BIOLOGICAL RESOURCES ASSESSMENT

CANNON STREET WIDENING PROJECT

ORANGE, ORANGE COUNTY, CALIFORNIA



LSA

April 2024

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Project No. 20230893

LSA

April 2024

EXECUTIVE SUMMARY

The City of Orange (City) retained LSA to conduct a Biological Resources Assessment (BRA) for the Cannon Street Widening Project (proposed project), which consists of approximately 9.79 acres along Cannon Street located between Santiago Canyon Road and Serrano Avenue in the City of Orange, Orange County, California. Additionally, a 300-foot buffer was established from the impact limits to evaluate additional biological resources that may be disturbed or impacted as a result of project activities. This buffer area will be referred to as the biological study area (BSA). The proposed project will widen the roadway to accommodate a third northbound lane from approximately 500 feet north of Santiago Canyon Road to Serrano Avenue where it will join the existing dedicated right-turn lane to eastbound Serrano Avenue. As such, this additional lane will function as an auxiliary lane to improve traffic operations. South of Santiago Creek, additional pavement will be constructed to the east to widen the roadway to meet standard horizontal curve radii. North of Santiago Creek, the roadway will be widened to the west by approximately 6 feet. In the southbound direction, bicyclists and pedestrians will cross Santiago Creek on a new bridge just west of the existing vehicular bridge. The new bridge will clear span the creek and is expected to consist of a prefabricated steel truss, approximately 170 feet long and 12 feet wide. The new bridge will carry two-way traffic for pedestrians and southbound traffic for bicyclists. Existing pavement delineation will be reconfigured, and portions of the painted median will be replaced with a raised landscaped median. A traffic signal modification is required at Taft Avenue.

The results of the general biological study are summarized below.

- The project would have no effects on critical habitats.

- The project limits do not contain wildlife corridors or nursery sites. A disturbed natural community of concern, Southern Cottonwood Willow Riparian Forest, was identified within Santiago Creek Channel. The woodland does not meet the criteria for S1-S3 ranking due to the species composition, but it is jurisdictional for the California Department of Fish and Wildlife (CDFW).

- A total of 0.026 acre of permanent direct impacts to disturbed Southern Cottonwood Willow Riparian Forest would occur as part of the project. Permanent vegetation removal and/or grubbing would occur with project implementation; therefore, compensatory mitigation is required.

- Under the County of Orange Zoning Code (Section 7-9-69.4), a Tree Preservation Permit application shall be required and submitted to Orange County Development Services prior to removal of any Protected Tree or obtained prior to any encroachment into the Tree Protection Zone. The application, as a whole, will be reviewed and approved by the Deputy Director of Orange County Development Services.

- Under the City of Orange Tree Preservation Ordinance, a permit must be granted by the Director of Community Services prior to the removal of any trees or historical trees. “Tree” means any live plant which has a single trunk measuring 10.5 inches in circumference, measured at a point

24 inches above the ground level. "Historical trees" are those which by virtue of their origin, size, uniqueness and/or national or regional rarity are now or are likely to be of historical value, which are included on a master list that was compiled and maintained by the Community Services Department. Multiple ornamental trees are proposed for removal along Cannon Street which fall under the City's tree preservation ordinance.

- A single coast live oak tree is within a temporary impact area associated with a proposed lay-down yard and construction staging area. LSA recommends protecting the coast live oak tree, avoiding encroachment into the Tree Protection Zone, including trimming, pruning.

- Species-status plant species identified within the regulatory database were not observed during the field surveys and none has higher than a low probability to occur within the project limits due to habitat suitability requirements; therefore, the project would have no effect on federally-listed endangered plant species.

- The project limits provide suitable habitats for nesting birds protected under the California Fish and Game Code and the Migratory Bird Treaty Act. A pre-construction survey is recommended to avoid project effects on nesting birds between February 1 and August 31.

- Two special-status wildlife species were observed during the field survey and include yellow warbler (*Setophagia petechia*) and least Bell's vireo (*Vireo bellii pusillus*) a federal and State listed endangered species. Should project related construction activities (e.g., removal of equipment) occur March 15 to August 31, focused surveys for least Bell's vireo shall be conducted and will follow the 2001 *United States Fish and Wildlife Survey Guidelines*.

- Least Bell's vireo falls under the "May Affect, but Not Likely to Adversely Affect" designation as defined in the Federal Endangered Species Act (FESA) Section 7(a)(2) due to permanent impacts to suitable southern cottonwood-willow riparian forest habitat. Therefore, a Federal consultation between the City and the USFWS is expected due to the modification of suitable habitat for least Bell's vireo, as currently planned and designed.

- The project limits provide limited suitable coastal sage scrub habitat and riparian woodland habitat for southern California legless lizard (*Anniella stebbinsi).* Should construction activities take place from September through November, a qualified biologist will conduct pre-construction surveys for California legless lizards no more than 48 hours before initial grading and/or ground-disturbing activities in or near areas of sandy, friable soil.

- The project limits have suitable bat habitat in the form of large trees and the Cannon Street bridge. It is recommended to avoid any tree and bridge work during April–August. If any tree or bridge work must be done during that time, a nocturnal emergence survey should be done to verify whether any bats are present by a qualified biologist prior to any work.

- Permanent and temporary impacts to Santiago Creek within the project limits are anticipated. The feature is subject to jurisdiction by the California Department of Fish and Wildlife (CDFW) and/or the United States Army Corps of Engineers (USACE), and the Regional Water Quality Control Board (RWQCB). Clean Water Act (CWA) Section 404 and 401 permits, and a CDFW

Streambed Alteration Agreement are required. A second feature, an unnamed tributary to Santiago Creek was delineated within the project limits; however, no permanent or temporary impacts to this feature are anticipated with implementation of the proposed project.

- The western portion of the project limits are within the County of Orange Central/Coastal Natural Community Conservation Plan (NCCP) Reserve System. No impacts to coastal sage scrub proposed during project activities; however, the proposed project would permanently impact 0.026 acre of disturbed southwestern cottonwood-willow riparian forest within wetland/ riparian habitat within the Reserve System, which is not considered mitigated by the NCCP. As recommended under the Jurisdictional Waters section, separate CWA Section 404 and 401 permits, and a CDFW Streambed Alteration Agreement are required.

- The project will not conflict with any other local policies or ordinances.

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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
BIOS	Biogeographic Information and Observation System
BRA	Biological Resources Assessment
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CE	Candidate Endangered
CESA	California Endangered Species Act
CFP	California Fully Protected
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSA	California Special Animal
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DBH	Diameter at Breast Height
FE	Federally Endangered
FESA	Federal Endangered Species Act
FT	Federally Threatened
HCS	Orange County Habitat Classification System
IPaC	Information for Planning and Consultation
JDSA	jurisdictional delineation study area
NCCP/HCP	Orange County Central-Coastal Natural Community Conservation Plan/Habitat Conservation Plan
NRCS	Natural Resources Conservation Service
Project	Cannon Street Widening Project
RWQCB	Regional Water Quality Control Board
SA	Special Animal
Sackett	*Sackett v. Environmental Protection Agency*
SSC	Species of Special Concern
SWRCB	State Water Resources Control Board
TCA	Transportation Corridor Agencies

USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOTS	Waters of the State
WOTUS	Waters of the United States

BIOLOGICAL RESOURCES ASSESSMENT
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INTRODUCTION

The City of Orange (City) retained LSA to conduct a Biological Resources Assessment (BRA) for the Cannon Street Widening Project (proposed project), which consists of approximately 9.79 acres along Cannon Street located between Santiago Canyon Road and Serrano Avenue in the City of Orange, Orange County, California. Additionally, a 300-foot buffer was established from the impact limits to evaluate additional biological resources that may be disturbed or impacted as a result of project activities. This buffer area will be referred to as the Biological Study Area (BSA). The proposed project will widen the roadway to accommodate a third northbound lane from approximately 500 feet north of Santiago Canyon Road to Serrano Avenue where it will join the existing dedicated right-turn lane to eastbound Serrano Avenue. As such, this additional lane will function as an auxiliary lane to improve traffic operations. South of Santiago Creek, additional pavement will be constructed to the east to widen the roadway to meet standard horizontal curve radii. North of Santiago Creek, the roadway will be widened to the west by approximately 6 feet. In the southbound direction, bicyclists and pedestrians will cross Santiago Creek on a new bridge just west of the existing vehicular bridge. The new bridge will clear span the creek and is expected to consist of a prefabricated steel truss, approximately 170 feet long and 12 feet wide. The new bridge will carry two-way traffic for pedestrians and southbound traffic for bicyclists. Existing pavement delineation will be reconfigured, and portions of the painted median will be replaced with a raised landscaped median. A traffic signal modification is required at Taft Avenue (see Figure 1; all figures are provided in Appendix A).

Project Limits Description

The project limits consist of Cannon Street between Santiago Canyon Road and Serrano Avenue in Orange, Orange County, California, as depicted on the United States Geological Survey (USGS) *Orange, California* 7.5-minute series topographic quadrangle map in Section 14 and 23, Township 4 South, and Range 9 West, San Bernardino Baseline and Meridian. The elevation within the project limits ranges from 360 to 465 feet above mean sea level (USGS 2022). The limits are bordered in the northern portion by single-family residential development, in the central portion by Santiago Creek, undeveloped land to the east and west, and to the south by Santiago Canyon Road followed by single-family residential development. The project limits consisted of undeveloped land and agricultural operations through at least 1972, when Cannon Street was developed. By 1980, the project limits and BSA were developed to their current configuration. The area surrounding the project limits to the north and south consists of relatively developed lands, consisting of low-density, rural residential use, where the areas to the immediate east and west of the southern portion are undeveloped lands.

METHODS

Literature Review

LSA conducted a literature review to assist in determining the existence or potential occurrence of special-status plant and animal species within a 3-mile radius of the project limits. A 7-quadrangle database records search for the *Anaheim*, *Orange, Yorba Linda, Prado Dam, Black Star Canyon, El Toro,* and *Tustin, California* USGS 7.5-minute quadrangles was accessed on May 4, 2023 (USGS 2022). Rare plant and animal data were reviewed in the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) application Rarefind 5 online edition (version 5) (CDFW 2023) and the United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) (USFWS 2019a). Habitat connectivity and wildlife corridors were determined using the CDFW Biogeographic Information and Observation System (BIOS) application online (version 6) (CDFW 2023). The USFWS listed species and designated critical habitat information were searched using the USFWS IPaC system (USFWS 2019a). The California Native Plant Society (CNPS) Rare Plant Program online edition (CNPS 2023) Rare Plant Inventory was searched to determine the probability of additional listed plant species. Aerial photographs (Google Earth 2023) were also reviewed. Wetland resources including riparian corridors were determined using the USFWS Wetlands Mapper online edition (USFWS 2021). Soil types were determined using the Natural Resources Conservation Service WebSoil Survey (NRCS n.d.).

Reconnaissance Field Survey

LSA Biologist Jeremy Rosenthal conducted a general reconnaissance-level, pedestrian field survey on May 3 and 18, 2023, between the hours of 9:00 a.m. and 1:30 p.m., and between 10:00 a.m. to 12:00 p.m., respectively. Weather conditions during both surveys ranged from 40 to 60 percent cloud cover with temperatures ranging from 55–65°F, and light winds. Mr. Rosenthal recorded observations on general site conditions, vegetation, and suitability of habitat for various special-status elements. Plant and animal species observed or otherwise detected are listed in Appendix B. The reconnaissance field survey was conducted in conjunction with a jurisdictional delineation. Additional jurisdictional delineation field work was conducted on May 18 and 19, 2023, as described below.

The 9.79-acre project limits and additional 300-foot buffer was the focus of the surveys. A 300-foot buffer around the project site was used to map vegetation/land cover using public access points and/or advantageous viewpoints. Access to adjacent private parcels within the 300-foot buffer was restricted due to a lack of permission to enter.

Jurisdictional Delineation

LSA Biologist Jeremy Rosenthal conducted the jurisdictional delineation on May 3, 2023. A subsequent field visit was conducted on May 18 and 19, 2023, by Mr. Rosenthal and LSA Biologist Heather Monteleone. They visually surveyed the jurisdictional delineation study area (JDSA) on foot. All drainage features within the JDSA were evaluated according to the most current federal and/or State regulatory criteria and guidance and mapped using aerial photographs. This included the State wetland definition and delineation procedures enacted by the State Water Resources Control Board (SWRCB) and the United States Army Corps of Engineers (USACE) regulations pertaining to

jurisdictional waters of the United States, which are consistent with the 2013 Waters of the United States (WOTUS) ruling and the May 25, 2023 Supreme Court decision of *Sackett v. Environmental Protection Agency* where the U.S. Supreme Court ruled that the Clean Water Act extends only to wetlands that have a continuous surface connection with "waters" of the United States. In addition, Mr. Rosenthal and Ms. Monteleone noted and photographed the general conditions and characteristics associated with each drainage feature.

The boundaries of drainage features observed within the JDSA during the fieldwork were mapped on a recent, high-resolution aerial photograph (at a scale of 1 inch = 100 feet) showing the JDSA. The widths and lengths of these drainage features mapped during the field investigation were determined by a combination of direct measurements taken in the field and measurements taken from the aerial photographs. Features within the JDSA that are generally excluded from federal and/or State jurisdiction under current regulatory definitions and guidance were evaluated and mapped as "non-jurisdictional features." Because Santiago Creek, the primary feature within the JDSA exhibited characteristics indicative of wetlands (e.g., areas dominated by hydrophytic vegetation or hydric soils), wetland delineation procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Regional Supplement) (USACE 2008) and adopted by the SWRCB were implemented.

RESULTS

Existing Project Limits Conditions

The project limits are bordered in the northern portion by single-family residential development, in the central portion by Santiago Creek and undeveloped land, and to the south by Santiago Canyon Road followed by single-family residential development. The area surrounding the project limits to the north and south consists of relatively developed lands, consisting of low-density, rural residential use, where the areas to the immediate east and west of the southern portion are undeveloped lands.

Based on a review of historic aerial photographs and topographic maps of the project limits extending back to the mid-1960s (NETR 2023), the project limits consisted of undeveloped land and agricultural operations through at least 1972, when Cannon Street was developed. By 1980, the project site was developed with the existing conditions. The project limits have remained relatively unchanged through the present.

The following discusses topography and soils, vegetation, and wildlife within the project limits.

Topography and Soils

The majority of the topography within the BSA is gently undulating, with the exception of Santiago Creek, which is a channelized natural drainage within the BSA that is generally sloping to the west. Elevations in the BSA range from 360 to 465 feet above mean sea level.

Four soil types are mapped within the project limits and are consistent with Botella clay loam, 2 to 9 percent slopes, pits, Soboba gravelly loamy sand, 0 to 9 percent slopes, and Sorrento loam, 2 to 9 percent

slopes (USDA 2019) (see Table A and Figure 2). None of these mapped soils are considered hydric soils. Drainage classes range from well drained to excessively drained soils (NRCS n.d.).

Table A: Mapped Soils Classifications

Soil	Drainage Class	Frequency of Flooding	Frequency of Ponding	Hydric Soil Rating
Botella clay loam, 2 to 9 percent slopes	Well drained	None	None	No
Pits	-	-	-	No
Soboba gravelly loamy sand, 0 to 9 percent slopes	Excessively drained	None	None	No
Sorrento loam, 2 to 9 percent slopes	Well drained	None	None	No

Source: Web Soil Survey (United States Department of Agriculture 2019).

The existing soils are compacted in the northern portion of the project limits, which is consistent with previous land uses. The soils in the southern portion of the project limits are relatively undisturbed.

Vegetation Communities and Land Cover

Descriptions of the vegetation and land cover types mapped within the BSA are provided below (Table B). Vegetation communities were mapped using classifications defined by the using the Orange County Habitat Classification System (HCS) as articulated by Jones & Stokes Associates, Inc., for the Orange County Central-Coastal Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP).[1] The dominant vegetation community within the project limits is mixed scrub, which was dominated by the following plant species: California sagebrush (*Artemisia californica*), and California encelia (*Encelia californica*).

Table B: Mapped Vegetation/Land Cover Classifications

Vegetation/Land Cover	Project Acres
Mixed Scrub	2.75
Sagebrush Scrub	0.04
Southern Cactus Scrub	0.07
Toyon-Sumac Chaparral	0.22
Mulefat Scrub	0.01
Urban and Commercial	42.7
Ornamental Landscaping	1.67
Disturbed or Barren	12.7
Disturbed Mixed Scrub	0.92
Disturbed Cottonwood-Willow Riparian Forest	1.47
Eucalyptus Groves	1.35
Peppertree Groves	0.34
Total	**64.4**[1]

Source: Compilation from field surveys conducted by LSA on May 3 and 18, 2023.

[1] Includes the project impact limits and the 300-foot buffer biological study area as well as 0.12 acre of individual trees and poison oak (discussed below) not considered as vegetation communities within the Jones and Stokes methodology.

[1] Jones & Stokes Associates, Inc. 1993. *Methods Used to Survey the Vegetation of Orange County Parks and Open Space Areas and The Irvine Company Property.* February 10.

Scrub. Scrub vegetation consists of drought-deciduous, low-growing, soft-leaved shrubs and herbs, and is often gray-green. It occupies gentle to steep slopes and occurs most often in shallow or heavy soils at elevations below 3,000 feet. Scrub habitat boundaries with grassland or scrub-grassland ecotone/sere are delineated where shrubs exceeded 20 percent cover. Scrub habitat is characterized by 80 percent or greater relative shrub cover by scrub species where the community intergraded with chaparral.

Mixed Scrub (2.75 acres). Mixed sage scrub is dominated by an even mix of each of four or more sage scrub species. Species that may make up mixed scrub are California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), white sage (*Salvia apium*), California encelia, laurel sumac (*Malosma laurina*), bush monkey flower (*Diplacus aurantiacus*), and coastal prickly pear (*Opuntia littoralis*).

Mixed sage scrub is found on the southwestern portion of the BSA, outside of the proposed impact limits but within the 300-foot buffer area.

Sagebrush Scrub (0.04 acre). Sagebrush scrub is almost exclusively dominated by California sagebrush and is usually found on mesic slopes. It usually occurs as small patches within grasslands or with other sage scrub subtypes that support California sagebrush as a codominant. Sagebrush scrub is an upland habitat type and, within the BSA, is found primarily on the upper terraces of Santiago Creek, well away from the main stream course.

Sagebrush scrub is not a prevalent habitat type within the BSA; however, there is a small patch of sagebrush scrub within the southern portion of the BSA near Santiago Canyon Road.

Southern Cactus Scrub (0.07 acre). Southern cactus scrub contains large stands of coastal prickly pear with at least 20 percent relative cover by cactus. Other co-dominants or subdominants include California encelia, California sagebrush, California buckwheat, black sage, and Mexican elderberry (*Sambucus nigra* ssp. *caerulea*). It occurs primarily on south-facing slopes of low foothills. This community differs little in vegetative composition from, and integrates with, sagebrush and sage scrub habitat types. Southern cactus scrub is not a prevalent habitat type within the BSA but is found to the northeast of Santiago Creek and near the southwestern portion of the BSA.

Chaparral. Chaparral habitat occurs where more than 50 percent of the shrub cover is composed of characteristic chaparral shrub species. Chaparral within the BSA generally consists of dense patches of laurel sumac with sparse understory vegetation.

Toyon-Sumac Chaparral (0.22 acre). Toyon-Sumac Chaparral is typically dominated by Toyon (*Heteromeles arbutifolia*), laurel sumac, and lemonade berry (*Rhus integrifolia*). Within the BSA, laurel sumac dominates these vegetation cover types, primarily to the north of Santiago Creek and west of Cannon Street.

Riparian. Seasonally flooded herb, shrub, and forest habitats associated with streams are mapped as riparian habitats. Vegetation occurred within the streambed, along the banks, and in the

floodplain. Riparian subtypes are identified based on the dominant species, with tallest species in a multilayered canopy taking precedence, and one percent aerial cover of dominant species.

Mulefat Scrub (0.01 acre). Mulefat scrub consists of dense stands of mulefat and lesser amounts of willow. It usually occupies intermittent streambeds, seeps, and the toe of landslides (where local seeps develop). Other associated species include Bermuda grass (*Cynodon dactylon?*), California mugwort (*Art doug*), lamb's quarters (*Chenopodium album*), western ragweed (*Artemisia psilostachya*), Douglas' nightshade (*Solanum douglasii*), castor bean (*Ricinus communis?*), and cocklebur (*Xanthium strumarium?*). Within the BSA, mulefat scrub is found on the southwestern portion.

Developed. Developed sites include urban areas, roads, parks, and cleared or graded sites.

Urban and Commercial (42.7 acres). Urban and commercial includes all buildings, pavement, and highway rights-of-way throughout the BSA. Within the BSA, all paved surfaces and flood protection features are mapped as urban and commercial.

Ornamental Landscaping (1.67 acres). Ornamental landscaping (parks and ornamental plantings) consists of introduced trees, shrubs, flowers, and turf grass. Ornamental landscaping occurs in greenbelts, parks, and horticultural plantings throughout Orange County. Within the BSA, ornamental landscaping dominates to the north of Santiago Creek, as most of this area is developed with single-family residences. Additional ornamental landscaping is found on the southwestern end of the BSA.

Disturbed. Disturbed sites include areas where natural vegetation has been reduced or cleared by human or natural means, such as clearing and grading, flooding, or fire.

Disturbed or Barren (12.7 acres). Disturbed or barren (cleared or graded) areas either lack vegetation or are dominated by a sparse cover of ruderal vegetation, such as tocalote (*Centaurea melitensis*), wild oats (*Avena* sp.), black mustard (*Brassica nigra*), prickly sow-thistle (*Sonchus* sp.), and prickly lettuce (*Lactuca seriola*). Disturbed or barren areas are predominantly located on the central and southern portions of the BSA.

Disturbed Mixed Scrub (0.92 acre). Disturbed mixed scrub areas are scrub habitats that have experienced a relatively recent disturbance and still show characteristics of a scrub habitat. Within the BSA, non-native species within disturbed mixed scrub consist of black mustard and tocalote.

Disturbed mixed scrub is found on the southeastern portion of the BSA, outside of the proposed impact limits and adjoining the Santiago Creek Trail and Bikepath Parking area.

Disturbed Southern Cottonwood-Willow Riparian Forest (1.47 acres). Disturbed Cottonwood-willow riparian forest is a multilayered forest community dominated by cottonwoods (*Populus* sp.) and willows (*Salix* spp.)with other tree species at low numbers and percent cover. It is typically lower on the floodplain than the other forest types. This community is found on floodplains of major rivers and streams. Disturbed cottonwood-willow riparian forest can be

found within Santiago Creek, where non-native species such as Mexican fan palm (*Washingtonia robusta*) are found.

Eucalyptus Groves (1.35 acres). Eucalyptus groves consist of homogenous stands of eucalyptus tree species (*Eucalyptus* spp./*Corymbia* spp.) with little to no understory and are located near the central and southern portions of the BSA.

Peppertree Groves (0.34 acre). Pepper tree groves consist of homogenous stands of Peruvian pepper tree (*Schinus molle*) with little to no understory and are located near the central and southern portions of the BSA.

Additionally, a single coast live oak tree (*Quercus agrifolia*), several western sycamore trees (*Platanus racemosa*), and two southern California black walnut trees (*Juglans californica* var. *californica*) were identified in and adjacent to Santiago Creek. Further, a large homogenous stand of poison oak (*Toxicodendron diversilobum*) was observed to the adjoining west of the Cannon Street bridge. The aforementioned individual trees and poison oak consist of a total of 0.117 acre.

A total of 99 vascular plant species were identified within the project limits during the May 2023 field surveys. A total of 63 (63.6 percent) of these plant species represent non-native taxa, reflecting a high level of disturbance within the project limits.

A complete plant list can be found in Appendix B. Figure 3 shows vegetation/land cover, and Figure 4 provides site photographs.

Wildlife

The least Bell's vireo (*Vireo bellii pusillus*), a federal and State listed endangered species, was visually observed on the western portion of Santiago Creek during the May 19, 2023, field survey. Additionally, yellow warbler (*Setophaga petechia*), a California Species of Special Concern (SSC) was auditorily observed during the May 18, 2023, field survey. The remaining wildlife species observed during the surveys were species common to the region. A list of these species is included in Appendix B.

Common wildlife species can be expected to use habitats within the BSA, particularly Santiago Creek, for cover, foraging, and reproduction. Upstream, Santiago Creek extends to Santiago Oaks Regional Park and downstream to Santiago Oaks Recharge Basin. Thus, mobile species such as foraging raptors, reptiles, and medium-sized mammals (striped skunk [*Mephitis mephitis*] and coyote [*Canis latrans*]) can be anticipated to utilize the site's resources routinely.

Special-Status Species

Special-Status Plant Species

Based on review of the current biological database records,[2] there are known occurrence records of 37 special-status plant species within the vicinity of the project limits.

Regarding the special-status plants, 3 of the 37 species are visually conspicuous (woody/shrubby) when present and/or are detectable year-round. Because Malibu baccharis (*Baccharis malibuensis;* California Rare Plant Rank [CRPR] 1B.1), Tecate cypress (*Hesperocyparis forbesii;* CRPR 1B.1), and chaparral nolina (*Nolina cismontane;* CRPR 1B.2) were not observed within the project limits during the site survey but would have been observed if present, these species were determined to be absent within the project limits.

Of the remaining 34 special-status plant species, 33 species are not expected to occur within the project limits due to the lack of suitable habitat and/or conditions on site. However, there is one special-status plant species (i.e., southern tarplant [*Centromadia parryi* ssp. *australis; CRPR 1B.1*]) identified from the database records searches and known to occur in other, nearby locations of the BSA, that has a low probability of occurrence based on the existing habitat and conditions on site. Southern tarplant has a CRPR of1B.1, which is a California Native Plant Society (CNPS) designation given to plants considered rare, threatened, or endangered in California, and seriously threatened elsewhere. This species does not have federal or State listing of threatened or endangered. This special-status plant was not observed during the May 2023 field surveys.

Special-Status Animal Species

Based on review of the current biological database records,[3] there are known occurrence records of 57 special-status animal species in the vicinity of the project limits.

Of the 57 special-status animal species, 46 are not expected to occur within the project limits due to the lack of suitable habitat and/or conditions on site. Although not observed during the site survey, the following 9 special-status animal species identified from the CNDDB and IPaC records search could potentially occur within the BSA: Crotch's bumble bee (*Bombus crotchii*; California Candidate Endangered [CE]), Quino checkerspot butterfly (*Euphydryas editha quino*; Federally Endangered [FE], California Special Animal [CSA]), southern California legless lizard (*Anniella stebbinsi*; California Species of Special Concern [SCC]), great blue heron; foraging (*Ardea herodias*; [CSA]), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*; [SSC]), coastal California gnatcatcher (*Polioptila californica californica*; Federally Threatened [FT], [SSC]), Cooper's hawk; nesting (*Accipiter cooperii*; [CSA]), and white-tailed kite (*Elanus leucurus*; California Full Protected Species [CFP]), and Yuma myotis (*Myotis yumanensis*; [SA]). Additionally, two species identified in the CNDDB and IPaC records search were observed within the BSA: yellow warbler and least Bell's vireo. Quino checkerspot butterfly, great blue heron, coastal cactus wren, and Yuma myotis have a low potential to occur within the BSA. Species with a moderate or high potential to occur and those that were

[2] California Department of Fish and Wildlife (CDFW). 2021. California Natural Diversity Database. RareFind 5 (Version 5.3.0) website: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data (May and June 2023)

[3] Ibid.

listed in the database records and were observed during the field surveys are further discussed below.

Southern California legless lizard. The southern California legless lizard is a State-designated species of special concern. This species can be found nearly year-round in Southern California. Its habitat niche consists of sandy or loose loamy soils with high moisture content under sparse vegetation on beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. This is a small slender lizard with no legs, a shovel-shaped snout, smooth and shiny scales, and a blunt tail (Papenfuss and Parham 2013).

Suitable habitat is present within the BSA, particularly within Santiago Creek and the southwestern portion of the BSA that consists of coastal sage scrub. While this species was not observed during the May 2023 field visits, it was documented within 3 miles of the BSA as recently as 2019. Because suitable habitat exists and recent documentation of it within the vicinity of the BSA, southern California legless lizard has a moderate potential to occur within the BSA.

Cooper's hawk. The Cooper's hawk is a State-designated Special Animal. This species can be found year-round across much of the United States, and in California is present throughout the entirety of the State apart from some of the driest and easternmost deserts. It is a versatile and adaptive species, nesting and foraging in oak, coniferous, and riparian woodlands, coastal sage scrub and chaparral, grasslands, wetlands, and agricultural areas, and is a common resident in suburban and even many urban areas. This is a small, long-tailed, narrow-winged raptor that primarily hunts smaller birds and occasional mammals, which they capture by ambush. Adults have gray backs and black caps with fine chestnut barring on the underbelly; immature birds have dark brown backs and heavily streaked underparts. They primarily nest in large trees with dense foliage, which they use to conceal their nests from potential predators.

Suitable nesting and foraging habitat for this species is present throughout the project area; large non-native trees within Santiago Creek and surrounding vicinity are suitable for nesting, and coastal sage scrub habitat southwest of the BSA provide moderate foraging opportunities. This species was not observed during the May 2023 field surveys. Based on a review of the CNDDB, this species has not been documented within 3 miles of the BSA; however, numerous occurrences have been recorded by birdwatchers within 2 miles of the BSA as recently as 2019 (eBird). Due to suitable nesting and foraging habitat within the BSA and recent documented occurrences, Cooper's hawk has a high probability to forage within the BSA and a moderate nesting probability.

White-tailed kite. The white-tailed kite is a CDFW Fully Protected Species. This small and graceful raptor is largely white, with a black shoulder patch, white tail, red eye, and gray wings and mantle. Kites inhabit grasslands, open scrubland, agricultural and ranch land, and disturbed fields, where they often forage by hovering in place while visually searching the ground for prey. Their diet is composed primarily of voles, but is supplemented by smaller amounts of other small mammals, birds, reptiles, and invertebrates. They breed in trees or sparse woodland near their foraging grounds. Population levels are variable and closely track vole population trends, but recent decades have seen pronounced declines, likely driven by development of former open space and drought.

Suitably open scrubland exists on the southwestern portion of the BSA. In addition, kites may use large trees, particularly within Santiago Creek, for nesting. White-tailed kites have been reported within 2 miles of the BSA, but not more recently than 2011 (eBird and CNDDB). Due to suitable nesting and foraging habitat and somewhat recent occurrences documented within two databases, white-tailed kite have a moderate potential to forage and a low potential to nest within the BSA.

Coastal California gnatcatcher. The coastal California gnatcatcher (*Polioptila californica californica*) is a federally listed Threatened Species and a California Species of Special Concern. This small, insectivorous songbird is resident in coastal sage scrub throughout much of coastal Southern California from Ventura southwest to northwest Baja California (Atwood and Bontrager 2020), where they are found in extensive stands of California sagebrush, California buckwheat (*Eriogonum californicum*) and California encelia (Weaver 1998). Both sexes are gray with long tails and brownish wings; males display a prominent black cap during the breeding season. The call is a long, kitten-like mewing. The primary threats this species faces are habitat destruction and fragmentation due to development, as well as brood parasitism by the brown-headed cowbird (*Molothrus ater*) (Atwood and Bontrager 2020).

Coastal sage scrub occurs on the southwestern portion of the BSA; however, gnatcatchers were not observed during the May 2023 field surveys. Based on a review of the CNDDB, numerous occurrences have been documented within 3 miles of the BSA as early as 2021. Additionally, numerous birdwatchers have recorded gnatcatchers within 2 miles of the BSA in 2023. Due to suitable habitat in the southwestern portion of the BSA and a plethora of documented occurrences within the vicinity, coastal California gnatcatcher high probability to occur within the southwestern portion of the BSA, which is outside of the proposed project impact areas.

Yellow warbler. The yellow warbler is a California Species of Special Concern. This small yellow songbird has a chestnut or red-brown streak on its head going from its beak to its back with pronounced streaks on its breast. The yellow warbler is a resident in riparian woodlands in the western United States and northwestern Baja California. It is more widespread in brushy areas and woodlands during migration. During the winter, it occurs from western Mexico to northern South America. Migrants are widespread and common. One yellow warbler was visually observed within Santiago Creek on May 18, 2023, located at approximately 33.814949, -117.794698.

Least Bell's vireo. The least Bell's vireo is a small, gray, long-tailed insectivorous songbird, and is a federally and State-listed Endangered species. It breeds in riparian woodland and scrub in southern and central California, and is particularly dependent on mule fat as a nesting and foraging substrate. It primarily winters in southern Baja California. Least Bell's vireo numbers in California precipitously declined during the 20th century as a result of the destruction and degradation of riparian corridors for agriculture and later urban development, as well as brood parasitism by the brown-headed cowbird (*Molothrus ater*). Conservation and restoration of riparian habitats, along with concerted cowbird trapping efforts, have led to a steady increase in vireo numbers over the last several decades. One least Bell's vireo was visually observed within Santiago Creek on May 19, 2023, located at approximately 33.814458, -117.796068.

Appendix D contains a list of the 47 species-status animals species known to occur within the vicinity of the project limits, their current status, their habitat and distribution, and their occurrence probability.

Federal Endangered Species Act Consultation

Under the provisions of Federal Endangered Species Act (FESA), Section 7(a)(2), a federal agency that permits, licenses, funds, or otherwise authorizes a project activity with impacts to federally listed species must consult with the USFWS and/or the National Marine Fisheries Service (NMFS) to ensure that the federal agency's actions would not jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat. This Biological Resources Assessment provides details on the proposed project's impacts to federally listed plant and wildlife species. Consistent with Section 7 consultation guidance, findings of effect are based on one of three conclusions as defined below.

"No Effect" means there will be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to action and its environmental consequences. Concurrence from the USFWS is not required.

"May Affect, but Not Likely to Adversely Affect" means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated. Discountable effects are those extremely unlikely to occur. These determinations require written concurrence from the USFWS.

"May Affect, and is Likely to Adversely Affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure.

Least Bell's vireo falls under the "May Affect, but Not Likely to Adversely Affect" finding as previously written due to permanent impacts to southern cottonwood-willow riparian forest habitat. Therefore, a Federal consultation between the client and the USFWS is expected due to the modification of suitable habitat for least Bell's vireo, as currently planned and designed.

Bats

Section 4150 of the California Fish and Game Code protects non-game mammals, which are defined as any naturally occurring mammal in California that is not a game mammal, fully protected mammal, or fur-bearing mammal. Non-game mammals, which includes bats, bat roosts, and maternity colonies, may not be taken or possessed except as provided by the California Fish and Game Code or in accordance with applicable regulations.

A plethora of ornamental and native trees species occur throughout the BSA, as well as near Cannon Street bridge, could provide habitat to native bats in the form of roosts, foraging or (maternity sites in the case of foliage dwelling bat species). Bats breed in late spring/early summer (April–August),

with foliage-dwelling species utilizing peeling bark, thick clumps of leaves, or cavities in trees often alone or in small maternity colonies.

Bats attempting to roost or breed in landscape trees or bridges can be subject to impacts from tree removal or trimming activities (e.g., the trimming of palm fronds) and was as bridge modifications and maintenance. Because bats have low reproductive turnover (i.e., most species have only one young per year) and high juvenile mortality, it can take many years for a colony or population of bats to recover from any impacts that result in mortality or even a decrease in reproductive ability.

Special-Status Natural Communities

The CNDDB search identified occurrences of ten special-status natural communities within 5 miles of the BSA: California Walnut Woodland, Riversidian Alluvial Fan Sage Scrub, Southern California Arroyo Chub Stream, Santa Ana Sucker Stream, Southern Coast Live Oak Riparian Forest, Southern Coastal Salt Marsh, Southern Cottonwood Willow Riparian Forest, Southern Interior Cypress Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub. Of that list, Southern Cottonwood Willow Riparian Forest was the sole special-status natural community observed within the BSA.

Southern Cottonwood Willow Riparian Forest

Typically, southern cottonwood-willow riparian forest is a multilayered forest community dominated by cottonwoods and willows with other tree species at low numbers and percent cover. It is typically lower on the floodplain than other forest types. However, within the BSA, this vegetation community consists of Fremont cottonwood (*Populus fremontii*), arroyo willow (*Salix gooddingii*), with a high percentage of Mexican fan palm, thus resulting in a disturbed habitat type. Regardless of the disturbed nature of this habitat type within the BSA, such vegetation communities are usually within the jurisdiction of the USACE under the Section 404 permitting requirements, the CDFW under the Section 1600 permitting requirements, and the RWQCB under the Section 401 certification or Porter-Cologne Water Quality Control Act requirements. Southern Cottonwood Willow Riparian Forests habitats are often considered high-quality wildlife habitats because they provide protective cover, water, and food for a variety of native species.

A total of 0.026 acre of permanent direct impacts to disturbed Southern Cottonwood Willow Riparian Forest is proposed as part of the project.

Local Policies and Ordinances Protecting Biological Resources

City and County general plans and development ordinances may include regulations or policies governing biological resources. For example, policies may require tree preservation, or designate local species survey areas, species of interest, or significant ecological areas.

City of Orange Zoning Code Sec. 7-9- 69 – Tree Preservation Ordinance

Under the City of Orange Zoning Code (Section 7-9-69.4), a Tree Preservation Permit application shall be required and submitted to Orange County Development Services prior to removal of any Protected Tree or obtained prior to any encroachment into the Tree Protection Zone. The

application, as a whole, will be reviewed and approved by the Deputy Director of Orange County Development Services or designee.

Protected Tree means any individual native tree with a species-dependent minimum Diameter at Breast Height (DBH) as defined in Section 7-9-69.2. Trees outlined in Section 7-9-.69.2 include native oak trees and oak tree hybrids, southern California black walnut, California sycamore, and Tecate cypress.

Tree Protection Zone is defined as that area within the drip line of a Protected Tree and extending to a point five (5) feet outside the greatest extent of the drip line, or fifteen (15) feet from the trunk of a tree, whichever distance is greater.

Replacement Tree shall mean any tree(s) installed either on-site or off-site as part of the required replacement for removal of a Protected Tree. Replacement Trees shall consist exclusively of Protected Trees of the same or similarly appropriate native species and shall be in the ratio ranging from 1:1 to 5:1 based on DBH of the impacted tree and will be installed a minimum of thirty (30) feet apart on-center. For the purposes of this Ordinance, all Replacement Trees are considered Protected Trees regardless of size.

Regional Regulations

Natural Community Conservation Plan and Habitat Conservation Plan, County of Orange, Coastal Subregion

The Natural Communities Conservation Planning Act was enacted to encourage broad-based planning to provide for effective protection and conservation of the State's wildlife resources while continuing to allow appropriate development and growth (Natural Communities Coalition 2023). Natural Community Conservation Plans (NCCPs) may be implemented that identify measures necessary to conserve and manage natural biological diversity within the planning area, while allowing compatible and appropriate economic development, growth, and other human uses. The County, in conjunction with State and federal resource agencies, local jurisdictions, utility companies, the Transportation Corridor Agencies (TCA), and major private landowners, prepared the Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the Central-Coastal NCCP Subregion. The NCCP/HCP was approved on April 16, 1996, and the Implementation Agreement was executed on July 17, 1996. The NCCP/HCP is intended to ensure the long-term survival of special-status coastal sage scrub-dependent plant and wildlife species, and certain other identified species and habitats while allowing for reasonable economic growth in accordance with State-sanctioned NCCP/HCP program guidelines. The western portion of the BSA, starting at Cannon Street, occurs within the NCCP Plan Boundary and is designated as part of the NCCP Reserve System, containing suitable "Target Species" habitat.

As of the creation of the NCCP/HCP, the City did not contribute funding or lands to the development of the NCCP/HCP and Reserve System, and is considered to be a non-participating landowner. The NCCP/HCP provides these non-participating landowners with a different mitigation option, recognizing they are required under current law to assure that impacts to listed species resulting from activities on their lands are fully mitigated consistent with CESA and FESA. These non-participating landowners may satisfy the requirements of FESA and CESA with respect to listed

coastal sage scrub species covered under the NCCP/HCP in any of the following ways: (1) on-site avoidance of take; (2) satisfaction of applicable FESA and CESA provisions under the consultation and permit provisions of these statutes; or (3) payment of a mitigation fee to the non-profit reserve management corporation as provided for in the NCCP/HCP and Implementation Agreement.

The Reserve System is separated into habitats of low, medium, and high habitat/conservation value. The reserve design principles derived from the NCCP Guidelines form the basis for determining the importance, or potential conservation value, of habitat areas. Wildlands polygons which are (1) larger, (2) close to or contiguous with other habitat areas, (3) provide linkages between areas, (4) contain a diversity of habitat types, associations, elevations, etc., or (5) can be protected from encroachment to remain viable over the long term, are of higher potential conservation value. In contrast, wildland polygons which are (1) smaller, distant from other polygons, (2) are not strategically located to provide linkages (e.g., form "dead-end fingers"), (3) have minimum diversity and/or are largely non-native communities, and (4) are highly vulnerable to future disturbance, are of lower conservation value. Medium values are associated with characteristics intermediate between the higher and lower values described above. Most areas of low conservation value are undesirable for inclusion in the reserve because they would require more management effort than their biological value justifies, and none of the low value areas are essential to the reserve. The NCCP has mapped the portion of the BSA that is within the reserve system as an area of low habitat value/conservation value. This designation was applied at a programmatic level during the NCCP planning process; while specific reasons were not provided for the designation as low habitat value/conservation, it may be attributed to the fact that the portion of the BSA that is within the reserve system is highly fragmented and is adjoined by a substantial amount of residential development and/or has a relatively large percent of non-native species within the existing vegetation communities. LSA believes it is reasonable that the Santiago Creek and the coastal sage scrub habitat located on the southwestern portion of the BSA are of higher habitat value than the NCCP had mapped at a programmatic level, due to habitat complexity comprised of multiple sensitive natural communities and availability of water to support native flora and fauna found within the BSA is indicative of several special-status wildlife species, previously discussed.

Jurisdictional Waters

The USACE regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland 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 federal Clean Water Act (CWA) is founded on a connection, or nexus, between the waterbody 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). To be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics, each with its unique set of mandatory wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology.

On January 18, 2023, the USACE published in the *Federal Register* the final *Revised Definition of "Waters of the United States* (88 *Federal Register* 2004). On March 25, 2023, the U.S. Supreme Court modified the January 2023 definition of WOTUS in *Sackett v. Environmental Protection Agency*

(No. 21-454), herein referred to as *Sackett*. Specifically, the considered the "significant nexus" standard established under *Rapanos* to be inconsistent with the CWA, while upholding the plurality standard that the USACE jurisdiction is limited to WOTUS that are "relatively permanent, standing or continuously flowing bodies of water" that can be described in ordinary parlance as "streams, oceans, rivers, and lakes." The Supreme Court further affirmed that wetlands can be considered WOTUS when a continuous surface connection to bodies that are WOTUS are present and that no clear boundary exists between WOTUS and wetlands. *Sackett* further revised the CWA by removing interstate wetlands from consideration as WOTUS. On September 8, 2023, the USACE published a final rule conforming the January 2023 rule with the *Sackett* decision, removing the "significant nexus" standard.

The CDFW, under Sections 1600 through 1616 of the California Fish and Game Code, regulates alterations to lakes, rivers, and streams (defined by the presence of a channel bed and banks, and at least an intermittent flow of water) where fish or wildlife resources may be adversely affected.

The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the CWA. Typically, the areas subject to jurisdiction of the RWQCB coincide with those of the USACE (i.e., waters of the United States, including any wetlands). The RWQCB may also assert authority over "waters of the State" under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act.

Santiago Creek and an unnamed tributary to Santiago Creek were identified within the JDSA (refer to Figure 5) and, in this case, were determined to be jurisdictional. Additionally, an unnamed ditch was identified but was determined to be non-jurisdictional. Santiago Creek was determined to be wetland waters of the United States/waters of the State and CDFW streambed and associated riparian vegetation. The unnamed Tributary to Santiago Creek was determined to be non-wetland waters of the United States/waters of the State and CDFW streambed (see Table C).

Table C: Potential Jurisdictional Areas by Feature Number

Feature	USACE wetland WOTUS Jurisdiction (acres)	USACE non-wetland WOTUS Jurisdiction (acres)	RWQCB wetland WOTS Jurisdiction (acres)	RWQCB non-wetland WOTS Jurisdiction (acres)	CDFW Riparian (acres)
Santiago Creek	0.34	0.00	0.34	0.00	1.43
Unnamed Tributary to Santiago Creek	0.00	0.03	0.00	0.034	0.032
Unnamed Ditch	0.00	0.00	0.00	0.00	0.00
Total Jurisdictional Acres	**0.34**	**0.03**	**0.34**	**0.034**	**1.46**

Source: LSA (2023).
* Totals may appear inaccurate due to rounding.
CDFW = California Department of Fish and Wildlife
RWQCB = Regional Water Quality Control Board
USACE = United States Army Corps of Engineers
WOTS = waters of the State
WOTUS = waters of the United States

IMPACT FINDINGS

Vegetation and Habitat Impacts

Vegetation Communities and Landcover

Natural communities within the project limits include mixed scrub, sagebrush scrub, southern cactus scrub, toyon-sumac chaparral, mulefat scrub, urban and commercial, ornamental landscaping, disturbed or barren, disturbed mixed scrub, disturbed southern cottonwood willow riparian forest, eucalyptus groves, peppertree groves, a coast live oak tree, several western sycamore trees, a black walnut tree, and stands of poison oak. Temporary and permanent impacts to these vegetation communities and landcover types that would occur during project implementation are shown below in Table D and are shown in Figure 6.

Table D: Temporary and Permanent Impacts to Vegetation Communities and Landcover Types

Vegetation/Land Cover Type	Temporary Impacts	Permanent Impacts	Total Impacts
Mixed Scrub	-	-	-
Sagebrush Scrub	-	-	-
Southern Cactus Scrub	-	-	-
Toyon-Sumac Chaparral	-	-	-
Mulefat Scrub	-	-	-
Urban and Commercial[1]	-	6.638[1]	6.638[1]
Ornamental Landscaping	0.058	0.050	0.108
Disturbed or Barren	0.058	0.175	0.269
Disturbed Mixed Scrub	-	-	-
Disturbed Southern Cottonwood-Willow Riparian Forest[2]	-	0.026	0.026
Eucalyptus Groves	-	-	-
Peppertree Groves	-	-	-
Coast live oak tree	0.021	0.006	0.027
Western sycamore trees	-	-	-
Black walnut tree	-	-	-
Poison oak	-	0.008	0.008
Total Biological Study Area	**0.137**	**0.265**	**0.438**

Source: Compiled by LSA (2023).

[1] Omitted from Total Biological Study Area impacts as these areas predominantly consist of paved roadways and do not hold any significant ecological value.

[2] Special-Status Natural Community

Special-Status Natural Communities

The CNDDB search identified occurrences of ten special-status natural (i.e., plant) communities within 5 miles of the BSA: California Walnut Woodland, Riversidian Alluvial Fan Sage Scrub, Southern California Arroyo Chub Stream, Santa Ana Sucker Stream, Southern Coast Live Oak Riparian Forest, Southern Coastal Salt Marsh, Southern Cottonwood Willow Riparian Forest, Southern Interior Cypress Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, and

Southern Willow Scrub. Southern Cottonwood Willow Riparian Forest was the sole special-status natural community identified within the records search observed within the BSA. While the Southern Cottonwood Willow Riparian Forest within the BSA has a high level of non-native species found throughout, and is considered disturbed, it retains a high level of habitat value for native fauna.

A total of 0.026 acre of permanent direct impacts to disturbed Southern Cottonwood Willow Riparian Forest is proposed as part of the project. Permanent vegetation removal and/or grubbing would occur with project implementation; therefore, compensatory mitigation is required as a part of the regulatory permitting process which is further discussed below in the Jurisdictional Waters section.

Special-Status Plant Species

No special-status plant species were observed during the project survey. Of the special-status plant species that have a potential to occur within the BSA, the highest occurring probability to occur within the BSA is southern tarplant, which has a low probability to occur within the project limits. Therefore, impacts to special-status plant species are not anticipated with the proposed project implementation.

Special-Status Animal Species

Two special-status animal species were observed during the project surveys and include yellow warbler and least Bell's vireo. Additionally, four species identified within the current regulatory databases have a moderate or higher probably to occur within the BSA due to habitat suitability and documented occurrences within the vicinity of the BSA and include southern California legless lizard, Cooper's hawk, white-tailed kite, and coastal California gnatcatcher.

Bio-Measure #1: Pre-Construction California Legless Lizard Surveys

Should construction activities take place from September through November, a qualified biologist will conduct pre-construction surveys for California legless lizards no more than 48 hours before initial grading and/or ground-disturbing activities in or near areas of sandy, friable soil. This survey will include systematic subsurface searching, as legless lizards are fossorial (burrowing), and staking and fencing the limits of the survey areas with small-mesh construction fencing buried to a minimum depth of 6 to 10 inches below grade would reduce the likelihood of lizards reentering the construction zone.

Potential direct and/or indirect impacts (e.g., noise during construction) could potentially disrupt or otherwise adversely affect bird nesting activities in and/or adjacent to the project impact area. However, implementation of the recommended avoidance measure identified below would reduce potential impacts to nesting birds to less than significant levels. Other avoidance and minimization measures identified below would address potential construction-related impacts to nesting birds.

Bio-Measure #2: Pre-Construction Nesting Bird Surveys and Active Nest Avoidance Buffers

If vegetation removal, construction, or grading activities are planned to take place within the active nesting bird season (February 15 through August 31), a qualified biologist should conduct a pre-construction nesting bird survey no more than 3 days prior to the start of such activities. The nesting bird survey should include the entirety of the project limits and areas immediately adjacent to the limits that could potentially be affected by project-related activities such as noise, vibration, increased human activity, and dust. If any active bird nests are found within areas that could be directly or indirectly impacted by project-related activities, the qualified biologist should establish an appropriate buffer zone around each active nest. The appropriate buffer should be determined by the qualified biologist based on species, location, and the nature of the proposed activities. Project activities should be avoided within the buffer zone until each nest is deemed no longer active by a qualified biologist.

Bio-Measure #3: Least Bell's Vireo Protocol Surveys

Ground disturbance or vegetation removal activities within 500 linear feet of least Bell's vireo habitat from March 1 through July 15 are not authorized. Should minor project activities (i.e., removal of equipment) be required between March 15 to August 31, focused surveys following United States Fish and Wildlife Service (USFWS) protocol for least Bell's vireo shall be conducted. The physical extent of the survey area shall include all areas within 500 feet of project disturbance. Survey results shall be submitted in writing to the California Department of Fish and Wildlife (CDFW) for review. The Permittee shall not conduct ANY project activities within 500 linear feet of least Bell's vireo habitat from March 1 through July 15 if nesting birds are present. Nesting status will be determined by a Designated Biologist with expertise with the species in question, utilizing USFWS survey protocols and CDFW review of the nest monitoring data.

Least Bell's vireo falls under the "May Affect, but Not Likely to Adversely Affect" designation as defined in the Federal Endangered Species Act (FESA) Section 7(a)(2) due to permanent impacts to suitable southern cottonwood-willow riparian forest habitat. Therefore, a Federal consultation between the City of Orange and the USFWS is expected due to the modification of suitable habitat for least Bell's vireo, as currently planned and designed.

Bats

An abundance of ornamental and native trees species occur throughout the BSA, as well as near Cannon Street Bridge, that could provide habitat to native bats in the form of roosts, foraging, or maternity sites (in the case of foliage dwelling bat species). To avoid potential effects to roosting bats, implementation of the following measure is recommended:

Bio-Measure #4.1: Construction Activity

A qualified bat biologist shall survey all suitable trees/vegetation within the project limits for bat roosts within 30 days prior to the start of project construction activities. If bats roosts are found within the project limits, the qualified bat biologist shall identify the bats to the species level and evaluate the roosts and/or colony to determine its size and significance. Proposed work in areas with no suitable habitat shall not require a bat survey, as determined by the bat biologist.

Bio-Measure #4.2: Tree Trimming and Removal

To the greatest extent feasible, tree trimming/removal activities will be performed outside the bat maternity season (April 1–August 31) to avoid direct impacts to non-volant (flightless) young that may roost in trees or the bridge within the study area. This period also coincides with the typical bird nesting season. If trimming or removal of trees during the bat maternity season cannot be avoided, a qualified bat biologist will monitor tree trimming and removal activities.

Bio-Measure #4.3: Night Work Lighting

If night work (i.e., between dusk and dawn) is anticipated within 100 feet of trees where known bat roosting is confirmed, night lighting will be used only in areas of active work and will be focused on the direct area(s) of work and away from the roost entrances to the greatest extent practicable. This measure would minimize visual disturbance and allow bats to continue to utilize the remainder of the area for foraging and night roosting. If bats are showing signs of distress, as determined by the bat biologist, work activities shall be modified to prevent bats from abandoning their roost or altering their behavior.

Jurisdictional Waters

Santiago Creek and the unnamed tributary within the project limits are subject to jurisdiction by the CDFW and/or USACE, and RWQCB. CWA Section 404 and 401 permits and a CDFW Streambed Alteration Agreement are required. The findings represent the professional opinion of LSA and are subject to verification by the regulatory agencies. The Jurisdictional Delineation Report can be found in Appendix D.

Potential impacts to jurisdictional areas within the project impact limits are noted in Table E and are shown in Figure 7.

Table E: Potential Impacts to Jurisdictional Areas by Drainage Name

Feature Name	USACE wetland WOTUS (acres)		RWQCB wetland WOTS (acres)		CDFW Streams/Rivers/Riparian Habitat (acres)	
	Permanent Impacts	Temporary Impacts	Permanent Impacts	Temporary Impacts	Permanent Impacts	Temporary Impacts
Santiago Creek	-	0.003	-	0.003	0.036	-
Unnamed Tributary to Santiago Creek	-	-	-	-	-	-
Unnamed itch	-	-	-	-	-	-
Total	**-**	**0.003**	**-**	**0.003**	**0.036**	**-**

Source: Compiled by LSA (2023).
Note: Totals may appear inaccurate due to rounding.
CDFW = California Department of Fish and Wildlife
RWQCB = Regional Water Quality Control Board
USACE = United States Army Corps of Engineers
WOTS = waters of the State
WOTUS = waters of the United States

Consistency with Adopted Habitat Conservation Plan/Natural Community Conservation Plan and Local Policies

County of Orange Zoning Code Sec. 7-9- 69 – Tree Preservation Ordinance

Portions of Santiago Creek within the proposed project are owned by the Orange County Flood Control District (OCFCD); therefore, under the County of Orange Zoning Code (Section 7-9-69.4), a Tree Removal Permit application will be required and submitted to Orange County Development Services prior to removal of any Protected Tree within County owned land or obtained prior to any encroachment into the Tree Protection Zone. Removal of Protected Trees within the project impact area would include a coast live oak, willows, and sycamore trees.

The coast live oak tree is within a proposed temporary impact area associated with a proposed lay-down yard and construction staging area. LSA recommends installing an exclusionary fence no closer than the Tree Protection Zone of the coast live oak tree to avoid all impacts including trimming/and or pruning.

City of Orange Ordinance 12.32.01 to 12.32.130 – Tree Preservation

Under the City of Orange Tree Preservation Ordinance, a permit must be granted by the Director of Community Services prior to the removal of any trees or historical trees. "Tree" means any live plant which has a single trunk measuring 10.5 inches in circumference, measured at a point 24 inches above the ground level. “Historical trees” are those which by virtue of their origin, size, uniqueness and/or national or regional rarity are now or are likely to be of historical value, which are included on a master list that was compiled and maintained by the Community Services Department.

It is unlawful for any person, firm, partnership, corporation or other legal entity whatever, to destroy or remove any tree as defined in Section 12.32.020 from undeveloped or public interest property as defined in Sections 12.32.040 and 12.32.050 without a permit.

Multiple ornamental trees are proposed for removal along Cannon Street which fall under the City’s tree preservation ordinance.

Natural Community Conservation Plan and Habitat Conservation Plan, County of Orange, Coastal Subregion

The western portion of the BSA, starting at Cannon Street, occurs within the NCCP Plan Boundary and is designated as part of the NCCP Reserve System, containing suitable “Target Species” habitat. LSA believes it is reasonable that the Santiago Creek and the coastal sage scrub habitat located on the southwestern portion of the BSA are of higher habitat value than the NCCP had mapped at a programmatic level, due to habitat complexity comprised of multiple sensitive natural communities and availability of water to support native flora and fauna found within the BSA, and are indicative of several special-status wildlife species, previously discussed. No impacts to coastal sage scrub are proposed during project activities; however, the proposed project would permanently impact 0.026 acre of disturbed southwestern cottonwood-willow riparian forest within wetland/riparian habitat within the Reserve System, which is not considered mitigated by the NCCP. As mentioned in the Jurisdictional Waters section, separate CWA Section 404 and 401 permits and a CDFW Streambed Alteration Agreement are required.

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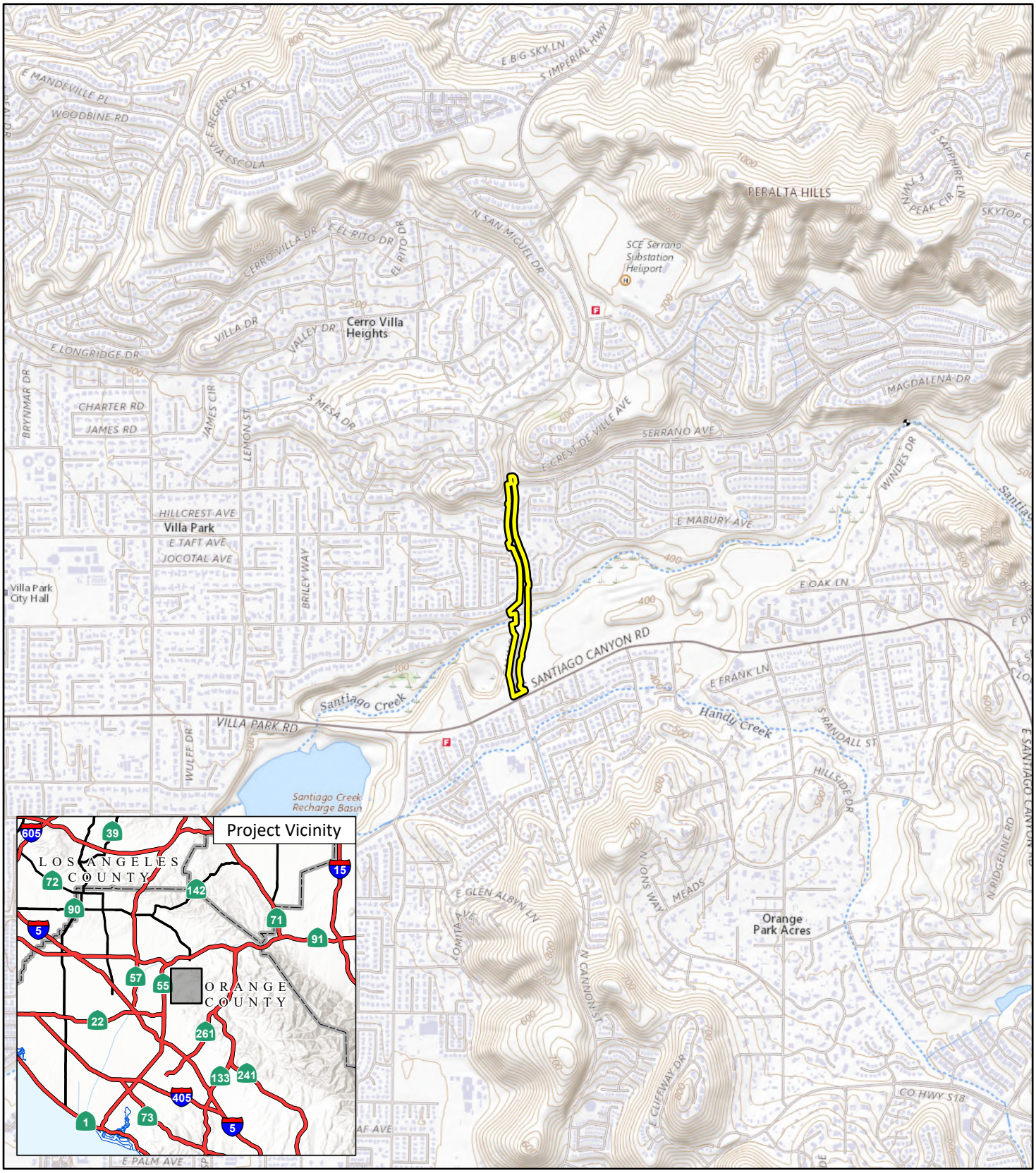
APPENDIX A

FIGURES 1–7

Figure 1: Regional and Project Location
Figure 2: Soils
Figure 3: Vegetation, Land Use, and Photo Locations
Figure 4: Representative Site Photographs
Figure 5: Delineation of Jurisdictional and Non-Jurisdictional Areas
Figure 6: Impacts to Vegetation and Land Use
Figure 7: Impacts to Jurisdictional Features



LSA

Project Location

FIGURE 1

N

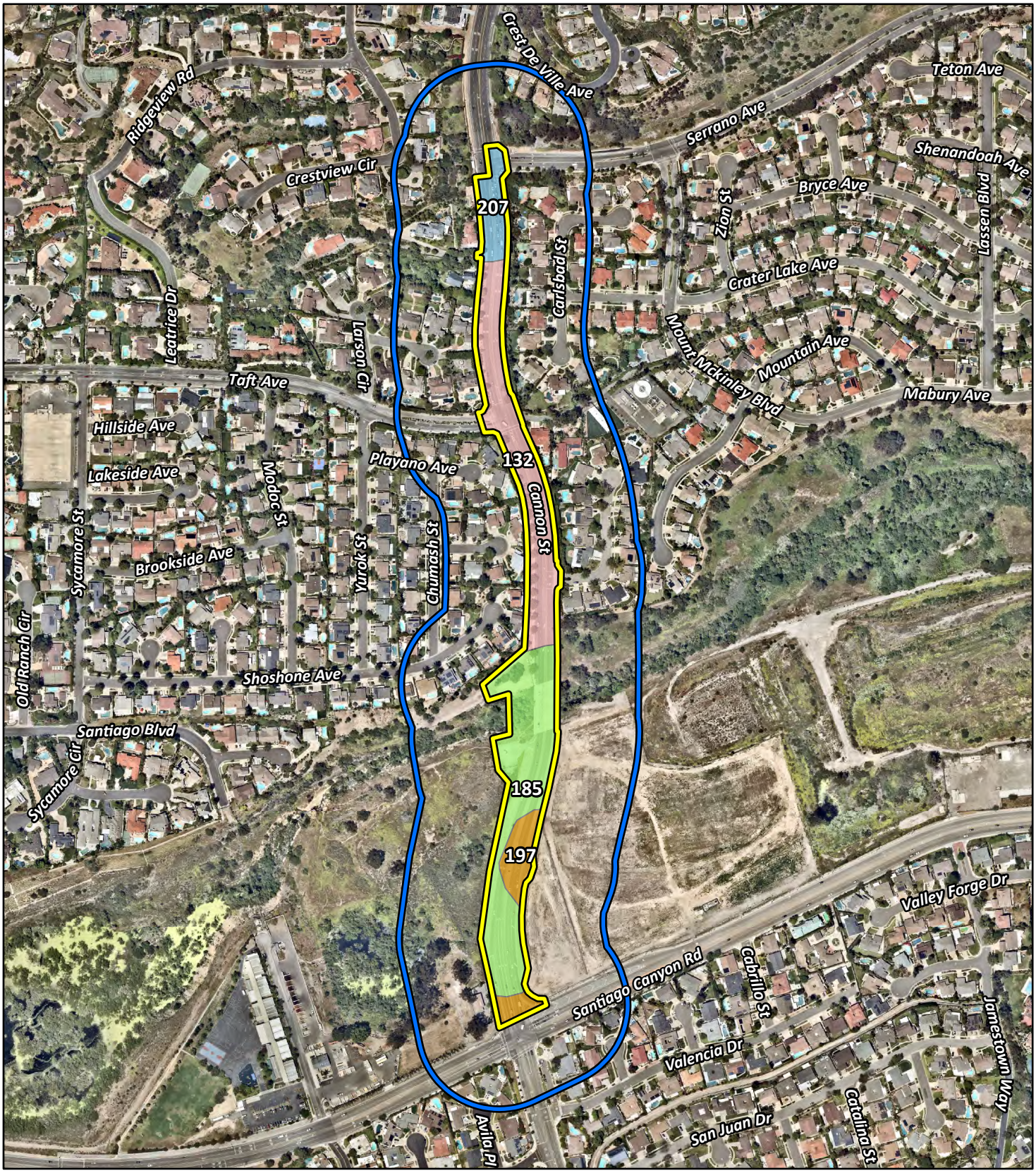
0 1000 2000
FEET

SOURCE: USGS The National Map

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (9/11/2023)

Cannon Street Widening Project

Regional and Project Location



LSA

Project Location

300-ft Buffer of Project Location

Soils

132 - Botella clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

185 - Pits

197 - Soboba gravelly loamy sand, 0 to 5 percent slopes

207 - Sorrento loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

N

0 250 500

FEET

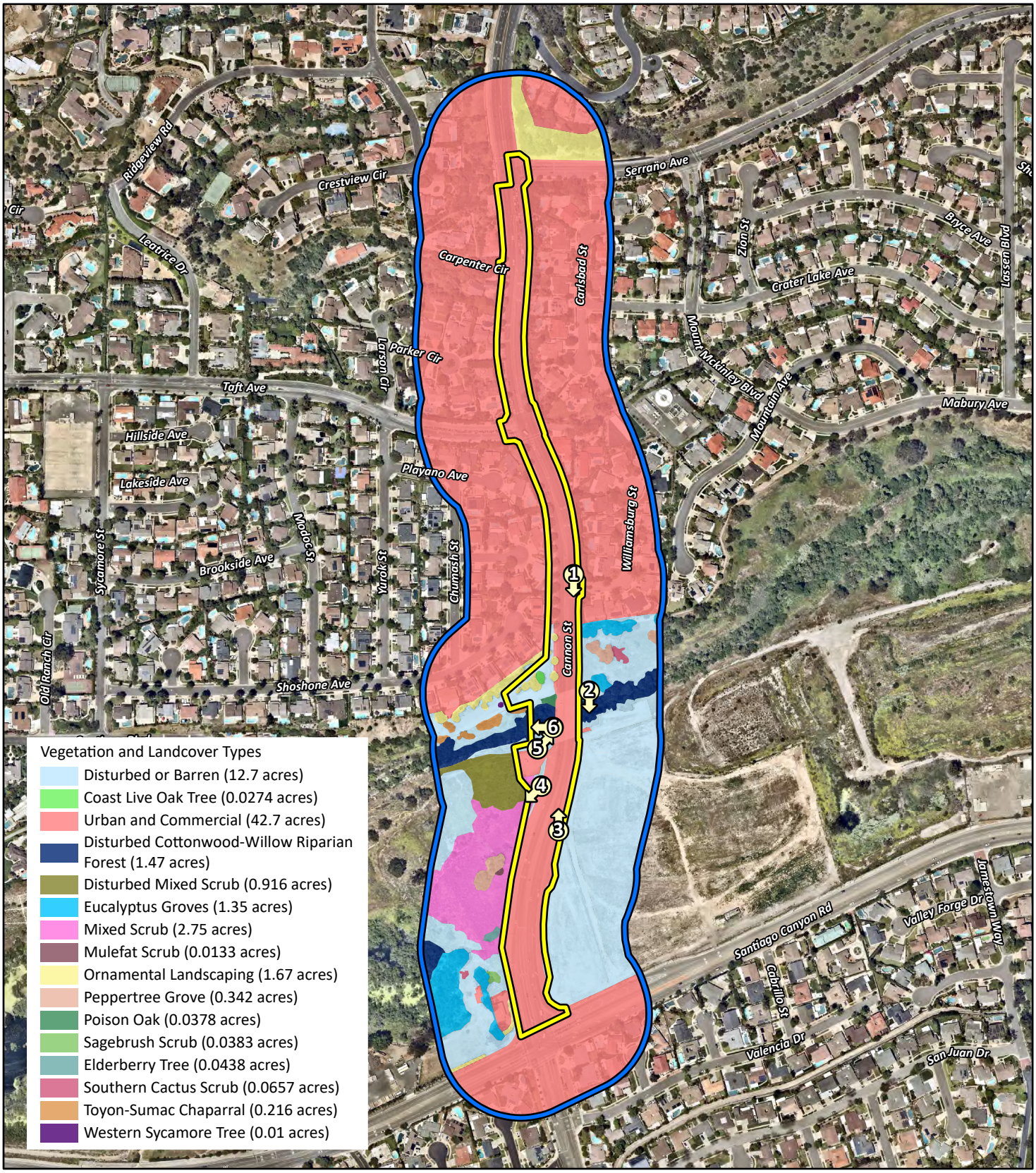
FIGURE 2

Cannon Street Widening Project

Soils

SOURCE: Nearmap (2023), USDA NRCS (2023)

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (9/11/2023)



LSA

Project Location
300-ft Buffer of Project Location
Photo Points

FIGURE 3

N

0 250 500
FEET

SOURCE: Nearmap (2023)

Cannon Street Widening Project

Vegetation, Land Use, and Photo Locations

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Photo 1: Looking south along Cannon Street from the northern portion of the project site. May 18, 2023.



Photo 2: Looking south at Santiago Creek from the west of Cannon Street Bridge near the central portion of the project site. May 3, 2023.

LSA

FIGURE 4

Cannon Street Widening Project
Representative Site Photos

I:\20230893\G\BRA_Photos.cdr (9/8/2023)



Photo 3: Looking north along Cannon Street from the southern portion of the project site. May 3, 2023.



Photo 4: Looking southwest at the coastal sage scrub habitat type located near the southern portion of the project site, and within the BSA. May 3, 2023.

LSA

FIGURE 4

Cannon Street Widening Project
Representative Site Photos

I:\20230893\G\BRA_Photos.cdr (9/8/2023)



Photo 5: Looking northeast at Santiago Creek and the Cannon Street Bridge near the southern-central portion of the project site. May 3, 2023.



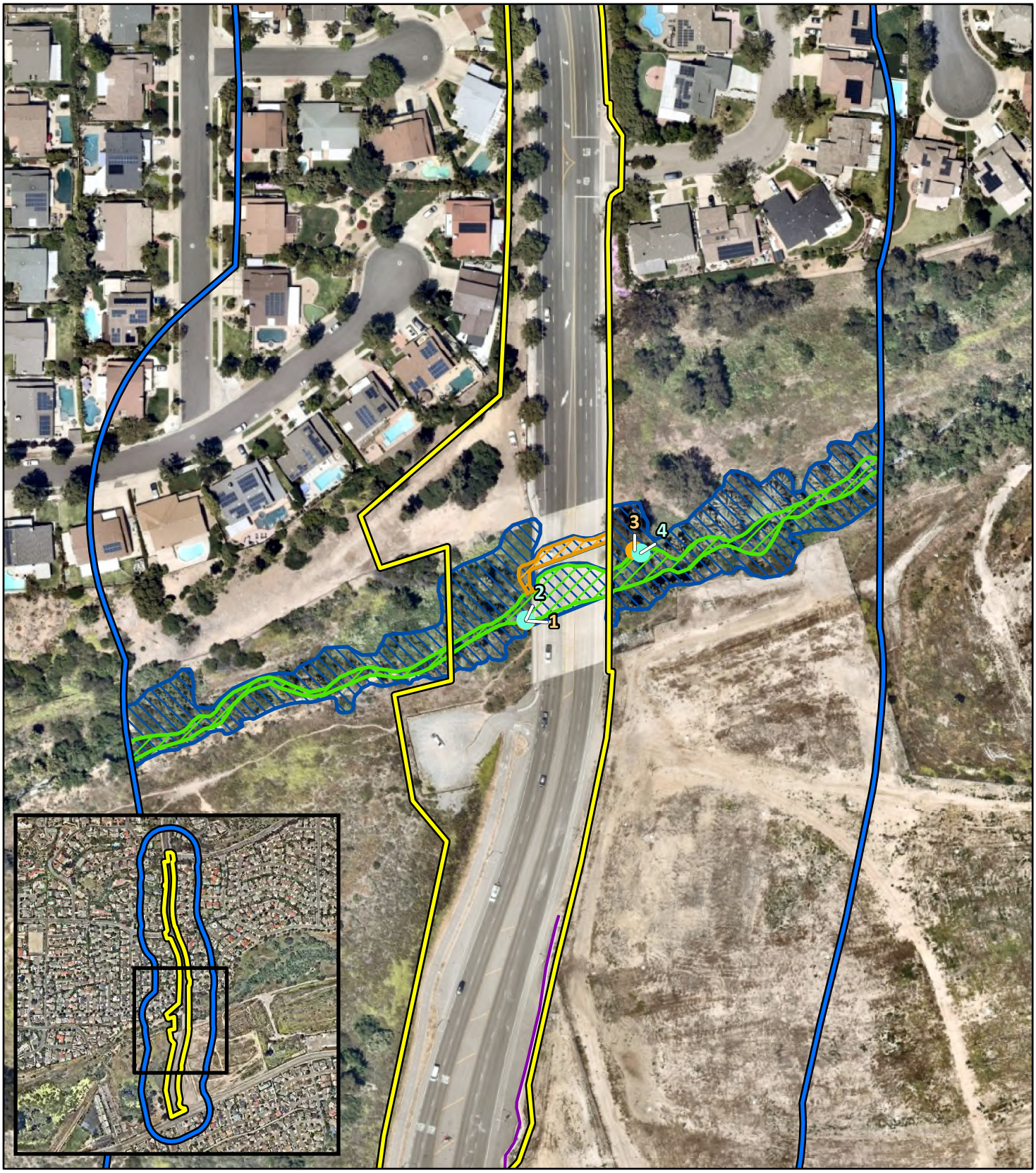
Photo 6: Looking west at Santiago Creek from beneath Cannon Street Bridge near the southern-central portion of the project site. May 3, 2023.

LSA

FIGURE 4

Cannon Street Widening Project
Representative Site Photos

I:\20230893\G\BRA_Photos.cdr (9/8/2023)



LSA

Project Location
300-ft Buffer of Project Location

Soil Pits
Nonwetland (2)
Wetland (2)

Jurisdictional Features
USACE/RWQCB Wetland WOTUS/Wetland WOTS (0.37 acre)
USACE/RWQCB Non-wetland WOTUS/Non-wetland WOTS (0.03 acre)
CDFW Riparian (1.46 acres)
Non-jurisdictional Unnamed Ditch (0.02 acre)

FIGURE 5

N

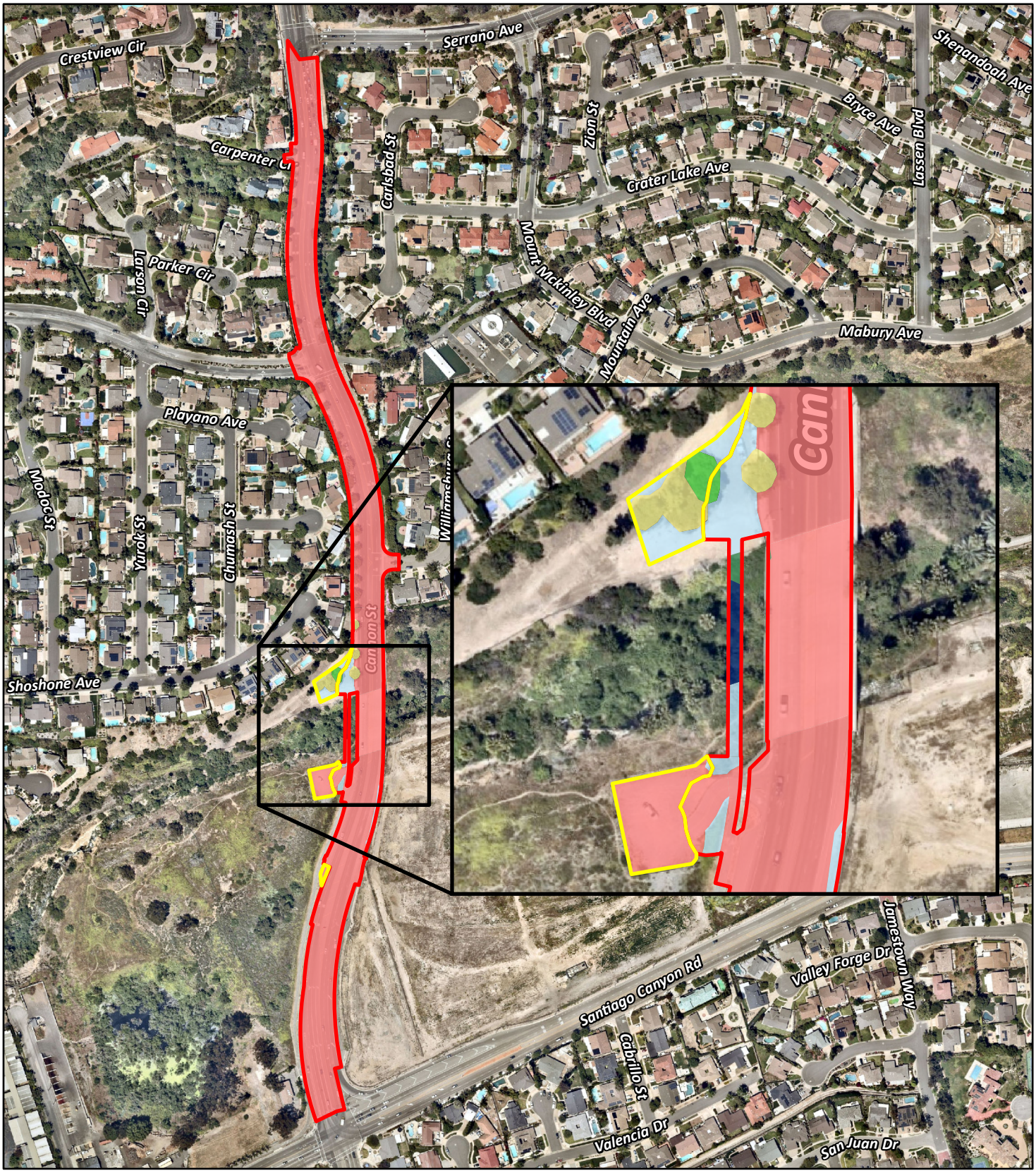
0 75 150
FEET

SOURCE: Nearmap (2023)

Cannon Street Widening Project

Delineation of Jurisdictional and Non-Jurisdictional Areas

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (9/11/2023)



LSA

Permanent Impact (6.90 acres)
Temporary Impact (0.28 acres)

Vegetation and Landcover Types

Disturbed or Barren (0.23 acres)
Coast Live Oak Tree (0.03 acres)
Urban and Commercial (6.79 acres)
Disturbed Cottonwood-Willow Riparian Forest (0.03 acres)
Ornamental Landscaping (0.11 acres)
Poison Oak (0.01 acres)

FIGURE 6

N

0 200 400
FEET

SOURCE: Nearmap (2023)

Cannon Street Widening Project

Impacts to Vegetation and Land Uses

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (4/12/2024)



LSA

Permanent Impact (6.90 acres)
Temporary Impact (0.28 acres)
USACE/RWQCB Wetland WOTUS/Wetland WOTS (0.003 acre)
CDFW Riparian (0.04 acres)

FIGURE 7

N

0 25 50
FEET

SOURCE: Nearmap (2023)

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (4/12/2024)

Cannon Street Widening Project
Impacts to Jurisdictional Features

APPENDIX B

PLANT AND ANIMAL SPECIES OBSERVED

VASCULAR PLANT SPECIES OBSERVED

The following vascular plant species were observed in the specified study area by LSA biologists Heather Monteleone and Jeremy Rosenthal on May 3 and 18, 2023.

* Introduced species not native to California

GYMNOSPERMS

Cupressaceae	**Cypress family**
Juniperus sp.	juniper
Pinus sp.	pines
Podocarpaceae	**Podocarp family**
*Afrocarpus (Podocarpus) gracilior**	fern pine
Podocarpus sp. *	plum pine

EUDICOTS

Lauraceae	**Laurel family**
*Persea americana**	avocado
Adoxaceae	**Muskroot family**
Sambucus nigra ssp. *caerulea*	blue elderberry
*Carpobrotus edulis**	freeway iceplant
Amaranthaceae	**Amaranth family**
*Amaranthus albus**	tumbling pigweed
Anacardiaceae	**Sumac family**
Malosma laurina	laurel sumac
Rhus integrifolia	lemonade berry
*Schinus molle**	Peruvian pepper tree
*Schinus terebinthifolius**	Brazilian pepper tree
Toxicodendron diversilobum	poison oak
Apiaceae	**Carrot family**
*Conium maculatum**	poison hemlock
*Foeniculum vulgare**	sweet fennel
Apocynacecae	**Dogbane family**
*Nerium oleander**	oleander

Araliaceae	**Ginseng family**
*Hedera helix**	English ivy
Asteraceae	**Sunflower family**
Ambrosia psilostachya	western ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Baccharis pilularis	coyote brush
Baccharis salicifolia	mule fat
*Carduus pycnocephalus**	Italian Thistle
*Centaurea melitensis**	tocalote
Encelia californica	California encelia
*Erigeron bonariensis**	flax-leaved horseweed
Erigeron canadensis	common horseweed
*Helminthotheca echioides**	bristly ox-tongue
Heterotheca grandiflora	telegraph weed
*Hypochaeris glabra**	smooth cat's-ear
*Lactuca serriola**	prickly lettuce
Malacothrix saxatilis var. *tenuifolia*	cliff malacothrix
Pseudognaphalium beneolens	fragrant everlasting
*Silybum marianum**	milk thistle
*Sonchus arvensis**	perennial sowthistle
*Sonchus asper**	prickly sow thistle
Uropappus lindleyi	silver puffs
Boraginaceae	**Borage family**
Emmenanthe penduliflora var. *penduliflora*	whispering bells
Phacelia ramosissima	branching phacelia
Brassicaceae	**Mustard family**
*Brassica nigra**	black mustard
*Lepidium didymum**	lesser wart-cress
*Sisymbrium irio**	London rocket
Cactaceae	**Cactus Family**
Opuntia littoralis	*coastal prickly pear*
Chenopodiaceae	**Saltbush family**
*Chenopodium album**	lamb's quarters
Convolvulaceae	**Morning-glory family**
*Convolvulus arvensis**	field bindweed
*Ipomoea purpurea**	common morning-glory
Cucurbitaceae	**Gourd family**
Marah macrocarpa	wild cucumber

Euphorbiaceae	**Spurge family**
*Euphorbia peplus**	petty spurge
*Ricinus communis**	castor bean
Fabaceae	**Pea family**
*Acacia longifolia**	Sydney golden wattle
Acmispon glaber	coastal deerweed
*Medicago polymorpha**	common burclover
Lupinus succulentus	arroyo lupine
*Melilotus indicus**	yellow sweetclover
Fagaceae	**Beech family**
Quercus agrifolia var. *agrifolia*	coast live oak
Geraniaceae	**Geranium family**
*Erodium cicutarium**	redstem filaree
*Erodium malacoides**	Mediterranean stork's bill
Hamamelidaceae	**Witch-hazel family**
*Liquidambar styraciflua**	sweetgum
Juglandaceae	**Walnut family**
Juglans californica var. *californica*	southern California black walnut
Lamiaceae	**Mint family**
*Rosmarinus officinalis**	rosemary
Lythraceae	**Loosestrife family**
*Lagerstroemia indica**	crape myrtle
Malvaceae	**Mallow family**
Malacothamnus fasciculatus	chaparral mallow
*Malva parviflora**	cheeseweed
Moraceae	**Mulberry family**
*Ficus benjamina**	weeping Chinese banyan
*Ficus carica**	edible fig
*Morus alba**	mulberry
Myrsinaceae	**Myrsine family**
*Lysimachia arvensis**	scarlet pimpernel
Myrtaceae	**Myrtle family**
*Eucalyptus globulus**	Tasmanian blue gum
*Eucalyptus sideroxylon**	red ironbark
Oleaceae	**Olive family**
Fraxinus sp.	ash
*Ligustrum japonicum**	Japanese privet

Platanaceae	**Sycamore family**
Platanus racemosa	California sycamore
Polygonaceae	**Buckwheat family**
Eriogonum fasciculatum	California buckwheat
Polygonum aviculare ssp. *depressum**	prostrate knotweed
Rubiaceae	**Madder family**
Galium aparine	goose grass
Salicaceae	**Willow family**
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Salix lasiolepis	arroyo willow
*Xylosma congestum**	shiny xylosma
Scrophulariaceae	**Figwort family**
*Myoporum laetum**	myoporum
Simaroubaceae	**Quassia family**
*Ailanthus altissima**	tree of heaven
Solanaceae	**Nightshade family**
Datura wrightii	jimsonweed
*Nicotiana glauca**	tree tobacco
Ulmaceae	**Elm family**
*Ulmus parvifolia**	Chinese elm

MONOCOTS

Agavaceae	**Agave family**
Agave sp.	agave
Arecaceae	**Palm family**
*Phoenix canariensis**	Canary Island palm
*Washingtonia robusta**	Mexican fan palm
Asparagaceae	**Asparagus family**
*Asparagus asparagoides**	African asparagus fern
Poaceae	**Grass family**
*Avena barbata**	slender wild oat
*Avena fatua**	wild oat
*Bromus diandrus**	ripgut brome
*Bromus rubens**	red brome
*Festuca perennis**	perennial rye
Hordeum murinum ssp. *leporinum **	hare barley
*Pennisetum setaceum**	crimson fountain grass

Typhaceae	**Cattail family**
Typha angustifolia	narrow-leaved cattail
Typha latifolia	broad-leaved cattail
*Aeonium arboreum**	Irish rose
*Bougainvillea glabra**	paperflower
*Rhaphiolepis indica**	Indian hawthorne

Taxonomy and scientific nomenclature generally conform to Baldwin, B.G., D.H. Goldman et al., eds. (2012; The Jepson Manual: Vascular Plants of California, 2nd edition; University of California Press, Berkeley and Los Angeles, California).

Common names for each taxa generally conform to Roberts, F.M., Jr. (2008; The Vascular Plants of Orange County, California: An Annotated Checklist; F.M. Roberts Publications, San Luis Rey, California) except where Abrams, L. (1923, 1944, and 1951; Illustrated Flora of the Pacific States: Washington, Oregon, and California, vols. I–III; Stanford University Press, Stanford, California) and Abrams, L. and Ferris, R.S. (1960; Illustrated Flora of the Pacific States: Washington, Oregon, and California, vol. IV; Stanford University Press, Stanford, California) were used, particularly when species-specific common names were not identified in Roberts, F.M., Jr. (2008).

ANIMAL SPECIES OBSERVED

The following animal species were observed in the specified study area by LSA biologists Heather Monteleone and Jeremy Rosenthal on May 3 and 18, 2023.

* Introduced species not native to California.

REPTILES

Phrynosomatidae	**Phrynosomatid Lizards**
Sceloporus occidentalis	western fence lizard
Uta stansburiana	common side-blotched lizard

BIRDS

Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Cathartidae	**American Vultures**
Cathartes aura	turkey vulture
Accipitridae	**Kites, Hawks, and Eagles**
Accipiter cooperii	Cooper's hawk
Tyrannidae	**Tyrant Flycatchers**
Tyrannus vociferans	Cassin's kingbird
Vireonidae	**Vireos**
Vireo bellii pusillus	least Bell's vireo
Corvidae	**Crows and Ravens**
Corvus brachyrhynchos	American crow
Hirundinidae	**Swallows**
Stelgidopteryx serripennis	northern rough-winged swallow
Aegithalidae	**Bushtits**
Psaltriparus minimus	bushtit
Troglodytidae	**Wrens**
Thryomanes bewickii	Bewick's wren
Mimidae	**Mockingbirds and Thrashers**
Toxostoma redivivum	California thrasher
Sturnidae	**Starlings**
*Sturnus vulgaris**	European starling
Fringillidae	**Finches**
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch

Passerellidae	**New World Sparrows**
Pipilo maculatus	spotted towhee
Melozone crissalis	California towhee
Melospiza melodia	song sparrow
Icteridae	**Blackbirds, Orioles and Allies**
Sturnella neglecta	western meadowlark

MAMMALS

Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
*Sciurus niger**	eastern fox squirrel
Leporidae	**Rabbits and Hares**
Sylvilagus audubonii	desert cottontail

Taxonomy and nomenclature are based primarily on the following:

- **Amphibians and Reptiles:** Crother, B.I., ed. (2017, Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding. Eighth Edition. Herpetological Circular 43.) for species taxonomy and nomenclature; AmphibiaWeb (https://amphibiaweb.org/) and The Reptile Database (www.reptile-database.org/) for higher order taxonomy; see also California Herps (http://www.californiaherps.com/index.html).

- **Birds:** Chesser, R.T., et al. 2021. Checklist of North American Birds (online). American Ornithological Society. http://checklist.aou.org/taxa.

- **Mammals:** Bradley, R.D., et al. (2014, Revised Checklist of North American Mammals North of Mexico, 2014. Museum of Texas Tech University Occasional Papers No. 327).

APPENDIX C

SUMMARY OF SPECIAL-STATUS SPECIES

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
PLANTS					
Abronia villosa var. *aurita* **Chaparral sand-verbena**	US: – CA: 1B.1 NCCP: NC	Sandy areas (generally flats and benches along washes) in chaparral and coastal sage scrub, and improbably in desert dunes or other sandy areas, below 1,600 meters (5,300 feet) elevation. In California, reported from Riverside, San Diego, Imperial, Los Angeles, and Ventura Counties. Believed extirpated from Orange County. Also reported from Arizona and Mexico (Baja California). Plants reported from desert communities are likely misidentified.	Blooms mostly March through August (annual or perennial herb)	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Allium marvinii **Yucaipa onion**	US: – CA: 1B.2 NCCP: NC	Openings in clay soils in chaparral. Known only from the Yucaipa and Beaumont areas of the San Bernardino Mountains; 760 to 1,065 meters (2,500 to 3,500 feet) elevation.	Blooms April through May (perennial bulbiferous herb)	HA	**Not Expected.** Chaparral habitat is absent from the BSA. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Astragalus brauntonii **Braunton's milk-vetch**	US: FE CA: 1B.1 NCCP: NC	Generally shallow calcium carbonate soils derived from marine substrates; although it is occasionally found downstream of known occurrences on non-carbonate soils where survivorship of plants may be reduced. Usually on sandstone with carbonate layers following fire but may follow other disturbance and occur on stiff gravelly clay soils over granite. Typically associated with the fire-dependent chaparral habitat on limestone and on down-wash sites below 640 meters (2,100 feet) elevation. Known only from Los Angeles, Orange, Riverside, and Ventura Counties.	Blooms January through August (perennial herb)	HA	**Not Expected.** Calcium carbonate soils, sandstone, and stiff gravelly clay soils over granite are absent from the BSA. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Astragalus hornii var. *hornii* **Horn's milk-vetch**	US: – CA: 1B.1 NCCP: NC	Alkaline playas and lake margins from 60 to 850 meters (200 to 2,800 feet) elevation. In California, known only from Inyo and Kern Counties. Believed extirpated from San Bernardino County. Also occurs in Nevada.	Blooms May through October (annual herb)	HA	**Not Expected.** Alkaline playas and lake margins are absent from the BSA. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Atriplex coulteri **Coulter's saltbush**	US: – CA: 1B.2 NCCP: NC	Alkaline or clay soils in ocean bluffs and ridge tops and alkaline low places in coastal bluff scrub, coastal dunes, coastal sage scrub, and valley and foothill grasslands below 460 meters (1,500 feet) elevation. In California, known only from Los Angeles, Orange, Santa Barbara, San Bernardino, San Luis Obispo, Ventura, and San Diego Counties. Also occurs in Mexico. Reports of this species from Riverside County are based on misidentification of *Atriplex serenana* ssp. *davidsonii* (*The Vascular Plants of Western Riverside County, California*. F.M. Roberts et al., 2004).	Blooms March through October (perennial herb)	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Atriplex pacifica **South coast saltscale**	US: – CA: 1B.2 NCCP: NC	Alkali soils in coastal sage scrub, playas, coastal bluff scrub, coastal dunes, and chenopod scrub below 200 meters (600 feet) elevation, and perhaps formerly up to about 430 meters (1,400 feet) in Los Angeles County. In California, known from the Channel Islands and mainland Los Angeles, San Diego and Orange Counties. Also occurs in Mexico. Believed extirpated from Ventura County. Reports of this species from Riverside County are based on misidentification of *Atriplex serenana* ssp. *davidsonii* (*The Vascular Plants of Western Riverside County, California*. F.M. Roberts et al., 2004).	Blooms March through October (annual herb)	HA	**Not Expected.** Alkali soils are not present within the BSA. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Atriplex parishii **Parish's brittlescale**	US: – CA: 1B.1 NCCP: NC	Alkali soils in meadows, vernal pools, chenopod scrub, and playas. Usually on drying alkali flats with fine soils. In California, known from Riverside and San Diego Counties. Also occurs in Mexico. Believed extirpated from Los Angeles, Orange, and San Bernardino Counties.	Blooms June through October (annual herb)	HA	**Not Expected.** Alkali soils are not present within the BSA. furthermore, meadows, vernal pools, chenopod scrub, and playa habitats are absent from the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Atriplex serenana var. *davidsonii* **Davidson's saltscale**	US: – CA: 1B.2 NCCP: NC	Alkaline soils in scrub and herbaceous communities from 10 to 460 meters (30 to 1,500 feet) elevation. In California, known only from Los Angeles, Orange, Riverside, San Diego, San Luis Obispo, and Ventura Counties. Believed extirpated from Santa Barbara and perhaps Los Angeles Counties. Also occurs in Mexico.	Blooms April through October (annual herb)	HA	**Not Expected.** Alkali soils are not present within the BSA.
Baccharis malibuensis **Malibu baccharis**	US: – CA: 1B.1 NCCP: NC	Deciduous shrub of conejo volcanic substrates (often on exposed road cuts), in coastal scrub, chaparral, or cismontane woodland, at 150 to 260 meters (490 to 850 feet) elevation. Known only from near Malibu Lake in the Santa Monica Mountains in Los Angeles County and from Fremont Canyon of the Santa Ana Mountains in Orange County.	Blooms in August (shrub)	HA	**Not Expected.** The BSA is outside of the preferred elevation range for this species. Additionally, volcanic substrates are not present within the BSA.
Brodiaea filifolia **Thread-leaved brodiaea**	US: FT CA: SE/1B.1 NCCP: NC	Usually on clay or associated with vernal pools or alkaline flats; occasionally in vernally moist sites in fine soils (clay loam, silt loam, fine sandy loam, loam, loamy fine sand). Typically associated with needlegrass or alkali grassland or vernal pools. Occurs from 25 to 1,120 meters (80 to 3,700 feet) elevation. Known only from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo Counties, California.	Blooms March through June (perennial herb)	HA	**Not Expected.** Needlegrass, alkali grasslands, and vernal pools are not present within the BSA.
Calochortus weedii var. *intermedius* **Intermediate mariposa-lily**	US: – CA: 1B.2 NCCP: CC	Dry, open rocky slopes and rock outcrops in chaparral, coastal sage scrub, and grassland, at 105 to 855 meters (340 to 2,800 feet) elevation. Known only from Los Angeles, Orange, Riverside, and San Bernardino Counties, California. In the western Riverside County area, this species is known from the hills and valleys west of Lake Skinner and Vail Lake (*The Vascular Plants of Western Riverside County, California*. F.M. Roberts et al., 2004). Appears to intergrade with *Calochortus plummerae*, which is mostly east and north of Santa Ana Mountains.	Blooms May through July (perennial herb)	HA	**Not Expected.** Open rocky slopes and rock outcrops are not present within the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Calystegia felix **Lucky morning-glory**	US: – CA: 1B.1 NCCP: NC	Wetland and marshy areas, sometimes alkaline, sometimes artificially watered, from 30 to 215 meters (100 to 700 feet) elevation. All of the known extant occurrences are associated with well-watered landscaping on recently completed industrial, commercial, and residential developments in the City of Chino within a historical area of artesian springs. Older collections are from areas that are now heavily urbanized areas (including one from South Los Angeles and another from Pico Rivera in Los Angeles County). Known to occur only in western San Bernardino County. Presumed extirpated from Riverside and Los Angeles Counties.	Blooms March through September (annual or perennial rhizomatous herb)	HP	**Not Expected.** While marginally suitable wetland and marshy areas are present within the BSA. This species was not observed during the May 2023 field surveys. Additionally, no known occurrences have been documented within 3.0 miles of the BSA (CNDDB).
Centromadia parryi ssp. *australis* **Southern tarplant**	US: – CA: 1B.1 NCCP: NC	In vernally wet areas such as edges of marshes and vernal pools, at edges of roads and trails, and in other areas of compacted, poorly drained, or alkaline soils where competition from other plants is limited, often due to disturbance, below 425 meters (1,400 feet) elevation. In California, known only from Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties. Also occurs in Mexico.	Blooms May through November (annual herb)	HP	**Low.** Habitat is present within the BSA. Additionally, a population of southern tarplant was documented approximately 0.25 acre northwest of the BSA within Santiago Creek in 2003 (CNDDB).
Centromadia pungens ssp. *laevis* **Smooth tarplant**	US: – CA: 1B.1 NCCP: NC	Generally alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland below 480 meters (1,600 feet) elevation. Known from Riverside and San Bernardino Counties, extirpated from San Diego County.	Blooms April through November (annual herb)	HA	**Not Expected.** Alkali soils are not present within the BSA.
Chorizanthe parryi var. *fernandina* **San Fernando Valley spineflower**	US: – CA: SE/1B.1 NCCP: NC	Shallow depressions or shallow, compacted, low-nutrient (e.g. sandy), or disturbed soils (e.g. dirt roads or around rodent burrows) in grassland or coastal scrub where competition from shrubs and exotic grasses is limited, primarily in northeastern Western Transverse Ranges and San Gabriel Mountains below 1,220 meters (3,330 feet) elevation. Known only from Los Angeles and Ventura Counties. Presumed extirpated from Orange County and the Los Angeles Basin.	Blooms April through July (annual herb)	HP	**Not Expected.** While marginally suitable coastal scrub habitat occurs within the BSA, shrub and exotic grass competition is severe, thus precluding the limited competition from these species that San Fernando Valley spineflower requires. Additionally, the only sandy soils mapped within project impact areas are currently developed with asphalt-paved roadways.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Dudleya multicaulis **Many-stemmed dudleya**	US: – CA: 1B.2 NCCP: NC	Heavy, often clay soils or around granitic outcrops in chaparral, coastal sage scrub, and grassland below 790 meters (2,600 feet) elevation. Known only from Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties.	Blooms April through July (perennial herb)	HP	**Not Expected.** While marginally suitable habitat is present within the BSA, this perennial species was not observed during the May 2023 field surveys.
Eriastrum densifolium ssp. *sanctorum* **Santa Ana River woollystar**	US: FE CA: SE/1B.1 NCCP: NC	Riversidean alluvial fan sage scrub and chaparral in sandy or gravelly soils of floodplains and terraced fluvial deposits of the Santa Ana River and larger tributaries (Lytle and Cajon Creeks, lower portions of City and Mill Creeks) at 90 to 625 meters (300 to 2,100 feet) elevation in San Bernardino and Riverside Counties.	Blooms May through September (perennial herb)	HA	**Not Expected.** Riversidean alluvial fan sage scrub and chaparral habitats are not present within the BSA.
Helianthus nuttallii ssp. *parishii* **Los Angeles sunflower**	US: – CA: 1A	Marshes and swamps (coastal salt and freshwater) at 10 to 500 meters (30 to 1,600 feet) elevation. This species is historically known from Los Angeles, Orange and San Bernardino Counties, California. Last seen in 1937. Presumed extinct. Plants found in 2002 at Castaic Spring along the Santa Clara River in Los Angeles County were initially reported as possibly this taxon, but instead appear to be hybrids or evolutionary intermediates between *H. nuttallii* and *H. californicus*, based on chromosome counts and pollen morphology (*A Quantitative Analysis of Pollen Variation in Two Southern California Perennial* Helianthus *(Heliantheae: Asteraceae)*, J.M. Porter and N. Fraga, 2004).	Blooms August through October (perennial herb)	HP	**Not Expected.** While marginally suitable freshwater marsh habitat is present within the BSA, this species it presumed extinct is California and rare or extinct elsewhere.
Hesperocyparis (Callitropsis, Cupressus) forbesii **Tecate cypress**	US: – CA: 1B.1 NCCP: C	Evergreen tree found in closed-cone coniferous forest and chaparral at elevations from 255 to 1,500 meters (800 to 5,000 feet). In California, known from Orange and San Diego Counties. Trees known from Riverside County are planted. Also occurs in Mexico.	Year-round (evergreen tree)	HA	**Not Expected**. The BSA is outside of the preferred elevation range for this species. Additionally, closed-cone coniferous forest and chaparral habitat types are not present within the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Horkelia cuneata ssp. *puberula* **Mesa horkelia**	US: – CA: 1B.1 NCCP: NC	Sandy or gravelly soils in chaparral, or rarely in cismontane woodland or coastal scrub at 70 to 825 meters (200 to 2,700 feet) elevation. Known only from San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Bernardino Counties, California. Believed extirpated from Riverside and San Diego Counties.	Blooms February through July (sometimes to September) (perennial herb)	HP	**Not Expected.** While coastal scrub habitat is present within the BSA, this species was not observed during the May 2023 field surveys. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	US: – CA: 1B.1 NCCP: NC	Vernal pools and alkaline soils in marshes, playas, and similar habitats below 1,220 meters (4,000 feet) elevation. Known from Colusa, Merced, Tulare, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, Tehama, Ventura, and Yolo Counties. Believed extirpated from Kern, Los Angeles, and San Bernardino Counties, and possibly also from Tulare County. Also occurs in Mexico.	Blooms February through June (annual herb)	HP	**Not Expected.** Vernal pools and alkaline soils in marshes and playas are not present within the BSA. Additionally, this species was not observed during the May 2023 field surveys. Further, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Lepechinia cardiophylla **Heart-leaved pitcher sage**	US: – CA: 1B.2 NCCP: C	Closed cone coniferous forest, chaparral, cismontane woodland at 550 to 1,370 meters (1,800 to 4,500 feet) elevation. Occurs in the Santa Ana Mountains in Riverside and Orange Counties. Also reported from San Diego County and Baja California.	Blooms April through July (perennial herb)	HA	**Not Expected**. The BSA is outside of the preferred elevation range for this species. Additionally, closed-cone coniferous forest, chaparral, and cismontane woodland habitat types are not present within the BSA.
Lepidium virginicum var. *robinsonii* **Robinson's pepper-grass**	US: – CA: 4.3 NCCP: NC	Dry soils in coastal sage scrub and chaparral below 885 meters (2,900 feet) elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino and San Diego Counties, and Santa Cruz Island. Also occurs in Mexico.	Blooms January through July (annual herb)	HP	**Not Expected.** While coastal sage scrub exists within the BSA, this species was not observed during the May 2023 field surveys. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Monardella australis ssp. *jokerstii* **Jokerst's monardella**	US: – CA: 1B.1	Steep scree or talus slopes between breccia and secondary alluvial benches along drainages and washes, in lower montane coniferous forest and chaparral at 1,350 to 1,750 meters (4,430 to 5,740 feet). Known only from the San Gabriel Mountains of San Bernardino County, California.	Blooms July through September (perennial rhizomatous herb)	HA	**Not Expected**. The BSA is outside of the preferred elevation range for this species.
Monardella hypoleuca ssp. *intermedia* **Intermediate monardella**	US: – CA: 1B.3	Usually understory often found in steep, brushy areas in chaparral, cismontane woodland, and sometimes in lower montane coniferous forests from 200 to 1,250 meters (660 to 4,100 feet). Endemic to California, only known from Orange, Riverside, and San Diego Counties.	Blooms April through September (perennial rhizomatous herb)	HA	**Not Expected**. The BSA is outside of the preferred elevation range for this species. Additionally, closed-cone coniferous forest, chaparral, and cismontane woodland habitat types are not present within the BSA.
Nama stenocarpa **Mud nama**	US: – CA: 2B.2 NCCP: NC	Lake shores, riverbanks, and similar intermittently wet areas at 5 to 500 meters (20 to 1,600 feet) elevation. Known in California from San Diego, Orange, and Riverside Counties and from San Clemente Island. Believed extirpated from Los Angeles and Imperial Counties. Known also from Baja California and Arizona.	Blooms January through July (annual or perennial herb)	HP	**Not Expected.** While riverbanks banks and wet areas exist within the BSA, this species was not observed during the May 2023 field surveys. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Nasturtium (Rorippa) gambelii **Gambel's watercress**	US: FE CA: ST/1B.1 NCCP: NC	Marshes from 5 to 330 meters (20 to 1,100 feet) elevation. Currently believed to occur in California only in Santa Barbara and San Luis Obispo Counties. There are historical records from Los Angeles, Orange, and San Bernardino Counties. A historical report from San Diego County likely constitutes a misidentification. Also occurs in Baja California.	Blooms April through September (perennial rhizomatous herb)	HA	**Not Expected.** Marshes are not present within the BSA. Additionally, this species was not observed during the May 2023 field surveys. Further, no known occurrences have been documented within 3.0 miles of the BSA (CNDDB).
Nolina cismontana **Chaparral nolina**	US: – CA: 1B.2 NCCP: NC	Sandstone or gabbro in chaparral and coastal sage scrub at 140 to 1,275 meters (500 to 4,200 feet) elevation. Known from Orange, Riverside, San Diego, and Ventura Counties, California.	Blooms May through July (perennial shrub)	HA	**Not Expected**. The BSA is outside of the preferred elevation range for this species.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Penstemon californicus **California beardtongue**	US: – CA: 1B.2 NCCP: NC	Sandy or granitic soils on stony slopes and shrubby openings in chaparral, lower montane coniferous forest, at pinyon-juniper woodlands at 1,160 to 2,320 meters (3,800 to 7,600 feet) elevation. Known in California only from Riverside County.	Blooms May through August (perennial herb)	HA	**Not Expected**. The BSA is outside of the preferred elevation range for this species. Additionally, chaparral, lower montane coniferous forest, and pinyon-juniper woodland habitat types are not present within the BSA.
Pentachaeta aurea ssp. allenii **Allen's pentachaeta**	US: – CA: 1B.1 NCCP: NC	Grasslands and openings in coastal scrub from 75 to 520 meters (250 to 1,700 feet) elevation. Known only from Orange County, California.	Blooms March through June (annual herb)	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Pseudognaphalium leucocephalum **White rabbit-tobacco**	US: – CA: 2B.2 NCCP: NC	Sand and gravel at the edges of washes or mouths of steep canyons at 0 to 2,100 meters (0 to 7,000 feet) elevation. In California, known from Los Angeles, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, and Ventura Counties. Also occurs in Arizona, New Mexico, Texas, and Mexico.	Blooms usually August through November (perennial herb)	HP	**Not Expected.** While marginally suitable habitat exists, this species was not observed during the May 2023 field surveys. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Senecio aphanactis **Chaparral ragwort**	US: – CA: 2B.2 NCCP: NC	Openings (especially alkaline flats) in cismontane woodland, coastal sage scrub, and chaparral at 15 to 800) meters (50 to 2,600 feet) elevation. Known in California from Alameda, Contra Costa, Fresno, Los Angeles, Merced, Monterey, Orange, Riverside, Santa Barbara, Santa Clara, San Diego, San Luis Obispo, Solano, and Ventura Counties. Also occurs in Baja California.	Blooms January through April (annual herb)	HP	**Not Expected.** While marginally suitable habitat exists, this species was not observed during the May 2023 field surveys. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Sidalcea neomexicana **Salt Spring checkerbloom**	US: – CA: 2B.2 NCCP: NC	Alkaline springs and brackish marshes below 1,530 meters (5,000 feet) elevation. In California, known only from Kern, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. Believed extirpated from Los Angeles County. Also known from Arizona, New Mexico, Nevada, Utah, and Mexico.	Blooms March through June (perennial herb)	HA	**Not Expected.** Alkaline springs and brackish marsh habitats are not present within the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Suaeda esteroa **Estuary seablite**	US: – CA: 1B.2 NCCP: NC	Coastal salt marshes below 5 meters (15 feet) elevation. Occurs along immediate coast from Santa Barbara County to Baja California.	Blooms May through October (January) (perennial herb)	HA	**Not Expected.** The BSA is outside of the preferred elevation range for this species. Additionally, coastal salt marsh habitat is not present within the BSA.
Symphyotrichum defoliatum **San Bernardino aster**	US: – CA: 1B.2 NCCP: NC	Vernally wet sites (such as ditches, streams, and springs) in many plant communities below 2,040 meters (6,700 feet) elevation. In California, known from Ventura, Kern, San Bernardino, Los Angeles, Orange, Riverside, and San Diego Counties. May also occur in San Luis Obispo County. In the western Riverside County area, this species is scarce, and documented only from Temescal and San Timoteo Canyons (*The Vascular Plants of Western Riverside County, California*. F.M. Roberts et al., 2004).	Blooms July through November (perennial herb)	HP	**Not Expected.** W While marginally suitable habitat exists, this species was not observed during the May 2023 field surveys. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
INVERTEBRATES					
Bombus crotchii **Crotch bumble bee**	US: – CA: CE NCCP: NC	Nectars on *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia,* and *Eriogonum* in coastal California east to the Sierra-Cascade crest and south into Mexico.	Spring and summer	HP	**Low.** Multiple nectars species exist within the BSA. However, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Branchinecta sandiegonensis **San Diego fairy shrimp**	US: FE CA: SA NCCP: CC	Small, shallow (usually less than 30 centimeters deep), relatively clear but unpredictable vernal pools on coastal terraces. Pools must retain water for a minimum of 13 days for this species to reproduce (3 to 8 days for hatching, and 10 to 20 days to reach reproductive maturity). Known from Orange and San Diego Counties, and Baja California.	Seasonally following rains in late fall, winter and spring	HA	**Not Expected.** Vernal pools are absent from the BSA.
Cicindela latesignata latesignata **Tiger beetle**	US: – CA: SA NCCP: NC	Mudflats and beaches in coastal southern California.	Presumed spring through fall	HA	**Not Expected.** Mudflats and beaches are absent from the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Euphydryas editha quino **Quino checkerspot butterfly**	US: FE CA: SA NCCP: NC	Meadows or openings within coastal sage scrub or chaparral below about 5,000 feet where food plants (*Plantago erecta* and/or *Orthocarpus purpurascens*) are present. Historically known from Santa Monica Mountains to northwest Baja California; currently known only from southwestern Riverside County, southern San Diego County, and northern Baja California.	January through late April	HP	**Low.** While marginally suitable coastal sage scrub habitat exists within the BSA, this species was last documented (Occurrence Number 105), approximately 2.12 miles southeast of the BSA in 1983 (CNDDB)
Streptocephalus woottoni **Riverside fairy shrimp**	US: FE CA: SA NCCP: CC	Warm-water vernal pools (i.e., large, deep pools that retain water into the warm season) with low to moderate dissolved solids, in annual grassland areas interspersed through chaparral or coastal sage scrub vegetation. Suitable habitat includes some artificially created or enhanced pools, such as some stock ponds, that have vernal pool like hydrology and vegetation. Known from areas within about 50 miles of the coast from Ventura County south to San Diego County and Baja California.	Seasonally following rains; typically January through April	HA	**Not Expected.** Vernal pools are absent from the BSA.
Tryonia imitator **Mimic tryonia (=California brackishwater snail)**	US: - CA: SA NCCP: NC	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	Presumed year-round	HA	**Not Expected.** Coastal lagoons, estuaries, and salt marsh habitat types are not present within the BSA
FISH					
Catostomus santaanae **Santa Ana sucker**	US: FT CA: SSC NCCP: NC	The Santa Ana sucker's historical range includes the Los Angeles, San Gabriel, and Santa Ana River drainage systems located in Southern California. An introduced population also occurs in the Santa Clara River drainage system in southern California. Found in shallow, cool, running water.	Year-round	HP	**Not Expected.** While suitable habitat exists within the BSA, this species was not observed during the May 2023 field surveys. Additionally, the last known occurrence (Occurrence Number 23) was documented approximately 2.4 miles north of the BSA in 2000 (CNDDB).

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Oncorhynchus mykiss irideus pop. 10 **Southern steelhead - Southern California DPS**	US: FE CA: SA/CE NCCP: NC	Federal listing refers to runs in coastal basins from the Santa Maria River, south to the southern extent of the range (presently considered to be Malibu Creek. Proposed rulemaking 12/19/2000 to extend southern portion of the range to San Mateo.	Year-round	HP	**Not Expected.** While suitable habitat exists and this species has been mapped within the BSA (Occurrence Number 18), this data within the CNDDB was recorded in 1950. No additional occurrences have been documented within 3.0 of the BSA.
Rhinichthys osculus ssp. 8 **Santa Ana speckled dace**	US: – CA: SSC NCCP: NC	Found in the headwaters of the Santa Ana and San Gabriel River drainages. Found in riffles in small streams and shore areas with abundant gravel and rock.	Year-round	HA	**Not Expected.** The headwaters of the Santa Ana and San Gabriel Rivers are not present within the BSA.
AMPHIBIANS					
Anaxyrus (Bufo) californicus **Arroyo toad**	US: FE CA: SSC BLM: – MSHCP: S	Washes and arroyos with open water; sand or gravel beds; for breeding, pools with sparse overstory vegetation. Coastal and a few desert streams from Santa Barbara County to Baja California.	March through July	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Spea hammondii **Western spadefoot**	US: – CA: SSC NCCP: C	Grasslands and occasionally hardwood woodlands; largely terrestrial but requires rain pools or other ponded water persisting at least three weeks for breeding; burrows in loose soils during dry season. Occurs in the Central Valley and adjacent foothills, the non-desert areas of southern California, and Baja California.	October through April (following onset of winter rains)	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Taricha torosa **Coast Range newt**	US: – CA: SSC NCCP: NC	Breeds in ponds, reservoirs, and slow-moving streams with long-lasting (at least through July), clean water; uses nearby upland areas including grassland, chaparral, and woodland; coastal drainages from Mendocino County south to San Diego County, with populations from San Luis Obispo County south designated as sensitive.	October through May	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
REPTILES					
Anniella stebbinsi **Southern California legless lizard**	US: – CA: SSC NCCP: NC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation in Southern California.	Nearly year round, at least in southern areas	HP	**Moderate.** Suitable habitat is present within the BSA. Additionally, an occurrence (Occurrence Number 426) was documented approximately 0.31 miles east of the BSA in 2019 (CNDDB).
Arizona elegans occidentalis **California glossy snake**	US: – CA: SSC NCCP: NC	Scrub and grassland habitats, often with loose or sandy soils. Patchily distributed from the eastern portion of San Francisco Bay to southern San Joaquin Valley and in non-desert areas of southern California. Also occurs in Baja California, Mexico.	Most active March through June (nocturnal)	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Aspidoscelis hyperythra **Orangethroat whiptail**	US: – CA: SA NCCP: C	Prefers washes and other sandy areas with patches of brush and rocks, in chaparral, coastal sage scrub, juniper woodland, and oak woodland from sea level to 915 meters (3,000 feet) elevation. Perennial plants required. Occurs in Riverside, Orange, San Diego Counties west of the crest of the Peninsular Ranges, in extreme southern San Bernardino County near Colton, and in Baja California.	March through July with reduced activity August through October	HP	**Not Expected.** While marginally suitable habitat exists and an occurrence (Occurrence Number 42) was documented within 0.10 of a of the BSA, this record was recorded in 1962 (CNDDB). No additional occurrences have been documented within 3.0 miles of the BSA.
Aspidoscelis tigris stejnegeri **Coastal western whiptail**	US: – CA: SSC NCCP: C	Woodlands, riparian areas, and sparsely vegetated areas in a wide variety of habitats including coastal sage scrub and sparse grassland. Occurs in valleys and foothills from Ventura County to Baja California.	April through August	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Crotalus ruber **Red diamond rattlesnake**	US: – CA: SSC NCCP: C	Desert scrub, thornscrub, open chaparral and woodland; occasional in grassland and cultivated areas. Prefers rocky areas and dense vegetation. Morongo Valley in San Bernardino and Riverside Counties to the west and south into Mexico.	Mid-spring through mid-fall	HA	**Not Expected.** Desert scrub, thornscrub, and open chaparral and woodland habitat types are not present within the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Emys marmorata **Western pond turtle**	US: – CA: SSC MSHCP: C	Inhabits permanent or nearly permanent water. Absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Requires basking sites such as partially submerged logs, rocks, or open mud banks.	Year-round with reduced activity November through March	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Phrynosoma blainvillii (coronatum) **Coast horned lizard**	US: – CA: SSC NCCP: C	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) elevation.	April through July with reduced activity August through October	HA	**Not Expected.** While marginally suitable habitat exists, the earliest known occurrence (Occurrence Number 335) was documented approximately 2.84 miles to the east of the BSA in 1990 (CNDDB).
Salvadora hexalepis virgultea **Coast patch-nosed snake**	US: – CA: SSC NCCP: NC	Coastal chaparral, washes, sandy flats and rocky areas. Widely distributed throughout lowlands, up to 2,130 meters (7,000 feet) elevation, of Southern California from coast to the eastern border.	Active diurnally throughout most of the year	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Thamnophis hammondii **Two-striped garter snake**	US: – CA: SSC NCCP: NC	Highly aquatic. Only in or near permanent sources of water. Streams with rocky beds supporting willows or other riparian vegetation. From Monterey County to northwest Baja California.	Diurnal Year-round		**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
BIRDS					
Accipiter cooperii (nesting) **Cooper's hawk**	US: – CA: SA NCCP: NC	Forages in a wide range of habitats, but primarily in forests and woodlands. These include natural areas as well as human-created habitats such as plantations and ornamental trees in urban landscapes. Usually nests in tall trees (20 to 60 feet) in extensive forested areas (generally woodlots of 4 to 8 hectares with canopy closure of greater than 60 percent). Occasionally nests in isolated trees in more open areas.	Year-round	HP	**Moderate (nesting), high (foraging).** Suitable nesting and foraging habitat exists within the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Agelaius tricolor (nesting colony) **Tricolored blackbird**	US: – CA: ST/SSC (breeding) NCCP: C	Open country. Forages in grassland and cropland habitats. Nests in large groups near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, or tall herbs. Seeks cover for roosting in emergent wetland vegetation, especially cattails and tules, and also in trees and shrubs. Occurs in western Oregon, California, and northwestern Baja California.	Year-round	HP	**Not Expected.** While marginally suitable habitat exists within the BSA, the earliest known occurrence (Occurrence Number 775) was documented in Peters Canyon Reservoir, located approximately 2.50 miles to the southeast of the BSA in 1990 (CNDDB).
Aimophila ruficeps canescens **Southern California rufous-crowned sparrow**	US: – CA: SA NCCP: C	Steep, rocky coastal sage scrub and open chaparral habitats, particularly scrubby areas mixed with grasslands. From Santa Barbara County to northwestern Baja California.	Year-round, diurnal activity	HA	**Not Expected.** While coastal sage scrub habitat exists within the BSA, none of it is within steep rock areas. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Ammodramus savannarum (nesting) **Grasshopper sparrow**	US: – CA: SSC (breeding) NCCP: NC	Grasslands, agricultural fields, prairie, old fields and open savanna. Uncommon and very local summer resident on grassy slopes and mesas west of the deserts. Only rarely in migration and in winter. Coastal Southern California.	March through September; also in winter along the southern California coast	HA	**Not Expected.** Grasslands, agricultural fields, prairies, and open savanna habitat types are not present within the BSA.
Aquila chrysaetos (nesting & wintering) **Golden eagle**	US: – CA: CFP NCCP: C	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in Southern California.	Year-round diurnal	HA	**Not Expected.** Preferred nesting habitat is not present within the BSA, additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Ardea herodias (nesting colony) **Great blue heron**	US: – CA: SA NCCP: NC	Usually nests in trees, but also on large bushes, poles, reedbeds, and even on the ground. Frequents a wide range of wetland habitats at other times of year.	February to July at nesting sites; year round elsewhere	HP	**Not Expected (Nesting), Low (Foraging).** Suitable nesting habitat is absent from the BSA, but foraging opportunities exist.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Asio otus (nesting) **Long-eared owl**	US: – CA: SSC (breeding) NCCP: NC	Scarce and local in forests and woodlands throughout much of the Northern Hemisphere. Rare resident in coastal southern California. Nests and roosts in dense willow-riparian woodland and oak woodland, but forages over wider areas. Breeds from valley foothill hardwood up to ponderosa pine habitat.	Nocturnal Year-round	HP	**Not Expected.** While marginally suitable habitat exists within the BSA, the earliest known occurrence (Occurrence Number 45) was documented approximately 3.0 miles to the east of the BSA in 1968 (CNDDB).
Athene cunicularia (burrow sites) **Burrowing owl**	US: – CA: SSC (breeding) NCCP: NC	Open country in much of North and South America. Usually occupies ground squirrel burrows in open, dry grasslands, agricultural and range lands, railroad rights-of-way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles. They avoid thick, tall vegetation, brush, and trees, but may occur in areas where brush or tree cover is less than 30 percent.	Year-round	HA	**Not Expected.** Dry grasslands, agricultural and range land habitat types are not present within the BSA.
Buteo regalis (wintering) **Ferruginous hawk**	US: – CA: SA NCCP: NC	Forages in open fields, grasslands and agricultural areas, sagebrush flats, desert scrub, fringes of pinyon-juniper habitats, and other open country in western North America. Not known to breed in California.	Mid-September through mid-April	HP	**Not Expected.** While foraging opportunities exist within the BSA, this species does not breed in California. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Buteo swainsoni (nesting) **Swainson's hawk**	US: – CA: ST NCCP: NC	Open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Breeds and nests in western North America; winters in South America. Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley. In Southern California, now mostly limited to spring and fall	Spring and fall (in migration)	HA	**Not Expected.** Open desert, grassland, or cropland containing scattered, large trees or small groves are absent from the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
		transient. Formerly abundant in California with wider breeding range.			
Campylorhynchus brunneicapillus sandiegensis **Coastal cactus wren**	US: – CA: SSC (year round) NCCP: C	Inhabits coastal sage scrub, nesting almost exclusively in thickets of cholla (Opuntia prolifera) and prickly pear (Opuntia littoralis and Opuntia oricola), typically below 150 meters (500 feet) elevation. Found in coastal areas of Orange County and San Diego Counties, and extreme northwestern Baja California, Mexico.	Year-round (non-migratory)	HP	**Low.** Suitable habitat, including thickets of prickly pear, are present within the BSA. Additionally, a Coastal cactus wren was documented (Occurrence Number 182) within the Anaheim Hills Golf Course, located approximately 0.25 acre south of the BSA in 2001 (CNDDB).
Coccyzus americanus occidentalis (nesting) **Western yellow-billed cuckoo**	US: FT CA: SE NCCP: NC	Breeds and nests in extensive stands of dense cottonwood/willow riparian forest along broad, lower flood bottoms of larger river systems at scattered locales in western North America; winters in South America.	June through September	HA	**Not Expected.** While cottonwood/willow riparian forest is present within the BSA, the broad, lower flood bottoms associated with large river systems are absent from the BSA.
Coturnicops noveboracensis **Yellow rail**	US: – CA: SSC NCCP: NC	Inhabits freshwater marshes, as a very local breeder in the northeastern interior of California and as a winter visitor (early October to mid-April) on the coast and in the Suisun Marsh region.	Year-round	HP	**Not Expected.** While freshwater marshes are present within the BSA, the BSA is too far inland.
Elanus leucurus (nesting) **White-tailed kite**	US: – CA: CFP NCCP: NC	Typically nests in riparian trees such as oaks, willows, and cottonwoods at low elevations. Forages in open country. Found in South America and in southern areas and along the western coast of North America.	Year-round	HP	**Low (nesting) Moderate (foraging).** Suitable habitat exists in the BSA. Additionally, four occurrences (Occurrence Numbers 120, 122, 136, and 138), have been documented within 3.0 miles of the BSA from 2008 through 2009 (CNDDB).
Empidonax traillii extimus **Southwestern willow flycatcher**	US: FE CA: SE NCCP: NC	Rare and local breeder in extensive riparian areas of dense willows or (rarely) tamarisk, usually with standing water, in the southwestern U.S. and possibly extreme northwestern Mexico. Winters in Central and South America. Below 6,000 feet elevation.	May through September	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Eremophila alpestris actia **California horned lark**	US: – CA: SA NCCP: NC	Open grasslands and fields, agricultural area, open montane grasslands. This subspecies is resident from northern Baja California northward throughout non-desert areas to Humboldt County, including the San Joaquin Valley and the western foothills of the Sierra Nevada (north to Calaveras County). Prefers bare ground such as plowed or fall-planted fields for nesting, but may also nest in marshy soil. During the breeding season, this is the only subspecies of horned lark in non-desert southern California; however, from September through April or early May, other subspecies visit the area.	Year-round interior (inland areas)	HA	**Not Expected.** Open grasslands and fields, agricultural areas, and open montane grasslands are not present within the BSA.
Falco mexicanus (nesting) **Prairie falcon**	US: – CA: SA NCCP: NC	Open country in much of North America. Nests in cliffs or rocky outcrops; forages in open arid valleys and agricultural fields. Rare in southwestern California.	Year-round diurnal	HA	**Not Expected.** Cliff and rocky outcrop nesting requirements as well as open arid valley and agricultural field foraging requirements are absent from the BSA.
Haliaeetus leucocephalus (nesting & wintering) **Bald eagle**	US: – CA: SE/CFP NCCP: NC	Winters locally at deep lakes and reservoirs feeding on fish and waterfowl. Locally rare throughout North America.	November through February	HA	**Not Expected.** Deep lakes and reservoirs are absent from the BSA.
Icteria virens (nesting) **Yellow-breasted chat**	US: – CA: SSC (breeding) NCCP: NC	Riparian thickets of willow, brushy tangles near watercourses. Nests in riparian woodland throughout much of western North America. Winters in Central America.	April through September	HP	**Low.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Laterallus jamaicensis coturniculus **California black rail**	US: – CA: ST/CFP NCCP: NC	Requires shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation. Prefers areas of moist soil vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges, with scattered small pools. Known from coastal California, northwestern Baja California, the lower Imperial Valley, and the lower Colorado River of Arizona and California. Now extirpated from virtually all of coastal Southern California.	Year-round	HA	**Not Expected.** Suitable vegetation and habitat types preferred by California black rail are not present within the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Passerculus sandwichensis beldingi **Belding's savannah sparrow**	US: – CA: SE NCCP: NC	Resident in salt marshes, with rare exception (e.g., Islas Todos Santos, Baja California), of Pacific Coast from Santa Barbara County to Baja California.	Year-round	HA	**Not Expected.** Salt marshes are absent from the BSA.
Polioptila californica californica **Coastal California gnatcatcher**	US: FT CA: SSC NCCP: C	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) elevation in cismontane southwestern California and Baja California.	Year-round	HP	**High.** Suitable habitat is found along the majority of the BSA to the south of Santiago Creek and west of Cannon Street. Additionally, 28 known occurrences have been documented within 3.0 miles of the BSA.
Rallus longirostris levipes **Light-footed clapper rail**	US: FE CA: SE/CFP NCCP: NC	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickleweed are the dominant vegetation. Requires dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on mollusks and crustaceans.	Year-round, vocalizes at night, dawn, and dusk	HA	**Not Expected.** Salt marshes ab absent from the BSA.
Setophagia petechia (nesting) **Yellow warbler**	US: – CA: SSC (breeding) NCCP: NC	Riparian woodland while nesting in the western U.S. and northwestern Baja California; more widespread in brushy areas and woodlands during migration. Occurs from western Mexico to northern South America in winter. Migrants are widespread and common. Three subspecies breed in California: *morcomi, brewsteri,* and *sonorana.* (Sonoran yellow warbler nests along the Colorado River.)	Summer, winter, or Year-round, depending on locale	HP	**Present.** This species was observed during the May 3, 2023, field survey.
Sternula antillarum browni (nesting colony) **California least tern**	US: FE CA: SE/CFP NCCP: NC	Nests along the coast from San Francisco Bay south to northern Baja California. Forages in shallow water. Colonial breeder on bare or sparsely vegetated, flat substrates, sand beaches, alkali flats, landfills, or paved areas.	April through October	HA	**Not Expected.** Coastal areas are absent from the BSA.

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Vireo bellii pusillus **Least Bell's vireo**	US: FE CA: SE NCCP: CC	Riparian forests and willow thickets. The most critical structural component of Least Bell's Vireo habitat in California is a dense shrub layer 2 to 10 feet (0.6–3.0 meter) above ground. Willows usually dominant. Nests from central California to northern Baja California. Winters in southern Baja California.	April through September	HP	**Present.** This species was observed during the May 19, 2023, field survey.
MAMMALS					
Sorex ornatus salicornicus **Southern California saltmarsh shrew**	US: – CA: SSC NCCP: NC	Coastal marshes with dense vegetation and woody debris for cover. Known only from Los Angeles, Ventura, and Orange Counties.	Year-round, mostly nocturnal	HA	**Not Expected.** Coastal marsh habitat is absent from the BSA. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Antrozous pallidus **Pallid bat**	US: – CA: SSC NCCP: NC	Most common in open, dry habitats with rocky areas for roosting. Day roosts in caves, crevices, rocky outcrops, tree hollows or crevices, mines and occasionally buildings, culverts, and bridges. Night roosts may be more open sites, such as porches and open buildings. Grasslands, shrublands, woodlands, and forest in western North America.	Year-round; nocturnal	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Choeronycteris mexicana **Mexican long-tongued bat**	US: - CA: SSC NCCP: NC	Occasionally found in San Diego County, which is on the periphery of their range. Feeds on nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves, and in and around buildings.	Year-round	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB). Additionally, the BSA is outside of the known range for this species.
Eumops perotis californicus **Western mastiff bat**	US: – CA: SSC NCCP: NC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in vertical cliff faces, high buildings, and tunnels, and travels widely when foraging.	Year-round; nocturnal	HP	**Not Expected.** While marginally suitable habitat exists within the BSA, the earliest known occurrence (Occurrence Number 75) was documented approximately 2.75 miles southwest of the BSA in 1989 (CNDDB).

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability
Myotis yumanensis **Yuma myotis**	US: – CA: SA NCCP: NC	Optimal habitats are open forests and woodlands with sources of water over which to feed. Common and widespread in California. Uncommon in the Mojave and Colorado Desert regions, except for mountains. Ranging generally from sea level to 2,440 meters (8,000 feet). Roosts in buildings, mines, caves or crevices; occasionally in swallow nests and under bridges.	Primarily the warmer months	HP	**Low.** While marginally suitable habit is present within the BSA, this species or sign was not observed within the BSA, particularly underneath the Cannon Street San Juan Creek Bridge. Additionally, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Chaetodipus californicus femoralis **Dulzura pocket mouse**	US: – CA: SSC NCCP: NC	Found in a variety of habitats including coastal sage scrub, chaparral and grassland in northern Baja California, San Diego and extreme southwestern and western Riverside Counties. Limit of range to northwest (at interface with *C. c. dispar*) unclear.	Year-round	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Chaetodipus fallax fallax **Northwestern San Diego pocket mouse**	US: – CA: SSC NCCP: NC	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.	Year-round	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Neotoma lepida intermedia **San Diego desert woodrat**	US: – CA: SSC NCCP: C	Found in desert scrub and coastal sage scrub habitat, especially in association with cactus patches. Builds stick nests around cacti, or on rocky crevices. Occurs along the Pacific slope from San Luis Obispo County to northwest Baja California.	Year-round, mainly nocturnal, occasionally crepuscular and diurnal	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).
Onychomys torridus ramona **Southern grasshopper mouse**	US: – CA: SSC NCCP: NC	Believed to inhabit sandy or gravelly valley floor habitats with friable soils in open and semi-open scrub, including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub, and annual grassland with scattered shrubs, preferring low to moderate shrub cover. More susceptible to small- and large-scale habitat loss and fragmentation than most other rodents, due to its low fecundity, low population density, and large home range size. Arid portions of southwestern California and northwestern Baja California.	Nocturnal, active year-round	HP	**Not Expected.** While marginally suitable habitat exists, no known occurrences have been documented within 3 miles of the BSA (CNDDB).

Species	Status	Habitat and Distribution	Activity Period	Habitat Present/ Absent	Occurrence Probability

Sources: CNDDB (CDFW 2023); Biogeographic Information and Observation System (CDFW 2023); and Information for Planning and Consultation (IPaC) database (USFWS 2019a).

US: Federal Classifications

FT = Listed as threatened
FE = Listed as endangered

CA: State Classifications

SE = Listed as endangered
ST = Listed as threatened
CE = Candidate Endangered
CFP = Fully Protected
SSC = Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
SA = Special Animal. Refers to any other animal monitored by the Natural Diversity Database, regardless of its legal or rarity status.

CNPS Designations

1A = Plants presumed extinct in California and rare/extinct elsewhere
1B.1 = Rare threatened, or endangered in California and elsewhere
1B.2 = Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 = Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California
2B.2 = Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California
4.3 = Plants of limited distribution; not very threatened in California

NCCP: Natural Community Conservation Plan and Habitat Conservation Plan for Central and Coastal Orange County

C = Species Covered by NCCP/HCP
CC= Species Conditionally Covered by NCCP/HCP
NC= Species Not Covered by NCCP/HCP

amsl = above mean sea level
CA = California
CDFW = California Department of Fish and Wildlife
CNDDB = California Natural Diversity Database
MSHCP = Multiple Species Habitat Conservation Plan
US = United States
USFWS = United States Fish and Wildlife Service

APPENDIX D

JURISDICTIONAL DELINEATION REPORT

DRAFT

JURISDICTIONAL DELINEATION REPORT

CANNON STREET WIDENING PROJECT

CITY OF ORANGE, COUNTY OF ORANGE, CALIFORNIA

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LSA

April 2024

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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
1987 Manual	*Corps of Engineers 1987 Wetland Delineation Manual*
amsl	above mean sea level
BIOS	Biogeographic Information and Observation System
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
ft	foot/feet
HUC	Hydrologic Unit Code
JDSA	Jurisdictional Delineation Study Area
NETR	Nationwide Environmental Title Research, LLC
NL	Not listed; assumed to be an upland species
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate Wetland
OHWM	ordinary high water mark
PFOC	Palustrine Forest that is seasonally flooded
Procedures	*State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*
Project	Cannon Street Widening Project

PSSCx	Freshwater Forested/Shrub Wetland feature that is seasonally flooded and wholly excavated by humans
PUBHx	Freshwater Pond with an unconsolidated bottom that is permanently flooded and wholly excavated by humans
R4SBC	Riverine Intermittent Stream Beds that are seasonally flooded
Rapanos	2006 United States Supreme Court decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States*
Regional Supplement	*Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*
RWQCB	Regional Water Quality Control Board
Sackett	2023 United States Supreme Court wetlands definition ruling *Sackett v. Environmental Protection Agency*
SWRCB	State Water Resources Control Board
TNW	traditional navigable water
UPL	Obligate Upland
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOTS	waters of the State
WOTUS	waters of the United States

INTRODUCTION

This Jurisdictional Delineation Report presents the results of a delineation of aquatic resources and drainage features conducted for the Cannon Street Widening Project (project) in Orange, California. The project proposes to widen portions of Cannon Street between Santiago Canyon Road and Serrano Avenue.

The Jurisdictional Delineation Study Area (JDSA) covered the entirety of the approximately 9.79-acre project site. The purpose of this delineation report is to determine the extent of both State of California and federal jurisdiction within the JDSA. This includes the potential jurisdiction of the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), the Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and/or the Porter-Cologne Water Quality Control Act, and the California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code. This report has been prepared to inform the environmental planning and review process. All referenced figures are included in Appendix A.

SITE DESCRIPTION AND SETTING

The JDSA consists of approximately 9.79 acres of impact limits along Cannon Street located between Santiago Canyon Road and Serrano Avenue in the City of Orange, Orange County, California, as depicted on the United States Geological Survey (USGS) *Orange, California* 7.5-minute series topographic quadrangle map. The JDSA is located within Section 14 and 23, Township 4 South, and Range 9 West, San Bernardino Baseline and Meridian (refer to Figure 1, Project Location, Appendix A). Additionally, a 300-foot (ft) buffer around the impact limits was surveyed to map vegetation/land cover as well as potential jurisdictional features using public access points and/or advantageous viewpoints. Elevations in the JDSA range from 360 to 465 ft above mean sea level (amsl) and generally slope to the west. The majority of the topography within the JDSA is gently undulating, with the exception of Santiago Creek, which is naturally channelized within the JDSA. The JDSA is bordered in the northern portion by single-family residential development, in the central portion by Santiago Creek and undeveloped land, and to the south by Santiago Canyon Road followed by single-family residential development. The area surrounding the project site to the north and south consists of relatively developed lands, consisting of low-density, rural residential use, where the areas to the immediate east and west of the southern portion are undeveloped lands. The JDSA is within the Lower Santiago Creek watershed (Hydrologic Unit Code 12 [HUC12] 180702030902), which is a 42.4-square-mile area extending westerly from its terminus at the Santa Ana River in Santa Ana to the southwest of the study area, to Limestone Canyon to the southeast and Fremont Canyon to the east of the study area. All surface waters within the JDSA are ultimately conveyed to the Santa Ana River. The Santa Ana River is tributary to the Pacific Ocean.

Based on a review of historic aerial photographs and topographic maps of the project area extending back to the mid-1960s (NETR 2023), the JDSA consisted of undeveloped land and agricultural operations through at least 1972, when Cannon Street was developed. By 1980, the JDSA was developed with the existing conditions. The JDSA has remained relatively unchanged through the present.

The climate is classified as Mediterranean (i.e., arid climate with hot, dry summers and mild, wet winters). The average annual precipitation is 11.11 inches. Although most of the precipitation occurs from November through May, thunderstorms may occur at other times of the year and can result in high levels of precipitation. Temperatures typically range between 36 and 98 degrees Fahrenheit (°F).

REGULATORY BACKGROUND

UNITED STATES ARMY CORPS OF ENGINEERS

The Clean Water Act (CWA) provides the primary means for the protection of "Waters of the United States" (WOTUS) including wetlands. Under Section 404 of the CWA, the USACE, under the Environmental Protection Agency (EPA), regulates the discharge of dredged and fill material into "Waters of the U.S., including wetlands".

The CWA addresses "navigable waters," defined in the statute as WOTUS. The USACE has further refined the definition through various Clean Water Rules, including wetlands as a subset of WOTUS. Wetlands are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3[b]; 40 CFR 230.3[t]). Wetlands generally contain three distinct parameters: hydrophytic vegetation, hydric soils, and wetland hydrology.

WOTUS generally not considered to be USACE-jurisdictional include non-tidal drainage and irrigation ditches excavated on dry land, artificially irrigated areas, artificial lakes or ponds excavated on dry land used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water filled depressions (51 Fed. Reg. 41, 217 1986). In addition, a Supreme Court ruling (*South Waste Agency of North Cook County [SWANCC] vs. USACE*, January 9, 2001) determined that the USACE exceeded its statutory authority by asserting CWA jurisdiction over "an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds." Based solely on the use of such waters by migratory birds, the Supreme Court's holding was strictly limited to waters that are "non-navigable, isolated, and intrastate."

The Supreme Court further addressed the extent of the USACE's jurisdiction in the consolidated cases *Rapanos v. United States* (No. 04-1034) and *Carabell v. United States* (No. 04-1384 (USACE and EPA 2007), referred to as "*Rapanos*." In *Rapanos*, a sharply-divided Court issued multiple opinions, none of which garnered the support of a majority of Justices. This created substantial uncertainty as to which jurisdictional test should be used in routine jurisdictional determinations. The Ninth Circuit Court of Appeal, which encompasses California, answered this in *Northern California River Watch v. City of Healdsburg* (August 11, 2006). In this case, the Court held that Justice Kennedy's opinion in *Rapanos* provided the controlling rule of law. Under that rule, wetlands or other waters that are not navigable are subject to USACE jurisdiction if they have "a significant nexus to waters that are navigable in fact." As Justice Kennedy explained, whether a "significant nexus" exists in any given situation will need to be decided on a case-by-case basis, depending on site-specific circumstances. The U.S. Environmental Protection Agency (EPA) and USACE subsequently developed an instructional guidebook on how to apply these rulings for all future jurisdictional determinations (USACE and EPA 2007) as well as a memorandum providing guidance to implement the U.S. Supreme Court's decision in *Rapanos* (Grumbles and Woodley 2007).

On January 18, 2023, the USACE published in the Federal Register the final *Revised Definition of "Waters of the United States* (88 FR 2004). On March 25, 2023, the U.S. Supreme Court modified the January 2023 definition of WOTUS in *Sackett v. Environmental Protection Agency* (No. 21-454), herein referred to as *Sackett*. Specifically, the considered the "significant nexus" standard established under *Rapanos* to be inconsistent with the CWA, while upholding the plurality standard that the USACE jurisdiction is limited to WOTUS that are "relatively permanent, standing or continuously flowing bodies of water" that can be described in ordinary parlance as "streams, oceans, rivers, and lakes." The Supreme Court further affirmed that wetlands can be considered WOTUS when a continuous surface connection to bodies that are WOTUS are present and that no clear boundary exists between WOTUS and wetlands. *Sackett* further revised the CWA by removing interstate wetlands from consideration as WOTUS.

On September 8, 2023, the USACE published a final rule conforming the January 2023 rule with the *Sackett* decision, removing the "significant nexus" standard. The amended rule is operative in California.

Features currently **included** in the definition of WOTUS per 33 CFR 328.3(b) include:

(1) Waters which are:

(i) Currently used, or 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;

(ii) The territorial seas; or

(iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or

(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing

bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

Features currently **excluded** from identification as WOTUS per 33 CFR 328.3(b) include:

- Intrastate streams and wetlands
- Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;
- Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;
- Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;
- Artificially irrigated areas that would revert to dry land if the irrigation ceased;
- Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;
- Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and

Swales and erosional features (*e.g.,* gullies, small washes) characterized by low volume, infrequent, or short duration flow.

Given the substantial changes in operable definitions that have occurred and are likely to continue to occur considering recent regulatory revisions and court actions, it is not possible to predict the regulations that will be in place at the time of a particular jurisdictional determination by the USACE. This jurisdictional delineation focuses on identifying the boundaries of potentially jurisdictional water bodies, utilizing methods for determining the locations of the ordinary high water mark (OHWM) and wetland boundaries as described below. These methods for determining the boundaries of water bodies in general have not substantially changed over the years and are not likely to change with any revised regulations. This delineation can then be used in combination with a companion jurisdictional analysis to determine which of the identified water bodies are actually

jurisdictional, based on the definition that is in effect at the time of a jurisdictional determination by the USACE.

The USACE typically considers any body of water displaying an OHWM for designation as WOTUS, subject to the applicable definition of WOTUS. USACE jurisdiction over non-tidal 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 RWQCB under the State Porter-Cologne Water Quality Control Act.

Wetland Waters of the United States

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* (Version 2.0) (*Regional Supplement*) (USACE 2008) and the USACE 1987 Wetland Delineation Manual (1987 Manual) (USACE 1987). Where there are differences between the two documents, the *Regional Supplement* takes precedence over the 1987 Manual.

The USACE and the EPA define wetlands as:

> 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.

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 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 lasted more than a few days or 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, highly ephemeral stream systems, or in areas recently altered by anthropogenic activities. 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 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 published by the USACE (2018). Each species on the list is rated according to a wetland indicator category, as shown below in Table A.

Table A: Hydrophytic Vegetation Ratings

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

Source: United States Army Corps of Engineers (2008)

To be considered hydrophytic, the species must have wetland indicator status (i.e., be rated Obligate Wetland [OBL], Facultative Wetland [FACW], or Facultative [FAC]).

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, the 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 comprising 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 point. 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 reconsidering the indicator status of any plant species that exhibits 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 they meet one or more of the following criteria:

1. All Histels except Folistels and Histosols except Folists;

2. Soils that are frequently ponded for a long duration or very long duration[3] during the growing season; or

3. 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. Although 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 and on information gathered from the National Soil Information System database, the United States Department of Agriculture's Natural Resources Conservation Service (NRCS) created a Soil Data Access Hydric Soils List that is updated annually.

The *Regional Supplement* has a number of field indicators that may be used to identify hydric soils. The NRCS (USDA 2016) has also developed a number of field indicators that may demonstrate the presence of hydric soils. These indicators include hydrogen sulfide generation, 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 soils definition and criteria included in the *1987 Manual* are obsolete. Users of the *1987 Manual* are directed to the United States Department of Agriculture's Natural Resources Conservation Service website for the most current information on hydric soils.

2 Current definition as of 1994 (*Federal Register,* July 13, 1994).

3 "Long duration" is defined as a single event ranging from 7 to 30 days; "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 criterion 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 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.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The CDFW, through provisions of the California Fish and Game Code (Section 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 a periodic or intermittent flow of water. The CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFW.

In obtaining CDFW agreements, the limits of wetlands are not typically determined. This is because the CDFW generally includes, within the jurisdictional limits of streams and lakes, any riparian habitat present. Riparian habitat includes willows, mule fat, 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

The Porter-Cologne Water Quality Control Act of the California Water Code (Section 13000 et seq.) established nine RWQCBs to oversee water quality on a day-to-day basis at the local and/or regional level. Their duties include preparing and updating water quality control plans and associated requirements and issuing water quality certifications under Section 401 of the CWA. The CWA grants ultimate authority to the State Water Resources Control Board (SWRCB) over State water rights and water quality policy. Under the Porter-Cologne Water Quality Control Act, the RWQCBs (or the SWRCB for projects that cross multiple RWQCB jurisdictions) are responsible for issuing National Pollutant Discharge Elimination System permits for point-source discharges and waste discharge requirements for non-point source discharges into jurisdictional waters of the State (WOTS).

The definition of waters under the jurisdiction of the State is broad and includes any surface water or groundwater, including saline waters within the boundaries of the State. Waters that meet the definition of WOTUS are also considered WOTS, but the jurisdictional limits of WOTS may extend beyond the limits of WOTUS. Isolated waters that may not be subject to regulations under federal law are considered to be WOTS and regulated accordingly.

Although there is no formal statewide guidance for the delineation of non-wetland WOTS, jurisdiction generally corresponds to the surface area of aquatic features that are at least seasonally inundated, and all areas within the banks of defined rivers, streams, washes, and channels, including associated riparian vegetation. Currently, each RWQCB reserves the right to establish criteria for the regulation of non-wetland WOTS.

Non-Wetland Waters of the United States

Non-wetland waters of the State contain elements described above under RWQCB jurisdiction but do not possess the two or three wetland characteristics, depending on the presence/absence of vegetation, required to be considered a wetland water of the State as described below.

Wetland Waters of the State

On August 28, 2019, the California Office of Administrative Law approved the SWRCB proposed *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures). The Procedures, effective on May 28, 2020, apply to discharges of dredged or fill material to WOTS. The Procedures consist of four major elements: (1) a wetland definition, (2) a framework for determining whether a feature that meets the wetland definition is a water of the State, (3) wetland delineation procedures, and (4) procedures for the submission, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

The SWRCB and RWQCBs define a wetland as:

> An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The RWQCB will rely on the final aquatic resource report verified by the USACE for determining the extent of wetland WOTUS. However, if it is not delineated in a final aquatic report, the procedures will use the USACE 1987 Manual and the Regional Supplement to determine whether the area meets the State definition of a wetland. As described in the 1987 Manual and the Regional Supplement, an area "lacks vegetation" if it has less than 5 percent areal coverage of plants at the peak of the growing season. The methods shall be modified only to allow for the fact that the lack of vegetation does not prevent the determination of such an area that meets the State definition of wetland.

METHODOLOGY

Prior to conducting delineation fieldwork, the following literature and materials were reviewed:

- Historic and current aerial photographic imagery (NETR 2023; Google 2023);
- California Department of Fish and Wildlife (CDFW 2023) Biogeographic Information and Observation System (BIOS);
- Historic and current USGS topographic maps (USGS 2023);
- United States Fish and Wildlife Service National Wetlands Inventory (NWI) wetland mapper (USFWS 2023); and
- Natural Resource Conservation Service Web Soil Survey (USDA 2023).

LSA Biologist Jeremy Rosenthal conducted the primary fieldwork for a jurisdictional delineation on May 3, 2023, and two additional surveys were conducted by Mr. Rosenthal and LSA biologist Heather Monteleone on May 18 and 19, 2023. The JDSA was visually surveyed on foot. All features within the JDSA were evaluated according to the most current federal and/or State regulatory criteria and guidance and mapped using aerial photographs. This included the State wetland definition and delineation procedures recently enacted by the SWRCB, and the current USACE regulations pertaining to jurisdictional WOTUS, which are consistent with the final 2023 rule until further notice. In addition, the general conditions and characteristics associated with each drainage feature were noted and photographed.

Areas of potential jurisdiction observed within the JDSA during the fieldwork were mapped on a recent, high-resolution aerial photograph (on a scale of 1 inch = approximately 100 ft) and/or on ESRI's Field Maps mobile application showing the JDSA. The widths and lengths of these features mapped during the course of the field investigation were determined by direct measurements taken in the field. The potential jurisdictional features within the JDSA exhibited characteristics indicative of wetlands (e.g., areas dominated by hydrophytic vegetation or hydric soils), wetland delineation procedures described in the Regional Supplement, and those recently enacted by the SWRCB were implemented.

RESULTS

DATABASE SEARCHES

National Wetlands Inventory

Based on the NWI query, the following feature types were mapped within the JDSA as shown on Figure 2, National Wetland Inventory.

- Two Riverine Intermittent Stream Beds features that are seasonally flooded (R4SBC) are mapped within the JDSA. One is shown bisecting the southern central portion of the JDSA beneath Cannon Street and one is shown in the 300 ft buffer area on the southwestern portion of the JDSA;

- A single Palustrine Forest that is seasonally flooded (PFOC) is feature is mapped bisecting the southern central portion of the JDSA.

- A Freshwater Forested/Shrub Wetland feature that is seasonally flooded and wholly excavated by humans (PSSCx) is mapped on the southwest corner of the JDSA

- A Freshwater Pond with an unconsolidated bottom that is permanently flooded and wholly excavated by humans (PUBHx) is mapped on the southwest corner of the JDSA.

One of the R4SBC features and the PFOC feature is Santiago Creek and the associated riparian vegetation, which are further discussed below in the Description of Delineated Features section.

The second R4SBC feature, the PSSCx feature, and the PUBHx feature are located on the southwestern portion of the JDSA within the 300 ft buffer area, well outside of the proposed impact areas and were inaccessible at the time of the field surveys due to fencing; therefore, the aforementioned features were not delineated.

USDA Soil Survey

According to the NRCS online soil survey for Orange County, four soil types occur within the JDSA. These soils include Botella clay loam, 2 to 9 percent slopes; pits; Soboba gravelly loamy sand, 0 to 9 percent slopes; and Sorrento loam, 2 to 9 percent slopes (USDA 2023). See Figure 3, Soils (Appendix A). Soils observed throughout the site appear to be consistent with these designations. None of the site soils identified within the NRCS online soil survey tool for Orange County are considered hydric. Drainage classes range from well drained to excessively drained soils. See Table B, below.

Table B: Mapped Soils Classifications

Soil (Map Unit Symbol)	Drainage Class	Frequency of Flooding	Frequency of Ponding	Hydric Soil Rating
Botella clay loam, 2 to 9 percent slopes (132)	Well drained	None	None	No
Pits (185)	-	-	-	No
Soboba gravelly loamy sand, 0 to 9 percent slopes (197)	Excessively drained	None	None	No
Sorrento loam, 2 to 9 percent slopes (207)	Well drained	None	None	No

Source: USDA (2023).
USDA = United States Department of Agriculture

Vegetation and Landcover Types

Vegetation within the JDSA was primarily classified using the *Methods Used to Survey the Vegetation of Orange County Parks and Open Space Areas and Irvine Company Property* by Jones and Stokes and Associates (1993). See Figure 4, Vegetation and Landcover Types (Appendix A). Mixed scrub, sagebrush scrub, southern cactus scrub, toyon-sumac chaparral, mulefat scrub, urban and commercial, ornamental landscaping, disturbed or barren, disturbed mixed scrub, disturbed cottonwood-willow riparian forest, eucalyptus groves, and peppertree groves make up the vegetation communities within the JDSA. Descriptions of the vegetation and land covers present within the JDSA are provided below.

Scrub

Scrub is a general vegetation type that consists of drought-deciduous, low-growing, soft-leaved shrubs and herbs, and is often gray-green. It occupies gentle to steep slopes and occurs most often in shallow or heavy soils at elevations below 3,000 ft. Scrub habitat boundaries with grassland or scrub-grassland ecotone/sere are delineated where shrubs exceeded 20 percent cover. Scrub habitat is characterized by 80 percent or greater relative shrub cover by scrub species where the community intergraded with chaparral.

Mixed Scrub. Mixed scrub is dominated by an even mix of each of four or more sage scrub species. Species that may make up mixed scrub are California buckwheat (*Eriogonum fascicilatum*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), California encelia (*Encelia californica*), laurel sumac (*Malosma laurina*), bush monkey flower (*Diplacus aurantiacus*), and coastal prickly pear (*Opuntia littoralis*).

Mixed sage scrub is found on the southeastern portion of the JDSA, outside of the proposed impact limits, but within the 300 ft buffer area.

Sagebrush Scrub. Sagebrush scrub is almost exclusively dominated by California sagebrush and is usually found on mesic slopes. It usually occurs as small patches within grasslands or with other sage scrub subtypes that support California sagebrush as a codominant. Sagebrush scrub is an upland

habitat type and, within the JDSA, is found primarily on the upper terraces of Santiago Creek, well away from the main stream course.

Sagebrush scrub is not a prevalent habitat type within the JDSA; however, there is a small patch of sagebrush scrub within the southern portion of the JDSA near Santiago Canyon Road.

Southern Cactus Scrub. Southern cactus scrub contains large stands of coastal prickly pear with at least 20 percent relative cover by cactus. Other co-dominants or sub-dominants include California encelia, California sagebrush, California buckwheat, black sage, and Mexican elderberry (*Sambucus nigra* ssp. *caerulea*). It occurs primarily on south-facing slopes of low foothills. This community differs little in vegetative composition from, and integrates with, sagebrush and sage scrub habitat types. Southern cactus scrub is not a prevalent habitat type within the JDSA but is found to the northeast of Santiago Creek and near the southwestern portion of the JDSA.

Chaparral

Chaparral habitat occurs where more than 50 percent of the shrub cover is composed of characteristic chaparral shrub species. Chaparral within the JDSA generally consists of dense patches of laurel sumac with sparse understory vegetation.

Toyon-Sumac Chaparral. Toyon-Sumac Chaparral is typically dominated by Toyon (*Heteromeles arbutifolia*), laurel sumac, and lemonade berry (*Rhus integrifolia*). Within the JDSA, laurel sumac dominates these vegetation cover types, primarily to the north of Santiago Creek and west of Cannon Street.

Riparian

Seasonally flooded herb, shrub, and forest habitats associated with streams are mapped as riparian habitats. Vegetation occurred within the streambed, along the banks, and in the floodplain. Riparian subtypes are identified based on the dominant species, with tallest species in a multilayered canopy taking precedence, and on percentage of aerial cover of dominant species.

Mulefat Scrub. Mulefat scrub consists of dense stands of mulefat (*Baccharis salicifolia*) and lesser amounts of willow. It usually occupies intermittent streambeds, seeps, and the toe of landslides (where local seeps develop). Other associated species include Bermuda grass, California mugwort, lamb's quarters (*Chenopodium album*), western ragweed (*Artemisia psilostachya*), Douglas' nightshade (*Solanum douglasii*), castor bean (*Ricinus communis*), and common cocklebur (*Xanthium strumarium*). An isolated patch of mulefat scrub was observed in the southwestern portion of the JSDA.

Developed

Developed sites include urban areas, roads, parks, and cleared or graded sites.

Urban and Commercial. Urban and commercial includes all buildings, pavement, and highway rights-of-way throughout the JDSA. Within the JDSA, all paved surfaces, structures, and flood protection features are mapped as urban and commercial.

Ornamental Landscaping. Ornamental landscaping (parks and ornamental plantings) consists of introduced trees, shrubs, flowers, and turf grass. Ornamental landscaping occurs in greenbelts, parks, and horticultural plantings throughout Orange County. Within the JDSA, ornamental landscaping dominates to the north of Santiago Creek, as most of this area is developed with single-family residences. Additional ornamental landscaping is found on the southwestern end of the JDSA.

Disturbed

Disturbed sites include areas where natural vegetation has been reduced or cleared by human or natural means, such as clearing and grading, flooding, or fire.

Disturbed or Barren. Disturbed or barren (cleared or graded) areas either lack vegetation or are dominated by a sparse cover of ruderal vegetation, such as tocalote (*Centaurea melitensis*), wild oats (*Avena* sp.), black mustard (*Brassica nigra*), spiny sow-thistle (*Sonchus asper*), and prickly lettuce (*Lactuca seriola*). Disturbed or barren areas are predominantly located on the central and southern portions of the BSA.

Disturbed Mixed Scrub. Disturbed mixed scrub areas are scrub habitats that have experienced a relatively recent disturbance and still show characteristics of scrub habitat. Within the JDSA, non-native species within disturbed mixed scrub consist of black mustard and tocalote.

Disturbed mixed scrub is found on the southeastern portion of the BSA, outside of the proposed impact limits and adjoining the Santiago Creek Trail and bike path parking area.

Disturbed Cottonwood-Willow Riparian Forest. Disturbed cottonwood-willow riparian forest is a multilayered forest community dominated by cottonwoods (*Populus* spp.) and willows with other tree species at low numbers and percent of cover. It is typically lower on the floodplain than the other forest types. This community is found on floodplains of major rivers and streams. Disturbed cottonwood-willow riparian forest can be found within Santiago Creek, where non-native species such as Mexican fan palm (*Washingtonia robusta*) are found.

Eucalyptus Groves. Eucalyptus groves consist of homogenous stands of eucalyptus tree species (*Eucalyptus* sp.) with little to no understory and are located near the central and southern portions of the JDSA.

Peppertree Groves. Pepper tree groves consist of homogenous stands of Peruvian pepper tree (*Schinus molle*) with little to no understory and are located near the central and southern portions of the JDSA.

Additionally, a single coast live oak tree (*Quercus agrifolia*), several western sycamore trees (*Platanus racemosa*), two southern California black walnut trees (*Juglans californica* var. *californica*), and a slope completely dominated by poison oak (*Toxicodendron diversilobum*) were identified in and adjacent to Santiago Creek.

DESCRIPTIONS OF DELINEATED FEATURES

A brief description of each delineated feature is provided below. Figure 5, Representative Site Photographs, provides representative photos of each feature (Appendix A).

Santiago Creek

Santiago Creek is an earthen drainage located in the central portion of the JDSA that perpendicularly crosses beneath Cannon Street and is tributary to the Santa Ana River, a TNW. It conveys perennial flows of water from the eastern portion of the JDSA to the western portion of the JDSA, where it flows into Santiago Creek Recharge Basin. Within the JDSA, OHWMs are present throughout Santiago Creek, including sediment deposits, scour, change in vegetation, and undercutting, as well as a defined bed and bank. Vegetation within Santiago Creek is consistent with that of a Cottonwood Willow Riparian Forest, but with moderate levels of disturbance from non-native species. Native species predominantly include arroyo willow (*Salix lasiolepis;* FACW), Goodding's willow (*Salix gooddingii*; FACW), Fremont cottonwood (*Populus fremontii;* FAC), and western sycamore (*Platanus racemosa*; FAC), as well as scattered patches of broadleaf cattail (*Typha latifolia*; OBL) and narrow-leaved cattail (*Typha angustifolia*; OBL). Non-native species found throughout Santiago Creek within the JDSA include Mexican fan palm (FACW), Canary Island date palm (*Phoenix canariensis*; NL [Not listed]), and edible fig (*Ficus carica*; FACU [Facultative Upland]). The areas beneath the Cannon Street bridge were largely devoid of vegetation. Santiago Creek contained a significant amount of water at the time of the field surveys.

Several soil pits were excavated to delineate Santiago Creek (see Appendix B, Wetland Determination Data Forms).

Unnamed Tributary to Santiago Creek

An unnamed tributary to Santiago Creek was delineated within the southern central portion of the JDSA, beneath Cannon Street bridge. This feature is fed by nuisance flows from stormwater events and urban runoff. It originates from a 2.5 ft concrete pipe culvert where it flows north-to-south and abruptly turns east-to-west as it passes beneath Cannon Street where it meanders back to a north-to-south direction on the western side of Cannon Street, at which point it connects with Santiago Creek. This feature is largely devoid of vegetation as it is primarily located beneath Cannon Street bridge. Where it connects with Santiago Creek, to the west of Cannon Street bridge, vegetation consists of arroyo willow (FACW), Mexican fan palm (FACW), Fremont cottonwood (FAC), and poison oak (FACU). With the exception of the concrete pipe culvert, the majority of this feature consists of clear OHWMs that include a line impressed on the bank, staining, undercutting, and sediment deposits. Additionally, this feature was actively flowing at the time of the delineation. This feature wholly exists within the JDSA and ranges from approximately 6.0 ft in width at its narrowest to 15.5 ft at its widest and is approximately 150 ft long.

Unnamed Ditch

An unnamed ditch was delineated on the southeastern portion of the JDSA, adjoining Cannon Street. The northern portion of this feature is concrete-lined and lacks hydrophytic vegetation, hydric soils, and does not exhibit a clear OHWM. The southern portion of this feature is earthen and

does exhibit a clear OHWM in the way of scour and undercutting, but does not consist of hydrophytic vegetation or hydric soils. This feature flows in a north-to-south direction on the northern portion and in a south-to-north direction on the southern portion where the two flow directions converge in the middle of the feature at a drop drain. This feature conveys stormwater runoff from Cannon Street. This feature wholly exists within the JDSA and is approximately 4 ft wide and 620 ft long.

JURISDICTIONAL CONCLUSIONS

Santiago Creek and an unnamed tributary to Santiago Creek were identified within the JDSA (refer to Figure 6, Jurisdictional Delineation Results [Appendix A]) and, in this case, were determined to be jurisdictional. Additionally, an unnamed ditch was identified but was determined to be non-jurisdictional. The regulatory basis for whether a particular feature is jurisdictional or non-jurisdictional is described below under the applicable regulatory agency.

United States Army Corps of Engineers

Jurisdictional Features

Based on the results of the jurisdictional delineation, Santiago Creek is tributary to the Santa Ana River, a TNW, which ultimately conveys flows to the Pacific Ocean. At the time of the delineation, OHWMs were identified throughout the creek, which delineates the boundary of wetland WOTUS. Sample points were collected using a drain spade shovel ranging from approximately 12 inches to 16 inches in depth. The soil pits were located on the southwest portion of the creek and the northwest portion of the creek, adjacent to the Cannon Street bridge. Both locations included two sample points, one above the OHWM and one below. Both sample points below the OHWM consisted of hydric soils, hydrophytic vegetation, and hydrology, satisfying the three wetland parameters. Santiago Creek supports hydric soils, hydrophytic vegetation, and wetland hydrology. Therefore, Santiago Creek consists of wetland WOTUS subject to USACE jurisdiction under Section 404 of the CWA.

The unnamed tributary to Santiago Creek flows from a 2.5 ft pipe culvert to the east of Cannon Street to the west under Cannon Street bridge, where it meanders to the south, connecting to Santiago Creek. OHWMs were present throughout this feature, with the exception of the pipe culvert outfall. The entirety of this feature beneath the Cannon Street bridge is devoid of vegetation, which fails the hydrophytic vegetation requirement and therefore does not satisfy the three wetland parameters beneath Cannon Street bridge. While there was vegetation present where this feature connects to Santiago Creek, to the west of Cannon Street bridge, the species consisted of poison oak, Canary Island date palm, and Fremont cottonwood. When combined, the aforementioned species do not consist of the appropriate wetland indicator statuses to satisfy the hydrophytic vegetation requirement. Therefore, the unnamed tributary to Santiago Creek consists of non-wetland WOTUS subject to USACE jurisdiction under Section 404 of the CWA.

Non-Jurisdictional Features

The concrete and earthen ditch located on the southeast portion of the JDSA is excluded from USACE jurisdiction based on the final 2023 rule under paragraph (b) that establishes exclusions from the definition of “waters of the United States,” even where they otherwise meet the terms of

paragraphs (a)(2) through (5) of the rule. Paragraph (b)(3) excludes ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water. Therefore, this unnamed ditch is not subject to USACE jurisdiction under Section 404 of the CWA.

California Department of Fish and Wildlife

Jurisdictional Features

In accordance with Section 1602 of the California Fish and Game Code, CDFW asserts jurisdiction over rivers, streams, and lakes, as well as any riparian vegetation associated with those features.

There are no "rivers" or "lakes" within or adjacent to the JDSA, but two features (Santiago Creek and a tributary to Santiago Creek) that meet the CDFW definition of "streams" are present, as shown in Figure 6. Santiago Creek is defined by bed and banks with a perennial hydrologic regime. Within Santiago Creek and the western extent of the unnamed tributary to Santiago Creek, the vegetation community primarily consists of Cottonwood-Willow Riparian Forest, with moderate levels of disturbance from non-native invasive species. This vegetation community contributes a positive biological and physical contribution to Santiago Creek and the western end of the unnamed tributary to Santiago Creek; therefore, CDFW jurisdiction of these two features includes the drip-line extent of the canopy associated with the aforementioned vegetation community. Beneath Cannon Street bridge, CDFW would assert jurisdiction of Santiago Creek and the unnamed tributary to Santiago Creek from bank to bank, as these areas are nearly devoid of vegetation and would not be considered riparian jurisdiction.

Non-Jurisdictional Features

The concrete and earthen ditch along Cannon Street is not expected to be considered jurisdictional under Section 1602 of the California Fish and Game Code. Although the feature conveys ephemeral flows during or for a short period following a storm event, it is concrete-lined with a portion being an earthen erosional rill and does not provide associated aquatic resource values for fish and wildlife species. Therefore, based on the conditions of the drainage features as well as their lack of aquatic functions and values, this artificial feature is not considered to be "rivers, streams, or lakes" subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code.

Regional Water Quality Control Board

All areas determined to be WOTUS under both current and historic USACE definitions and guidelines are also considered to be WOTS. However, RWQCB jurisdiction often extends beyond the limits of USACE jurisdiction and may also include areas not identified as subject to USACE jurisdiction.

While there are specific procedures for delineating State wetlands (SWRCB 2019), there is currently no formal statewide guidance on determining RWQCB non-wetland WOTS. Each RWQCB has the discretion to determine the occurrence and extent of jurisdictional non-wetland WOTS. In this particular case, the RWQCB potential jurisdiction (i.e., WOTS) would coincide with those waters that meet the USACE's current definition of WOTUS as well as any areas that satisfy the SWRCB's definition and delineation procedures regarding State wetlands. Therefore, RWQCB jurisdiction

within the JDSA would be the same as USACE jurisdiction for non-wetland WOTS, wetland WOTS, and non-jurisdictional features.

The quantities of USACE, CDFW, and RWQCB jurisdictional features within the JDSA are provided in Table C, below.

Table C: Potential Jurisdictional Areas by Feature Number

Feature	USACE wetland WOTUS Jurisdiction (acres)	USACE non-wetland WOTUS Jurisdiction (acres)	RWQCB wetland WOTS Jurisdiction (acres)	RWQCB non-wetland WOTS Jurisdiction (acres)	CDFW Riparian and/or Streambed Jurisdiction (acres)
Santiago Creek	0.34	0.00	0.34	0.00	1.43 (Riparian)
Unnamed Tributary to Santiago Creek	0.00	0.03	0.00	0.034	0.032 (Streambed)
Unnamed Ditch	0.00	0.00	0.00	0.00	0.00
Total Jurisdictional Acres	**0.34**	**0.03**	**0.34**	**0.034**	**1.46**

Source: LSA (2023).
* Totals may appear inaccurate due to rounding.
CDFW = California Department of Fish and Wildlife
RWQCB = Regional Water Quality Control Board
USACE = United States Army Corps of Engineers
WOTS = waters of the State
WOTUS = waters of the United States

DISCLAIMER

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

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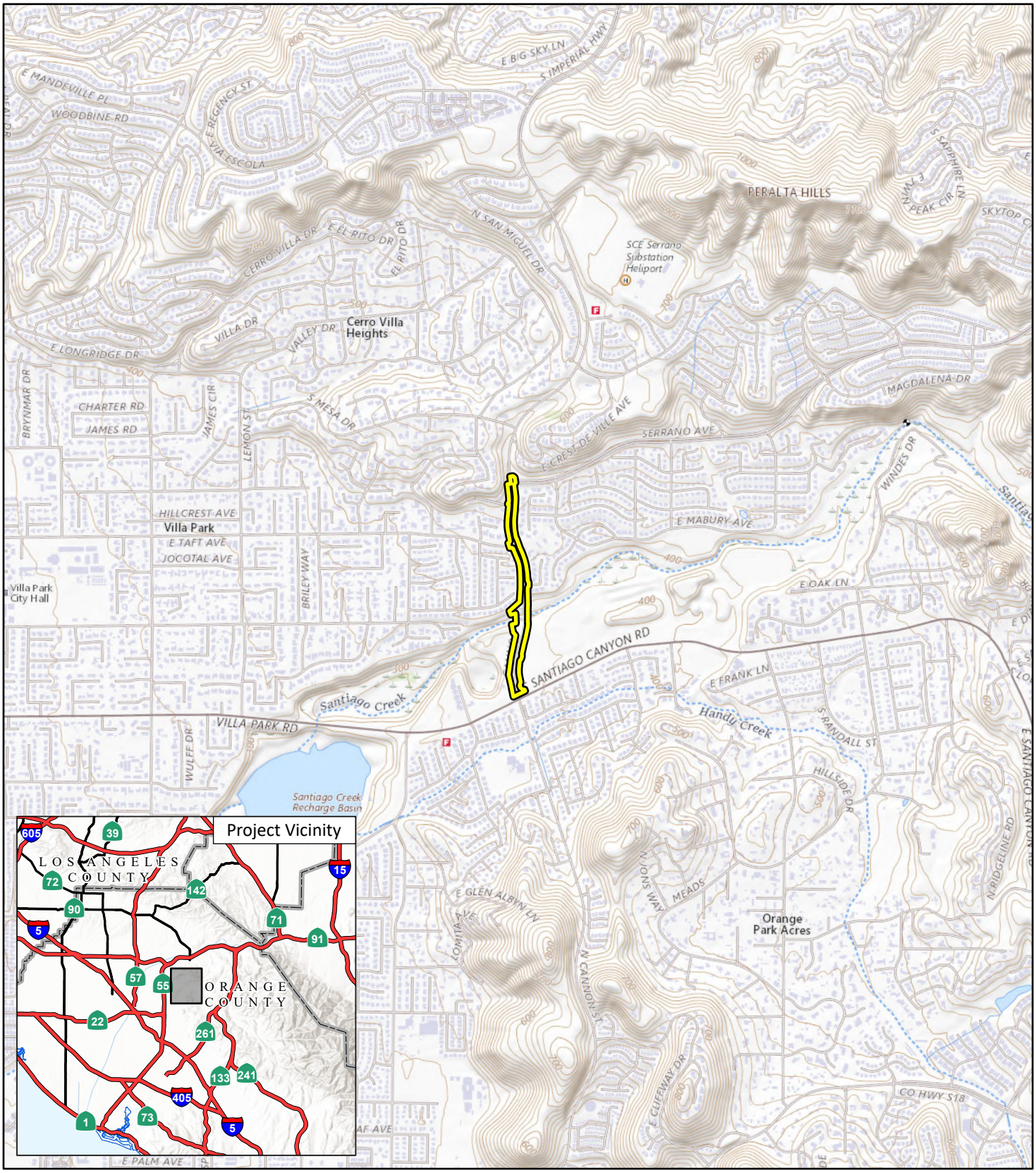
APPENDIX A

FIGURES

Figure 1: Project Location
Figure 2: National Wetland Inventory
Figure 3: Soils
Figure 4: Vegetation and Landcover Types
Figure 5: Representative Site Photographs
Figure 6: Jurisdictional Delineation Results



LSA

Project Location

FIGURE 1

N

0 1000 2000

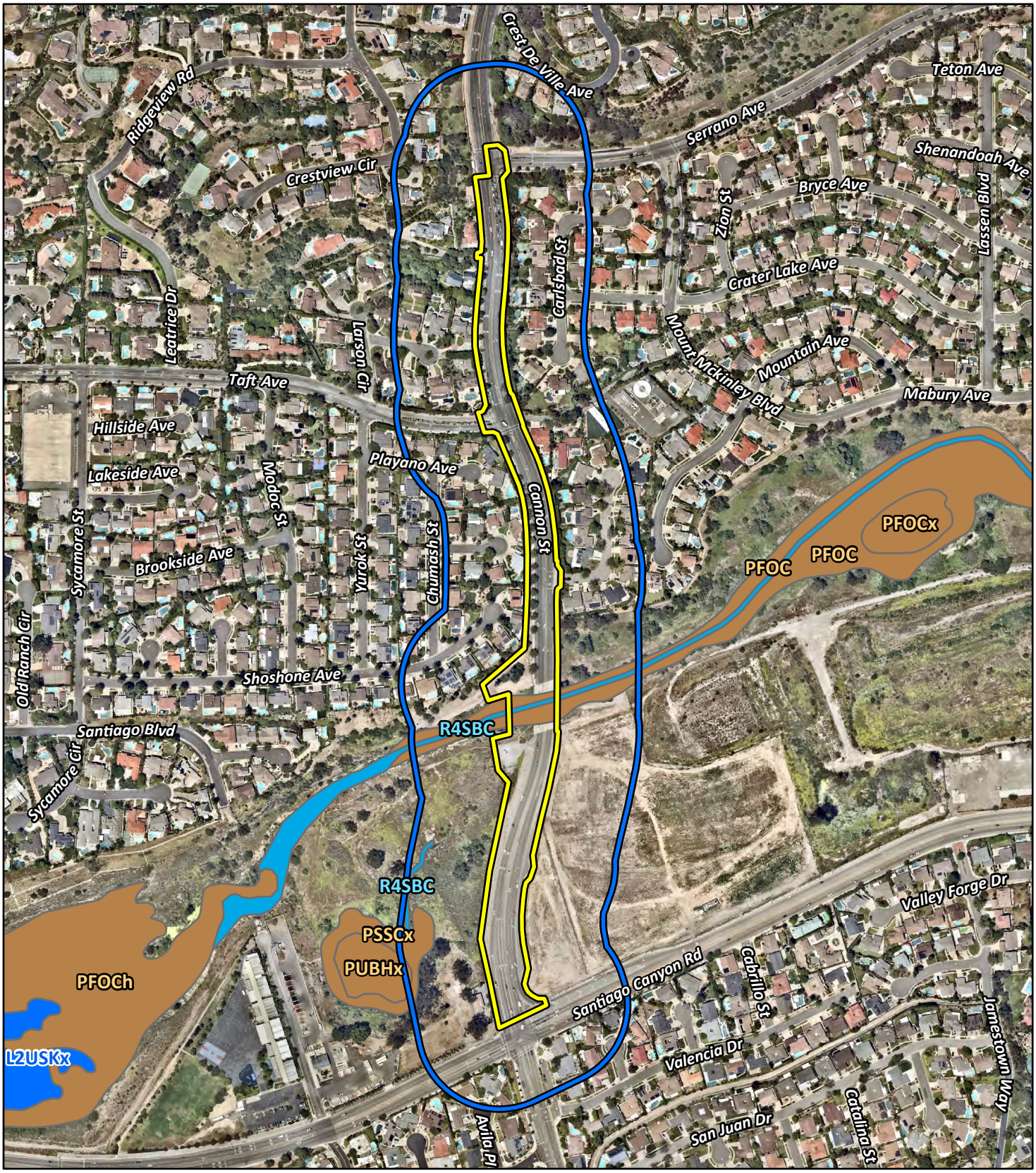
FEET

SOURCE: USGS The National Map

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (7/5/2023)

Cannon Street Widening Project

Project Location



LSA

Project Location

300-ft Buffer of Project Location

Wetlands

Lacustrine

Palustrine

Riverine

N

0 250 500

FEET

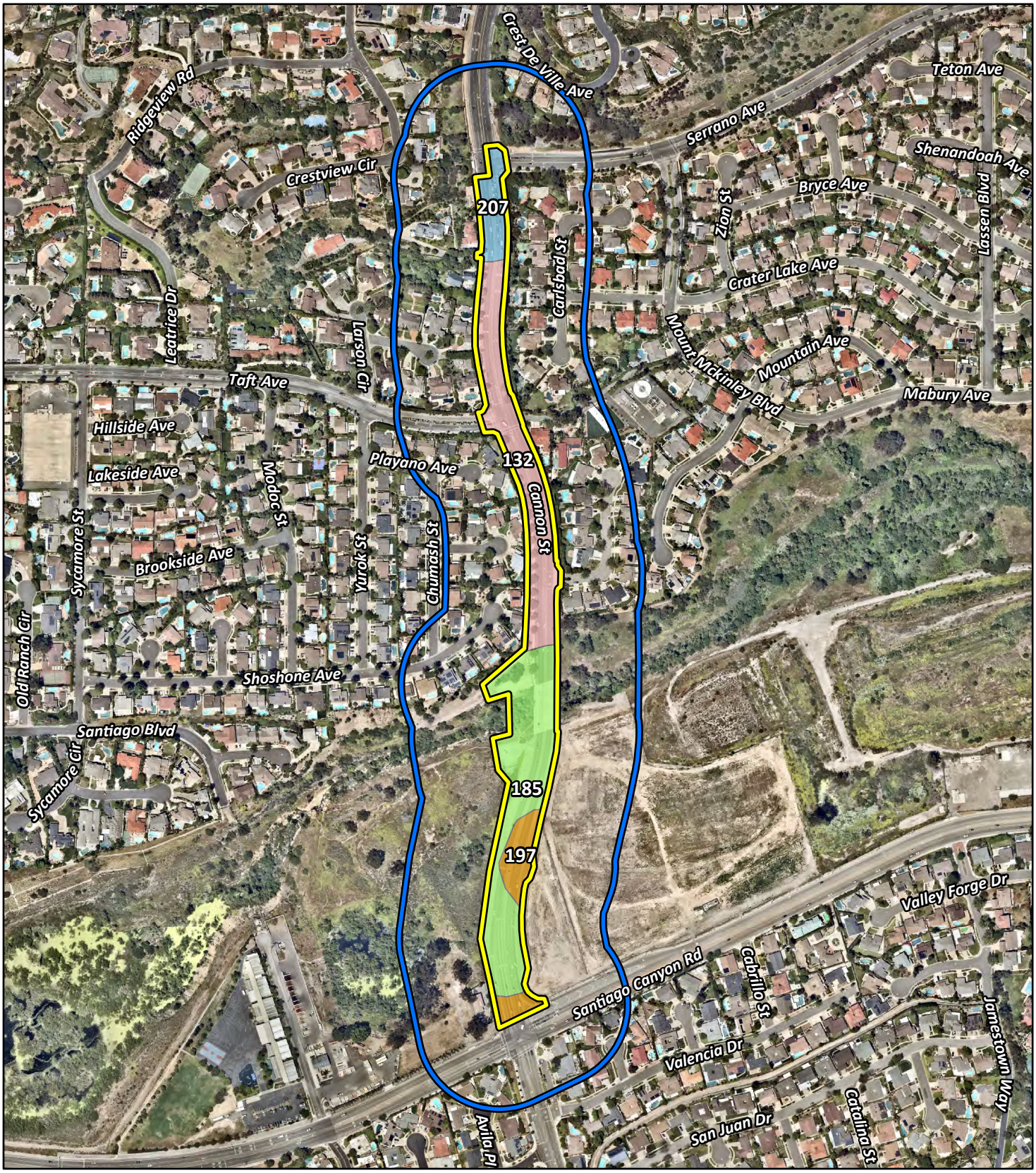
FIGURE 2

Cannon Street Widening Project

National Wetland Inventory

SOURCE: Nearmap (2023), USFWS (2023)

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (7/6/2023)



LSA

FIGURE 3

Project Location

300-ft Buffer of Project Location

Soils

132 - Botella clay loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

185 - Pits

197 - Soboba gravelly loamy sand, 0 to 5 percent slopes

207 - Sorrento loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

N

0 200 400

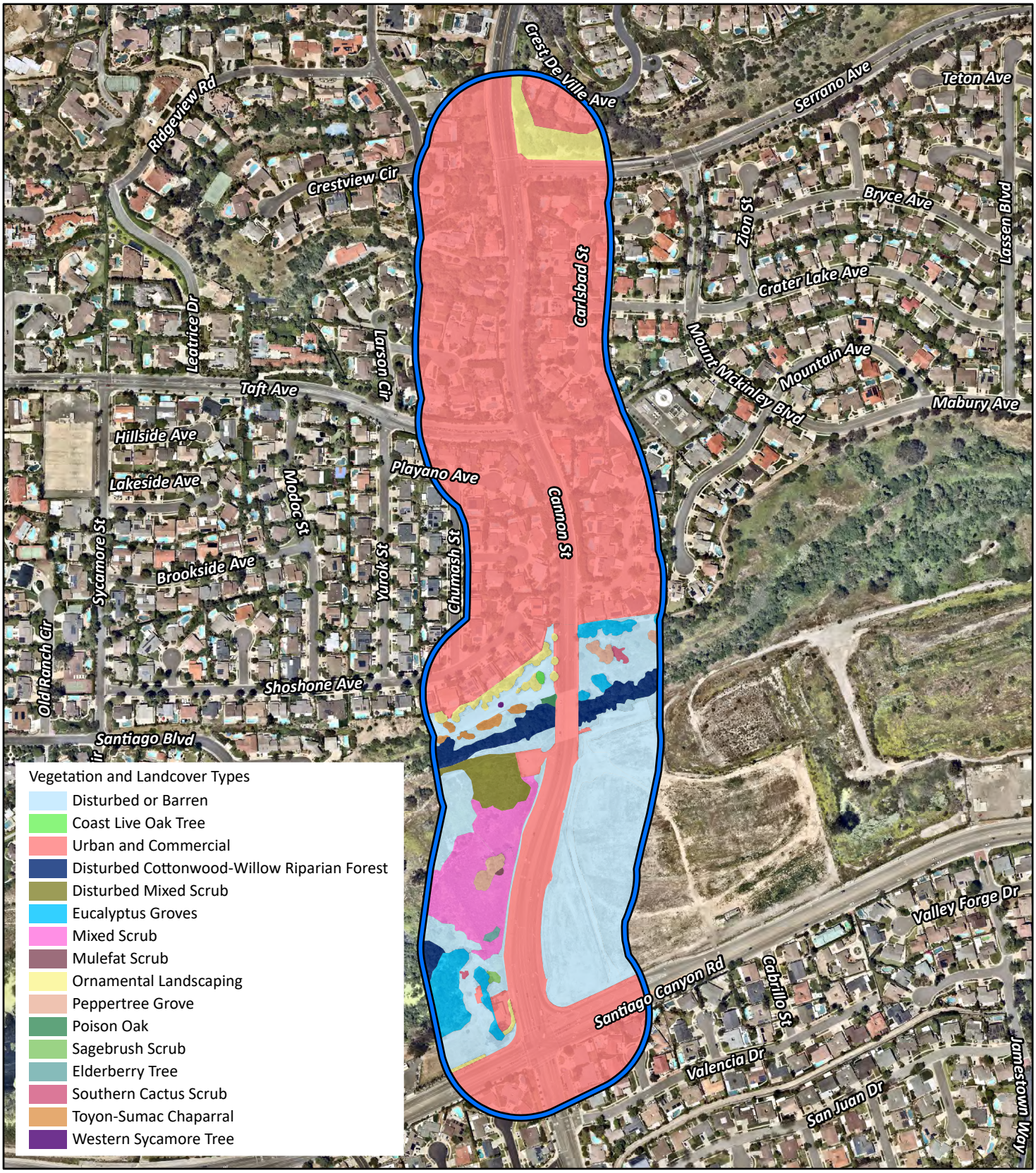
FEET

Cannon Street Widening Project

Soils

SOURCE: Nearmap (2023), USDA NRCS (2023)

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (7/6/2023)



LSA

Project Location

300-ft Buffer of Project Location

FIGURE 4

N

0 250 500

FEET

SOURCE: Nearmap (2023)

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Cannon Street Widening Project

Vegetation and Landcover Types



Photo 1: Looking northeast at Santiago Creek from the western extent of the JDSA. Photo Date May 3, 2023.



Photo 2: Looking northeast at Santiago Creek from beneath the Cannon Street bridge. Photo Date May 3, 2023.

LSA

FIGURE 5

Cannon Street Widening Project
Representative Site Photos



Photo 3: Looking west at the unnamed tributary to Santiago creek from beneath the Cannon Street bridge. Photo Date May 3, 2023.



Photo 4: View of the concrete pipe culvert where the unnamed tributary to Santiago Creek originates. Photo Date May 3, 2023.

LSA

FIGURE 5

Cannon Street Widening Project

Representative Site Photos



Photo 5: View of Soil Pit 2. Photo Date May 19, 2023.



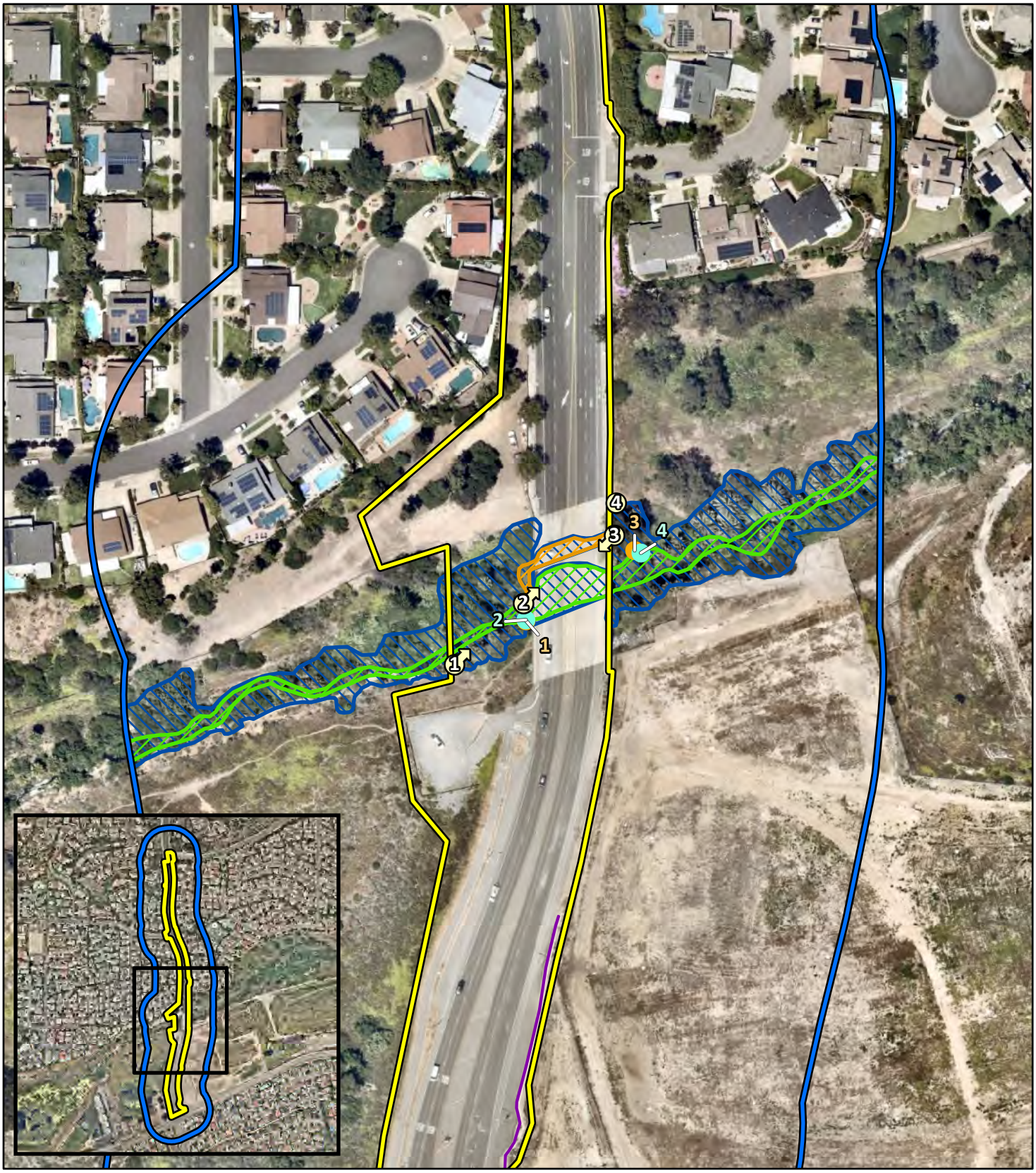
Photo 6: View of Soil Pit 4. Photo Date May 19, 2023.

LSA

FIGURE 5

Cannon Street Widening Project

Representative Site Photos



LSA

Project Location
300-ft Buffer of Project Location

Photo Points
With Direction
No Direction

Soil Pits
Nonwetland (2)
Wetland (2)

Jurisdictional Features
USACE/RWQCB Wetland WOTUS/Wetland WOTS (0.37 acre)
USACE/RWQCB Non-wetland WOTUS/Non-wetland WOTS (0.03 acre)
CDFW Riparian (1.46 acres)
Non-jurisdictional Unnamed Ditch (0.02 acre)

N

0 75 150
FEET

SOURCE: Nearmap (2023)

FIGURE 6

Cannon Street Widening Project

Jurisdictional Delineation Results

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APPENDIX B

WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Cannon Street Widening Projet | City/County: Orange/Orange | Sampling Date: 5-18-2023

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

Investigator(s): Jeremy Rosenthal, Heather Monteleone | Section, Township, Range: S14 and 23, T4S, R9W

Landform (hillslope, terrace, etc.): creek | Local relief (concave, convex, none): concave | Slope (%): _____

Subregion (LRR): _____ | Lat: _____ | Long: _____ | Datum: _____

Soil Map Unit Name: Pits | NWI classification: Freshwater Forested/Shrub Wetland

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 – Use scientific names of plants.

Tree Stratum (Plot size:10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	60	yes	FACW
2. *Platanus racemosa*	5	no	FAC
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	65	= Total Cover	
Sapling/Shrub Stratum (Plot size:10')			
1. *Baccharis salicifolia*	2	no	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	2	= Total Cover	
Herb Stratum (Plot size:10')			
1. *Stipa miliaceae*	40	yes	NL (UPL)
2. *Bromus diandrus*	5	no	NL (UPL)
3. *Phacelia cicutaria*	3	no	NL (UPL)
4. *Ambrosia psilostachya*	1	no	FACU
5. *Typha latifolia*	3	no	OBL
6. *Foeniculum vulgare*	2	no	FACU
7. _____	_____	____	____
8. _____	_____	____	____
50% = _____, 20% = _____	54	= Total Cover	
Woody Vine Stratum (Plot size:10')			
1. *Galium aparine*	3	no	FACU
2. _____	_____	____	____
50% = _____, 20% = _____	3	= Total Cover	
% Bare Ground in Herb Stratum 50	% 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	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	3	x1 =	3
FACW species	60	x2 =	120
FAC species	7	x3 =	21
FACU species	6	x4 =	24
UPL species	48	x5 =	225
Column Totals:	124 (A)		395 (B)

Prevalence Index = B/A = 3.18

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Soil pit was dug just above the USACE OHWM within a riparian corridor. Vegetation is disturbed cottonwood-willow riparian forest

Project Site: Cannon Street Widening Project

SOIL Sampling Point: 1

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-14"	10YR 3/4	100	NA				Sandy Loam	Living roots within OHWM. Damp

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Near active flows of Santiago Creek, just above OHWM

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ 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 Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☐ 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):	1-14"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Surface water and water table not present within soil pit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Cannon Street Widening Projet | City/County: Orange/Orange | Sampling Date: 5-18-2023

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

Investigator(s): Jeremy Rosenthal, Heather Monteleone | Section, Township, Range: S14 and 23, T4S, R9W

Landform (hillslope, terrace, etc.): creek | Local relief (concave, convex, none): concave | Slope (%): _____

Subregion (LRR): _____ | Lat: _____ | Long: _____ | Datum: _____

Soil Map Unit Name: Pits | NWI classification: Freshwater Forested/Shrub Wetland

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: **Soil pit excavation proved challenging due to roots and pebbles**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	20	no	FACW
2. *Platanus racemosa*	60	yes	FAC
3. *Washingtonia robusta*	20	no	FACW
4. _____			
50% = _____, 20% = _____	100	= Total Cover	
Sapling/Shrub Stratum (Plot size:10')			
1. *Baccharis salicifolia*	10	no	FAC
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____	10	= Total Cover	
Herb Stratum (Plot size:10')			
1. *Stipa miliaceae*	30	yes	NL (UPL)
2. *Bromus diandrus*	2	no	NL (UPL)
3. *Typha latifolia*	20	no	OBL
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
50% = _____, 20% = _____	52	= Total Cover	
Woody Vine Stratum (Plot size:10')			
1. _____			
2. _____			
50% = _____, 20% = _____	3	= Total Cover	
% Bare Ground in Herb Stratum 48	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	20	x1 =	20
FACW species	40	x2 =	80
FAC species	70	x3 =	210
FACU species	0	x4 =	0
UPL species	32	x5 =	160
Column Totals:	162 (A)		470 (B)

Prevalence Index = B/A = 2.9

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Soil pit was dug just below the USACE OHWM within a riparian corridor. Vegetation is disturbed cottonwood-willow riparian forest

Project Site: Cannon Street Widening Project

SOIL Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100	NA				Sandy Clay Loam	living roots within. Saturated
3-12	Gley 1 4/1 5GY	100					Sandy Clay	saturated, roots, organics, pebbles

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ 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 Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☒ 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): 12
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0-12

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil pit dug within a foot of active flow and just below OHWM

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Cannon Street Widening Projet | City/County: Orange/Orange | Sampling Date: 5-18-2023

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

Investigator(s): Jeremy Rosenthal, Heather Monteleone | Section, Township, Range: S14 and 23, T4S, R9W

Landform (hillslope, terrace, etc.): creek | Local relief (concave, convex, none): concave | Slope (%): _____

Subregion (LRR): _____ | Lat: _____ | Long: _____ | Datum: _____

Soil Map Unit Name: Pits | NWI classification: Freshwater Forested/Shrub Wetland

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: **Soil pit excavation proved challenging due to roots and pebbles**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	60	yes	FACW
2. *Platanus racemosa*	15	no	FAC
3. _____			
4. _____			
50% = _____, 20% = _____	75	= Total Cover	
Sapling/Shrub Stratum (Plot size:10')			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size:10')			
1. *Stipa miliaceae*	30	yes	NL (UPL)
2. *Marah macrocarpa*	5	no	UPL
3. *Typha latifolia*	25	yes	OBL
4. *Artemisia douglasiana*	5	no	FAC
5. *Leptochloa fusca*	5	no	FACW
6. *Foeniculum vulgare*	2	no	FACU
7. _____			
8. _____			
50% = _____, 20% = _____	72	= Total Cover	
Woody Vine Stratum (Plot size:10')			
1. _____			
2. _____			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 50		% 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: 67 (A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	25	x1 =	25
FACW species	60	x2 =	120
FAC species	20	x3 =	60
FACU species	2	x4 =	8
UPL species	35	x5 =	175
Column Totals:	142 (A)		388 (B)

Prevalence Index = B/A = 2.73

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Soil pit was dug just above the USACE OHWM within a riparian corridor. Vegetation is disturbed cottonwood-willow riparian forest

Project Site: Cannon Street Widening Project

SOIL

Sampling Point: 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	NA				Sandy Loam	living roots within. Saturated

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: ~3 feet from water line

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ 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 Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☒ 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): 0-12

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: 45 degree slope up from active water line

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Canon Street Widening Projet | City/County: Orange/Orange | Sampling Date: 5-18-2023

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

Investigator(s): Jeremy Rosenthal, Heather Monteleone | Section, Township, Range: S14 and 23, T4S, R9W

Landform (hillslope, terrace, etc.): creek | Local relief (concave, convex, none): concave | Slope (%): _____

Subregion (LRR): _____ | Lat: _____ | Long: _____ | Datum: _____

Soil Map Unit Name: Pits | NWI classification: Freshwater Forested/Shrub Wetland

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 ☐		

hydrogen sulfide

Remarks: **Sulfur dioxide smell was very strong**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus racemosa*	5	no	FAC
2.			
3.			
4.			
50% = _____, 20% = _____	5	= Total Cover	
Sapling/Shrub Stratum (Plot size:10')			
1. *Baccharis salicifolia*	10	no	FAC
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	10	= Total Cover	
Herb Stratum (Plot size:10')			
1. *Stipa miliaceae*	3	no	NL (UPL)
2. *Xanthium strumarium*	1	no	FAC
3. *Typha latifolia*	40	yes	OBL
4. *Artemisia douglasiana*	5	no	FAC
5. *Pulicaria paludosa*	2	no	FAC
6. *Vitis californica*	5	no	FACU
7.			
8.			
50% = _____, 20% = _____	56	= Total Cover	
Woody Vine Stratum (Plot size:10')			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 44	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	40	x1 =	40
FACW species	0	x2 =	0
FAC species	5	x3 =	15
FACU species	1	x4 =	4
UPL species	1	x5 =	5
Column Totals:	47 (A)		64 (B)

Prevalence Index = B/A = 1.36

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Soil pit was dug just below the USACE OHWM within a riparian corridor. Vegetation is disturbed cottonwood-willow riparian forest

Project Site: Canon Street Widening Project

SOIL

Sampling Point: 4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100	NA				sand	
4-12	Gley 1 2.5/Bgl N	100					sandy clay loam	severe sulfur o

hydrogen sulfide

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: within streambed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ 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 Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ 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)
- ☒ 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): 6
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 2-12

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: