficult during the winter when prey availability is scarce, resulting in high mortality rates of evicted bats.

- If bats are excluded from more than 25 percent of the available roosting habitat at the bridge, or if permanent impacts to bat roosting habitat will occur, alternate bat roosting habitat should be provided prior to performing the humane eviction/exclusion. Alternate bat roosting habitat should be provided in a 0.5:1 ratio for temporary impacts and in a 1:1 ratio for permanent impacts. The specifications for this roosting habitat should be designed in consultation with a qualified, CDFW-approved bat biologist. An example of design plans used to create alternate bat roosting habitat as successful mitigation for other bridge projects on the Santa Ana River is provided on Figure 2.

To avoid potential impacts to bats day roosting in the swallow mud nests at the Yorba Linda Boulevard bridge over the Santa Ana River, the following measure is recommended:

- If swallow nests are removed to prevent swallows from nesting within the project limits during construction activities, they should be removed in the fall (i.e., September or October), prior to expected or potential overwintering use by bats, and in a manner that ensures they do not fall to the ground or are otherwise destroyed unless the absence of bats is confirmed through inspection by a qualified bat biologist.

Due to the cryptic and often ephemeral nature of tree roosts, surveys for this type of roosting activity are typically performed within a short period prior to construction activities. Therefore, if mature trees or snags will be removed for project construction, additional surveys may be needed to determine the potential extent of bat roosting activity within those trees; these surveys should be performed within one week prior to tree removal. If any of the trees are identified as bat roosts or likely bat roosts, measures should be implemented to avoid direct mortality to tree-roosting bats. To reduce potential impacts to special-status tree-roosting bats, the following measures are recommended:

- The removal of mature trees and snags should be minimized to the greatest extent practicable.

- If trimming or removal of mature trees and snags is necessary for project construction, LSA recommends that tree trimming/removal activities be performed outside the bat maternity season, which occurs from April 1 through August 31, to avoid direct impacts to nonvolant (flightless) young that may roost in trees within the study area. This period also coincides with the bird nesting season (typically February 15–September 1).

- If trimming or removal of trees during the bat maternity season (April 1 through August 31) cannot be avoided, LSA recommends that a qualified biologist monitor tree removal unless nighttime surveys conducted within 1 week of removal indicate no tree-roosting bat activity within the study area.

To minimize any potential indirect impacts to bats foraging and night roosting at the Yorba Linda Boulevard bridge over the Santa Ana River, the following measures are recommended:

- To minimize temporary indirect impacts during nighttime work for project construction within 200 feet of the bridge structure, night lighting shall be used only in the area actively being worked on and shall be focused on the direct area of work, and airspace access to and from the roost features of a structure shall not be obstructed except in direct work areas.

- To avoid permanent indirect impacts to roosting and foraging bats, bridge lighting on the new bridge shall be designed and installed in such a way that light overspill into the Santa Ana River and beneath the bridge is limited to the greatest extent practicable.

Implementation of the above measures will reduce impacts to special-status bat species and bat maternity colonies to less than significant levels.

Attachments: References
Figure 1: Representative Site Photos
Figure 2: Alternate Bat Roosting Habitat Panel Specifications

REFERENCES

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View looking east at the Yorba Linda Boulevard bridge over the Santa Ana River and the surrounding environment. The hinge containing bat roosting habitat suitable for maternity roosting is visible near the middle of the frame.

Representative view of cliff swallow nests and weep holes found at the Yorba Linda Boulevard Bridge. Both of these features provide suitable bat roosting habitat.

Representative view of crevices with potential bat roosting habitat that were observed at the north abutment of the Yorba Linda Boulevard Bridge.

View looking south at the mature trees on the east side of the Yorba Linda Boulevard Bridge. These trees may be used by foliage-roosting bats for roosting.

LSA

FIGURE 1

Yorba Linda Boulevard Bridge Widening Project
Focused Bat Survey Report

Representative Site Photos

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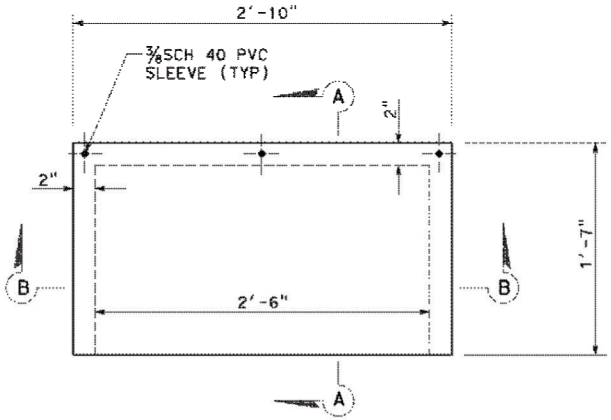
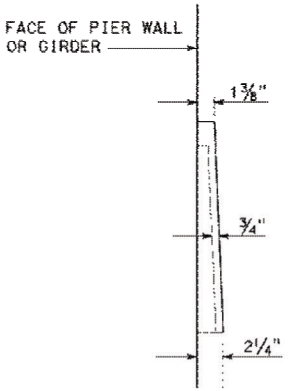
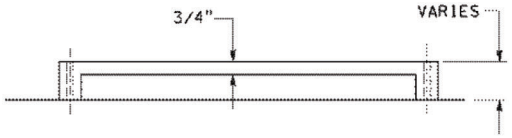


PLAN



SECTION A-A



SECTION B-B

NOTES FOR BAT HOUSE:

1. USE 3 3/8" SCH 40 PVC PIPES x 1 3/4"
   3" HILTI KWIK BOLTS
   KB 14-314 (1/4 x 3 1/4)
   f'ci = 4000 psi (LIGHT WEIGHT CONC.)

2. USE "CHICKEN WIRE" OR EQUIVALENT FOR REINFORCEMENT IN 3/4" SLAB.

LSA

FIGURE 2

Yorba Linda Boulevard Bridge Widening Project
Focused Bat Survey Report

Alternate Bat Roosting Habitat Panel Specifications: Basic Oregon Wedge Design

SOURCE: SOHA ENGINEERS

I:\HNT1901.02\G\Designs Alt Bat Habitat.cdr (12/17/2019)

APPENDIX F

JURISDICTIONAL DELINEATION REPORT

JURISDICTIONAL DELINEATION REPORT

YORBA LINDA BOULEVARD WIDENING PROJECT

ORANGE COUNTY, CALIFORNIA

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LSA Project No. HNT1901.02

LSA

January 2020

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INTRODUCTION

The Yorba Linda Boulevard Widening Project (project) is located in the eastern portion of Yorba Linda on the border between Yorba Linda and Anaheim (see Figure 1; all figures are attached in Appendix A). The project is located on the United States Geological Survey (USGS) 7.5-minute *Black Star Canyon, California,* and *Prado Dam, California,* topographical quadrangle maps and extends approximately 0.40 mile (mi) along Yorba Linda Boulevard between La Palma Avenue and the State Route 91 (SR-91) westbound on-ramp and 0.10 mi along South Weir Canyon Road between the SR-91 eastbound off-ramp and Santa Ana Canyon Road.

Adjacent land uses within the project vicinity consist of commercial/retail development on the east and west sides of Yorba Linda Boulevard and South Weir Canyon Road. The Santa Ana River is within the project limits and runs under Yorba Linda Boulevard between La Palma Avenue and Savi Ranch Parkway. The Santa Ana River Trail (SART) is a Class I, off-street bike path located on the northern side of the river, and a flood control access road is located on the south side of the river.

The Santa Ana River is the mainstem river of the Santa Ana River Watershed, which covers an area of approximately 210 square miles (sq mi) in Orange County. The headwaters of the entire 2,650 sq mi Santa Ana River Watershed begin in the San Bernardino Mountains and cross Riverside and Orange Counties before ultimately entering the Pacific Ocean. Flows within the Santa Ana River can be attributed to general winter storms and local storms within the Santa Ana River Watershed. Urban runoff and wastewater treatment plants also contribute to flows within the Santa Ana River.

The climate is classified as Mediterranean (i.e., an arid climate with hot, dry summers and moderately mild, wet winters). The average annual precipitation is approximately 15.48 inches. Although most of the precipitation occurs from November through May, thunderstorms may occur at other times of the year and can cause extremely high precipitation rates. Temperatures typically range between 44 and 88 degrees Fahrenheit (°F).

The technical study area for purposes of this jurisdictional delineation will be referred to as the Jurisdictional Study Area (JSA) and consists of the area within the project limits plus an additional 100-foot (ft) buffer around the entire perimeter of the project limits (see Figure 2). Within the JSA is the Yorba Linda Boulevard bridge that spans northwest to southeast over the Santa Ana River. The Santa Ana River conveys a perennial flow under the bridge and, within the JSA, is an earthen river with banks fortified by riprap.

This Jurisdictional Delineation Report presents a description of the delineation of aquatic resources potentially affected by the project and contains supporting information to be submitted to the appropriate resource agencies during project environmental review and permitting.

Project Summary

The City of Yorba Linda, as the Lead Agency under the California Environmental Quality Act (CEQA), in cooperation with the City of Anaheim, is proposing roadway improvements along Yorba Linda Boulevard as well as bicycle and pedestrian improvements along La Palma Avenue and Yorba Linda Boulevard, which includes widening the bridge over the Santa Ana River. The proposed bike path would also extend along La Palma Avenue and would connect with the existing SART. The proposed

project would improve corridor operations and provide additional storage for turning movements, as the intersections within the project limits have inadequate vehicle storage due to short turn pocket lengths. Improvements within the project limits include intersection and lane reconfiguration, restriping, and roadway widening.

The proposed project includes other improvements such as excavation, paving, curbs and gutters, grading, drainage, curb ramps, utility relocations, signing and striping, street lighting, traffic signal modifications, retaining walls, and landscaping.

REGULATORY BACKGROUND

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States (WOTUS). These waters include wetland and nonwetland bodies of water that meet specific criteria. USACE regulatory jurisdiction pursuant to Section 404 of the federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters [TNWs] used in interstate or foreign commerce) or may be indirect (through a nexus identified in USACE regulations). For several decades, the operable definition of WOTUS was provided in 33 Code of Federal Regulations (CFR) 328.3, but implementation of this definition has been shaped by the courts and subsequent guidance over the years, most substantially by the 2001 United States Supreme Court decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, No. 99-1178 (SWANCC) and the 2006 Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* (126 S. Ct. 2208), collectively referred to as *Rapanos*. The United States Supreme Court concluded that wetlands are "waters of the United States" if they significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. Based, in part, on the *Rapanos* decision, a new rule defining WOTUS was promulgated in the *Federal Register* on June 29, 2015. Following a series of legal challenges and the current presidential administration's attempt to delay the implementation of this rule, on August 16, 2018, the United States District Court for the District of South Carolina enjoined the delay of the WOTUS Rule implementation for failure to comply with the Administrative Procedure Act. This decision means that the 2015 WOTUS definition is in effect in 26 states where federal district court judges have not stayed it, including California. A summary of the currently operable definition of WOTUS is provided below:

Several categories of waters are defined as WOTUS directly by the Rule, without the need for a significant nexus evaluation:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

2. All interstate waters, including interstate wetlands.

3. The territorial seas.

4. All impoundments of waters otherwise identified as WOTUS under this section.

5. All tributaries of waters identified in paragraphs 1 through 3 of this definition; tributary is further defined as a water that contributes flow, either directly or through another water, to a water identified in paragraphs 1 through 3 of this definition that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high-water mark.

6. All waters adjacent to a water identified in paragraphs 1 through 5 of this definition, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters; the term adjacent means bordering, contiguous, or neighboring a water identified above, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like. Neighboring includes waters within 100 ft of the ordinary high-water mark of these waters and within the 100-year floodplain but not more than 1,500 ft from the ordinary high-water mark. Neighboring also includes waters within 1,500 ft of waters in paragraphs 1 through 3, including the Great Lakes.

In addition to the waters defined as WOTUS by rule, above, two categories of waters can be considered WOTUS pursuant to a significant nexus evaluation and determination:

7. Certain depressional wetlands where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs 1 through 3 of this definition. The waters identified in this category are considered similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs 1 through 3 of this definition. Waters identified in this paragraph shall not be combined with waters identified in paragraph 6 of this definition when a significant nexus analysis is performed. If waters identified in this paragraph are also an adjacent water under paragraph 6, they are an adjacent water, and no case-specific significant nexus analysis is required. The depressional wetlands that are specifically identified in this paragraph occur in various regions throughout the country. In California they include western vernal pools. Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters, and hot, dry summers.

8. All waters located within the 100-year floodplain of a water identified in paragraphs 1 through 3 of this definition and all waters located within 4,000 ft of the high-tide line or ordinary high-water mark of a water identified in paragraphs 1 through 5 of this definition where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs 1 through 3 of this definition. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in paragraphs 1 through 3 of this definition or within 4,000 ft of the high-tide line or ordinary high-water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph 6 of this definition when a significant nexus analysis is performed. If waters identified in this paragraph are also an adjacent water under paragraph 6 of this definition, they are an adjacent water, and no case-specific significant nexus analysis is required.

Finally, the 2015 WOTUS Rule specifies several categories of waters that are excluded from CWA jurisdiction, even if they otherwise meet the terms of paragraphs 4 through 8 above. The excluded waters are waste treatment systems, prior converted cropland and ditches with ephemeral or intermittent flow that are not a relocated tributary or excavated in a tributary, and ditches that do not flow into waters in categories 1 through 3 above. However, a ditch with intermittent flow that drains wetlands and flows to waters in categories 1 through 3 may not be excluded. Also excluded are artificial reflecting pools or swimming pools, ornamental waters, and incidental created depressions, provided these were created in dry land. Other excluded waters are erosional features

that do not meet the definition of tributary; puddles; groundwater; storm water control features created in dry land; and wastewater recycling structures, basins, and distributary structures constructed in dry land.

USACE typically considers any body of water displaying an ordinary high-water mark (OHWM) for designation as WOTUS, subject to the 2015 WOTUS Rule. USACE jurisdiction over nontidal WOTUS extends laterally to the OHWM or beyond the OHWM to the limit of any contiguous wetlands, if present. The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3). Jurisdiction typically extends upstream to the point where the OHWM is no longer perceptible.

Waters found to be isolated and not subject to CWA regulation may still be regulated by the Regional Water Quality Control Board (RWQCB) under the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Wetlands

Wetland delineations for Section 404 purposes must be conducted according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Regional Supplement) (USACE 2008) and the *Wetland Delineation Manual* (1987 Manual) (USACE 1987). Where there are differences between the two documents, the Regional Supplement takes precedence over the 1987 Manual.

USACE and the United States Environmental Protection Agency (EPA) define wetlands as follows:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions.

In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met. Several indicators may be analyzed to determine whether the criteria are satisfied.

Hydrophytic vegetation and hydric-soil indicators provide evidence that episodes of inundation have lasted more than a few days or have occurred repeatedly over a period of years, but do not confirm that an episode has occurred recently. Conversely, wetland hydrology indicators provide evidence that an episode of inundation or soil saturation occurred recently, but do not provide evidence that episodes have lasted more than a few days or have occurred repeatedly over a period of years. Because of this, if an area lacks one of the three characteristics under normal circumstances, the area is considered nonwetland under most circumstances.

Determination of wetland limits may be obfuscated by a variety of natural environmental factors or human activities, collectively called "difficult wetland situations," including cyclic periods of drought and flooding or highly ephemeral stream systems. During periods of drought, for example, bank return flows are reduced and water tables are lowered. This results in a corresponding lowering of ordinary high water and invasion of upland plant species into wetland areas. Conversely, extreme flooding may create physical evidence of high water well above what might be considered ordinary and may allow the temporary invasion of hydrophytic species into nonwetland areas. In the highly ephemeral systems typical of Southern California, these problems are encountered frequently. In these situations, professional judgment based on years of practical experience and extensive knowledge of local ecological conditions comes into play in delineating wetlands. The Regional Supplement provides additional guidance for difficult wetland situations.

Hydrophytic Vegetation

Hydrophytic vegetation is plant life that grows and is typically adapted for life in permanently or periodically saturated soils. The hydrophytic-vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub, herb, and woody vine layers) are considered hydrophytic. Hydrophytic species are those included on the National Wetland Plant List (USACE 2018).

Each species on the list is rated according to a wetland indicator category, as shown in Table A. To be considered hydrophytic, the species must have wetland indicator status (i.e., be rated as Obligate Wetland (OBL), Facultative Wetland (FACW), or Facultative (FAC).

Table A: Hydrophytic Vegetation

Category		Probability
Obligate Wetland	OBL	Almost always occurs in wetlands (estimated probability >99 percent)
Facultative Wetland	FACW	Usually occurs in wetlands (estimated probability 67–99 percent)
Facultative	FAC	Equally likely to occur in wetlands and nonwetlands (estimated probability 34–66 percent)
Facultative Upland	FACU	Usually occurs in nonwetlands (estimated probability 67–99 percent)
Obligate Upland	UPL	Almost always occurs in nonwetlands (estimated probability >99 percent)

The delineation of hydrophytic vegetation is typically based on the most dominant species from each vegetative stratum (strata are considered separately); when more than 50 percent of these dominant species are hydrophytic (i.e., FAC, FACW, or OBL), the vegetation is considered hydrophytic. In particular, USACE recommends the use of the "50/20" rule (also known as the dominance test) from the Regional Supplement for determining dominant species. Under this method, dominant species are the most abundant species that immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species composing 20 percent or more of the total dominance measure for the stratum. In cases where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test, the prevalence index must be used. The prevalence index is a weighted average of all plant species within a sampling plot. The prevalence index is particularly useful when communities only have one or two

dominants, where species are present at roughly equal coverage, or when strata differ greatly in total plant cover. In addition, USACE guidance provides that morphological adaptations may be considered when determining hydrophytic vegetation when indicators of hydric soil and wetland hydrology are present (USACE 2008). If the plant community passes either the dominance test or prevalence index after reconsideration of the indicator status of any plant species that exhibit morphological adaptations for life in wetlands, then the vegetation is considered hydrophytic.

Hydric Soils

Hydric soils[1] are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.[2] Soils are considered likely to meet the definition of a hydric soil when one or more of the following criteria are met:

- All Histels except Folistels, and all Histosols except Folists
- Soils that are frequently ponded for a long duration or very long duration[3] during the growing season
- Soils that are frequently flooded for a long duration or very long duration during the growing season

Hydric soils develop under conditions of saturation and inundation combined with microbial activity in the soil that causes a depletion of oxygen. While saturation may occur at any time of year, microbial activity is limited to the growing season, when soil temperature is above biologic zero (the soil temperature at a depth of 50 centimeters (19.7 inches), below which the growth and function of locally adapted plants are negligible). Biogeochemical processes that occur under anaerobic conditions during the growing season result in the distinctive morphologic characteristics of hydric soils. Based on these criteria, a national list of hydric soils was created from the National Soil Information System (NASIS) database and is updated annually (USDA 2018a).

The Regional Supplement has a number of field indicators that may be used to identify hydric soils. The Natural Resources Conservation Service (NRCS) has also developed a number of field indicators that may demonstrate the presence of hydric soils (USDA 2018b). These indicators include hydrogen sulfide generation; the accumulation of organic matter; and the reduction, translocation, and/or accumulation of iron and other reducible elements. These processes result in soil characteristics that persist during both wet and dry periods. Separate indicators have been developed for sandy soils and for loamy and clayey soils.

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1 The hydric soil definition and criteria included in the *Wetland Delineation Manual* (USACE 1987) are obsolete. Users of the Manual are directed to the United States Department of Agriculture (USDA) Natural Resources Conservation Service website (https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/) for the most current information on hydric soils.

2 Current definition of hydric soils is identified on page 27 of the Arid West Regional Supplement (USACE 2008).

3 A long duration is defined as a single event ranging from 7 to 30 days; a very long duration is defined as a single event that lasts longer than 30 days.

Wetland Hydrology

Under natural conditions, development of hydrophytic vegetation and hydric soils is dependent on a third characteristic: wetland hydrology. Areas with wetland hydrology are those where the presence of water has an overriding influence on vegetation and soil characteristics due to anaerobic and reducing conditions, respectively (USACE 1987). The wetland hydrology parameter is satisfied if the area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season in most years (USACE 2008).

Hydrology is often the most difficult criterion to measure in the field due to seasonal and annual variations in water availability. Some of the indicators that are commonly used to identify wetland hydrology include visual observation of inundation or saturation, watermarks, recent sediment deposits, surface scour, and oxidized root channels (rhizospheres) resulting from prolonged anaerobic conditions.

Deepwater Aquatic Habitat

Deepwater aquatic habitats are areas that are permanently inundated at mean annual water depths greater than 6.6 ft or permanently inundated areas less than 6.6 ft in depth that do not support rooted-emergent or woody plant species.[1] Deepwater aquatic waters do not qualify as wetland waters due to the lack of hydrophytic terrestrial vegetation. Deepwater aquatic waters are recognized as having a high habitat value due to their use as a fish and wildlife resource and limited distribution in the Arid West region.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW), through provisions of the California Fish and Game Code (Sec. 1600 et seq.), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water. CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by CDFW.

CDFW has various definitions and descriptions of the terms “channel bed” and “banks.” The following definitions are taken from Appendix C: Legal Opinions of CDFW’s *A Field Guide to Lake and Streambed Alteration Agreements Sections 1600–1607, California Fish and Game Cod*e (CDFW 1994) to characterize the bed and bank:

> The extent of a stream bed and banks can be measured by several means: (1) flood plain, depending on the return frequency considered and if the riparian vegetation is present in the flood plain; (2) the outer edge of riparian vegetation used as a line of demarcation; (3) the bank, channel, or levee that confines flows; and (4) the extent of riparian vegetation outside of a levee.

[1] Areas less than 6.6 feet mean annual depth that support only submergent aquatic plants are vegetated shallows, not wetlands.

The following concepts are also described in *A Field Guide to Lake and Streambed Alteration Agreements,* prepared by the CDFW Environmental Services Division in January 1994:

> Streams can include intermittent ephemeral streams, dry washes, canals, aqueducts, irrigation ditches if they support aquatic life, riparian vegetation, or seasonally stream-dependent terrestrial wildlife, such as amphibians.
>
> Natural attributes or biological components of a stream include aquatic and riparian vegetation, and all aquatic animals, including fish, amphibians, reptiles, invertebrates, and terrestrial species, which derive benefits from the stream system.

CDFW regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFW. CDFW jurisdiction typically extends beyond the streambed/banks to the limits of the riparian vegetation (if present) associated with streams, rivers, or lakes.

In obtaining CDFW agreements, the limits of wetlands are not typically determined. The reason for this is that CDFW generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), and other vegetation typically associated with the banks of a stream or lake shorelines and may not be consistent with USACE definitions. In most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFW jurisdiction based on riparian habitat will automatically include any wetland areas and may include additional areas that do not meet USACE criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the banks of a stream, away from frequently saturated soils).

Regional Water Quality Control Board

RWQCBs are responsible for the administration of Section 401 of the CWA. Typically, the areas subject to RWQCB jurisdiction coincide with those of USACE jurisdiction (i.e., WOTUS, including any wetlands). The RWQCB may also assert authority over waters of the State under waste discharge requirements pursuant to the Porter-Cologne Act.

METHODOLOGY

Prior to conducting the fieldwork associated with this jurisdictional delineation, LSA established the JSA based on a 100 ft buffer around the maximum extent of the project disturbance limits. The JSA was overlaid on a series of September 2019 Nearmap aerial photographs.

The fieldwork for this evaluation was conducted by LSA biologists Bo Gould and Jessica Lieuw on November 7, 2019. Areas in the JSA supporting species of plant life potentially indicative of wetlands, exhibiting a bed and bank, and/or an OHWM, were evaluated according to the most current federal and State jurisdictional-delineation procedures and guidelines. Those areas identified on topographic maps and current aerial photographs as potential WOTUS/streambeds and riparian resources were examined in the field for evidence of jurisdiction (wetland parameters, OHWM, streambed and bank, and/or riparian habitat).The JSA was surveyed on foot where accessible to the biologists. Dense vegetation and ponded wetland areas that were inaccessible were delineated based on observations in areas with similar plant species composition, soil

conditions, hydrologic characteristics, topography, and aerial-photo interpretation. All culverts and other drainage facilities were located and assessed for potential jurisdictional status and were mapped (Figures 3 and 4).

The boundaries of the potential jurisdictional areas within the JSA were observed in the field and were mapped on an aerial photograph (on a scale of 1 inch = approximately 150 ft) that shows the potential JSA. Measurements of federal and State jurisdictional areas mapped during the course of the field investigation were determined by a combination of direct measurements taken in the field and measurements taken from the aerial photographs. Hydrological conditions, including any surface inundation, saturated soils, groundwater levels, and/or other wetland hydrology indicators, were also noted. In addition, general site characteristics were noted throughout all potential jurisdictional areas.

RESULTS

Based on close examination of historical and recent aerial photographs and fieldwork, LSA identified one major drainage feature (Drainage 1) occurring in the JSA (i.e., the Santa Ana River). One channelized tributary to the Santa Ana River was identified north of the Santa Ana River's channel banks. Site-specific conditions and channel measurements were collected, and the drainage feature was mapped.

The Santa Ana River conveys a continuous perennial flow of surface water under the Yorba Linda Boulevard bridge. Within the JSA, the Santa Ana River is an earthen, compound channel, measuring 400 ft in length and 450 ft in width, with alluvial deposits and varying sizes of cobble and sand. The dominant riparian species within the JSA are cattails (*Typha* sp.), Spanish sunflower (*Pulicaria paludosa*), mule fat, arroyo willow (*Salix lasiolepis*), mugwort (*Artemisia douglasiana*), willow weed (*Persicaria lapathifolia*), tamarisk (*Tamarix* sp.), and hoary nettle (*Urtica dioica*). Portions of the drainage within the JSA were determined to be wetland given the data extrapolated from three of the 10 sample points. Hydrophytic vegetation, hydric soils, and wetland hydrology were identified within specific areas of the JSA. The OHWM was determined by the presence of sediment deposits, drift deposits, and watermarks.

The tributary to the Santa Ana River is a concrete-and-riprap-lined drainage that primarily receives urban ephemeral storm water runoff and measures approximately 165 ft long with an average width of 75 ft. The concrete channel is completely devoid of vegetation. Wetland waters are not present within the tributary. The OHWM was identified in the field based on watermarks.

United States Army Corps of Engineers Jurisdiction

Wetland Waters of the United States

Within the JSA, the Santa Ana River has earthen banks, or levees, armored with riprap and serves as a major flood control channel. Portions of the Santa Ana River within the JSA support hydrophytic vegetation, hydric soils, and wetland hydrology, thereby meeting the criteria for federal jurisdictional wetlands. The Santa Ana River, which is a TNW, ultimately conveys flows directly to the Pacific Ocean.

Vegetation. Areas within the JSA exhibiting a prevalence of hydrophytic vegetation are associated with riparian and/or freshwater marsh plant communities, including disturbed freshwater marsh, freshwater marsh, herbaceous riparian vegetation, and cottonwood willow riparian forest. The dominant hydrophytes include cattails (OBL), Spanish sunflower (FAC), mule fat (FAC), arroyo willow (FACW), mugwort (FAC), willow weed (FACW), tamarisk (FAC), and hoary nettle (FAC). Due to the prevalence of hydrophytic species, 0.891 acres of the JSA would meet the USACE wetland criterion for hydrophytic vegetation. The remaining portions of the JSA consist of open water within the Santa Ana River and support species associated with the fluvial islands adjacent to the wetland areas that include shortpod mustard (*Hirschfeldia incana*; Not Listed), castor bean (*Ricinus communis*;

FACU), annual bur-sage (*Ambrosia acanthicarpa*; Not Listed), and common horseweed (*Erigeron canadensis*; FACU).

Hydrology. The annual growing season in this part of Orange County is generally considered to extend for the entire year. For the Arid West region, the wetland hydrology parameter is satisfied if the area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season in most years.

Due to the intermittent and/or perennially inundated conditions of the Santa Ana River within the JSA, wetland hydrology is evident up to the OHWMs. Field observations and analysis of historic aerial photographs support the conclusion that in most years, wetland hydrology is present up to the OHWM throughout much of the Santa Ana River bottom in the JSA.

Soils. The Soil Survey of Orange County and Western Part of Riverside County, California, describes the soils expected to be found within the section of the JSA pertaining to the Santa Ana River as *Corralitos loamy sand* and *Riverwash*.

The Corralitos series consists of deep, somewhat excessively drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. These soils are found on alluvial fans and in small valleys at elevations of 25 to 1,000 ft. Corralitos soils have slow runoff and rapid permeability, with some areas subject to localized flooding and deposition. These soils are typically used for range; dryland crops; urban development; and truck crops, alfalfa, citrus, and other fruits under irrigation. Uncultivated areas have a cover of annual grasses, forbs, coyote bush, other shrubs, and a few live oak trees. Corralitos loamy sand occurs under the northwestern portion of Yorba Linda Boulevard, partially within the riverbed.

Riverwash is identified as a hydric soil on the NRCS list of hydric soils and consists of areas of unconsolidated alluvium, generally stratified and varying widely in texture, recently deposited by intermittent streams, and subject to frequent changes through stream overflow. These sandy, gravelly, cobbly, and bouldery deposits support little or no vegetation. Runoff is generally rapid, and erosion hazard is high. Riverwash has little to no agricultural value; however, it does have beneficial functions and values when associated with watercourses, ground water recharge, sand and gravel pits, and wildlife habitat. Riverwash occurs within the Santa Ana River riverbed and extends toward Savi Ranch Parkway within the project footprint.

Sample pits 1, 2, 5, 8, 9, and 10 were excavated within the fluvial terrace adjacent to the open water and intermittent portions of the Santa Ana River (Figure 3). Soils at Sample Pit 2 were composed of fine sand above loamy fine sand that exhibited sandy redox features. At Sample Pit 5, the soil was composed of sandy loam, sand, and sandy clay loam and exhibited a hydrogen sulfide odor. Soil at Sample Pit 9 was composed of sand and sandy clay loam and also exhibited a hydrogen sulfide odor. Sample Pits 1, 8, and 10 did not exhibit typical hydric-soil indicators. While Sample Pit 10 had soil color occurring on the Gley color page (Munsell Color 2000), it did not meet standards to be considered a gleyed matrix (the value was less than 4). Following the procedure to identify problematic hydric soils detailed in the Regional Supplement, Sample Pits 1, 8, and 10 were determined to have problematic hydric soils. Strong indicators of hydrophytic vegetation and wetland hydrology, particularly saturation, were noted at each of these Sample Pits. The landscape

setting, a floodplain, is appropriate for problematic hydric soils. Soils were considered to be hydric based on evidence that these areas are vegetated sand and gravel bars in a fluvial setting. Please refer to the attached wetland determination data forms for more detailed information about each soil pit (Appendix B).

Nonwetland Waters of the United States

The Santa Ana River has a perceptible OHWM, as well as other visible indicators of hydrology, and conveys flows to the Pacific Ocean (a TNW). The OHWM was determined primarily from a well-defined horizontal watermark/stain visible on the concrete support structure for the bridge. Therefore, the portions of the Santa Ana River that are below this OHWM and do not satisfy all three wetland criteria are classified as nonwetland WOTUS. These areas are shown on Figure 3. The channelized tributary to the Santa Ana River is also considered nonwetland WOTUS (Figure 3).

California Department of Fish and Wildlife Jurisdiction

Jurisdictional Streambeds

The Santa Ana River is an earthen streambed with the banks fortified with riprap to protect against flood flows. The Santa Ana River is defined by the presence of a channel bed and banks and a perennial flow of water in at least a portion of the river. There was flowing water in the river at the time of the fieldwork. The jurisdictional portion of the river within the JSA was measured from bank to bank. The channelized tributary to the Santa Ana River was also measured from bank to bank. Associated riparian vegetation was mapped, although no areas of riparian vegetation extend past the channel banks (Figure 4).

CONCLUSIONS

The following conclusions are based on the observations of trained and experienced wetlands and jurisdictional delineators. The conclusions are based on the application of pertinent manuals, regulations, and guidance to the conditions observed within the JSA. The conclusions are subject to verification by USACE and CDFW (i.e., regulatory agencies). Potentially jurisdictional areas are represented below.

United States Army Corps of Engineers Jurisdiction

The Santa Ana River is subject to potential USACE jurisdiction pursuant to Section 404 of the CWA. This river exhibits an OHWM, conveys perennial flows, and has a direct nexus to the Pacific Ocean (a TNW); therefore, Drainage 1 (Santa Ana River) and its tributary would be considered a water of the United States. Some WOTUS meet the wetland criteria, and the rest do not. Table B provides a breakdown of the area that is subject to potential USACE jurisdiction within the JSA.

Table B: Total United States Army Corps of Engineers Jurisdictional Areas within the Jurisdictional Study Area

Drainage ID	Nonwetland WOTUS (ac)	Wetland WOTUS (ac)	Total USACE Jurisdiction (ac)
Drainage 1 (Santa Ana River)	1.33	0.92	2.25

Note: Totals are rounded to two decimal places.
ac = acre/acres
USACE = United States Army Corps of Engineers
WOTUS = waters of the United States

California Department of Fish and Wildlife Jurisdiction

CDFW jurisdiction in the JSA is associated with Drainage 1 and the channelized tributary. This feature is defined by a channel bed and bank with some associated riparian vegetation. Riparian vegetation does not extend past the channel banks. Therefore, Drainage 1 would be subject to potential CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. Table C provides a quantitative summary of the CDFW jurisdictional areas within the JSA.

Table C: Total California Department of Fish and Wildlife Jurisdictional Areas within the Jurisdictional Study Area

Drainage ID	Jurisdictional Streambed (ac)	Riparian Vegetation in Streambed (ac)	Total CDFW Jurisdiction (ac)
Drainage 1 (Santa Ana River)	2.95	1.27	4.22

Note: Totals are rounded to two decimal places.
ac = acre/acres
CDFW = California Department of Fish and Wildlife

Regional Water Quality Control Board Jurisdiction

The State Water Resources Control Board (State Water Board) adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: (1) a wetland definition; (2) a framework for determining if a feature that meets the wetland definition is a water of the State; (3) wetland delineation procedures; and (4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

The State Water Board adopted the Procedures to address several important issues. There is need to strengthen protection of waters of the State that are no longer protected under the CWA due to United States Supreme Court decisions, since the RWQCBs have historically relied on CWA protections in dredged or fill discharge permitting practices. Second, there is inconsistency across the RWQCBs in requirements for discharges of dredged or fill material into waters of the State, including wetlands. There is no single accepted definition of wetlands at the State level, and the RWQCBs may have different requirements and levels of analysis with regard to the issuance of water quality certifications. Finally, current regulations have not been adequate to prevent losses in the quantity and quality of wetlands in California, where there have been especially profound historical losses of wetlands.

The Procedures, formerly known as the Wetland Riparian Area Protection Policy (State Water Resources Control Board 2019), have been renamed in order to communicate that the Procedures apply to all discharges of dredged or fill material to waters of the State, not just wetlands.

The newly adopted State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State will become effective on May 28, 2020. Until that date (e.g., for applications submitted prior to that date), RWQCB jurisdiction is considered coincident with USACE jurisdiction for purposes of Section 401 certification. The RWQCB also takes jurisdiction over waters of the State (which are not under USACE jurisdiction) under the Porter-Cologne Water Quality Control Act.

Disclaimer

The findings and conclusions presented in this report, including the locations and extents of wetlands and other waters subject to regulatory jurisdiction (or lack thereof), represent the professional opinion of LSA. These findings and conclusions should be considered preliminary until verified by the appropriate regulatory agencies.

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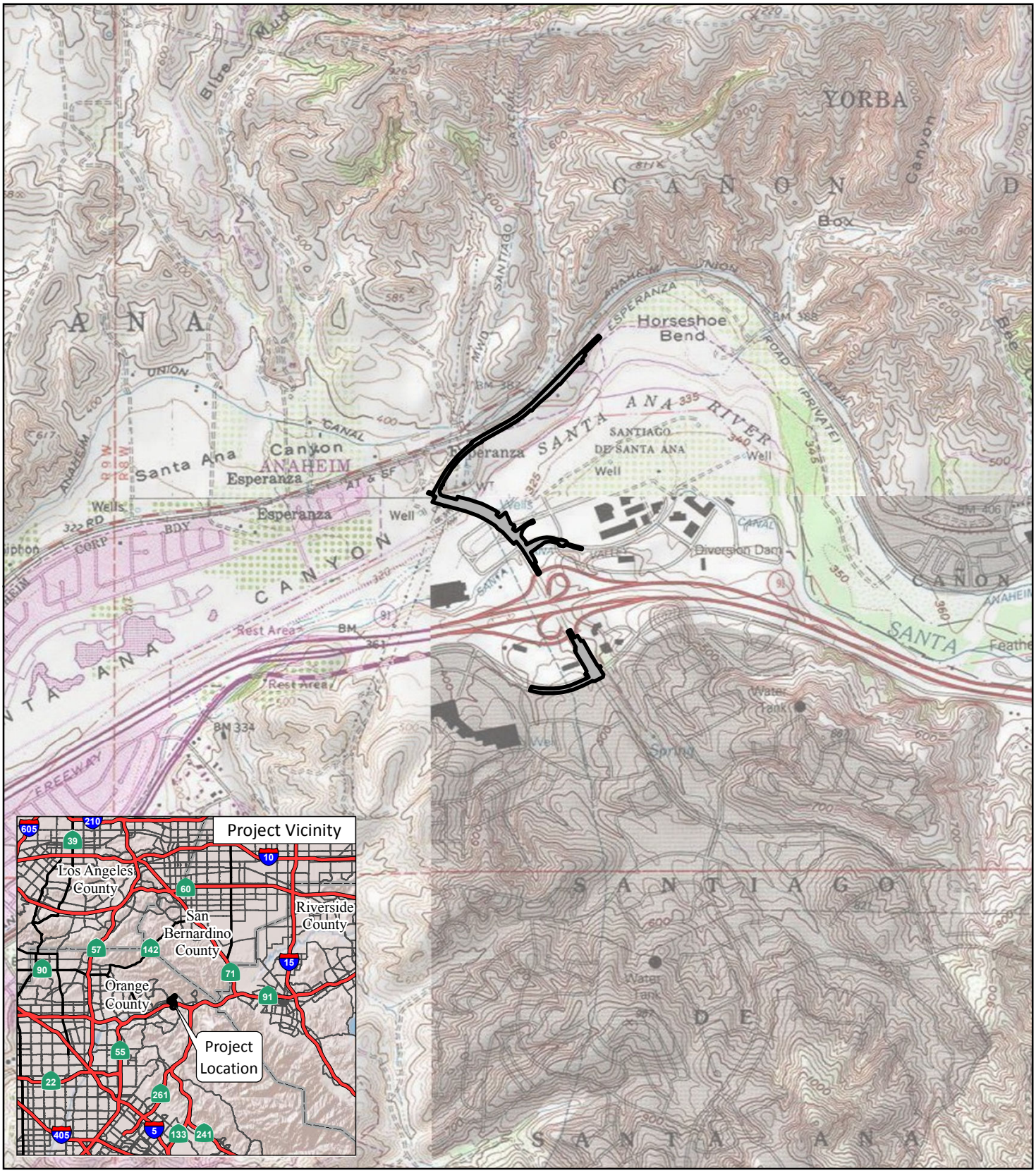
APPENDIX A

FIGURES



LSA

LEGEND

Project Limits

FIGURE 1

N

0 1000 2000

FEET

Yorba Linda Boulevard Widening Project

Project Location

SOURCE: USGS 7.5' Quads: Black Star Canyon (1988), Prado Dam (1981), CA

I:\HNT1901\GIS\MXD\ProjLoc_YorbaLinda.mxd (12/17/2019)

LSA

LEGEND

Jurisdictional Delineation Study Area

FIGURE 2

N

0 350 700

FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\JD_StudyArea.mxd (12/17/2019)

Yorba Linda Boulevard Widening Project

Jurisdictional Study Area

LSA

LEGEND

Jurisdictional Delineation Study Area

Project LImits

Sample Pits

USACE 404 Jurisdiction

Wetland Waters of the U.S.

Nonwetland Waters of the U.S.

0 40 80

FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\JD_USACE.mxd (12/17/2019)

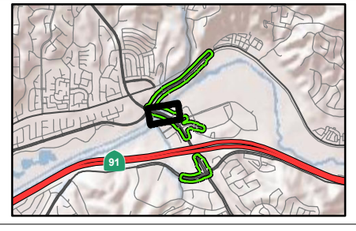
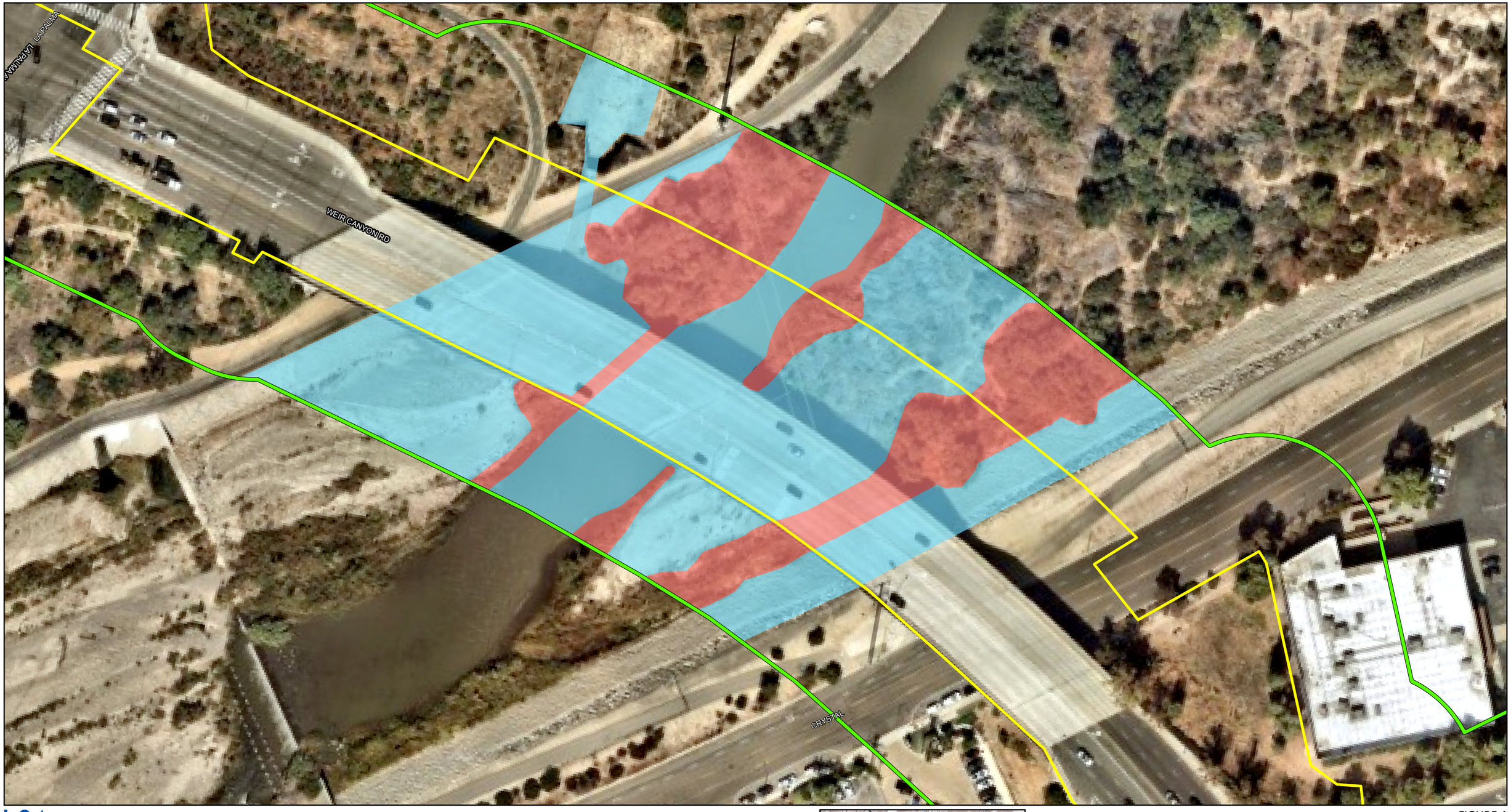


FIGURE 3

Yorba Linda Boulevard Widening Project

USACE 404 Jurisdictional Waters of the U.S.



LSA

LEGEND

Jurisdictional Delineation Study Area

Project LImits

CDFW 1602 Jurisdiction

Jurisdictional Streambed

Riparian Vegetation in Streambed

0 40 80

FEET

SOURCE: Nearmap (9/23/19)

I:\HNT1901\GIS\MXD\JD_CDFW.mxd (12/17/2019)

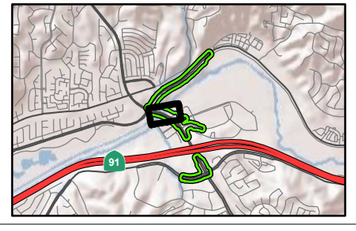


FIGURE 4

Yorba Linda Boulevard Widening Project

CDFW 1602 Jurisdictional Waters

View of the Santa Ana River looking east from the Yorba Linda Boulevard bridge. November 7, 2019.

View of the Santa Ana River looking west from the Yorba Linda Boulevard bridge. November 7, 2019.

View of the tributary looking north from the Yorba Linda Boulevard bridge. November 7, 2019.

View of waters and wetland areas looking north toward the downstream side of the Yorba Linda Boulevard bridge. November 7, 2019.

LSA

FIGURE 5
Sheet 1 of 3

Yorba Linda Boulevard
Jurisdictional Delineation Report
Representative Site Photographs

I:\HNT1901.02\G\RepresentativeSitePhotos.cdr (12/12/2019)

View of the ordinary high-water mark east of Yorba Linda boulevard, facing west. November 7, 2019.

Water marks on the pier wall, showing the ordinary high-water mark. November 7, 2019.

Sediment deposits showing the ordinary high-water mark. November 7, 2019.

Sample Pit 1; soil type is coarse sand to cobble. The pit was dug in a problematic area. November 7, 2019.

LSA

FIGURE 5
Sheet 2 of 3

Yorba Linda Boulevard
Jurisdictional Delineation Report
Representative Site Photographs

I:\HNT1901.02\G\RepresentativeSitePhotos.cdr (12/12/2019)

Sample Pit 2; soil type is sand to loamy fine sand, with sandy redox features present. November 7, 2019.

Sample Pit 5; soil type is sand to sandy clay loam and exhibited a hydrogen sulfide odor. Water table is present. November 7, 2019.

Sample Pit 9; soil type is sand to sandy clay loam and exhibited a hydrogen sulfide odor. Water table is present. November 7, 2019.

Sample Pit 10; soil type is coarse sand and clay. The pit was dug in a problematic area. November 7, 2019.

LSA

FIGURE 5
Sheet 3 of 3

Yorba Linda Boulevard
Jurisdictional Delineation Report
Representative Site Photographs

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APPENDIX B

WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 1

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Convex | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.8742649 | Long: -117.7488607 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: L2USCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	2	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum			
1. *Pulicaria paludosa*	10	Yes	FAC
2. *Cyperus eragrostis*	2	No	FACW
3. *Xanthium strumarium*	5	No	FAC
4. *Persicaria lapathifolia*	10	Yes	FACW
5.			
6.			
7.			
8.			
Total Cover:	27 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 73 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	12	x 2 =	24
FAC species	17	x 3 =	51
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	29 (A)		75 (B)

Prevalence Index = B/A = 2.59

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16		100					Sand	Coarse sand - cobble

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: NRCS mapped this section as Riverwash, which is a hydric soil. Because there are strong indicators of hydrophytic vegetation and hydrology (saturation), soils at this sample pit were determined to be hydric even though they lack typical indicators. Soils are on vegetated sand and gravel bar within a floodplain.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 2

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.8745385 | Long: -117.7480175 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	70	Yes	FACW
2.			
3.			
4.			
Total Cover:	70 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	20	Yes	FAC
2. *Conium maculatum*	5	No	FACW
3. *Hirschfeldia incana*	25	Yes	Not Listed
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Pulicaria paludosa*	2	Yes	FAC
2. *Artemisia douglasiana*	1	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	3 %		
Woody Vine Stratum			
1. *Vitis girdiana*	2	Yes	FACU
2.			
Total Cover:	2 %		

% Bare Ground in Herb Stratum 10 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	0
FACW species	75	x 2 =	150
FAC species	23	x 3 =	69
FACU species	2	x 4 =	8
UPL species	25	x 5 =	125
Column Totals:	125 (A)		352 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6		100					Sand	Fine sand
6-16	2.5Y5/2	75	2.5Y5/6	25	C	M	Loamy fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 3

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Convex | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.8746649 | Long: -117.7480316 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. *Hirschfeldia incana*	90	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	90 %		
Herb Stratum			
1. *Ambrosia acanthicarpa*	1	Yes	Not Listed
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	1 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 50 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	91	x 5 =	455
Column Totals:	91 (A)		455 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8		100					Sand	Fine sand
8-16	2.5Y5/3	75	2.5Y5/6	25	C	M	Loamy fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Redox features present, but not within upper 6 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 4

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Convex | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.8747484 | Long: -117.7483850 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Arundo donax*	90	Yes	FACW
2.			
3.			
4.			
Total Cover:	90 %		
Sapling/Shrub Stratum			
1. *Hirschfeldia incana*	40	Yes	Not Listed
2. *Urtica dioica*	5	Yes	FAC
3.			
4.			
5.			
Total Cover:	45 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	[illegible]	x 1 =	0
FACW species	90	x 2 =	180
FAC species	5	x 3 =	15
FACU species	[illegible]	x 4 =	0
UPL species	40	x 5 =	200
Column Totals:	135 (A)		395 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-16		100					Sand	Coarse sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: NRCS mapped this section as Riverwash, which is a hydric soil. However, no indicators of hydric soil were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 5

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Convex | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.8741922 | Long: -117.7484648 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: L2USCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. *Xanthium strumarium*	10	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Pulicaria paludosa*	5	Yes	FAC
2. *Persicaria lapathifolia*	60	Yes	FACW
3. *Cyperus eragrostis*	2	No	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	67 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 5 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	62	x 2 =	124
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	77 (A)		169 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR2/2	100					Sandy loam	
9-16	Gley2.5/N	90					Sand	
	10YR2/2	10					Sand	
15-16	Gley2.5/N	100					Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☒ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 6

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.874230 | Long: -117.748529 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: L2USCh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0 %		
Herb Stratum			
1. *Erigeron canadensis*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	10 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 90 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	10 (A)		40 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16		100					Sand	Coarse sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: NRCS mapped this section as Riverwash, which is a hydric soil. However, no indicators of hydric soil were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 7

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.8747955 | Long: -117.7488856 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: L2UBHh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	70	Yes	FACW
2.			
3.			
4.			
Total Cover:	70 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Typha sp.*	50	Yes	OBL
2. *Artemisia douglasiana*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	55 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 40 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	70	x 2 =	140
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	125 (A)		205 (B)

Prevalence Index = B/A = 1.64

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR2/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: NRCS mapped this section as Riverwash, which is a hydric soil. However, no indicators of hydric soil were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water marks and drift deposits are indicative of an extraordinary event, not ordinary. Based on analysis of height above water table (~3 ft) and historical aerials, this area is not often inundated/saturated and would not meet the indicator of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 8

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.8746556 | Long: -117.7489734 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: L2UBHh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. *Typha sp.*	80	Yes	OBL
2. *Urtica dioica*	2	Yes	FAC
3. *Salix lasiolepis*	2	Yes	FACW
4. *Baccharis salicifolia*	2	Yes	FAC
5.			
Total Cover:	86 %		
Herb Stratum			
1. *Pulicaria paludosa*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 40 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	2	x 2 =	4
FAC species	9	x 3 =	27
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	91 (A)		111 (B)

Prevalence Index = B/A = 1.22

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	10YR2/2	100					Loamy sand	Live roots present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: NRCS mapped this section as Riverwash, which is a hydric soil. Because there are strong indicators of hydrophytic vegetation and hydrology (saturation), soils at this sample pit were determined to be hydric even though they lack typical indicators. Soils are on vegetated sand and gravel bar within a floodplain.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening | City/County: Yorba Linda | Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda | State: CA | Sampling Point: 9

Investigator(s): Jessica Lieuw, Bo Gould | Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 33.874620 | Long: -117.748953 | Datum: WGS84

Soil Map Unit Name: Riverwash | NWI classification: L2UBHh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	* %		
Sapling/Shrub Stratum			
1. *Typha sp.*	80	Yes	OBL
2. *Urtica dioica*	2	Yes	FAC
3. *Salix lasiolepis*	2	Yes	FACW
4. *Baccharis salicifolia*	2	Yes	FAC
5.			
Total Cover:	86 %		
Herb Stratum			
1. *Pulicaria paludosa*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	* %		

% Bare Ground in Herb Stratum 40 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	2	x 2 =	4
FAC species	9	x 3 =	27
FACU species	*	x 4 =	0
UPL species	*	x 5 =	0
Column Totals:	91 (A)		111 (B)

Prevalence Index = B/A = 1.22

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8		100					Sand	
8-16	Gley2.5/N	60					Sandy clay loam	
	2.5Y5/3	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 3 in.

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Yorba Linda Boulevard Widening City/County: Yorba Linda Sampling Date: 11/7/2019

Applicant/Owner: City of Yorba Linda State: CA Sampling Point: 10

Investigator(s): Jessica Lieuw, Bo Gould Section, Township, Range: S29, T3S, R8W

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 33.8744829 Long: -117.7490958 Datum: WGS84

Soil Map Unit Name: Riverwash NWI classification: L2UBHh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0 %		
Sapling/Shrub Stratum			
1. *Tamarix sp.*	5	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Pulicaria paludosa*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	0 %		

% Bare Ground in Herb Stratum 90 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	10 (A)		30 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8		100					Sand	Coarse sand
8-16	Gley2.5/N	60					Clay	
	2.5Y5/3	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: NRCS mapped this section as Riverwash, which is a hydric soil. Because there are strong indicators of hydrophytic vegetation and hydrology (saturation), soils at this sample pit were determined to be hydric even though they lack typical indicators. Soils are on vegetated sand and gravel bar within a floodplain.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: