



# Biological Resources Technical Report

*Markham Street Extension Project*

County Project No. D1-0078

*Riverside County, California*

March 28, 2024



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## Acronyms

ARDA	aquatic resources delineation area
BMP	best management practice
BSA	biological resources survey area
BUOW	Burrowing owl
CAGN	coastal California gnatcatcher
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
ESA	environmentally sensitive area
FESA	Federal Endangered Species Act
LBV	Least Bell's vireo
MBTA	Migratory Bird Treaty Act
NRCS	Natural Resource Conservation Service
OHWM	Ordinary High Water Mark
Project	Markham Street Extension Project
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SSC	species of special concern
SWFL	southwestern willow flycatcher
SWRCB	State Water Resources Control Board
TCE	temporary construction easement
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WOS	waters of the state
WOTUS	waters of the United States

# 1 Introduction

At the request of the County of Riverside Transportation Department (County), and pursuant to federal, state, and local regulatory requirements, HDR Engineering, Inc. (HDR) conducted biological resources studies for the proposed Markham Street Extension Project (Project). Biological resources studies conducted for the Project include a general biological resources survey, burrowing owl focused survey, riparian birds focused survey, and aquatic resources delineation. Fieldwork supporting these studies was conducted between February and August 2022. This report presents the results of these studies and includes an analysis of potential impacts on biological resources associated with the Project.

## 1.1 Project Description

The County is proposing roadway improvements to Markham Street between Roosevelt Street and Wood Road for approximately 1.3 miles in the community of Woodcrest in Riverside County, California (Figure 1-1 and Figure 1-2). The purpose of the Project is to improve traffic circulation within the community. The Project is subject to the requirements of the California Environmental Quality Act (CEQA). The County will serve as the CEQA lead for the Project.

### 1.1.1 Project Location

The Project is located in Riverside County, California and is located in the northwestern corner of the *Steele Peak, California* United States (U.S.) Geological Survey 7.5-minute quadrangle, specifically in Section 31, Township 3 South, Range 4 West. Figure 1-1 shows the regional location of the Project. Figure 1-2 depicts the Project area, which encompasses approximately 24.64 acres.

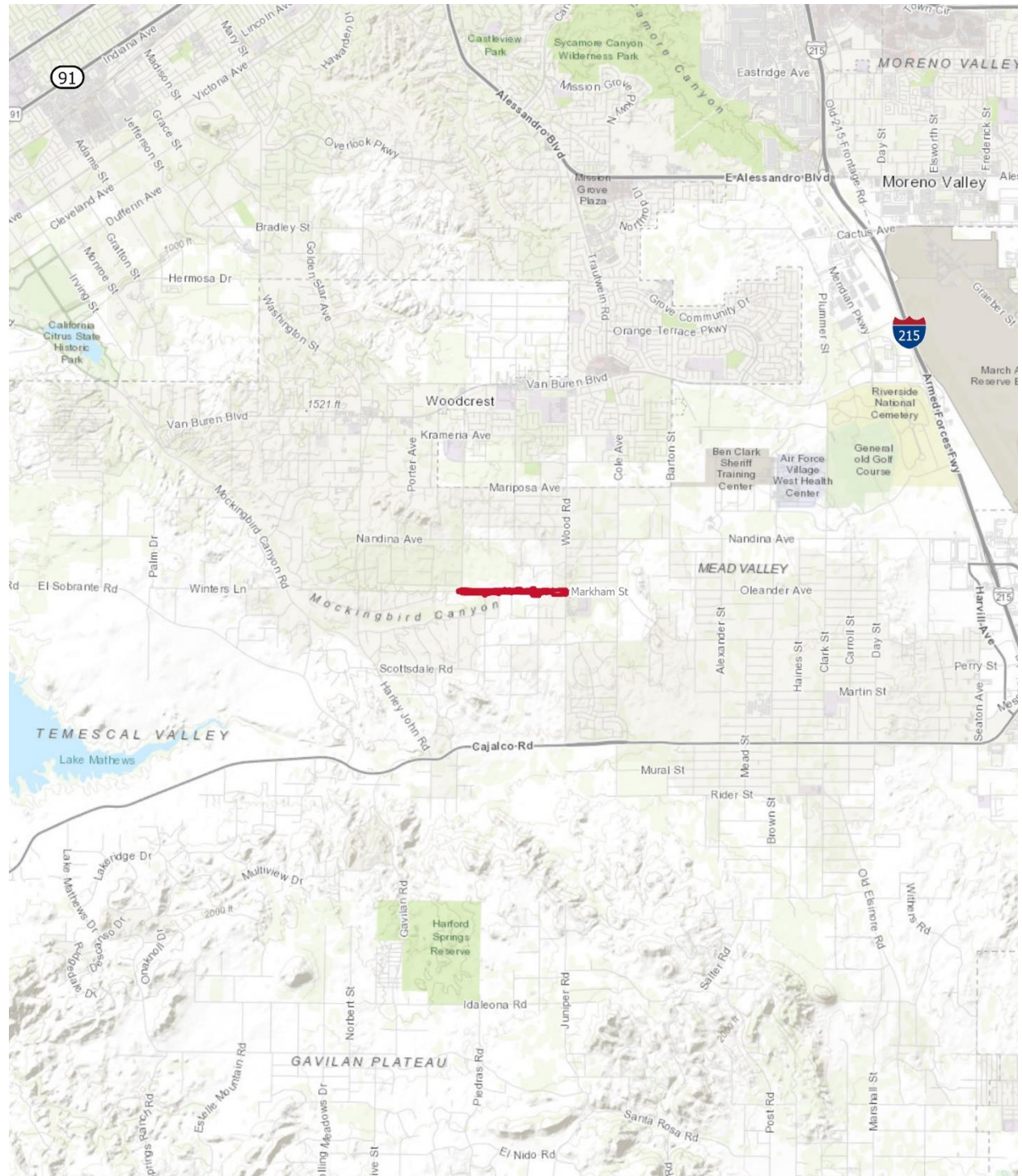
### 1.1.2 Existing Condition

The Project is located between the intersection of Markham Street and Roosevelt Street and the intersection of Wood Road and Markham Street. Each of these intersections has been partially developed as part of previous roadway work. Markham Street, west of Roosevelt Street and east of Wood Street, has been improved to meet the secondary street classification standards. However, Markham Street, east of Roosevelt Street, is an unpaved dirt road and is not accessible from the Markham Street and Roosevelt Street intersection. There is an existing metal beam guardrail that blocks access to the dirt road segment of Markham Street. From the intersection of Wood Road to the west, Markham Street has been paved with a 20-foot-wide asphalt surface to provide access to the existing properties for a distance of 2,500 feet. Along this paved section, driveways to the existing properties have been set back to allow for roadway widening. The unpaved dirt road on the west end of the Project extends approximately 0.5 mile to the east where it ties into the existing paved roadway. Additionally, smaller street intersections, including Oran Drive, Birch Street, Cedar Street, and James Kenny Road connect to Markham Street within the Project area.

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Figure 1-1. Regional Vicinity and Project Location



LEGEND

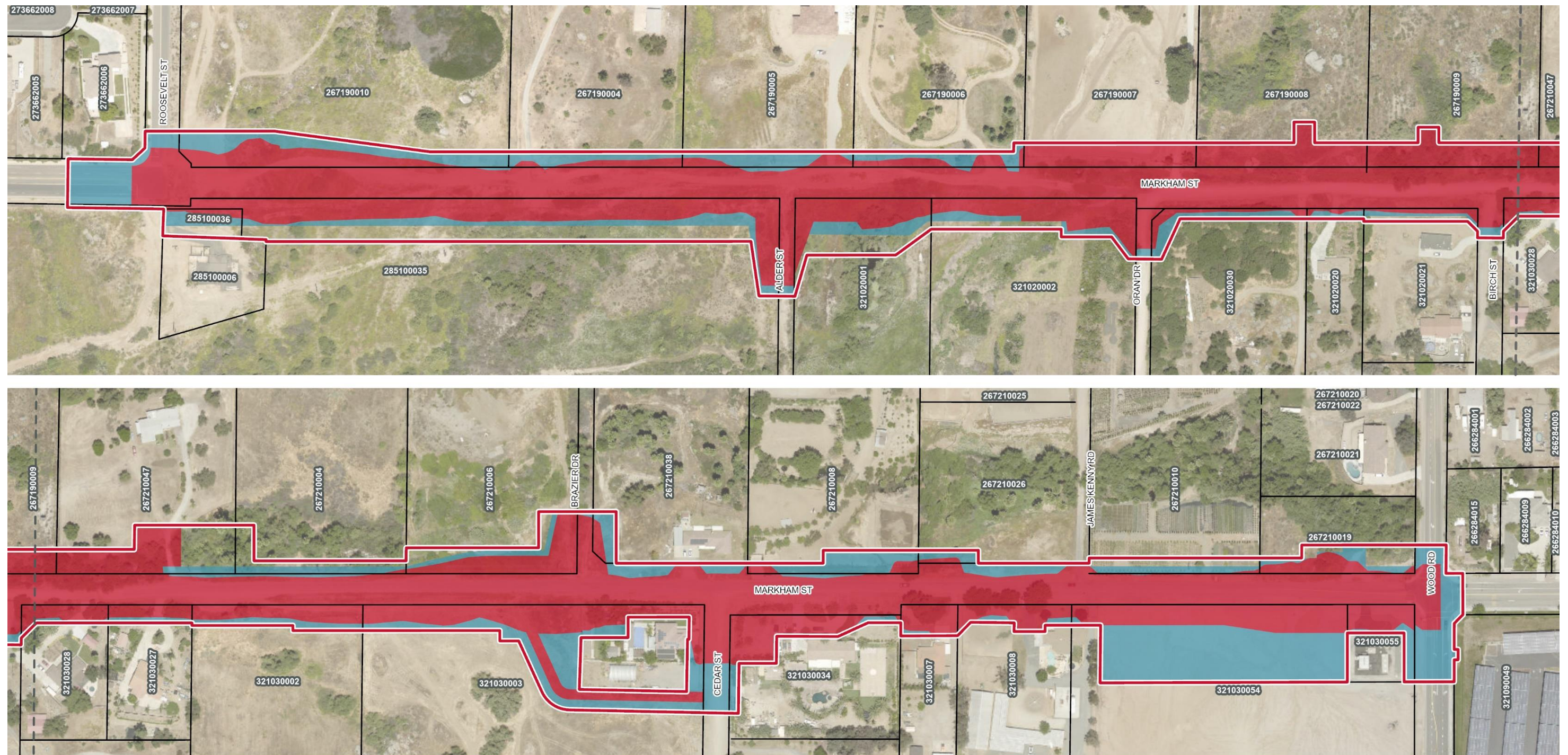
 Project Area



0 Miles 1.5

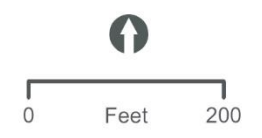
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Figure 1-2. Project Area



LEGEND

- Project Area
- Permanent Impact Areas
- Matchline
- Parcel Boundary
- Temporary Impact Areas



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The Project is located in a semi-rural area with vacant land, single-family homes, business properties, and water district properties utilized for a sewer-lift station and water-pumping station. Existing utilities in the Project area consist of an overhead power line, water lines, a gas line, and communication lines.

### 1.1.3 Proposed Project

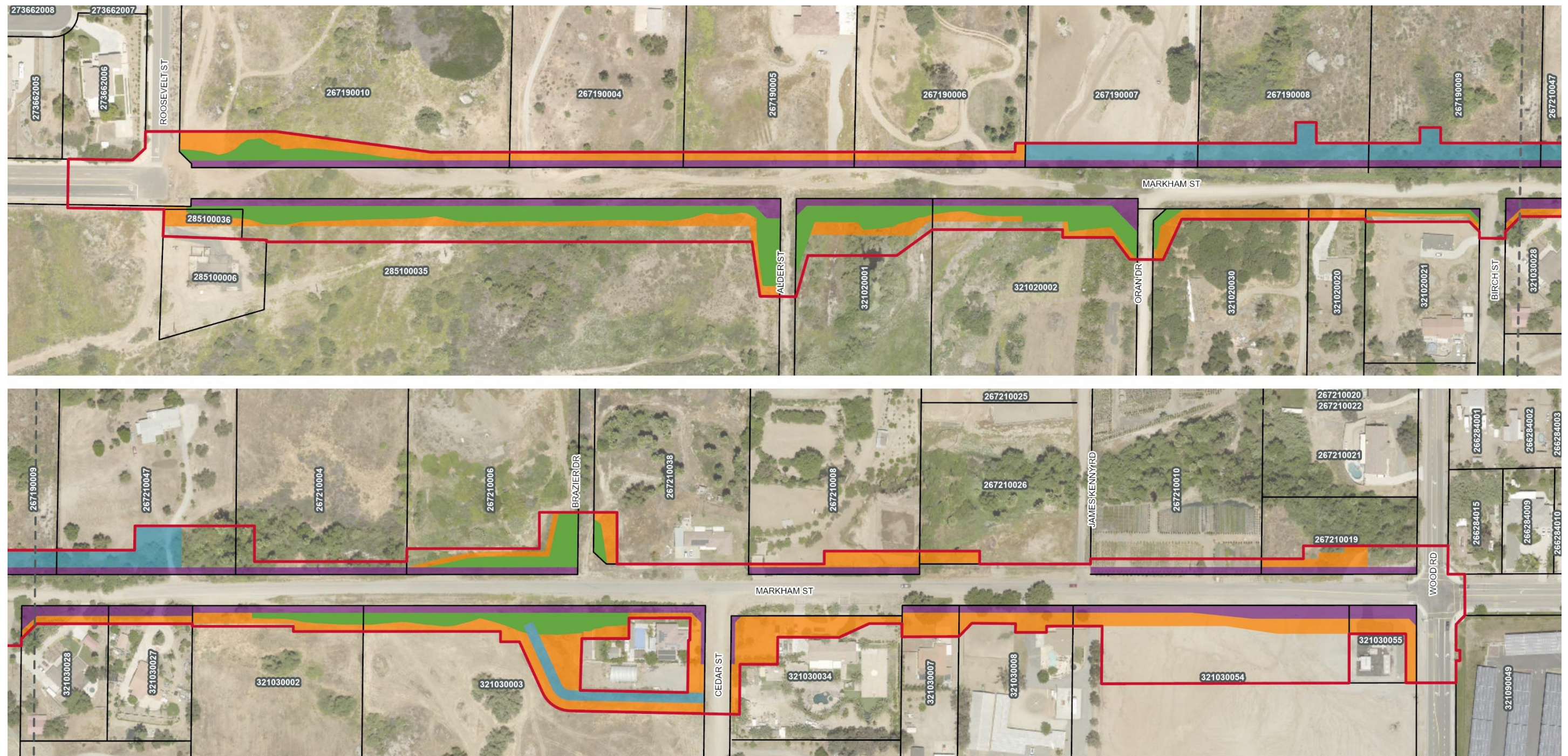
The design of the 1.3-mile roadway section for Markham Street between Roosevelt Street and Wood Road accommodates an ultimate secondary highway configuration per the County General Plan Circulation Element, with two lanes in each direction; however, the proposed roadway improvements as part of the Project would only include one lane in each direction along the southern half of the ultimate roadway section. In the future, the County may elect to construct two additional lanes along the northern portion of the ultimate roadway section. Proposed roadway improvements would include two 12-foot-wide travel lanes (one in each direction), with a 5-foot-wide westbound and 6-foot-wide eastbound Class II bike lane. The northern edge of the proposed roadway section would have an 8-foot-wide unpaved shoulder and the southern edge of the proposed roadway section would include curb and gutters, a 6-foot-wide sidewalk, and a 6-foot parkway.

Traffic signal improvements would be required at the Markham Street and Wood Road intersection to accommodate the extended roadway and the addition of a dedicated eastbound left-turn lane, a dedicated eastbound through lane, and a shared through and right-turn lane. The Markham Street and Roosevelt Street intersection would remain as a stop-controlled intersection. The four smaller intersections (Oran Drive, Birch Street, Cedar Street, and James Kenny Road) would require roadway modifications to develop curb returns and American with Disabilities Act (ADA)-compliant pedestrian accessible ramps to tie into the existing roadways, and the intersections would be stop-controlled. Existing property driveways would be modified to connect to new roadway improvements. Drainage improvements would include storm drains along the roadway and the addition of culverts to direct storm-flow drainage across the roadway. Existing utilities that may require relocation or modifications to accommodate the roadway extension include water, gas, electrical, and telephone lines. In addition, traffic restriping west of Roosevelt Street would be needed to transition from the existing roadway to the new extended roadway.

Construction of the Project would require partial right of way acquisition, temporary construction easements (TCE), and permanent easements consisting of drainage easements and slope easements, as shown on Figure 1-3.

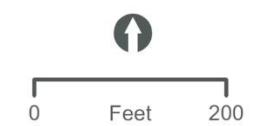
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Figure 1-3. Right of Way Acquisition



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Project Area	Permanent Drainage Easement	Temporary Construction Easement	Matchline
R/W Acquisition	Permanent Slope Easement	Parcel Boundary	



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## 2 Regulatory Framework

### 2.1 Federal Regulations

#### 2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects threatened and endangered plants and animals and their critical habitat. Candidate species are those proposed for listing; these species are usually treated by resource agencies as if they were formally listed during the environmental review process. Procedures for addressing impacts on federally listed species follow two principal pathways, both of which require consultation with the U.S. Fish and Wildlife Service (USFWS), which administers the FESA for all terrestrial species. The first pathway, a Section 10(a) incidental take permit, applies to situations where a non-federal governmental entity must resolve potential adverse impacts on species protected under FESA. The second pathway, a Section 7 consultation, applies to projects directly undertaken by a federal agency or private projects requiring a federal permit or approval.

#### 2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 Code of Federal Regulations Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 Code of Federal Regulations 21).

All raptors and their nests are protected from take or disturbance under the MBTA (16 U.S. Code, Section 703 et seq.). Golden eagle and bald eagle are also afforded additional protection under the Eagle Protection Act, amended in 1973 (16 U.S. Code, Section 669 et seq.).

#### 2.1.3 Clean Water Act

##### Section 404

Section 404 of the Clean Water Act (CWA) establishes a program for USACE to regulate the discharge of dredge and fill material into Waters of the U.S. (WOTUS), including wetlands. Activities regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. An individual Section 404 permit or authorization to use an existing USACE nationwide permit must be obtained if any portion of an activity would result in dredge or fill impacts on a river or stream that has been determined to be jurisdictional under Section 404 of the CWA. When applying for a permit, a company or organization must show that they would either avoid wetlands where practicable, minimize wetland impacts, or provide compensation for any unavoidable destruction of wetlands.

##### *Waters of the United States*

Pursuant to Section 404 of the CWA, USACE regulates the discharge (temporary or permanent) of dredged or fill material into waters of the U.S. including wetlands.

There have been multiple Supreme Court decisions and regulatory definitions recently concerning the proper standard for how to determine whether a wetland or stream that is not navigable in fact is considered a WOUS. Most recently, on May 25, 2023, the U.S. Supreme Court, issued its opinion in *Sackett v. Environmental Protection Agency*, 598 U.S. (Sackett). The opinion addresses the definition of WOTUS pursuant to the CWA, 33 U.S.C. Section 1251 et seq. and defines the geographic reach of USACE's and the U.S. Environmental Protection Agency's (EPA) authority in regulating streams, wetlands and other water bodies under the CWA.

In light of *Sackett*, the agencies announced that they are developing a rule to amend the final "Revised Definition of 'Waters of the United States' rule, published in the Federal Register on January 18, 2023, to be consistent with the U.S. Supreme Court's May 25, 2023 decision in *Sackett*. They intend to issue a final rule by September 1, 2023. In the meantime, the agencies will interpret the phrase "waters of the United States" consistent with the Supreme Court's decision in *Sackett*.

Under the *Sackett* ruling, WOUS include:

- (1) Traditional Navigable Waters, the territorial seas, and interstate waters (paragraph (a)(1) waters);
- (2) Impoundments of "waters of the United States" (paragraph (a)(2) waters);
- (3) Tributaries to traditional navigable waters, the territorial seas, interstate waters or paragraph (a)(2) impoundments when the tributaries meet either relatively permanent standard ("jurisdictional tributaries"); and
- (4) Wetlands adjacent to paragraph (a)(1) waters;
- (5) Wetlands with a continuous surface connection to relatively permanent paragraph (a)(2) impoundments or jurisdictional tributaries when the jurisdictional tributaries meet the relatively permanent standard; and
- (6) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (a)(5) that meet the relatively permanent standard ("paragraph (a)(5) waters").

Waters previously considered WOUS only because they had a "significant nexus" to a relatively permanent WOUS are no longer considered WOUS. Ephemeral streams and other water bodies that are not relatively permanent, and wetlands or aquatic habitats that do not have a continuous surface connection with a RPW or navigable water (i.e., isolated wetlands) would not be federally jurisdictional and would not be considered WOUS considering the Court's ruling.

*Sackett* does not result in any change to previously-specified exclusions to WOUS, including:

- (1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;
- (2) 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;
- (3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;
- (4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;

- (5) 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;
- (6) 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;
- (7) 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
- (8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

The limits of USACE jurisdiction in nontidal waters extends to the ordinary high water mark (OHWM) which is defined at 33 CFR 328.3(e) as:

... that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses 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 areas.

Pursuant to Section 404 of the CWA, USACE regulates the discharge (temporary or permanent) of dredged or fill material into WOTUS, including wetlands. In practice, examples of a discharge of fill material may include, but are not limited to, grading, placing riprap for erosion control, pouring concrete, and stockpiling excavated material into waters of the U.S. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, performing certain drainage channel maintenance activities, constructing temporary mining and farm/forest roads, and excavating without stockpiling.

### *Wetlands*

The term wetlands (a subset of WOTUS) is defined at 33 Code of Federal Regulations 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions.” In 1987, USACE published a manual to guide its field personnel in determining jurisdictional wetland boundaries, followed by the Arid West Supplement in 2008 (USACE 2008a). The methodology set forth in the 1987 Wetland Delineation Manual and Arid West Supplement generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual provides detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

1. The plant community must be determined to be hydrophytic based on: the dominance test applied using the 50/20 rule,<sup>1</sup> or, where the vegetation fails the dominance test and wetland hydrology and hydric soils are present, vegetation is determined to be hydrophytic using the

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<sup>1</sup> If a particular species accounts for more than 50 percent of the total coverage of vegetation in the stratum, or for at least 20 percent of the total coverage in the stratum which the species was found, that species is defined as dominant.

Prevalence Index test<sup>2</sup> based upon the indicator status (i.e., rated as facultative or wetter) in the *National List of Plant Species that Occur in Wetlands* [USACE 2020]);

2. Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., redoximorphic features with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
3. Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for a sufficient period to cause: the formation of hydric soils and establishment of a hydrophytic plant community. A positive test for wetland hydrology is based on the presence of one primary or two secondary indicators.

### *Jurisdictional Determinations*

Per USACE Regulatory Guidance Letter 08-02, when applying for a Section 404 permit, applicants may choose between two types of jurisdictional determinations, an approved jurisdictional determination or a preliminary jurisdictional determination (USACE 2008c), as follows:

- **Approved jurisdictional determination.** An approved jurisdictional determination is the USACE's confirmation that the jurisdictional delineation's findings are correct and is an official USACE determination that jurisdictional aquatic resources are present or absent from the subject site. An approved jurisdictional determination allows for the USACE to exclude features that they have reviewed and deemed non-jurisdictional.
- **Preliminary jurisdictional determination.** A preliminary jurisdictional determination is an advisory, non-binding indication that there may be jurisdictional aquatic resources on the subject site. A preliminary jurisdictional determination treats all features reviewed as jurisdictional aquatic resources. The applicant may obtain a USACE individual permit or general permit authorization based on a preliminary jurisdictional determination.

Alternatively, the applicant, in appropriate circumstances, such as authorizations by non-reporting nationwide general permits, can elect to not request a jurisdictional determination. The use of a preliminary jurisdictional determination may expedite the permitting process when compared with the approved jurisdictional determination process, which requires the determination to be coordinated with the U.S. EPA.

### Section 401

In California, the State Water Resources Control Board (SWRCB) and nine RWQCBs regulate discharge activities into waters pursuant to Section 401(a)(1) of the federal CWA. Section 401 of the CWA specifies that certification from the state is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into WOTUS unless certification under Section 401 of the CWA is granted or waived by the U.S. EPA, state, or tribe where the discharge would originate. The Project is within the boundaries of the Santa Ana RWQCB (Region 8), which would have the authority to grant, grant with conditions, deny, or waive certification for the Project.

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<sup>2</sup> A Prevalence Index is calculated using wetland indicator status and relative abundance for each vascular plant species present

Under Section 401, all activities regulated at the federal level by USACE are also regulated at the state level. Therefore, state jurisdiction usually includes all waters, or tributaries to waters, that are determined to be WOTUS and, similar to WOTUS, are typically delineated at the OHWM.

## 2.2 State Regulations

### 2.2.1 California Endangered Species Act

Sections 2050 through 2098 of the California Fish and Game Code outline the protection provided to California's rare, endangered, and threatened species. Section 2080 of the Fish and Game Code prohibits the taking of plants and animals listed under the California Endangered Species Act (CESA). Section 2081 established an incidental take permit program for state-listed species. In addition, the Native Plant Protection Act of 1977 (Fish and Game Code Section 1900 et seq.) gives CDFW authority to designate state endangered, threatened, and rare plants and provides specific protection measures for designated populations.

CDFW has also identified many species of special concern (SSC). Species with this status have limited distribution, or the extent of their habitats has been reduced substantially such that their populations may be threatened. Thus, their populations are monitored, and they may receive special attention during the environmental review process. While they do not have statutory protection, they may be considered rare under CEQA and are thereby warranted specific protection measures.

### 2.2.2 Fully Protected Species

CDFW has jurisdiction over fully protected species of birds, mammals, amphibians, reptiles, and fish, pursuant to Fish and Game Code Sections 3511, 4700, 5050, and 5515. Take of any fully protected species is prohibited, and CDFW cannot authorize their take in association with a general project except under the provisions of a Natural Communities Conservation Plan, California Fish and Game Code Section 2081.7, specifically related to the 2003 Quantification Settlement Agreement, and the Agreement for Transfer of Conserved Water among Imperial Irrigation District, Metropolitan Water District, and Coachella Valley Water District, or a Memorandum of Understanding for scientific purposes.

### 2.2.3 Nesting Birds

CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. California Fish and Game Code sections that protect birds, eggs, and nests include Section 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), Section 3503.5 (regarding the take, possession, or destruction of any birds-of-prey in the order Falconiformes or Strigiformes, or their nests or eggs), and Section 3513 (regarding unlawful take of any migratory non-game bird as designated in the MBTA).

## 2.2.4 Lake and Streambed Alteration Program

CDFW regulates water resources under Sections 1600 et seq. of the California Fish and Game Code. The CDFW has the authority to grant Streambed Alteration Agreements under Section 1602, which states:

*An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.*

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated.

Projects that require a Streambed Alteration Agreement may also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

## 2.2.5 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. RWQCB's jurisdiction includes federally protected waters and areas that meet the definition of waters of the state (WOS). WOS are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. Under Porter-Cologne, the RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 401, provided they meet the definition of WOS, which would require issuance of waste discharge requirements. Mitigation requiring no net loss of wetland functions and values of WOS is typically required by RWQCB.

### State Water Resources Control Board's 2019 State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State

SWRCB adopted a statewide definition of rules to protect wetlands and other environmentally sensitive waterways throughout the state on April 2, 2019. These rules define what SWRCB considers a wetland and include a framework for determining if a feature that meets the SWRCB wetland definition is a WOS, subject to regulation. Second, the rules clarify requirements for permit applications to discharge dredged or fill material to any water of the state.

The SWRCB defines an area as wetland as follows:

*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 (SWRCB 2019).*

SWRCB considers the following wetlands (as determined using methodology in the *USACE Wetland Delineation Manual* [USACE Environmental Laboratory 1987]) as WOS:

1. Natural wetlands
2. Wetlands created by modification of a surface water of the state
3. Artificial wetlands that meet any of the following criteria:
  - a. Approved by an agency as compensatory mitigation for impacts to other WOS, except where the approving agency explicitly identifies the mitigation as being of limited duration
  - b. Specifically identified in a water quality control plan as a wetland or other water of the state
  - c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape
  - d. Greater than or equal to 1 acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not WOS unless they also satisfy the criteria set forth in 2, 3a, or 3b):
    - i. Industrial or municipal wastewater treatment or disposal
    - ii. Settling of sediment
    - iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program
    - iv. Treatment of surface waters
    - v. Agricultural crop irrigation or stock watering
    - vi. Fire suppression
    - vii. Industrial processing or cooling
    - viii. Active surface mining, even if the site is managed for interim wetlands functions and values
    - ix. Log storage
    - x. Treatment, storage, or distribution of recycled water
    - xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits)
    - xii. Fields flooded for rice growing

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in numbers 2, 3.a, 3.b, or 3.c are not WOS. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a WOS.

## 2.2.6 California Environmental Quality Act

CEQA requires state and local agencies to identify impacts on the environment that might be caused by their actions. Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. CEQA Guidelines Section 15065 (Mandatory Findings of Significance) identifies a substantial reduction in numbers of a rare or endangered species as a significant impact.

CEQA Guidelines Section 15380 (Rare or Endangered Species) provides for the assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. For example, plant species that are not federally or state listed but that occur on the California Native Plant Society's (CNPS) California Rare Plant Rank (CRPR) Lists 1B and 2B would also typically be considered under CEQA. Plant populations of species meeting the CRPR List 3 and 4 designations that are locally significant may also warrant consideration under CEQA.

## 2.3 Local Regulations

### 2.3.1 Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County MSHCP was adopted on June 17, 2003, and an Implementing Agreement was executed between the federal and state wildlife agencies (USFWS and CDFW) and participating entities (Riverside County Transportation and Land Management Agency 2003). The MSHCP is a comprehensive habitat conservation-planning program for western Riverside County. The intent of the Western Riverside County MSHCP is to preserve native vegetation and meet the habitat needs of multiple species, rather than focusing preservation efforts on one species at a time. As such, the Western Riverside County MSHCP is intended to streamline review of individual projects with respect to the species and habitats addressed in the Western Riverside County MSHCP and provide for an overall conservation area that would be of greater benefit to biological resources than would result from a piecemeal regulatory approach. The Western Riverside County MSHCP provides coverage (including take authorization for listed species) for special-status plant and animal species, as well as mitigation for impacts on special-status species.

The Western Riverside County MSHCP serves as a habitat conservation plan pursuant to Section 10(a)(1)(B) of FESA, as well as the Natural Communities Conservation Plan under the State of California Natural Community Conservation Planning Act (Fish and Game Code Section 2800). USFWS issued a Biological Opinion (USFWS 2004) for the Western Riverside County MSHCP on June 22, 2004 and issued an amendment to the Biological Opinion on September 22, 2011. CDFW also issued the Natural Communities Conservation Plan Approval and Take Authorization for the Western Riverside County MSHCP on June 22, 2004.



## 3 Study Methods

### 3.1 Biological Study Area and Survey Areas

The Project area includes the maximum footprint of disturbance including proposed roadway and infrastructure improvements, TCEs, construction staging areas, and proposed permanent drainage easements. The Biological Study Area (BSA) includes the Project area and a 150-foot buffer. The aquatic resources delineation area (ARDA), used to determine potential jurisdictional aquatic resources in and adjacent to the Project area, includes the Project area and a 50-foot buffer. The riparian bird survey area and burrowing owl (BUOW) survey area include the Project area and a 500-foot buffer.

### 3.2 Literature Review

A literature review was conducted prior to field surveys, with an updated literature search conducted on February 1, 2023, for which the results are provided in Appendix A. Special-status plant and animal species that have the potential to occur within the Project area were identified using information provided by the USFWS' Information for Planning and Consultation Online System (USFWS 2023a), CDFW's California Natural Diversity Database (CNDDDB) RareFind program (CDFW 2023), and CNPS Inventory of Rare and Endangered Plants of California (CNPS 2022). The Information for Planning and Consultation search was conducted using a shapefile of the Project area boundaries. The CNDDDB and CNPS databases were searched for the nine topographic quadrangles, including, and surrounding, the Project area (Steele Peak, Riverside West, Riverside East, Sunnymead, Perris, Romoland, Lake Elsinore, Alberhill, and Lake Mathews, California) and confined to species that occur at elevations between 1,320 feet and 1,815 feet above mean sea level.

Additional resources reviewed include current and historic aerial imagery (Google Earth 2023; Historic Aerials 2023), U.S. Geological Survey topographic maps at a minimum 1:24,000 scale (U.S. Geological Survey 1969), National Hydrography Dataset (U.S. Geological Survey 2023), USFWS National Wetlands Inventory (USFWS 2023b), and U.S. Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2023).

### 3.3 General Biological Field Surveys and Vegetation Mapping

Field studies conducted in support of this report include a general biological resources survey, Western Riverside County MSHCP BUOW habitat assessment, an assessment of Riparian/Riverine Areas and other areas addressed in Section 6.1.2 of the Western Riverside County MSHCP including riparian birds, a delineation of features potentially subject to the jurisdiction of USACE, RWQCB, and/or CDFW.

HDR biologists conducted a general biological resources survey within the BSA on April 8, 2022. Where access permitted, the BSA was surveyed opportunistically on foot. Where access was prohibited (i.e., no right-of-entry granted, fenced areas, dense vegetation), vegetation communities were mapped opportunistically from adjacent areas with the use of binoculars.

During the general biological field survey, plants encountered were identified, where possible. Ornamental species that were not identifiable in the field were not collected for further classification, except in areas where ornamental species identification was needed for analysis, such as in areas of

potential hydrophytic vegetation. Botanical species discussed in this report follow both Latin and common names using the most up-to-date scientific names provided from the online version if the Jepson eFlora (Jepson Flora Project [eds.] 2012).

Wildlife species detected during the general biological survey were recorded. Species were detected by sight and/or specific calls. Binoculars were used to aid in the identification of species, potential nest locations, and foraging areas.

Vegetation communities were generally mapped onto an aerial photograph prior to the site visit and ground-truthed during the site visit using the vegetation map loaded to an iPad. Hard copy maps were also used during ground-truthing. Vegetation communities were classified using the classification methods and associations described in *The Manual of California Vegetation, Second Edition* (Sawyer, Keeler-Wolf, and Evens 2009), where applicable. The Holland classification as described in Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) was used as reference to assist in classification of communities that did not easily fit into Manual of California Vegetation categories. Lists of plant and wildlife species observed within the BSA are included in Appendix B. Site photographs are included in Appendix C. Dates, times, and weather conditions for all biological resources surveys are included in Table 3-1.

**Table 3-1. Survey Dates, Personnel and Conditions**

Survey Date	Personnel	Type of Survey	Start/End Time (BUOW, LBV, SWFL Surveys)	Survey Conditions
April 12, 2022	Sarah Barrera, Aaron Newton	General Biological Resources, Aquatic Resources Delineation, Burrowing Owl Habitat Assessment	BUOW: 0830/1430	56–76°F, clear skies, no winds
April 15, 2022	Aaron Newton, Ronell Santos	BUOW Focused Survey #1	BUOW:0710/1000	54–62°F, clear skies, no winds
May 2, 2022	Aaron Newton, Sarah Barrera	LBV Survey #1, Aquatic Resources Delineation	LBV:0645/1040	56–73°F, cloudy skies, no winds
May 19, 2022	Sarah Barrera, Aaron Newton, Ingrid Eich	BUOW Focused Survey #2, Aquatic Resources Delineation	BUOW:0705/1000	61–71°F, overcast, mild winds
May 23, 2022	Adam Lockyer	LBV Survey #2, SWFL Survey #1	SWFL: 0705/0815 LBV: 0815/1015	58–68°F, partly cloudy skies, mild winds
June 3, 2022	Aaron Newton, Adam Lockyer	LBV Survey #3, SWFL Survey #2	SWFL: 0655/0900 LBV: 0655/0900	57–63°F, overcast, no winds
June 7, 2022	Aaron Newton	BUOW Focused Survey #3	BUOW: 0700/1000	62–73°F, clear skies, mild winds
June 17, 2022	Adam Lockyer	LBV Survey #4, SWFL Survey #3	SWFL: 0758/0905 LBV: 0905/1004	70–73°F, clear skies, mild winds

June 27, 2022	Adam Lockyer	LBV Survey #5, SWFL Survey #4	SWFL: 0635/0730 LBV: 0730/0825	78–80°F, clear skies, mild breeze
July 7, 2022	Aaron Newton	BUOW Focused Survey #4	BUOW: 0720/1000	69–69°F, clear skies, no winds
July 8, 2022	Adam Lockyer	LBV Survey #6, SWFL Survey #5	SWFL: 0758/0905 LBV: 0905/1004	70–80°F, clear skies, mild breeze
July 15, 2022	Sarah Barrera, Aaron Newton	Aquatic Resources Delineation		74–90°F, partly cloudy, no winds
July 19, 2022	Aaron Newton	LBV Survey #7	LBV: 0710/0940	73–84°F, clear skies, mild winds

Notes:

BUOW=burrowing owl; LBV=least Bell's vireo; SWFL=southwestern willow flycatcher

### 3.4 Burrowing Owl Habitat Assessment and Focused Survey

A BUOW habitat assessment was conducted by consultant biologists Sarah Barrera, Aaron Newton on April 12, 2022, in accordance with Step I of the *Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area* (WRC RCA 2006). The habitat assessment was conducted for all areas within the BUOW Survey Area, which consists of the Project area and a 500-foot buffer, that were located within the Western Riverside County Multiple Species Habitat Conservation Plan (Western Riverside County MSHCP) Burrowing Owl Survey Area. The limits of the BUOW Survey Area are shown on Figure 3-1. Surveyors assessed all habitat within the BUOW Survey Area for the presence of burrows, burrow surrogates, fossorial mammal dens, well drained soils, available prey, and short or sparse vegetation. Where access was prohibited (i.e., gated, private property, etc.), biologists used binoculars and aerial photography to determine suitability.

Focused BUOW surveys were conducted in April 2022 in accordance with Step II of the *Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area* (WRC RCA 2006) for all suitable habitat within the BUOW Survey Area. Surveys were conducted during the breeding season (March 1 through August 31). Focused BUOW surveys were conducted by walking transects through all areas within the BUOW Survey Area that supported suitable BUOW habitat. Areas within the 150-meter (500-foot) buffer zone that surveyors did not have permission to access were surveyed with binoculars.

The complete methodology used to conduct focused BUOW surveys is included in the *Burrowing Owl Survey Report* (Appendix D).

### 3.5 Riparian Birds Survey

The Project area supports riparian habitat suitable for least Bell's vireo [LBV; (*Vireo bellii pusillus*)] and southwestern willow flycatcher [SWFL; (*Empidonax traillii extimus*)]. Focused riparian bird surveys were conducted for suitable habitat areas within the Riparian Bird Survey Area (RBSA) which consists of the Project area and a 500-foot buffer (Figure 3-1). Surveys were conducted between April and July 2022 by consultant biologists Adam Lockyer (Permitted Biologist, TE55135D-0) and Aaron Newton according to the currently accepted USFWS protocol.

The complete methodology used to conduct focused riparian bird surveys is included in the *Riparian Bird Survey Report* (Appendix E).

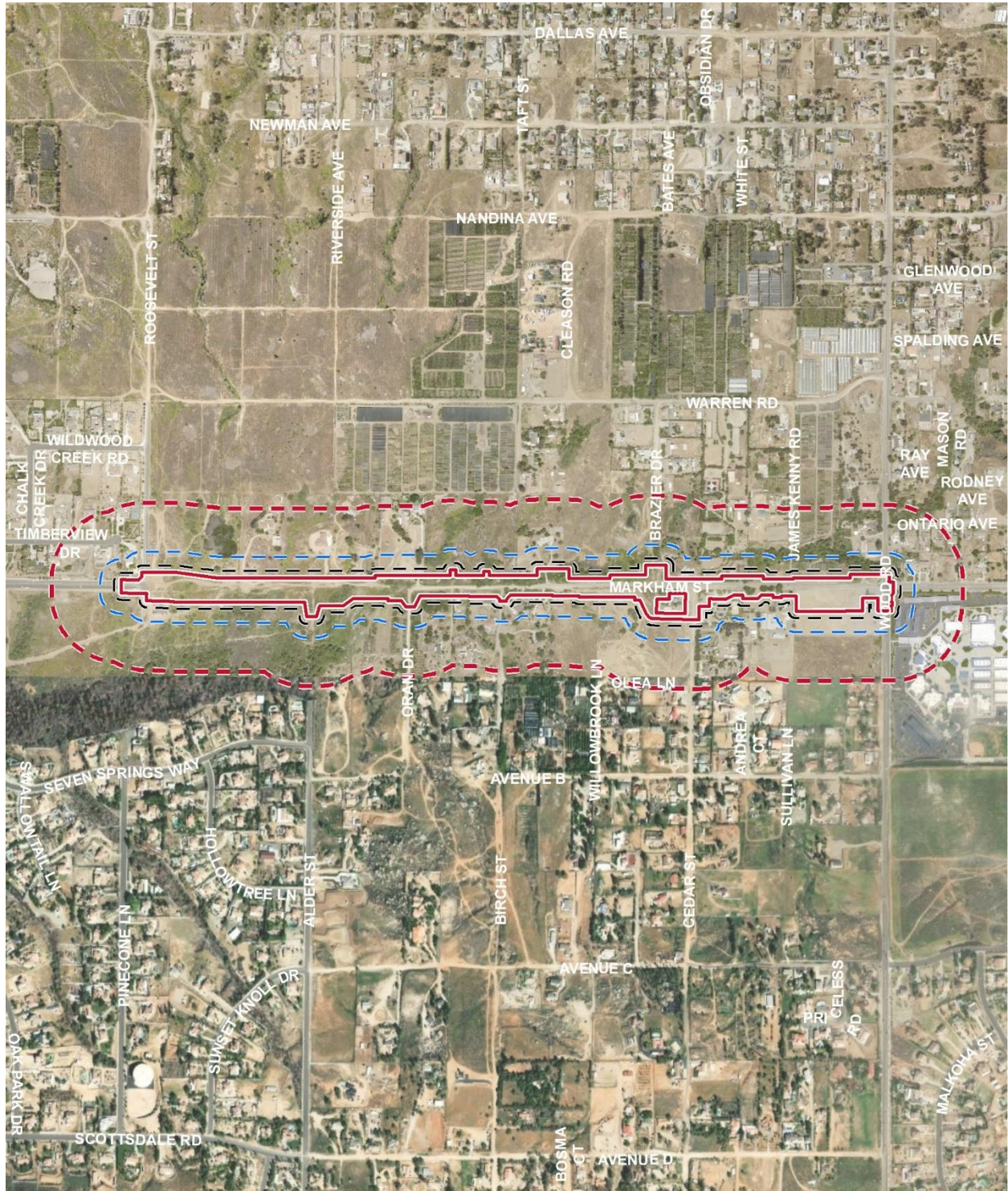
### 3.6 Aquatic Resources Delineation

An aquatic resources delineation to identify and map all potential drainage features within the ARDA was conducted by HDR biologists on May 2, May 19, and July 15, 2022. The ARDA includes the Project area and 50-foot buffer (Figure 3-1) All potential drainage features in accessible areas within the ARDA were investigated on foot. The potential jurisdictional limits of features identified were mapped and notes were taken at each feature describing drainage type, substrate type, flow regime, presence or absence of vegetation, and any other pertinent details regarding its local hydrology. All features were later digitized using geographic information system software.

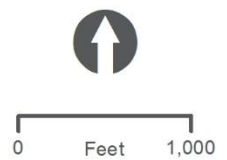
The complete methodology used to conduct the aquatic resources survey is included in the *Aquatic Resources Delineation Report* (Appendix F); however, Section 3.6.1 through Section 3.6.3 provides a summary.

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Figure 3-1. Biological Resources Survey Areas



-  Project Area
-  Aquatic Resources Delineation Area - 50 foot buffer
-  Biological Study Area - 150 foot buffer
-  Burrowing Owl & Riparian Birds Survey Area - 500 foot buffer



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### 3.6.1 United States Army Corps of Engineers Jurisdiction

USACE jurisdiction was delineated according to the methods outlined in the *USACE Wetland Delineation Manual* (USACE Environmental Laboratory 1987), the *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE 2008c).

When potential WOTUS were encountered in linear features, the length of the drainage feature was walked, and the outer jurisdictional limits within the ARDA were recorded. The OHWM was measured at locations where indicators were apparent. Other data recorded included bank-to-bank width, bank height and morphology, substrate type, and all vegetation within and adjacent to the feature. Constructed, ephemeral features that were created in uplands and clearly intended only to convey roadway or urban runoff were mapped as ditches constructed in uplands and were not considered jurisdictional.

An *Arid West Region Wetland Assessment Data Form* was completed in areas exhibiting potential wetland conditions, including hydrophytic vegetation and/or hydrology. Soils were analyzed using the *NRCS Field Indicators of Hydric Soils in the U.S.*, Version 8.0, and the *List of California Hydric Soils* (USDA NRCS 2018, 2021) and a Munsell Soil Color Chart (Munsell Color X-Rite 2013).

### 3.6.2 Regional Water Quality Control Board Jurisdiction

The RWQCB jurisdiction, for the purposes of CWA Section 401 certification, is identical to USACE jurisdiction. In addition, the ARDA was evaluated using the same methodology for isolated features that would not be subject to federal jurisdiction but would be potentially regulated under the Porter-Cologne Water Quality Control Act.

### 3.6.3 California Department of Fish and Wildlife Jurisdiction

Features potentially subject to CDFW jurisdiction were mapped from top-of-bank to top-of-bank or to the extent of riparian vegetation, whichever was greater. Constructed, ephemeral features that were excavated in uplands and only drained upland areas into adjacent streets or storm drains, or were isolated from other jurisdictional features, were mapped but were not considered jurisdictional.



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## 4 Results: Environmental Setting

### 4.1 Existing Physical Conditions

The BSA is located in an unincorporated area of western Riverside County commonly referred to as the community of Woodcrest. The immediate vicinity consists of suburban and rural residential areas with intermixed commercial uses such as agriculture and nurseries. Portions of the surrounding areas are developed, while other portions remain natural with native vegetation and feature natural drainages, such as a large portion of Mockingbird Canyon Creek within the BSA.

#### 4.1.1 Climate and Hydrology

The BSA is located in Southern California which has a Mediterranean climate, characterized by warm, dry summers and cool, moist winters. Riverside County is warm and temperate with more rain occurring during winter than in other seasons. The average precipitation within the ARDA is 10.2-inches per year, with most of the rainfall occurring between November and February (USDA 2022b).

The BSA is located within the Temescal Wash sub-watershed (Hydrologic Unit Code 1807020306), which is within the Santa Ana River Watershed (Hydrologic Unit Code 18070203) (California Water Indicators Portal [CWIP] 2022). The Santa Ana River Watershed covers approximately 2,650 square miles in San Bernardino, Riverside, Orange, and Los Angeles counties (USACE 2013) and the Temescal Wash sub-watershed covers approximately 253 square miles in Riverside County (CWIP 2022). The Santa Ana River is the main receiving water of this watershed and is a historic feature that originates in the San Bernardino Mountains and travels through the Inland Empire, Prado Basin, and the Santa Ana Mountains. It eventually discharges into the Pacific Ocean between Huntington Beach and Costa Mesa, approximately 62 river miles from the BSA.

The National Wetlands Inventory identifies portions of Mockingbird Canyon Creek as supporting freshwater forested/shrub wetland and riverine aquatic resources within the BSA (Figure 4-1). Freshwater forested/shrub wetland within the BSA is classified as Palustrine, Forested, Temporary Flooded (PFOA) and Palustrine, Scrub-Shrub, Temporary Flooded (PSSA). Riverine habitat within the BSA is classified as Riverine, Intermittent, Streambed, Seasonally Flooded (R4SBC) (USFWS 2022).

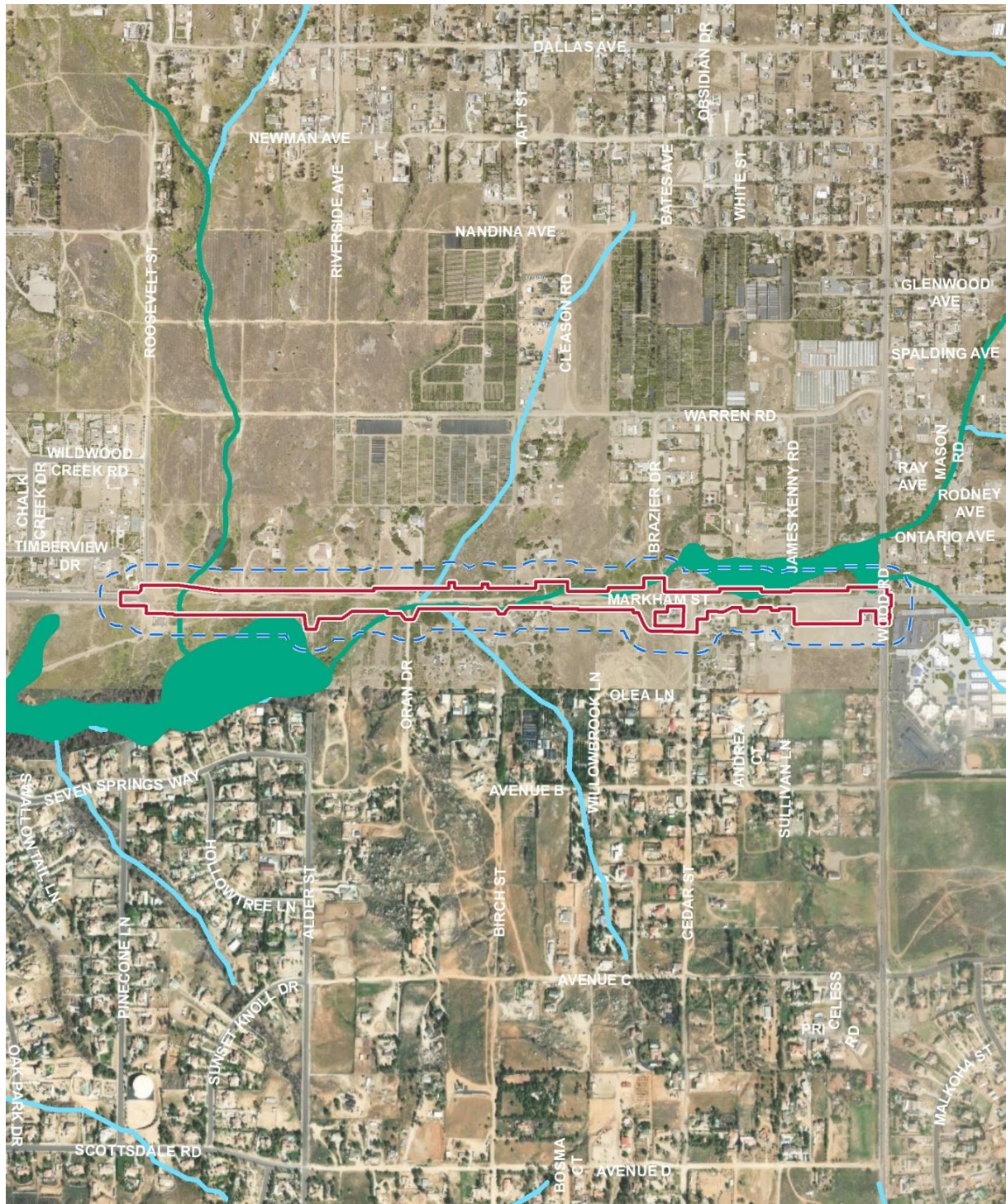
#### 4.1.2 Soils

The following soil associations are mapped by the USDA NRCS Soils Survey within the ARDA (Figure 4-2) (USDA NRCS 2019):

- **Buren series:** The Buren series consists of well drained slow to moderately slowly permeable soils. These soils are on gently to strongly sloping alluvial fans and terraces. They formed in alluvium derived mostly from basic igneous rocks and partly from other crystalline rocks. Average annual precipitation of 12 to 15-inches. Buren sandy loam (8-15 percent slopes, eroded) is mapped within the ARDA. Buren soils do not have a hydric soil rating (USDA 2022a).
- **Cieneba series:** The Cieneba series consists of very shallow and shallow, somewhat excessively drained soils that formed in material weathered from granitic rock. Cieneba soils are on hills and mountains and have slopes of 9 to 85 percent. Cieneba sandy loam (8-15 percent slopes, eroded) and Cieneba rocky sandy loam (15-50 percent slopes, eroded) is mapped within the ARDA. Cieneba soils do not have a hydric soil rating (USDA 2022a).

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Figure 4-1. National Wetlands Inventory Map



 Biological Study Area - 150 foot buffer

 Project Area

National Wetlands Inventory Data

 Freshwater Forested/Shrub Wetland

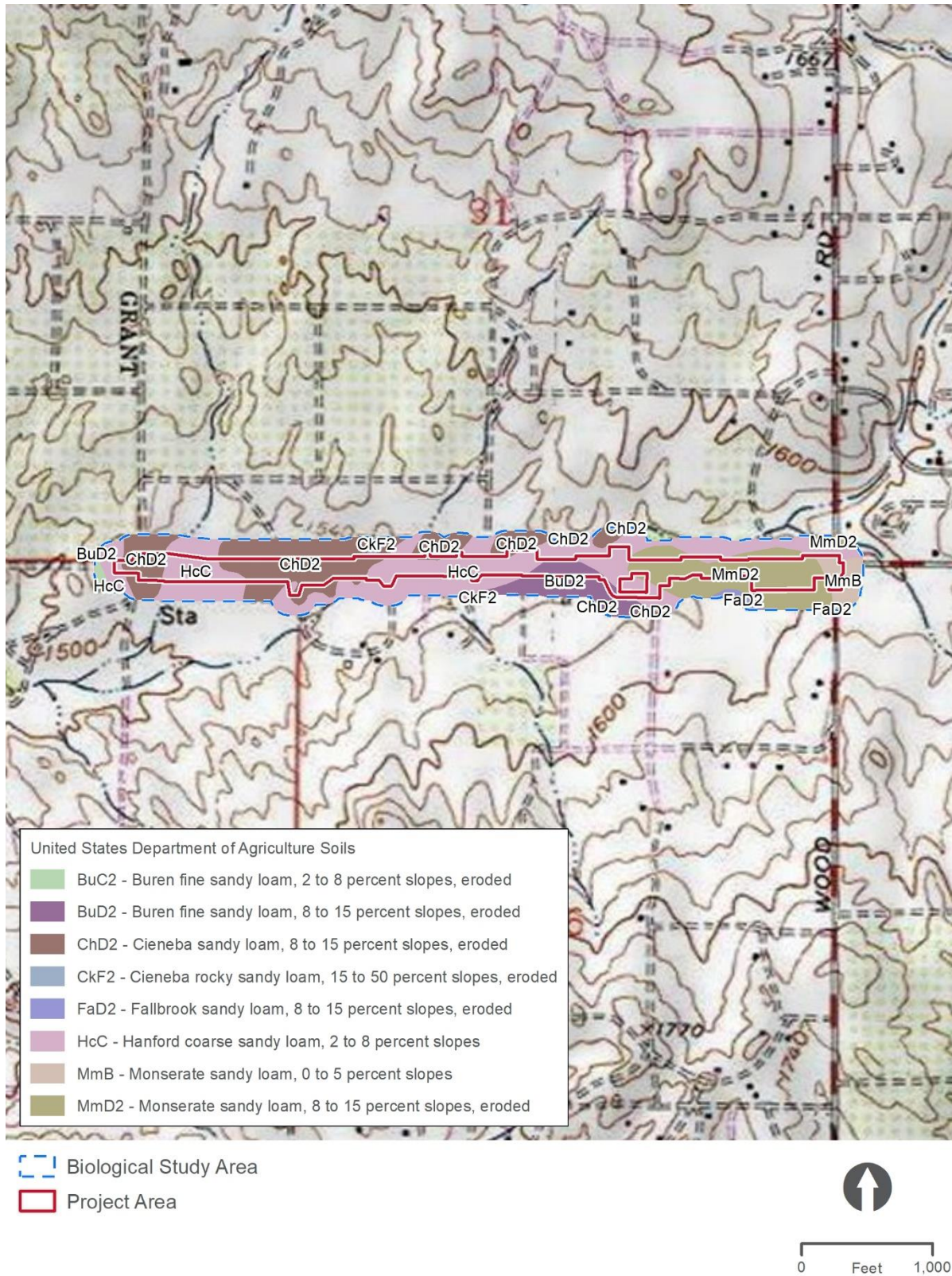
 Riverine



0 Feet 1,000

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Figure 4-2. United States Department of Agriculture Soils Map



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- **Fallbrook series:** The Fallbrook series consists of deep, well drained soils that formed in material weathered from granitic rocks. Fallbrook soils are on rolling hills and have slopes of 5 to 75 percent. Fallbrook sandy loam (8-15 percent slopes, eroded) is mapped within the ARDA. Fallbrook soils do not have a hydric soil rating (USDA 2022a).
- **Hanford series:** The Hanford series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Hanford soils are on stream bottoms, floodplains and alluvial fans and have slopes of 0 to 15 percent. Hanford coarse sandy loam (2-8 percent slopes) is mapped within the ARDA. Hanford soils do not have a hydric soil rating (USDA 2022a).
- **Monserate series:** The Monserate series is a member of the fine-loamy, mixed, thermic family of Typic Durixeralfs. Typically, Monserate soils have brown and yellowish red, slightly acid, sandy loam A horizons, reddish brown, neutral, sandy clay loam B2t horizons underlain by silica-cemented duripans. Monserate sandy loam (0-5 percent slopes) and Monserate sandy loam (8-15 percent slopes, eroded) are mapped within the ARDA. Monserate soils do not have a hydric soil rating (USDA 2022a).

## 4.2 Existing Biological Resources

The BSA consists of a mosaic of rural residential development and surrounding open space. Because of this setting, while the BSA supports native vegetation communities and wildlife, most of the biological resources have been modified to support residences and supporting infrastructure.

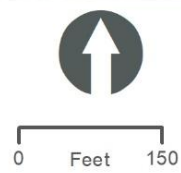
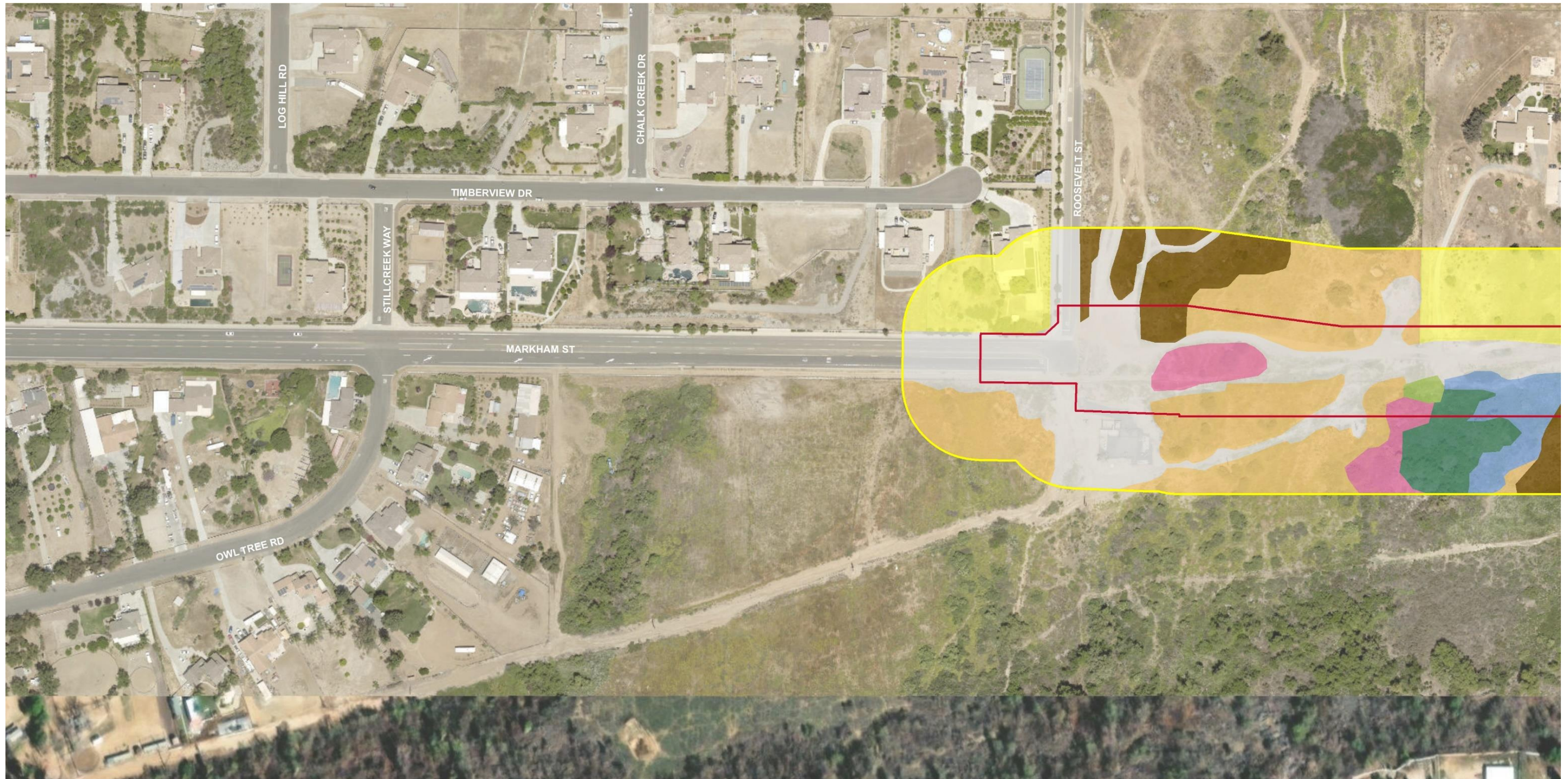
### 4.2.1 Vegetation Communities and Other Land Cover Types

Vegetation communities and other land cover types in the BSA are shown on Figure 4-3. Acreages of vegetation communities and other land cover types in the BSA are provided in Table 4-1. Descriptions of vegetation communities and other land cover types follow. The BSA includes the Project area plus a 150-foot buffer.

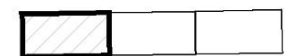


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Figure 4-3. Vegetation Communities and Other Land Cover Types in the Biological Study Area (Sheet 1 of 3)

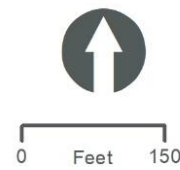
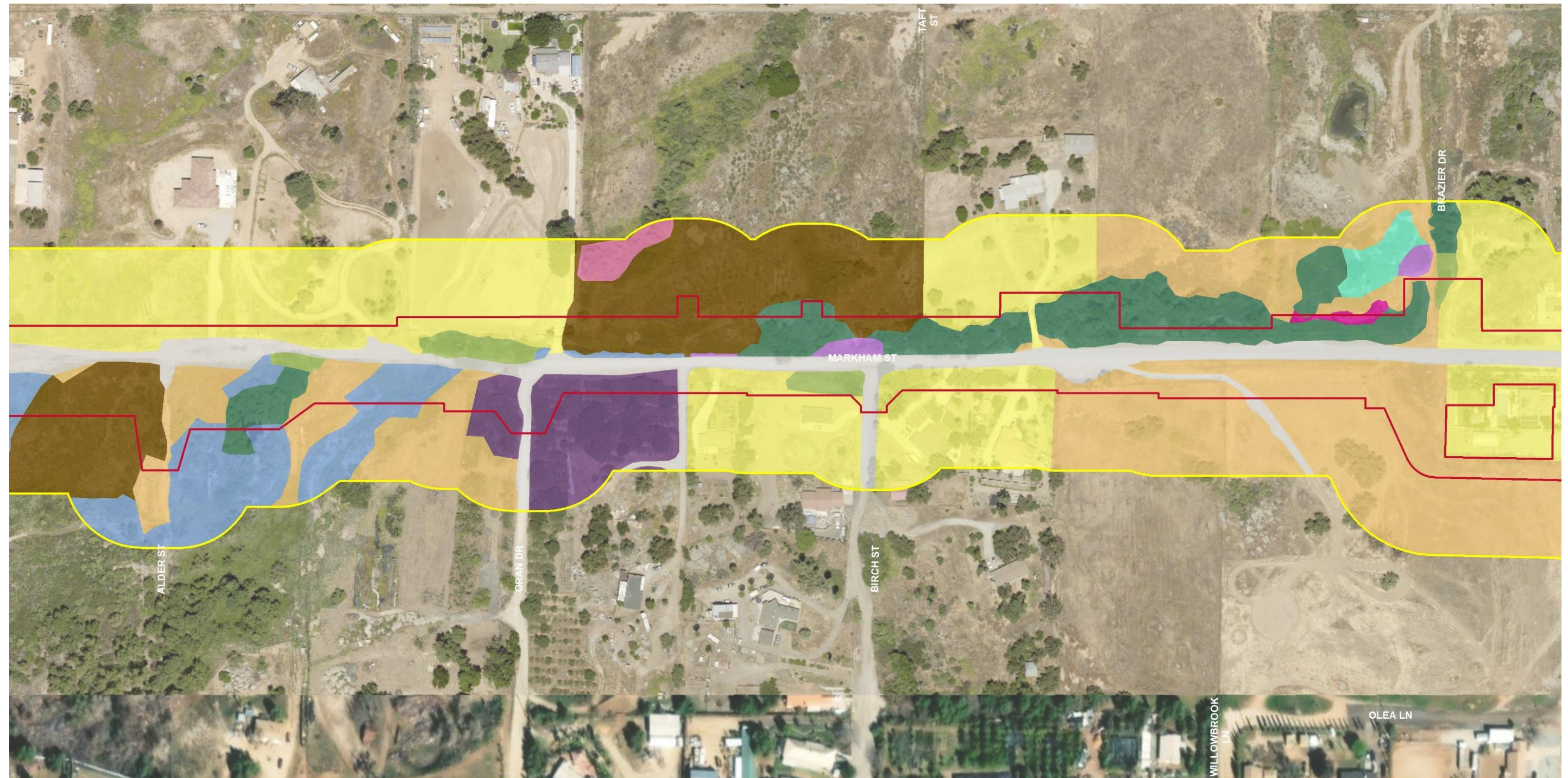


LEGEND	
	Project Area
	Biological Study Area
<b>Vegetation</b>	
	Black willow woodland
	Blue elderberry shrubland
	California buckwheat scrub
	Cattail marshes
	Cocklebur patches
	Developed/Disturbed/Bare Ground
	Giant reed marsh
	Mediterranean California naturalized annual and perennial grassland
	Mule fat thickets
	Orchard/Agricultural
	Ornamental riparian
	Perennial pepperweed patches
	Residential



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Figure 4-3. Vegetation Communities and Other Land Cover Types in the Biological Study Area (Sheet 2 of 3)



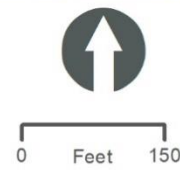
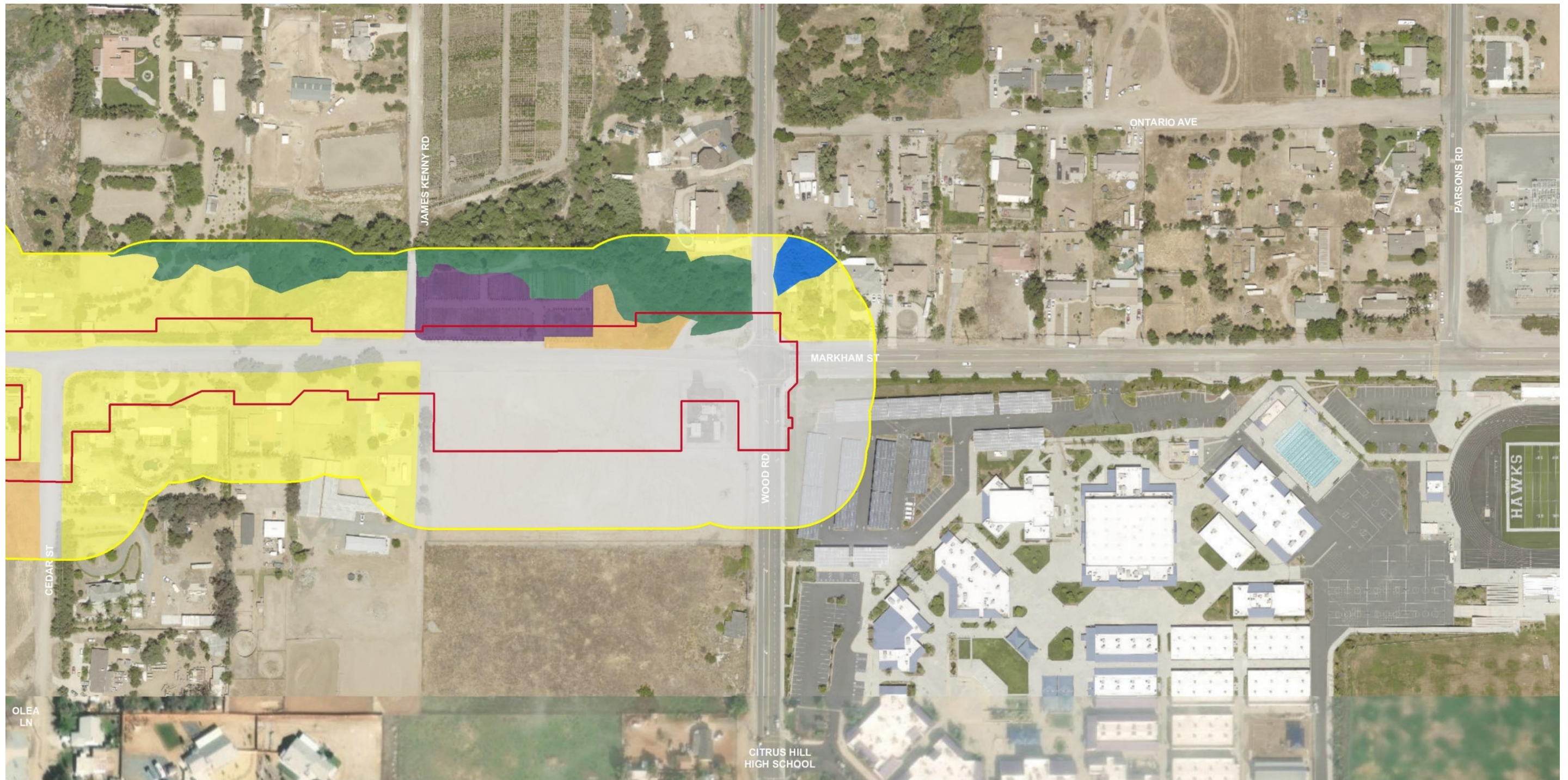
**LEGEND**

- |                       |                            |   |                              |
|-----------------------|----------------------------|---|------------------------------|
| Project Area          | Black willow woodland      | Cocklebur patches   | Orchard/Agricultural         |
| Biological Study Area | Blue elderberry shrubland  | Developed/Disturbed/Bare Ground                                     | Ornamental riparian          |
|                       | California buckwheat scrub | Giant reed marsh  | Perennial pepperweed patches |
|                       | Cattail marshes            | Mediterranean California naturalized annual and perennial grassland | Residential                  |
|                       | Mule fat thickets          |   |                              |



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Figure 4-3. Vegetation Communities and Other Land Cover Types in the Biological Study Area (Sheet 3 of 3)



LEGEND	
<span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span> Project Area	<span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span> Biological Study Area
<b>Vegetation</b>	
<span style="display: inline-block; width: 10px; height: 10px; background-color: #2e8b57;"></span> Black willow woodland	<span style="display: inline-block; width: 10px; height: 10px; background-color: #ff69b4;"></span> Cocklebur patches
<span style="display: inline-block; width: 10px; height: 10px; background-color: #800080;"></span> Blue elderberry shrubland	<span style="display: inline-block; width: 10px; height: 10px; background-color: #d3d3d3;"></span> Developed/Disturbed/Bare Ground
<span style="display: inline-block; width: 10px; height: 10px; background-color: #8b4513;"></span> California buckwheat scrub	<span style="display: inline-block; width: 10px; height: 10px; background-color: #0000ff;"></span> Giant reed marsh
<span style="display: inline-block; width: 10px; height: 10px; background-color: #800080;"></span> Cattail marshes	<span style="display: inline-block; width: 10px; height: 10px; background-color: #ffa500;"></span> Mediterranean California naturalized annual and perennial grassland
	<span style="display: inline-block; width: 10px; height: 10px; background-color: #90ee90;"></span> Mule fat thickets
	<span style="display: inline-block; width: 10px; height: 10px; background-color: #483d8b;"></span> Orchard/Agricultural
	<span style="display: inline-block; width: 10px; height: 10px; background-color: #00ced1;"></span> Ornamental riparian
	<span style="display: inline-block; width: 10px; height: 10px; background-color: #6495ed;"></span> Perennial pepperweed patches
	<span style="display: inline-block; width: 10px; height: 10px; background-color: #ffff00;"></span> Residential

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**Table 4-1. Vegetation Communities and Other Land Cover Types in the Biological Study Area**

Vegetation Community or Other Land Cover Type	Acres
<b><i>Tree-dominated habitats</i></b>	
Black willow woodland*	5.69
Ornamental riparian woodland	0.30
<b><i>Shrub-dominated habitats</i></b>	
California buckwheat scrub	5.50
Blue elderberry shrubland	0.92
Mule fat thickets	0.57
<b><i>Herbaceous-dominated habitats</i></b>	
Cattail marsh	0.17
Cocklebur patches	0.08
Perennial pepperweed patches	2.66
Giant reed marsh	0.19
Mediterranean California naturalized annual and perennial grassland	13.12
<b><i>Other land cover types</i></b>	
Developed/Disturbed/Bare Ground	15.71
Orchard/Agricultural	2.59
Residential	20.41
<b>Total<sup>a</sup></b>	<b>67.93</b>

Notes:

<sup>a</sup> Totals may differ due to rounding

\* Indicates a CDFW Sensitive Natural Community

### Black Willow Woodland (*Salix gooddingii* Forest and Woodland Alliance)

Black willow woodland is dominated by black willow (*Salix gooddingii*), with lesser amounts of other willow species (*Salix* spp.). Black willow is dominant or co-dominant in the tree layer with at least 50 percent relative cover. It generally occurs on terraces along large rivers and canyons and along floodplains of streams, seeps, springs, and ditches. Trees are less than 30-meters in height, with an open-to-continuous canopy with a sparse shrub layer and a variable herbaceous layer (Sawyer et al. 2009).

Within the BSA, black willow woodland occurs along Mockingbird Canyon Creek and in two isolated patches south of Markham Street and covers approximately 5.69 acres. Black willow woodland has a State rarity ranking of S3 and is considered sensitive by CDFW.

### Ornamental Riparian Woodland

The Manual of California Vegetation does not provide descriptions for disturbed vegetation communities. However, some of the riparian woodland habitat within the ARDA supports a high percentage of ornamental, non-native species and is mapped and described separately for this report.



Within the ARDA, ornamental riparian woodland is dominated by bamboo (*Bambusa vulgaris*), papyrus (*Cyperus papyrus*), weeping willow (*Salix babylonica*), giant reed (*Arundo donax*), and Mexican fan palm (*Washingtonia robusta*), with a smaller percentage of black willows.

Within the BSA, ornamental riparian woodland occurs approximately 400-feet northeast of the intersection of Markham Street and Cedar Street and is associated with two artificially created ponds that appear to be part of a remnant plant nursery. Ornamental riparian woodland covers approximately 0.30 acre within the BSA.

#### California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

California buckwheat scrub is dominated by California buckwheat (*Eriogonum fasciculatum*), which accounts for at least 50 percent relative cover in the shrub layer. This alliance usually occurs on upland slopes, intermittently flooded arroyos, channels, and washes. Shrubs are typically less than 2-meters in height, with an intermittent-to-continuous canopy and a variable, grassy herbaceous layer (Sawyer et al. 2009). Within the BSA, California buckwheat scrub covers 5.50 acres.

#### Blue Elderberry Shrubland (*Sambucus* sp. Shrubland Semi-Natural Alliance)

Blue elderberry woodland occurs as dense stands of blue elderberry (*Sambucus nigra*) with small amounts of mule fat (*Baccharis salicifolia*), shortpod mustard (*Hirschfeldia incana*), California buckwheat, and perennial pepperweed (*Lepidium latifolium*) and generally occurs in upland areas adjacent to riparian habitats. Within the BSA, blue elderberry shrubland covers 0.92 acre.

#### Mule Fat Thickets (*Baccharis salicifolia* Shrubland Alliance)

Within this alliance, mule fat is dominant or co-dominant in the shrub canopy with California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), tree tobacco (*Nicotiana glauca*), and willow species (*Salix* spp.). Emergent trees may be present at low cover, including sycamore (*Platanus racemosa*), cottonwood (*Populus fremontii*), oak (*Quercus* spp.), or willow. Mule fat is at least 50 percent relative cover in the shrub canopy and grows along canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels. Shrubs are less than 5 meters in height, with a continuous canopy and a sparse herbaceous layer. Within the ARDA, mule fat thickets cover 0.57 acre.

#### Mediterranean California Naturalized Annual and Perennial Grassland

This community is dominated by shortpod mustard and non-native grasses (*Bromus* sp., *Avena* sp., *Hordeum* sp.) with other non-native herbaceous species including non-native tree tobacco and castor bean (*Ricinus communis*). These areas have been previously physically disturbed but continue to retain a soil substrate. Within the ARDA this community occurs in undeveloped parcels and within parcels that have been cleared of native vegetation but not regularly maintained. Within the BSA, this community covers approximately 13.12 acres.

#### Cattail Marsh (*Typha* sp. Herbaceous Alliance)

Cattail marsh is dominated by one or more species of cattail (*Typha* spp.), with at least 50 percent relative cover in the herbaceous layer. Cattails are rhizomatous and grow in dense colonies forming uniform stands that are not proximally associated with other plants except generally with wetland affiliates. This alliance usually occurs in semi-permanently flooded freshwater or brackish marshes. Herbaceous plants are typically less than 1.5-meter in height, with intermittent-to-continuous cover

(Sawyer et al. 2009). Within the BSA cattail marsh covers 0.17 acre associated with a culverted portion of Mockingbird Canyon Creek directly adjacent to the north side of Markham Street.

#### Perennial Pepperweed Patches (*Lepidium latifolium* Herbaceous Semi-Natural Alliance)

Perennial pepperweed patches are dominated by perennial pepperweed with at least 30 percent relative cover in the herbaceous layer. This community most commonly occurs in intermittently and seasonally flooded fresh and saltwater marshes and riparian corridors. Perennial pepperweed is an invasive weed and is invading riparian and wetland settings in California. The species spreads rapidly and forms extensive, dense patches in both freshwater and brackish water sites. Within the BSA, perennial pepperweed patches almost exclusively consist of perennial pepperweed and cover 2.66 acres, associated with Mockingbird Canyon Creek and adjacent riparian habitat.

#### Cocklebur Patches (*Xanthium strumarium* Herbaceous Alliance)

Cocklebur patches are dominated by cocklebur (*Xanthium strumarium*) with at least 50 percent relative cover in the herbaceous layer. This community occurs in marshes, regularly disturbed vernal wet ponds, lakeshores, reservoirs, fields, stream terraces, floodplains, and mudflats. Cocklebur is a robust, native annual that occurs worldwide, particularly in disturbed areas such as seasonally flooded stream sides and alluvial flats. Within the BSA, cocklebur patches are dominated by cocklebur and lambs quarters (*Chenopodium album*) and occur along one seasonally wet access road located adjacent to Mockingbird Canyon Creek, covering 0.08 acre.

#### Giant Reed Marsh (*Arundo donax* Herbaceous Semi-Natural Alliance)

Giant reed marsh is dominated by giant reed, with at least 60 percent relative cover in the herbaceous layer. Giant reeds are rhizomatous and grow in dense colonies that form uniform stands. This alliance usually occurs in riparian areas along low-gradient streams and ditches and in semi-permanently flooded and slightly brackish marshes. Herbaceous plants are typically less than 8-meters in height with continuous cover (Sawyer et al. 2009). Giant reed marsh occurs at the eastern edge of the BSA and covers 0.19 acre.

### Residential

Residential areas consist of parcels that have been developed for residential uses and include the constructed buildings as well as landscaped and non-landscaped yards. The BSA is located within a rural area that consists of larger parcels with residential yards that are not entirely developed but have been cleared of native vegetation. For the most part the yards support only ornamental species or non-native weedy species. While some areas support habitat that could be suitable for wildlife species, they are all surrounded by fences, precluding most wildlife aside from resident and migratory birds. Residential areas occur throughout the BSA, covering approximately 20.41 acres.

### Orchard/Agricultural

Orchard/agricultural areas consist of parcels that are planted with fruit or landscaping trees or vegetable crops. The BSA supports a mix of rural, residential and agricultural uses, often on the same properties. Species planted within orchard/agricultural areas were not identified. Orchard/agricultural areas cover approximately 2.59 acres within the BSA.

## Developed/Disturbed/Bare Ground

Developed/disturbed/bare ground refers to areas that have been manipulated by grading and compacting soils to build infrastructure, such as roads, buildings, parks, fields, etc. These areas have no biological function or value, except that they may provide habitat for nesting birds. Within the BSA, paved and unpaved roads and associated landscaping were mapped as developed/disturbed/bare ground, covering approximately 15.71 acres of the BSA.

### 4.2.2 Plant Species

During the general biological survey, all plant species observed were recorded (Appendix B). Based on the results of this survey, 91 vascular plant species were documented in the BSA. The species detected are representative of the vegetation communities located within the BSA. Common plant species observed during the field survey include shortpod mustard, red brome, black willow, mule fat, perennial pepperweed and blue elderberry. Special-status plant species with potential to occur in the BSA are discussed below.

### 4.2.3 Wildlife Species

Wildlife species observed during the survey include species commonly found in disturbed and developed areas, such as house finch (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), and Anna's Hummingbird (*Calypte anna*), as well as species commonly found in natural habitats, such as California towhee (*Melospiza crissalis*), red-tailed hawk (*Buteo jamaicensis*), and song sparrow (*Melospiza melodia*). A list of all wildlife species observed in the BSA is provided in Appendix B. Special-status wildlife species with potential to occur in the BSA are discussed below.

### 4.2.4 Regional Special-Status Species and Natural Communities

For the purposes of the report, special-status species are considered those listed under FESA and/or CESA, animal species considered of special concern by CDFW, and plant species with a California Rare Plant Rank of 1, 2, or 3.

These species, their habitat requirements, and their potential to occur within the BSA are included in Table 4-2.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
<b>PLANTS</b>				
Chaparral sand-verbena <i>Abronia villosa</i> var. <i>aurita</i>	US: — CA: 1B MSHCP: 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).	Absent	Not Expected. Suitable vegetation communities are absent.
Munz's onion <i>Allium munzii</i>	US: FE CA: ST/1B MSHCP: S	Seasonally moist sites on clay soils (generally) or within rocky outcrops (pyroxenite) on rocky-sandy loams (such as Cajalco, Las Posas, and Vallecitos) with clay subsoils, in openings within coastal sage scrub, pinyon juniper woodland, and grassland, at 300 to 1,070 meters (1,000 to 3,500 feet) elevation. Known only from western Riverside County in the greater Perris Basin (Temescal Canyon-Gavilan Hills/Plateau, Murrieta-Hot Springs areas) and within the Elsinore Peak (Santa Ana Mountains) and Domenigoni Hills regions. Clay soils on mesic exposures or seasonally moist microsites in grassy openings of coastal sage scrub, chaparral, juniper woodland or valley and foothill grassland. Blooms April through May (perennial bulbiferous herb).	Absent	Not Expected. Suitable soils and vegetation communities are absent.
San Jacinto Valley crownscale <i>Atriplex coronata</i> var. <i>notatior</i>	US: FE CA: 1B MSHCP: S	Alkaline flats in playas, chenopod scrub, valley and foothill grasslands, vernal pools at 365 to 520 meters (1,200 to 1,700 feet) elevation. Endemic to the San Jacinto River Valley area of western Riverside County. Highly alkaline silty-clay soils in association with the Traver-Domino-Willows soil association in floodplains (seasonal wetlands) dominated by alkali scrub, alkali playas, vernal pools, and, to a lesser extent, alkali grasslands. The majority (approximately 80 percent) of the populations are associated with Willows soils.	Absent	Not Expected. Suitable soils and vegetation communities are absent.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
Parish's brittlescale <i>Atriplex parishii</i>	US: — CA: 1B MSHCP: S	Domino, Willows and Traver soils in alkali vernal pools, alkali annual grassland, alkali playa, and alkali scrub components of alkali vernal plains. 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).	Absent	Not Expected. Suitable soils and vegetation communities are absent.
Davidson's saltscale <i>Atriplex serenana</i> var. <i>davidsonii</i>	US: — CA: 1B MSHCP: S	Domino, Willows and Traver soils in alkali vernal pools, alkali annual grassland, alkali playa, and alkali scrub components of alkali vernal plains 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. Blooms April through October (annual herb).	Absent	Not Expected. Suitable soils and vegetation communities are absent.
Nevin's barberry <i>Berberis nevinii</i>	US: FE CA: SE/1B MSHCP: S	Gravelly wash margins in alluvial scrub or coarse soils and rocky slopes in chaparral at 275 to 825 meters (900 to 2,700 feet) elevation. Known occurrences at higher elevations are planted (not natural). Known only from Los Angeles, San Bernardino, Riverside, and San Diego Counties.	Absent	Not Expected. Suitable soils and habitat are absent.
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	US: FT CA: SE/1B MSHCP: S	Usually on clay or associated with vernal pools or alkaline flats; occasionally in vernal 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.	Absent	Not Expected. Suitable clay soils and vernal pool or vernal moist habitat are absent.
Smooth tarplant <i>Centromadia</i> <i>pungens</i> ssp. <i>laevis</i>	US: — CA: 1B MSHCP: S	Primarily alkaline soils in alkali scrub, alkali playas, riparian woodland, watercourses, and alkaline grasslands below 480 meters (1,600 feet) elevation. Although the species is sometimes found on clay, this is generally in combination with alkalinity or intense disturbance that reduces competition from other species. Known from Riverside and	Present	Moderate. Suitable soils and vegetation communities occur. Species was not observed during field surveys. Because the Project is not within an MSHCP survey area for plants, no additional surveys are required.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
		San Bernardino Counties, extirpated from San Diego County. Blooms April through November (annual herb).		
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	US: — CA: 1B MSHCP: P	Sandy or rocky soils in chaparral, coastal scrub, or woodlands at 40 to 1,705 meters (100 to 5,600 feet) elevation. Known only from Los Angeles, Riverside, and San Bernardino Counties. Blooms April through June (annual herb).	Absent	Not Expected. Suitable vegetation communities are absent.
Long-spined spineflower <i>Chorizanthe polygonoides</i> var. <i>longispina</i>	US: — CA: 1B MSHCP: C	Generally clay soils in chaparral, coastal sage scrub, and grassland at 30 to 1,530 meters (100 to 5,000 feet) elevation. In California, known only from Orange, Riverside, Santa Barbara, and San Diego Counties. Also occurs in Mexico. Blooms April through July (annual herb).	Absent	Not Expected. Suitable soils and vegetation communities are absent.
Slender-horned spineflower <i>Dodecahema leptoceras</i>	US: FE CA: SE/1B MSHCP: S	Sandy soils in association with mature alluvial scrub or gravel soils of Temecula arkose deposits in association with open chamise chaparral in the Vail Lake area. Terraces and benches that receive overbank deposits every 50 to 100 years. Occurs at 200 to 760 meters (600 to 2,500 feet) elevation. Known only from Los Angeles, Riverside, and San Bernardino Counties, California. Blooms April through June (annual herb).	Absent	Not Expected. Suitable soils and vegetation communities are absent.
Many-stemmed dudleya <i>Dudleya multicaulis</i>	US: — CA: 1B MSHCP: S	Associated with openings in chaparral, coastal sage scrub, and grasslands underlain by clay and cobbly clay soils of the following series: Altamont, Auld, Bosanko, Claypit, and Porterville." Found 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).	Absent	Not Expected. Suitable soils are absent.
Santa Ana River woollystar <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	US: FE CA: SE/1B MSHCP: C	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.	Absent	Not Expected. Suitable soils and vegetation communities are absent.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
Coulter's goldfields <i>Lasthenia glabrata</i> <i>ssp. coulteri</i>	US: — CA: 1B MSHCP: S	Traver, Domino or (usually) Willows soils in alkali scrub, alkali playas, vernal pools, and alkali grasslands below 1,400 meters (4,600 feet) elevation. Known from Colusa, Merced, Tulare, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, and Ventura Counties. Believed extirpated from Kern, Los Angeles, San Bernardino Counties, and possibly Tulare County. Also occurs in Mexico. Blooms February through June (annual herb).	Absent	Not Expected. Suitable soils and vegetation communities are absent in the BSA.
Spreading navarretia <i>Navarretia fossalis</i>	US: FT CA: 1B MSHCP: S	The Western Riverside County MSHCP account for this species states that it "is primarily restricted to the alkali floodplains of the San Jacinto River, Mystic Lake and Salt Creek in association with Willows, Domino and Traver soils" and that "in western Riverside County, spreading navarretia has been found in relatively undisturbed and moderately disturbed vernal pools, within a larger vernal floodplains dominated by annual alkali grassland or alkali playa." Occurs from 30 to 1,310 meters (100 to 4,300 feet) elevation. Blooms April through June (annual herb).	Absent	Not Expected. Project area is outside of species' known range in Riverside County.
California Orcutt grass <i>Orcuttia californica</i>	US: FE CA: SE/1B MSHCP: S	Alkaline soils and southern basaltic claypan in vernal pools from 15 to 660 meters (50 to 2,200 feet) elevation. The MSHCP account for this species states that, in Riverside County, it "is found in southern basaltic claypan vernal pools at the Santa Rosa Plateau, and alkaline vernal pools as at Skunk Hollow and at Salt Creek west of Hemet." Blooms April through August (annual grass).	Absent	Not Expected. Project area is outside of species' known range in Riverside County. Suitable vernal pool habitat is absent in the BSA.
White rabbit-tobacco <i>Pseudognaphalium leucocephalum</i>	US: — CA: 2B MSHCP: 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).	Absent	Not Expected. Suitable site factors are absent in the BSA.
Wright's trichocoronis	US: — CA: 2B MSHCP: S	Alkali soils in alkali playa, alkali annual grassland, and alkali vernal pools at 5 to 435 meters (20 to 1,430 feet) elevation. In California, known from the Central Valley and	Absent	Not Expected. Suitable soils and vegetation communities are absent in the BSA.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
<i>Trichocoronis wrightii</i> <i>var. wrightii</i>		Riverside County. Also occurs in Texas and Baja California. The Western Riverside County MSHCP account for this species states that “Wright’s trichocoronis is restricted to highly alkaline, silty-clay soils in association with Traver, Domino, and Willows soils. Blooms May through September (annual or perennial herb).”		
<b>INVERTEBRATES</b>				
Crotch’s bumble bee <i>Bombus Crotchii</i>	US: - CA: CE MSHCP: NC	Occurs between San Diego and Redding in a variety of habitats including open grasslands, shrublands, chaparral, desert margins including Joshua tree and creosote scrub, and semi-urban settings. Food plant genera include <i>Antirrhinum</i> , <i>Asclepias</i> , <i>Chaenactis</i> , <i>Lupinus</i> , <i>Medicago</i> , <i>Salvia</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> . Lives in colonies that may be underground in rodent holes or above ground in rock piles, tree cavities, etc. It is near endemic to California, with only a few records from Nevada and Mexico.	Present	Moderate. Suitable grassland and shrubland habitat occur within the BSA. BSA supports known host plants (including <i>Eriogonum</i> sp.).
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	US: FT CA: - MSHCP: S	Cool-water vernal pools and swales in grassland areas. Known from the Central Valley, the central coast and south coast mountains as far south as Ventura County, and from the Santa Rosa Plateau, Skunk Hollow, and the Stowe Road vernal pool near Salt Creek just west of Hemet in Riverside County. At the southernmost extreme of its range (Riverside County), this species is only present in large, deep pools. Seasonally follow rains; typically, January through April. Requires water temperatures of 50 Fahrenheit or lower to hatch. The time to maturity and reproduction is temperature dependent, varying between 18 days and 147 days, with a mean of 39.7 days.	Absent	Not Expected. The BSA does not contain vernal pools or depressions suitable to support this species in the BSA.
Monarch butterfly <i>Danaeus plexippus</i>	US: FC CA: - MSHCP: NC	Typically overwinter in groves of eucalyptus ( <i>Eucalyptus</i> sp.), Monterey pine ( <i>Pinus radiata</i> ), or Monterey cypress ( <i>Hesperocyparis macrocarpa</i> ) along the California coast. Adult females lay eggs on milkweed species ( <i>Asclepias</i> spp.). Milkweeds are critical for successful development of the caterpillar into an adult butterfly (Western Monarch Milkweed Mapper 2022).	Absent	Not Expected. Suitable eucalyptus trees/ groves and milkweed species are absent in the BSA.



**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	US: FE CA: - MSHCP: C	Meadows or openings within coastal sage scrub or chaparral below about 5,000 feet where food plants ( <i>Plantago erecta</i> and/or <i>Orthocarpus purpurascens</i> ) 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.	Absent	Not Expected. Suitable vegetation communities are absent in the BSA.
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	US: FE CA: - MSHCP: S	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.	Absent	Not Expected. The BSA does not contain vernal pools or depressions suitable to support this species.
<b>AMPHIBIANS</b>				
Western spadefoot <i>Spea hammondi</i>	US: — CA: SSC MSHCP: 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).	Present	Low. Suitable ponded areas with riparian woodland overstory occur within the BSA. Species is MSHCP Covered and additional surveys or analysis are not required.
<b>REPTILES</b>				
Southern California legless lizard <i>Anniella stebbinsi</i>	US: — CA: SSC MSHCP: NC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation from central California to northern Baja California. Nearly year round, at least in southern areas.	Absent	Not Expected. Suitable loose soils associated with moist areas are not present in BSA.
California glossy snake	US: — CA: SSC MSHCP: NC	Most common in desert areas. Inhabits arid scrub, rocky washes, grasslands, chaparral. Appears to prefer	Present	Moderate. Suitable loose soils with scrub habitat occur in California buckwheat scrub within the BSA.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
<i>Arizona elegans</i>		microhabitats of open areas and areas with soil loose enough for easy burrowing.		
Coastal whiptail <i>Aspidoscelis tigris stejnegeri</i>	US: — CA: SSC MSHCP: C	Wide variety of habitats including coastal sage scrub, sparse grassland, and riparian woodland; coastal and inland valleys and foothills; Ventura County to Baja California.	Present	Moderate. Suitable habitats occur throughout the BSA. Species is covered under the MSHCP and additional analysis is not required.
Red diamond rattlesnake <i>Crotalus ruber</i>	US: — CA: SSC MSHCP: 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.	Present	Moderate. Suitable grassland with rocky outcrops occurs in BSA. Species is covered under the MSHCP and additional analysis is not required.
Western pond turtle <i>Emys marmorata (Actinemys) marmorata</i>	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.	Present	Moderate. Areas supporting permanent water occur along Mockingbird Canyon Creek Channel and ponded areas mapped as Wetland C. Species is covered under the MSHCP and additional analysis is not required.
Blainville's horned lizard <i>Phrynosoma blainvillii (coronatum)</i>	US: — CA: SSC MSHCP: 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.	Present	Low. Marginally suitable habitat occurs in California buckwheat scrub and grassland within BSA. Species is covered under the MSHCP and additional analysis is not required.
Coast patch-nosed snake <i>Salvadora hexalepis virgulata</i>	US: — CA: SSC MSHCP: 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.	Present	Moderate. Suitable habitat occurs in scrub and grassland habitats throughout BSA.
Two-striped garter snake	US: — CA: SSC MSHCP: NC	Highly aquatic. Only in or near permanent sources of water. Streams with rocky beds supporting willows or other	Present	Moderate. Suitable permanent water source occurs in Mockingbird Canyon

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
<i>Thamnophis hammondi</i>		riparian vegetation. From Monterey County to northwest Baja California. Diurnal Year-round		Creek channel and excavated basins mapped as Wetland C.
<b>BIRDS</b>				
Tricolored blackbird <i>Agelaius tricolor</i> (nesting colony)	US: — CA: ST MSHCP: C	Open country in western Oregon, California, and northwestern Baja California. 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.	Absent	Not Expected. While emergent wetland and willow habitat occurs within the BSA, suitable nesting habitat is absent as cattail marshes in BSA are not large enough to support breeding colonies.
Golden eagle <i>Aquila chrysaetos</i>	US: - CA: FP MSHCP: C	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in Southern California.	Present	Low. Suitable nesting habitat does not occur within BSA. Species may forage in open grassland and scrub habitat within and adjacent to BSA. Species is covered under the MSHCP and additional analysis is not required.
Burrowing owl <i>Athene cunicularia</i> (burrow sites)	US: — CA: SSC (breeding) MSHCP: S	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.	Present	Low. Suitable habitat occurs throughout BSA. Not observed during 2022 focused surveys. Pre-construction surveys are required under the MSHCP.
Western snowy plover <i>Charadrius alexandrinus nivosus</i> (nesting)	US: FT (coastal population) CA: SSC MSHCP: NC	Sandy coastal beaches, lakes, alkaline playas. Scattered locations along coastal California and Channel Islands, inland at Salton Sea and at various alkaline lakes.	Absent	Not Expected. Suitable vegetation communities absent in the BSA.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	US: FT CA: SE MSHCP: S	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.	Absent	Not Expected. Riparian habitat within the BSA is not extensive enough or located in suitable floodplain habitat preferred by this species.
White-tailed kite <i>Elanus leucurus (nesting)</i>	US: — CA: FP MSHCP: C	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.	Present	Low. Suitable riparian habitat for nesting and adjacent open habitat for foraging occurs within BSA. Not observed during any of multiple site visits in 2022. Species is covered by the Western Riverside County MSHCP and additional analysis is not required. Pre-construction nesting surveys and avoidance will be implemented.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	US: FE CA: SE MSHCP: S	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.	Present	Present (Migrating Only). Suitable riparian habitat for nesting and foraging occurs through BSA. A single migrant willow flycatcher (unknown subspecies) was observed in BSA, but species not documented nesting in BSA.
Bald eagle <i>Haliaeetus leucocephalus (nesting and wintering)</i>	US: — CA: SE/FP MSHCP: C	Winters locally at deep lakes and reservoirs feeding on fish and waterfowl. Locally rare throughout North America.	Absent	Not Expected. Suitable lacustrine habitat is absent in the BSA.
Yellow-breasted chat <i>Icteria virens</i>	US: - CA: SSC (breeding) MSHCP: C	Riparian thickets of willow, brushy tangles near watercourses. Nests in riparian woodland throughout much of western North America. Winters in Central America.	Present	High. Suitable riparian habitat for nesting and foraging occurs through BSA. Species is covered under the MSHCP and additional analysis is not required. Pre-construction nesting surveys and avoidance will be implemented.
Loggerhead shrike	US: — CA: SSC	Prefers open habitats with scattered small trees and with fences, utility lines, or other perches. Inhabits open country	Present	High. Suitable foraging habitat occurs in ruderal habitat. Species is covered under

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
<i>Lanius ludovicianus</i> (nesting)	(breeding) MSHCP: C	with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Found in open country in much of North America.		the MSHCP and additional analysis is not required. Pre-construction nesting surveys and avoidance will be implemented.
Coastal California gnatcatcher <i>Polioptila californica californica</i>	US: FT CA: SSC MSHCP: 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.	Present	Present. Suitable coastal sage scrub habitat present. Species is covered under the MSHCP; however, due to observations during surveys further analysis is provided. Pre-construction nesting surveys and avoidance will be implemented.
Least Bell's vireo <i>Vireo bellii pusillus</i>	US: FE CA: SE MSHCP: S	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 to 3.0 meters) above ground. Nests from central California to northern Baja California. Winters in southern Baja California.	Present	Present. Suitable riparian habitat occurs throughout BSA. Species observed in and adjacent to BSA during 2022 focused surveys.
<b>MAMMALS</b>				
Dulzura pocket mouse <i>Chaetodipus californicus femoralis</i>	US: — CA: SSC MSHCP: NC	Found in a variety of habitats including coastal sage scrub, chaparral and grassland in northern Baja California, and San Diego and extreme southwestern and western Riverside Counties. Limit of range to northwest (at interface with <i>C. c. dispar</i> ) unclear.	Absent	Not Expected. BSA is outside of species' range.
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	US: — CA: SSC MSHCP: C	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.	Absent	Not Expected. Suitable combination of preferred vegetation communities with sandy herbaceous areas absent in the BSA.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>	US: FE CA: SSC MSHCP: S	Gravelly and sandy soils of alluvial fans, braided river channels, active channels and terraces; San Bernardino Valley (San Bernardino County) and San Jacinto Valley (Riverside County). In Riverside County, this species occurs along the San Jacinto River east of approximately Sanderson Avenue, and along Bautista Creek. Remnant populations may also occur within Riverside County in Reche Canyon, San Timoteo Canyon, Laborde Canyon, the Jurupa Mountains, and the Santa Ana River Wash north of State Route 60.	Absent	Not Expected. Suitable alluvial habitat absent in the BSA.
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	US: FE CA: ST MSHCP: C	Found in plant communities transitional between grassland and coastal sage scrub, with perennial vegetation cover of less than 50 percent. Most commonly associated with <i>Artemisia tridentata</i> , <i>Eriogonum fasciculatum</i> , and <i>Erodium</i> . Requires well-drained soils with compaction characteristics suitable for burrow construction (neither sandy nor too hard). Not found in soils that are highly rocky or sandy, less than 20-inches deep, or heavily alkaline or clay, or in areas exceeding 25 percent slope. Occurs only in western Riverside County, northern San Diego County, and extreme southern San Bernardino County, below 915 meters (3,000 feet) elevation. In northwestern Riverside County, known only from east of I-15. Reaches its northwest limit in south Norco, southeast Riverside, and in the Reche Canyon area of Riverside and extreme southern San Bernardino Counties.	Present	Moderate. Suitable transitional grassland/coastal sage scrub habitat occurs in the BSA. Species is covered under the MSHCP and additional analysis is not required.
Western mastiff bat <i>Eumops perotis californicus</i>	US: — CA: SSC MSHCP: 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.	Present	Moderate. Suitable day-roost habitat in riparian scrub throughout BSA.
Western yellow bat <i>Lasiurus xanthinus</i>	US: — CA: SSC MSHCP: NC	Found mostly in desert and desert riparian areas of the southwest U.S. but also expanding its range with the increased usage of native and nonnative ornamental palms in landscaping. Individuals typically roost amid dead fronds of palms in desert oases but have also been	Present	Moderate. Suitable day-roost habitat in riparian scrub throughout BSA.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
		documented roosting in cottonwood trees. Forage over many habitats. Year-round; nocturnal.		
San Diego desert woodrat <i>Neotoma lepida</i>	US: - CA: SSC MSHCP: 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.	Absent	Not Expected. Suitable coastal scrub habitat with cactus patches does not occur in BSA.
Pocketed free-tailed bat <i>Nyctinomops femorasaccus</i>	US: — CA: SSC MSHCP: NC	Usually associated with cliffs, rock outcrops, or slopes. May roost in buildings (including roof tiles) or caves. Rare in California, where it is found in Riverside, San Diego, Imperial and possibly Los Angeles Counties. More common in Mexico. Year-round; nocturnal.	Absent	Not Expected. Suitable roosting habitat does not occur in BSA.
Southern grasshopper mouse <i>Onychomys torridus ramona</i>	US: — CA: SSC MSHCP: 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.	Absent	Not Expected. Suitable habitat occurs within BSA, but BSA is not located in a valley floor and does not support highly friable soils.
Los Angeles pocket mouse <i>Perognathus longimembris brevinasus</i>	US: — CA: SSC MSHCP: S	Found in scrub, grassland, playa and vernal pool habitats with sandy soils. Typically found within or adjacent to sandy washes or areas of windblown sand. Has been found on gravel washes and stony soils. Found in coastal sage scrub in Los Angeles, Riverside, and San Bernardino Counties.	Present	Low. Marginally suitable habitat occurs within scrub and grassland habitats in BSA. Unlikely to occur due to lack of sandy soils. BSA is not within Western Riverside County MSHCP Mammal Survey Area and additional analysis is not required.
American badger <i>Taxidea taxus</i>	US: — CA: SSC MSHCP: NC	Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert. Widely distributed in North America.	Absent	Not Expected. BSA is located adjacent to high levels of human activity, which typically deter this species. Suitable large tracts of open space absent. No suitable burrows observed during surveys.

**Table 4-2. Special-Status Species Known from Vicinity of Biological Study Area**

Scientific Name	Status	Habitat and Distribution	Habitat Present/ Absent	Occurrence Probability
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Notes:

**Status**

**Federal**

Federal Endangered (FE)  
 Federal Threatened (FT)

**State**

State Endangered (SE)  
 State Threatened (ST)  
 State Species of Special Concern (SSC)

State Candidate (SC)  
 Fully Protected (FP)

**California Native Plant Society (CNPS)**

1B: Plants rare, threatened, or endangered in California and elsewhere.  
 2B: Plants rare, threatened, or endangered in California but more common elsewhere.  
 3: Information to adequately assess status of these plants in California is lacking

**MSHCP (Western Riverside County Multiple Species Habitat Conservation Plan)**

NC: Species is not covered under the MSHCP  
 C: Species is covered and adequately conserved under the MSHCP  
 S: Species is covered and adequately conserved under the MSHCP, but surveys are required within indicated habitats and/or survey areas  
 P: Species is covered and will be adequately conserved when MSHCP specified requirements are met.

**Habitat Present/Absent**

Absent: no habitat present, and no further work needed  
 Present: habitat is, or may be, present.

BSA=biological study area; U.S.=United States; CA: California; MSHCP=Western Riverside County Multiple Species Habitat Conservation Plan



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Table 4-2 also includes species conserved by the Western Riverside County MSHCP. The presence, or the likelihood of the presence, of special-status species is based on the following criteria: (1) direct observation of the species or its sign in the BSA or the immediate vicinity during surveys conducted for this study or reported in previous biological studies; (2) sighting by other qualified observers; (3) record reported by the California Natural Diversity Database and published by CDFW; (4) presence or location of specific species on lists provided by private groups (e.g., CNPS); and/or (5) the BSA lies within the known distribution of a given species and contains suitable habitat.

### Special-Status Plant Species

Of the special-status plant species identified in the literature search (Appendix A), eight are federal and/or state listed. The remaining are identified as CNPS List 1, 2 or 3 species. Several of these are afforded full or conditional coverage for take for entities participating in the Western Riverside County MSHCP. Further information on these species, including status, habitat requirements, and potential for occurrence, is summarized in Table 4-2.

The BSA contains suitable habitat to support one special-status plant species, smooth tarplant (*Centromadia pungens* ssp. *laevis*). This species is a CNPS List 1B species and is covered under the Western Riverside County MSHCP with surveys required in designated Criteria Area Species Survey Areas (CASSA) or Narrow Endemic Plant Species Survey Areas (NEPSSA) areas. Outside of these designated areas, impacts on the species are fully covered without surveys required. Smooth tarplant was not observed during field surveys conducted in 2022 and additional analysis of this species is not required since impacts are covered under the Western Riverside County MSHCP as the BSA is not located in a CASSA or NEPSSA.

No other special-status plant species were observed or are expected to occur within the BSA.

### Special-Status Wildlife Species

Of the special-status wildlife species identified in the literature review (Appendix A), 10 are federally and/or state-listed endangered or threatened, or proposed endangered or threatened.

The BSA supports suitable habitat for the following special-status wildlife species:

#### *Invertebrates*

- Crotch's bumble bee (*Bombus Crotchii*) – State Candidate Endangered.

#### *Amphibians*

- Western spadefoot (*Spea hammondi*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species.

#### *Reptiles*

- California glossy snake (*Arizona elegans*) – State Species of Special Concern;
- Coastal whiptail (*Aspidoscelis tigris stejnegeri*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species;

- Red-diamond rattlesnake (*Crotalus ruber*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species;
- Western pond turtle (*Emys marmorata*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species;
- Blainville’s horned lizard (*Phrynosoma blainvillii coronatum*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species;
- Coast patch-nosed snake (*Salvadora hexalepis virgultea*) – State Species of Special Concern;
- Two-striped garter snake (*Thamnophis hammondi*) – State Species of Special Concern.

#### Birds

- Golden eagle (*Aquila chrysaetos*) – State Fully Protected, Western Riverside County MSHCP Covered Species;
- Burrowing owl (*Athene cunicularia*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species (with additional survey requirements);
- White-tailed kite (*Elanus leucurus*) – State Fully Protected, Western Riverside County MSHCP Covered Species;
- Southwestern willow flycatcher (*Empidonax traillii extimus*) – Federal and State Endangered, Western Riverside County MSHCP Covered Species (with additional survey requirements);
- Yellow-breasted chat (*Icteria virens*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species;
- Loggerhead shrike (*Lanius ludovicianus*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species;
- Least Bell’s vireo (*Vireo bellii pusillus*) – Federal and State Endangered, Western Riverside County MSHCP Covered Species (with additional survey requirements);
- Coastal California gnatcatcher (*Polioptila californica californica*) - Federal and State Endangered, Western Riverside County MSHCP Covered Species.

#### Mammals

- Stephens’ kangaroo rat (*Dipodomys stephensi*) – Federal Endangered, State Species of Special Concern, Western Riverside County MSHCP Covered Species;
- Western mastiff bat (*Eumops perotis californicus*) – State Species of Special Concern;
- Western yellow bat (*Lasiurus xanthinus*) – State Species of Special Concern;
- Los Angeles Pocket mouse (*Perognathus longimembris brevinasus*) – State Species of Special Concern, Western Riverside County MSHCP Covered Species.

Ten species warrant further analysis because they are either are covered but have additional survey needs and requirements specified in the Western Riverside County MSHCP that requires analysis of

Project impacts (southwestern willow flycatcher, Coastal California gnatcatcher, least Bell's vireo, burrowing owl) or not covered under the Western Riverside County MSHCP (Crotch's bumble bee, California glossy snake, coast patch-nosed snake, two-striped garter snake, Western mastiff bat, and Western yellow bat). Information regarding these species, their potential to occur in the BSA, and potential project impacts to their habitat is provided in Section 5.2.

In addition to wildlife species discussed above, all native birds and their nests are protected from take and/or harassment under the MBTA and California Fish and Game Code Section 3500 et seq. Suitable habitat to support nesting birds protected within the BSA includes mature trees and shrubs located within, and adjacent to, the BSA. A number of native bird species with potential to nest in the vicinity were observed during the general biological survey (Appendix E). Information regarding habitat for nesting birds in the BSA and potential project impacts to nesting habitat is provided in Section 5.3.

### Critical Habitat

There is no USFWS designated critical habitat within the BSA.

### Special-Status Vegetation Communities

A special-status vegetation community is one that has a state rarity rank of S1, S2, or S3, as determined by the NatureServe Heritage Program Status Ranking system (Faber-Langendoen et al. 2012) or is identified as subject to local, state, or federal regulations (e.g., vegetation communities meeting USACE's three-parameter wetland criteria). Definitions of the state ranks are as follows:

- **S1:** Critically imperiled and at a very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors
- **S2:** Imperiled and at high risk of extinction or elimination due to a very restricted range, very few populations or occurrences, steep declines, or other factors
- **S3:** Vulnerable and at moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors

Black willow woodland is designated as S3 state rarity rank. Additionally, riparian vegetation communities, which are associated with streambeds, wetlands, and adjacent riparian areas, are also considered special-status by CDFW regardless of their state rarity ranking and are regulated pursuant to Section 1600, et seq. of the California Fish and Game Code. Riparian communities mapped within the BSA include black willow woodland, mule fat thickets, cattail marsh, ornamental riparian woodland, perennial pepperweed patches, and giant reed marsh. Ornamental riparian woodland consists of many non-native ornamental species and is not considered special-status other than for purposes of inclusion as riparian habitat within CDFW jurisdiction as discussed in Section 4.2.5 of this report. Likewise, perennial pepperweed patches and giant reed marshes are dominated by non-native invasive species and are not considered special-status other than for purposes of inclusion as riparian habitat within CDFW jurisdiction as discussed in Section 4.2.5 of this report.

#### 4.2.5 Jurisdictional Aquatic Resources

The Project area supports wetland and non-wetland WOTUS subject to jurisdiction of USACE and RWQCB pursuant to Sections 404 and 401 of the CWA, respectively. The BSA also supports streambed and riparian habitat subject to jurisdiction of CDFW pursuant to Section 1600 of the California Fish and Game Code. CDFW-jurisdictional streambed and riparian habitat are also considered Western Riverside County MSHCP Riparian/Riverine habitats. Detailed discussion of jurisdictional aquatic resources and potential Project impacts on these resources is provided in Section 5.4 of this report.

#### 4.2.6 Wildlife Corridors and Habitat Linkages

Wildlife movement corridors, also called dispersal corridors or landscape linkages, are linear features whose primary wildlife function is to connect at least two significant habitat areas (Beier and Loe 1992). Other definitions of corridors and linkages are as follows:

- A corridor is a specific route used for movement and migration of species. A corridor may be different from a linkage because it represents a smaller or narrower avenue for movement. Linkage means an area of land which supports or contributes to the long-term movement of wildlife and genetic material.
- A linkage is a habitat area that provides connectivity between habitat patches, as well as year-round foraging, reproduction, and dispersal habitat for resident plants and animals.

Wildlife corridors and linkages are important features in the landscape, and the viability and quality of a corridor or linkage are dependent on site-specific factors. Topography and vegetative cover are important factors for corridors and linkages. These factors should provide cover for both predator and prey species. They should direct animals to areas of contiguous open space or resources and away from humans and development. The corridor or linkage should be buffered from human encroachment and other disturbances (e.g., light, loud noises, domestic animals) associated with developed areas that have caused habitat fragmentation (Schweiger et al. 2000). Wildlife corridors and linkages may function at various levels depending upon these factors and, as such, the most successful of wildlife corridors and linkages would accommodate all or most of the necessary life requirements of predator and prey species.

Areas not considered as functional wildlife dispersal corridors or linkages are typically obstructed or isolated by concentrated development and heavily traveled roads, known as chokepoints. One of the worst scenarios for dispersing wildlife occurs when a large block of habitat leads animals into cul-de-sacs of habitat surrounded by development. These habitat cul-de-sacs frequently result in adverse human/animal interface.

The Project is not located within any designated wildlife corridors or habitat linkages, including any Western Riverside County MSHCP Cores or Linkages. However, Mockingbird Canyon Creek serves as a functional wildlife corridor as it provides a geographic connection between inland wildlife habitats upstream and downstream of the BSA and represents an important biological resource within an otherwise highly developed (urbanized) environment. Along with compliance with conservation

requirements of the Western Riverside County MSHCP, avoidance and minimization of potential Project impacts on wildlife corridors associated with Mockingbird Canyon Creek are provided in measures related to riparian habitat as discussed in Section 5.1.

## 5 Discussion of Project Impacts, Avoidance, Minimization, and Mitigation

Anticipated Project impacts on biological resources, as well as avoidance, minimization, and mitigation measures to reduce or off-set these impacts, are discussed in the following sections.

For the purpose of this analysis, TCEs, construction access areas and staging areas are all considered direct temporary impacts, as the existing vegetation communities impacted by the Project would be restored on-site following construction, where feasible. The new roadway and associated improvements including drainage facilities, and areas impacted by the Project where existing vegetation communities will not be restored on-site following construction are all considered direct permanent impacts.

### 5.1 Vegetation Communities and Other Land Cover Types

Project impacts on vegetation communities will result from temporary use during construction for laydown and construction access as well as permanent development for the proposed roadway and proposed drainage easement.

The Project would result in a total of 15.82 acres of direct permanent impacts on vegetation communities and other land cover types within the Project area. Of these, 9.80 acres are associated with areas that are already developed or disturbed for regular human uses, including developed/disturbed/bare ground, orchard/agricultural, and residential. Due to the high level of disturbance in these areas, they do not provide habitat suitable to support special-status plants or wildlife. Potential impacts on vegetation communities and land covers are detailed in Table 5-1 and shown in Figure 5-1.

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**Table 5-1. Total Potential Project Impacts on Vegetation Communities**

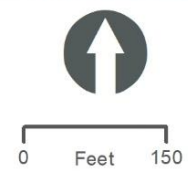
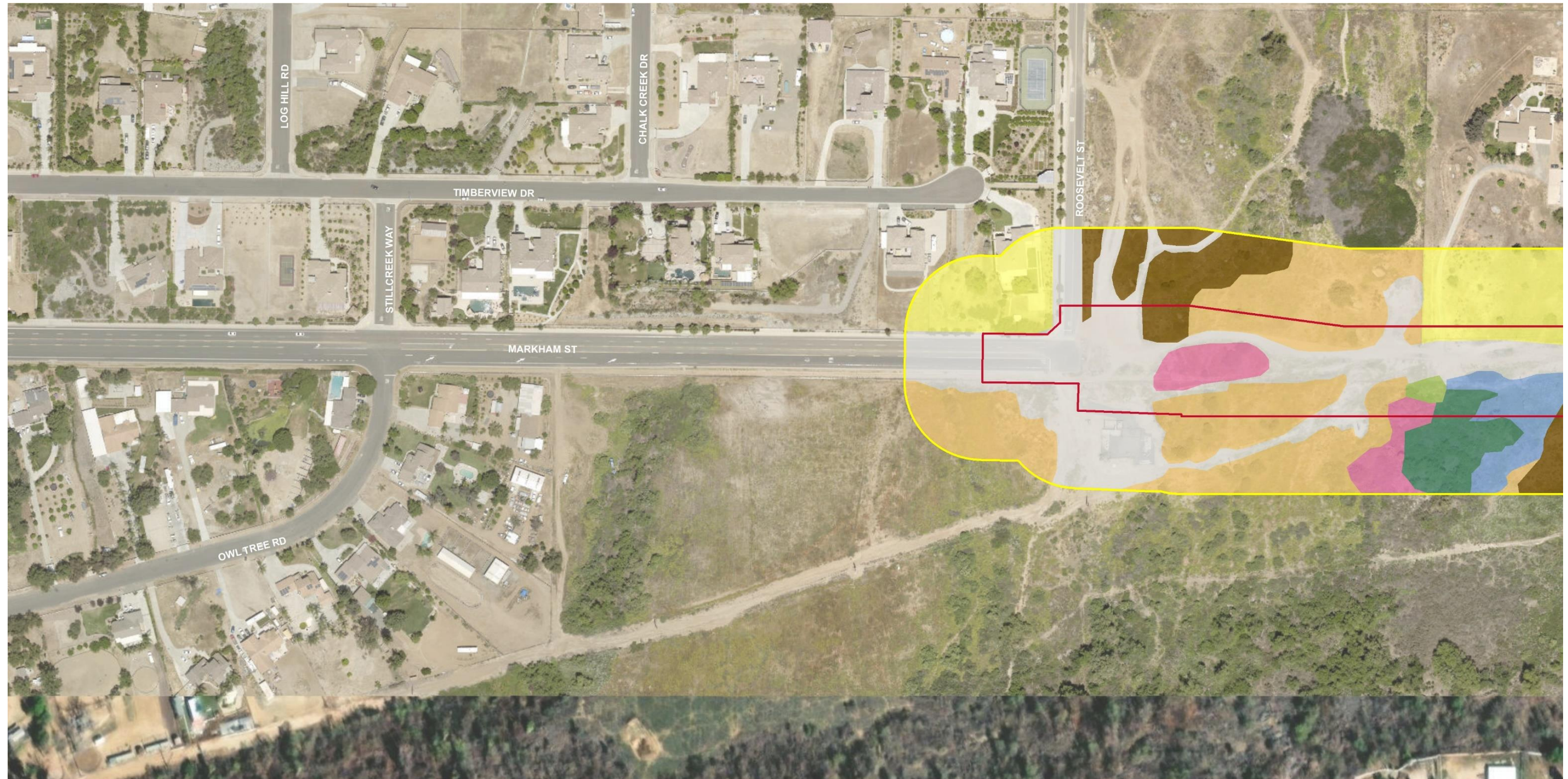
Vegetation Community	Project Impact Classifications					Total <sup>a</sup> (acres)
	Temporary Impacts (acres)		Permanent Impacts (acres)			
	Laydown	Construction Easement	Roadway Improvements	Drainage Easement Channel Bank	Drainage Easement Channel Bottom	
<b><i>Tree-dominated habitats</i></b>						
Black willow woodland	–	0.32	0.71	0.20	0.20	<b>1.43</b>
Ornamental riparian	–	–	–	–	–	<b>–</b>
<b><i>Shrub-dominated habitat</i></b>						
California buckwheat scrub	–	0.17	0.79	0.22	0.18	<b>1.35</b>
Blue elderberry shrubland	–	<0.01	0.35	–	–	<b>0.35</b>
Mule fat thickets	–	0.03	0.40	0.04	0.04	<b>0.50</b>
<b><i>Herbaceous-dominated habitats</i></b>						
Cattail marsh	–	–	0.08	0.02	<0.01	<b>0.10</b>
Cocklebur patches	–	0.02	<0.01	–	–	<b>0.02</b>
Giant reed marsh	–	–	–	–	–	<b>–</b>
Perennial pepperweed patches	–	0.07	0.57	–	–	<b>0.64</b>
Mediterranean California naturalized annual and perennial grassland	–	1.04	2.23	<0.01	–	<b>3.27</b>
<b><i>Other land cover types</i></b>						
Developed/Disturbed/Bare Ground	1.15	1.17	6.55	–	–	<b>8.86</b>
Orchard/Agricultural	–	0.23	0.33	–	–	<b>0.56</b>
Residential	–	1.34	2.75	0.08	0.10	<b>4.26</b>
<b>Total<sup>a</sup></b>	<b>1.15</b>	<b>4.40</b>	<b>14.74</b>	<b>0.57</b>	<b>0.52</b>	<b>21.37</b>

Notes:

<sup>a</sup> Totals may differ due to rounding

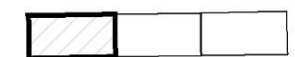
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Figure 5-1. Project Impacts on Vegetation Communities and Other Land Cover Types (Sheet 1 of 3)



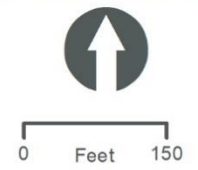
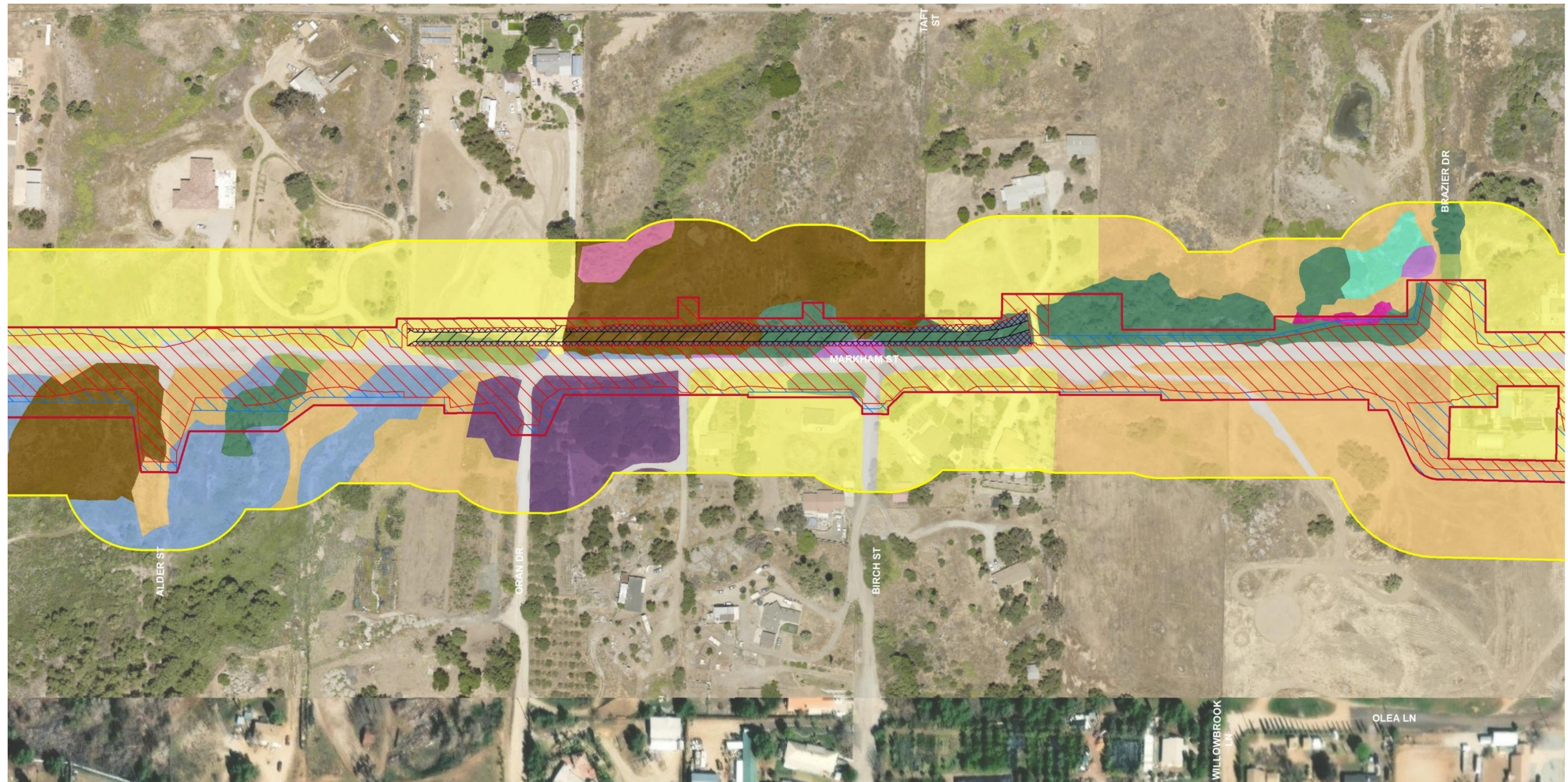
**LEGEND**

- |                       |                            |   |                              |
|-----------------------|----------------------------|---|------------------------------|
| Project Area          | Black willow woodland      | Cocklebur patches   | Orchard/Agricultural         |
| Biological Study Area | Blue elderberry shrubland  | Developed/Disturbed/Bare Ground                                     | Ornamental riparian          |
|                       | California buckwheat scrub | Giant reed marsh  | Perennial pepperweed patches |
|                       | Cattail marshes            | Mediterranean California naturalized annual and perennial grassland | Residential                  |
|                       |                            | Mule fat thickets   |                              |



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Figure 5-1. Project Impacts on Vegetation Communities and Other Land Cover Types (Sheet 2 of 3)



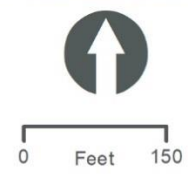
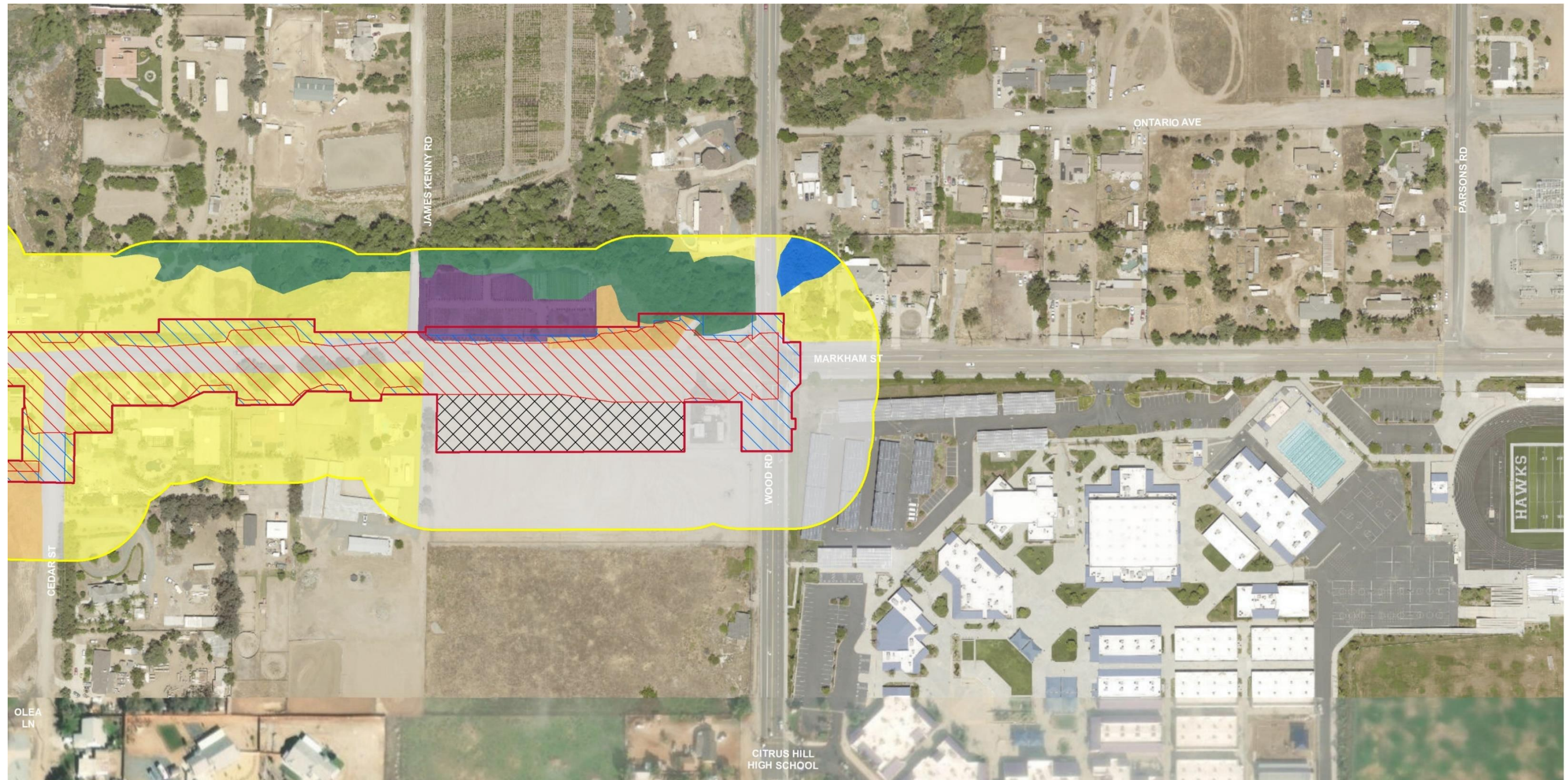
**LEGEND**

- |                       |                   |                |                            |   |                              |
|-----------------------|-------------------|----------------|----------------------------|---|------------------------------|
| Project Area          | Permanent Impacts | Channel Bank   | Black willow woodland      | Cockerbur patches   | Orchard/Agricultural         |
| Biological Study Area | Temporary Impacts | Channel Bottom | Blue elderberry shrubland  | Developed/Disturbed/Bare Ground                                     | Ornamental riparian          |
|                       | Laydown Area      |                | California buckwheat scrub | Giant reed marsh  | Perennial pepperweed patches |
|                       |                   |                | Cattail marshes            | Mediterranean California naturalized annual and perennial grassland | Residential                  |
|                       |                   |                | Mule fat thickets          |   |                              |



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Figure 5-1. Project Impacts on Vegetation Communities and Other Land Cover Types (Sheet 3 of 3)



**LEGEND**

- Project Area
- Biological Study Area

- Impacts**
- Permanent Impacts
  - Temporary Impacts
  - Laydown Area

- Drainage Easement**
- Channel Bank
  - Channel Bottom

- Vegetation**
- Black willow woodland
  - Blue elderberry shrubland
  - California buckwheat scrub
  - Cattail marshes

- Cocklebur patches
- Developed/Disturbed/Bare Ground
- Giant reed marsh
- Mediterranean California naturalized annual and perennial grassland
- Mule fat thickets

- Orchard/Agricultural
- Ornamental riparian
- Perennial pepperweed patches
- Residential



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### 5.1.1 Special-Status Vegetation Communities

All special-status vegetation communities within the BSA are riparian habitats associated with the Mockingbird Canyon Creek corridor. CDFW considers all riparian habitats as special-status, whether native or non-native, if they are associated with streambeds regulated under Sections 1602 of the California Fish and Game Code.

Native riparian habitats within the BSA include black willow woodland, cattail marsh, and mule fat thickets. Of these, only black willow woodland is considered sensitive based on CDFW's California Natural Community List. Non-native, invasive riparian habitats within the BSA include perennial pepperweed patches and giant reed marsh, both of which are dominated by plants listed on the California Invasive Plant Council's Inventory as High, meaning these species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2022).

#### Project Impacts

The Project will result in a total of 1.69 acres of permanent direct impacts on native riparian habitat and 0.57 acre of non-native/invasive riparian habitat as shown on Figure 5-1 and detailed in Table 5-2.

**Table 5-2. Project Impacts on Riparian Habitats**

Vegetation Community	Project Impacts on Riparian Habitat		
	Temporary (acres)	Permanent (acres)	
	Construction Easement	Roadway Improvements	Drainage Easement
<b>Native Riparian Communities</b>			
Black willow woodland	0.32	0.71	0.40
Mule fat thickets	0.03	0.40	0.08
Cattail marsh	–	0.08	0.02
Cocklebur patches	0.02	<0.01	–
<i>Subtotal<sup>a</sup></i>	<i>0.37</i>	<i>1.19</i>	<i>0.50</i>
<b>Non-Native/Invasive Riparian Communities</b>			
Ornamental riparian	–	–	–
Giant reed marsh	–	–	–
Perennial pepperweed patches	0.07	0.57	–
<i>Subtotal<sup>a</sup></i>	<i>0.07</i>	<i>0.57</i>	<i>–</i>
<b>Total<sup>a</sup></b>	<b>0.44</b>	<b>1.76</b>	<b>0.50</b>

Notes:

<sup>a</sup> Totals may differ due to rounding

Project impacts to black willow woodland within the proposed flood-control channel north of Markham Street are considered permanent. The Project will include hydroseeding and/or planting of the channel banks with native coastal sage scrub species to enhance habitat and provide erosion control, per Measure BIO-5, below. However, the drainage easement channel bottom will remain unvegetated in order to provide sufficient flood control capacity.

A Determination of Biologically Equivalent or Superior Preservation (DBESP) was prepared to analyze Project impacts on riparian habitats and identify avoidance, minimization, and mitigation measures.

### Avoidance and Minimization Efforts

The following measures would be incorporated to avoid and minimize Project impacts on riparian and other native habitats:

- BIO-1 Project Biologist.** A qualified biologist will oversee compliance with protective measures for the biological resources during clearing and work activities within and adjacent to areas of native habitat. The Project biologist shall designate areas that need temporary fencing and monitor construction. The biologist shall monitor activities during critical times such as vegetation removal, the installation of Best Management Practices (BMPs) and Environmentally Sensitive Area (ESA) fencing to protect native species and ensure that all avoidance and minimization measures are properly constructed and followed. The biologist will conduct site visits a minimum of once weekly throughout construction to verify that required biological resources protections are in place.
- BIO-2 Worker Environmental Awareness Program (WEAP).** Prior to construction, the Project biologist shall conduct WEAP training for all Project employees and contractors that will be on site. The training will advise workers of potential impacts to sensitive habitat and listed species and the potential penalties for impacts to such habitat and species. Included in this program will be color photos of the listed species, which will be shown to the employees. Following the education program, the photos shall be posted in the contractor and resident engineer's office, where they will remain through the duration of the work. The contractor will be required to provide the County with evidence of the employee training (e.g., sign in sheet or stickers) upon request.
- BIO-3 Environmentally Sensitive Areas (ESAs).** During construction, the Project contractor will minimize Project impacts on riparian and California buckwheat scrub habitat to the fullest extent possible. These areas shall be demarcated as Environmentally Sensitive Areas (ESAs). No grading or fill activity of any type will be permitted within designated ESAs. Prior to construction, the Project biologist shall ensure that non-impacted native habitat located outside of the Project area is demarcated as ESAs. Prior to construction, exclusionary fencing shall be installed around all ESAs under supervision of the Project biologist. ESA fencing will remain in place throughout the duration of construction. All construction equipment will be operated in a manner to prevent accidental encroachment or damage into ESAs. The biological monitor will conduct at a minimum, once weekly inspections of the ESA fencing to ensure that it is in place and properly maintained throughout the duration of construction. The contractor will be responsible for maintaining the ESA fencing per the biological monitor's direction.
- BIO-4 Equipment Maintenance and Staging.** During construction all equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated non-sensitive upland habitat areas. The designated upland areas shall be

located a minimum of 50 feet away from any drainage areas, so as to prevent runoff of any spills from entering ESAs. Construction personnel will strictly limit their activities to the limits of disturbance and designated staging areas and routes of travel.

**BIO-5 On-site restoration of native habitat.** Temporary impacts to native habitat will be restored in-kind following construction. On-site restoration methodology for riparian habitat will be described in the Restoration Plan for the Project, which will be submitted to the resource agencies and subject to agency approval as part of the regulatory permit applications, prior to Project construction activities. Temporary impacts to non-native riparian habitats would be restored using cuttings from native riparian trees and shrubs within the Project area following construction. On-site restoration areas would be monitored for a period of 5 years following restoration to ensure restoration activities are meeting success criteria identified in the Restoration Plan. Any temporarily impacted riparian habitat that is not restored will be mitigated at 1.1 ratio off site.

### Compensatory Mitigation

Mitigation for permanent Project impacts on native and non-native/invasive riparian habitats is proposed as discussed in Measure BIO-6.

**BIO-6 Riparian Habitat Compensatory Mitigation.** Permanent direct impacts on riparian habitat will be mitigated through permittee responsible mitigation in the form of establishment, restoration, and/or enhancement of riparian habitat at a suitable location to provide Biologically Equivalent or Superior Preservation of Habitat. Compensatory mitigation will be provided at a ratio of 2:1 for permanent impacts and at a ratio of 1:1 for temporal loss of least Bell's vireo nesting habitat.

Temporary impacts to on-site native habitat will be restored where feasible. A Restoration Plan will be developed to define the approach for onsite restoration and will include erosion control measures, willow cutting planting plan, hydroseeding palette and methods, and a maintenance and monitoring methodology. In addition, any temporarily impacted riparian habitat that is not restored will be mitigated at 1.1 ratio off site. Compensatory mitigation will be accomplished within the Western Riverside County MSHCP Planning Area. The preferred compensatory mitigation option is to implement permittee-responsible mitigation at the Santa Ana Watershed Authority (SAWA) Mockingbird Conservation Easement, located adjacent to the Project south of the intersection of Markham Street and Roosevelt Street, or on Western Riverside County Regional Conservation Authority-owned parcels associated with Temescal Creek.

Details regarding the off-site mitigation site location, long-term management entity, and mitigation categories will be included in a Habitat Mitigation and Monitoring Plan that will be prepared for the Project and submitted to regulatory agencies (U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and Regional Water Quality Control Board) for approval prior to Project commencement. Mitigation will include establishment or restoration of in-kind habitat to support listed species that occur in the on-site habitat being impacted (i.e. mitigation for impacts to occupied least Bell's vireo habitat will include habitat suitable to support foraging and nesting least Bell's vireo).

Final mitigation requirements will be determined during the permitting process to acquire a Streambed Alteration Agreement and through the Western Riverside County MSHCP project approval process.

Further details regarding permitting, approvals, and mitigation for Project impacts on riparian habitats is provided in Section 5.3.

## 5.1 Special-Status Plant Species

As discussed in Section 4.2.40, the BSA contains suitable habitat to support one special-status plant species, smooth tarplant. This species is a Western Riverside County MSHCP Covered Species with surveys required only in designated CASSA or NEPSSA survey areas. Because the BSA is not located within and CASSA or NEPSSA survey areas, further analysis of this species is not required. The Project would not result in impacts on any other special-status plant species, and no avoidance, minimization, or mitigation measures are proposed in regard to special-status plant species.

## 5.2 Special-Status Wildlife Species

Animals considered to be of special-status include those listed under FESA and/or CESA and those considered of special concern by CDFW. Their potential presence within the BSA was determined based on direct observation of individuals or their sign during field surveys, known documented occurrences in California Natural Diversity Database and CNPS databases, and/or presence of suitable habitat of special-status animals occurring on site.

The BSA has suitable habitat to support twenty-one special-status animal species. Of these, eleven species including: western spadefoot, coastal whiptail, red-diamond rattlesnake, western pond turtle, Blainville's horned lizard, golden eagle, white-tailed kite, yellow-breasted chat, loggerhead shrike, Stephens' kangaroo rat, and San Diego desert woodrat, are Western Riverside County MSHCP Covered Species for which take is provided under the Western Riverside County MSHCP. Because of this, further analysis of Project impacts on these species is not required.

The remaining ten species warrant further analysis because they are covered but have additional survey needs and requirements specified in the Western Riverside County MSHCP that requires analysis of Project impacts (southwestern willow flycatcher, Coastal California gnatcatcher, least Bell's vireo, burrowing owl) or not covered under the Western Riverside County MSHCP (Crotch's bumble bee, California glossy snake, coast patch-nosed snake, two-striped garter snake, Western mastiff bat, and Western yellow bat). These species are discussed in detail below.

### 5.2.1 Southwestern Willow Flycatcher

SWFL is designated as a federally and state endangered species and is a Western Riverside County MSHCP Covered Species. SWFL breeds within thickets of willows or other riparian understory usually along streams, ponds, lakes, or canyons. Migrants may be found among other shrubs in wetter areas. Most breeding pairs occur along the upper San Luis Rey River or along the Santa Margarita River in Camp Pendleton, but scattered pairs or unpaired individuals have been observed elsewhere. SWFL is a Western Riverside County MSHCP Covered Species; therefore, take of this species is covered through participation in the Western Riverside County MSHCP. Because of this, federal and State Endangered Species Act permits are not required for take of SWFL so long as the Project demonstrates consistency with the conservation requirements of the Western Riverside County MSHCP. These requirements include focused surveys within suitable habitat areas and implementation of appropriate avoidance, minimization, and mitigation measures to demonstrate that the Project would result in biologically equivalent or superior preservation of habitat to offset Project impacts on this species. A Determination of Biologically Equivalent or Superior Preservation (DBESP)

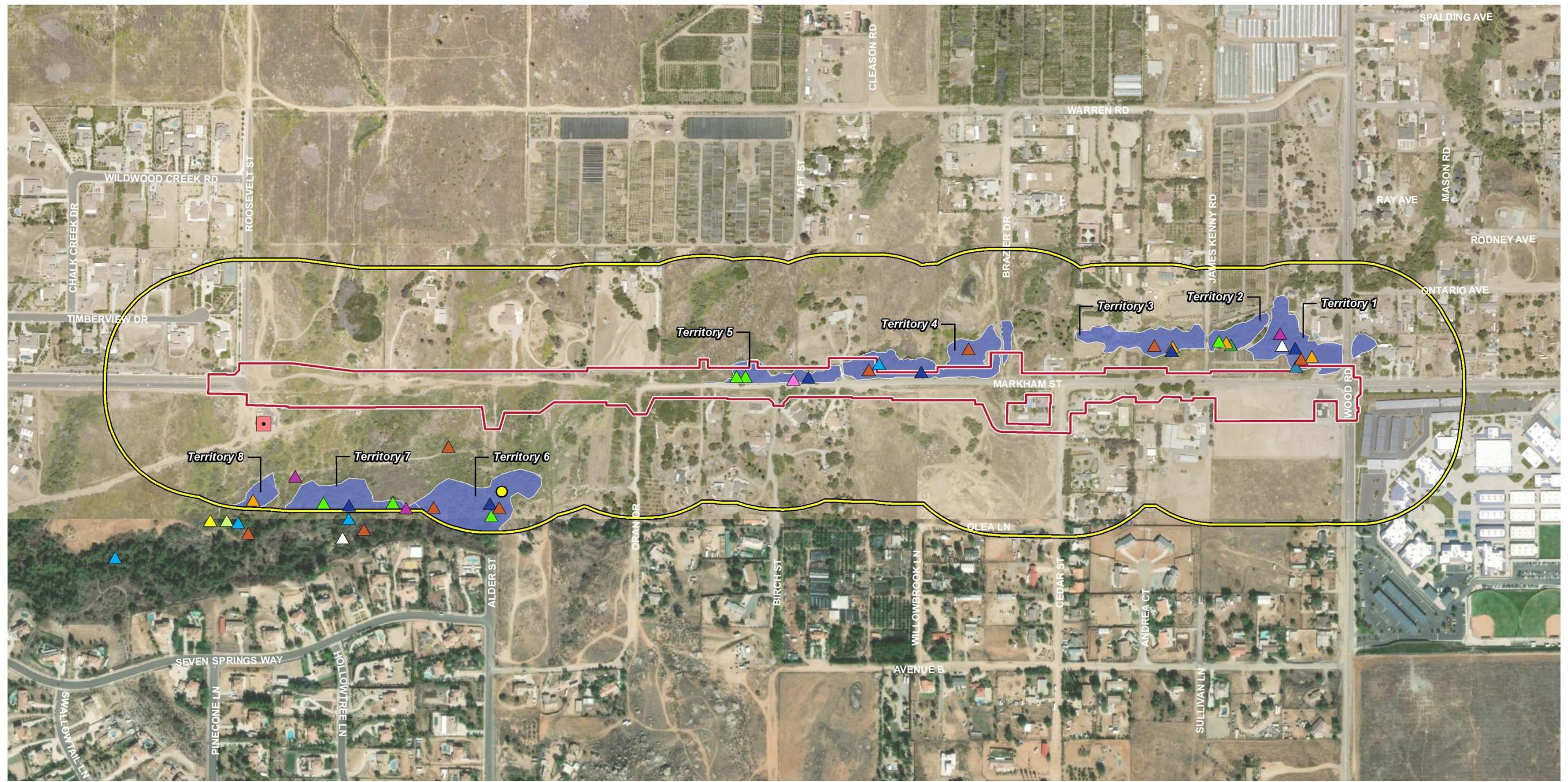
will be required to analyze Project impacts on SWFL and identify avoidance, minimization, and mitigation measures.

## Survey Results

Suitable SWFL nesting and foraging habitat was identified along the Mockingbird Canyon Creek channel and had included black willow woodland, mule fat thickets, ornamental riparian woodland, and giant reed marsh. Focused riparian bird surveys included the Project area and a 500-foot buffer. One migrant willow flycatcher was heard calling approximately 325 feet south of the Project area (Figure 5-2) on one visit in May 2022 but was not heard on subsequent dates. Because this species was not observed nesting during focused surveys, it is presumed absent as a nesting species. However, SWFL may forage in the BSA during migration. A total of 6.75 acres of suitable foraging habitat for SWFL was mapped within the BSA.

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Figure 5-2. Riparian Bird Survey Results

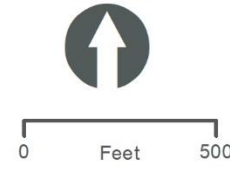


**LEGEND**

- Riparian Bird Survey Area
- Project Area
- Riparian Bird Survey
- Cowbird Trapping
- Willow Fly Catcher Observation (5/23/2022)

**Least Bell's Vireo Observation by Date**

4/12/2022	4/15/2022	5/19/2022	5/2/2022	6/17/2022	6/27/2022	6/3/2022	6/7/2022	7/19/2022	7/7/2022	7/8/2022
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## Project Impacts

The BSA supports 6.75 acres of suitable foraging habitat for SWFL. The Project will result in temporary impacts to up to 0.35 acre and permanent impacts to up to 1.59 acres of SWFL foraging habitat. Permanent loss of SWFL foraging habitat within the Project area will result from development of the roadway and construction of the drainage channel north of Markham Street. Because the bottom of this channel will be maintained without vegetation in order to provide sufficient flood control capacity, on-site restoration of riparian woodland habitat within this area is not feasible. Riparian vegetation within temporarily impacted TCE areas will be restored on-site per Measure BIO-5.

Direct impacts to individual SWFL individuals could occur during construction if vegetation is removed while a SWFL is foraging in the habitat. Potential direct impacts to SWFL will be avoided through implementation of Measure BIO-10.

## Avoidance and Minimization Efforts

In addition to Measures BIO-1 through BIO-5, the following measure will be implemented to avoid potential impacts on SWFL:

**BIO-10 Riparian Bird Habitat Removal.** Prior to construction, suitable habitat for southwestern willow flycatcher and least Bell's vireo within the Project area will be removed between September 1 and February 14, outside of the nesting season. If it cannot occur outside nesting season the Project biologist will survey the area and delineate buffers suitable to avoid take if nesting birds, including foraging southwestern willow flycatcher or least Bell's vireo or active least Bell's vireo nests, are found.

## Compensatory Mitigation

Details regarding proposed compensatory mitigation for Project impacts to riparian habitat are provided in Measure BIO-6, which would also provide compensatory mitigation for Project impacts to suitable SWFL foraging habitat.

## Cumulative Impacts

Because SWFL is a Western Riverside County MSHCP Covered Species, cumulative impacts on SWFL and its habitat are addressed through participation in the Western Riverside County MSHCP and compliance with additional conservation commitments provided in this report.

### 5.2.2 Least Bell's Vireo

LBV is designated as a federally and State endangered species and is a Western Riverside County MSHCP Covered Species. According to the Western Riverside County MSHCP, LBV is relatively well distributed throughout the Western Riverside County MSHCP Plan Area and is known to occur in Mockingbird Canyon. It breeds in riparian scrub, forest and woodland habitats. LBV is a Western Riverside County MSHCP Covered Species; therefore, take of this species is covered through participation in the Western Riverside County MSHCP. Because of this, federal and State Endangered Species Act permits are not required for take of LBV so long as the Project demonstrates consistency with the conservation requirements of the western Riverside County MSHCP. These requirements include focused surveys within suitable habitat areas and implementation of appropriate avoidance, minimization, and mitigation measures to demonstrate that the Project would result in biologically

equivalent or superior preservation of habitat to offset Project impacts to this species. A DBESP will be required to analyze Project impacts on LBV and identify avoidance, minimization, and mitigation measures.

## Survey Results

Black willow woodland, mule fat thickets, ornamental riparian, and giant reed marsh habitat within the BSA provide suitable habitat to support nesting and foraging LBV. Other riparian habitats (cattail marsh and perennial pepperweed patches) within the BSA do not provide the complex structure necessary for this species. Focused surveys for LBV were conducted for the RBSA between May and July 2022 in accordance with USFWS 2001 *Least Bell's Vireo Survey Guidelines* (USFWS 2001). The *Riparian Bird Survey Report* documents the results of LBV and SWFL surveys for the Project and is included as Appendix E.

Multiple LBV were observed along the entire riparian habitat corridor within the RBSA. LBV was observed nesting in the RBSA, and up to eight LBV territories were identified in the RBSA, as shown in Figure 5-2. Habitat within three of these territories (Territory 1, Territory 2, Territory 4, and Territory 5) occurs within the Project area and would be subject to direct impacts from the Project.

## Project Impacts

The BSA supports 6.75 acres of occupied nesting habitat for LBV and suitable foraging habitat for LBV and SWFL. The Project will result in temporary impacts to up to 0.35 acre and permanent impacts to up to 1.59 acres of occupied LBV habitat. Permanent loss of LBV habitat within the Project area will result from development of the roadway improvements and construction of the drainage channel north of Markham Street. Because the bottom of this channel will be maintained without vegetation in order to provide sufficient flood control capacity, on-site restoration of riparian woodland habitat within this area will not be feasible. The Project has been designed to minimize impacts to LBV territories to the greatest extent feasible. Riparian vegetation within temporarily impacted TCE areas will be restored on-site per Measure BIO-5.

Direct impacts to individual LBV could occur during construction if vegetation supporting an active nest is removed. If LBV occupy suitable habitat adjacent to direct impact areas, within the 500-foot Riparian Birds buffer, the Project could result in indirect impacts on nesting and foraging activities as a result of temporarily increased noise and activity levels.

## Avoidance and Minimization Efforts

In addition to Measures BIO-1 through BIO-5, and BIO-10, the following measure will be implemented to avoid and minimize Project impacts on LBV:

**BIO-11 Pre-construction Surveys and Monitoring for Least Bell's Vireo.** Should construction activities begin during the LBV nesting season (March 15 to August 15), a qualified biologist will conduct three separate days of surveys, no more than 7 days prior to construction, to identify and map LBV nesting locations. The qualified biologist will also conduct weekly surveys throughout the LBV nesting season in all suitable LBV habitat within 500-feet of the active work area. In the event that LBV nesting activity is detected within 500-feet of the work area, if feasible, a 500-foot buffer shall be established between construction activities and the approximate edge of the LBV territory, to avoid affects to nesting LBV. If this is not possible, and the qualified biologist deems that construction activities can continue without disturbing nesting LBV, nests shall be monitored daily by

the qualified biologist during all construction activities. If the biologist determines that the Project-related activities are altering LBV behavior, e.g., causing adults to flush from the nest more frequently, Project activities shall be halted within 500-feet of the active nest. Prior to re-commencement of work within 500-feet of the active nest, CDFW and USFWS will be notified and measures to reduce noise or noise impacts will be implemented in coordination with CDFW and USFWS. Measures may include increasing or reestablishing a nest buffer, installing noise barriers, or implementing noise attenuation measures (e.g., reducing the number of construction vehicles or using different types of construction vehicles; reducing the number of noisy activities that occur simultaneously) as feasible. These measures will remain in place until all nestlings have fledged, or construction activities have moved 500-feet beyond that area of LBV activity. Construction activities that alter LBV behavior will cease operation until effective noise attenuation measures are in place to the extent practicable. The results of LBV pre-construction survey, weekly surveys, and monitoring will be reported weekly to CDFW and USFWS.

### Compensatory Mitigation

Details regarding proposed compensatory mitigation for Project impacts on riparian habitat are provided in Measure BIO-6, which would also provide compensatory mitigation for Project impacts on suitable LBV habitat.

### Cumulative Impacts

Because LBV is a Western Riverside County MSHCP Covered Species, cumulative impacts on LBV and its habitat are addressed through participation in the Western Riverside County MSHCP and compliance with additional conservation commitments provided in this report.

### 5.2.3 Coastal California Gnatcatcher

The coastal California gnatcatcher (CAGN) is a Federal Threatened species and State Species of Special Concern and is a Western Riverside County MSHCP Covered Species. The breeding season for CAGN extends from about February 15 through August 31, with peak nesting activity occurring from mid-March to mid-May. CAGN are found in coastal sage scrub (*Artemisia californica*), California buckwheat, and sage (*Salvia mellifera*, *S. apiana*) habitat.

### Survey Results

California buckwheat scrub within the BSA, totaling 5.50 acres, provides suitable nesting habitat for CAGN. Because the CAGN is a Western Riverside County MSHCP Covered Species, focused surveys are not required; however, an individual CAGN was observed vocalizing and foraging within the buckwheat scrub on the property. There is no designated critical habitat for CAGN within the BSA.

### Project Impacts

The Project will result in temporary impacts to up to 0.17 acre and permanent impacts to up to 1.19 acres of California buckwheat scrub. Due to the high level of disturbance, and proximity to an active roadway and residential areas, this habitat is of low quality for CAGN nesting, but this species could forage and nest within the Project area.

## Avoidance and Minimization Measures

In addition to Measures BIO-1 through BIO-5, the following measures will be implemented to avoid and minimize Project impacts on nesting CAGN:

- BIO-12 Nesting Bird Surveys.** Vegetation removal or tree (native or exotic) trimming activities will occur outside of the nesting bird season. Other than for suitable LBV habitat, in the event that vegetation clearing is necessary during the nesting season (i.e., February 15 through August 31), a qualified biologist will conduct a preconstruction survey to determine whether any active bird nests are present. Should nesting birds be found, an exclusionary buffer shall be established by a qualified biologist. This buffer shall be clearly marked in the field, and construction or clearing shall not be conducted within this zone until the qualified biologist determines that the young have fledged, or the nest is no longer active.
- BIO-13 Coastal California Gnatcatcher Avoidance.** Should nesting coastal California gnatcatchers be found on or in the immediate vicinity (approximately 300-feet) of the Project area during surveys conducted in compliance with Measure BIO-11, the qualified biologist shall establish an appropriate buffer to prevent alteration of nesting gnatcatcher behavior. No construction or clearing shall be conducted within the established buffer until the designated biologist determines that the young have fledged, or the nest is no longer active.

## Compensatory Mitigation

Because CAGN is a Western Riverside County MSHCP Covered Species, compensatory mitigation for Project impacts on CAGN habitat is not required.

## Cumulative Impacts

Because CAGN is a Western Riverside County MSHCP Covered Species, cumulative impacts to CAGN and its habitat are addressed through participation in the Western Riverside County MSHCP.

### 5.2.4 Burrowing Owl

BUOW is a state species of special concern and a Western Riverside County MSHCP Covered Species with additional survey requirements. BUOW are found in open, dry grasslands, agricultural and range lands, and desert habitats. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. They nest in abandoned burrows of ground squirrels or other fossorial animals, in pipes, under piles of rock or debris, and in other similar features.

## Survey Results

Suitable BUOW habitat, consisting of Mediterranean California Naturalized Annual and Perennial Grassland and California Buckwheat Scrub, was identified in eleven locations within the BUOW Survey Area (Figure 5-3). A total of 18.62 acres of suitable BUOW habitat was mapped within the BSA. Several fossorial mammal burrows were mapped within the areas noted as suitable BUOW habitat. California ground squirrels (*Otospermophilus beechyi*) were observed using these burrows. As reported in the *Burrowing Owl Survey Report* (Appendix D), no BUOW or their sign (scat, tracks, feathers, etc.) were detected during the 2022 focused survey (Appendix D).

## Project Impacts

The Project would result in temporary impacts to up to 1.21 acres and permanent impacts to up to 3.41 acres of suitable BUOW habitat. However, the BUOW focused survey determined that BUOW was absent from the BSA at the time of the survey; therefore, the Project would not result in loss of any occupied BUOW habitat.

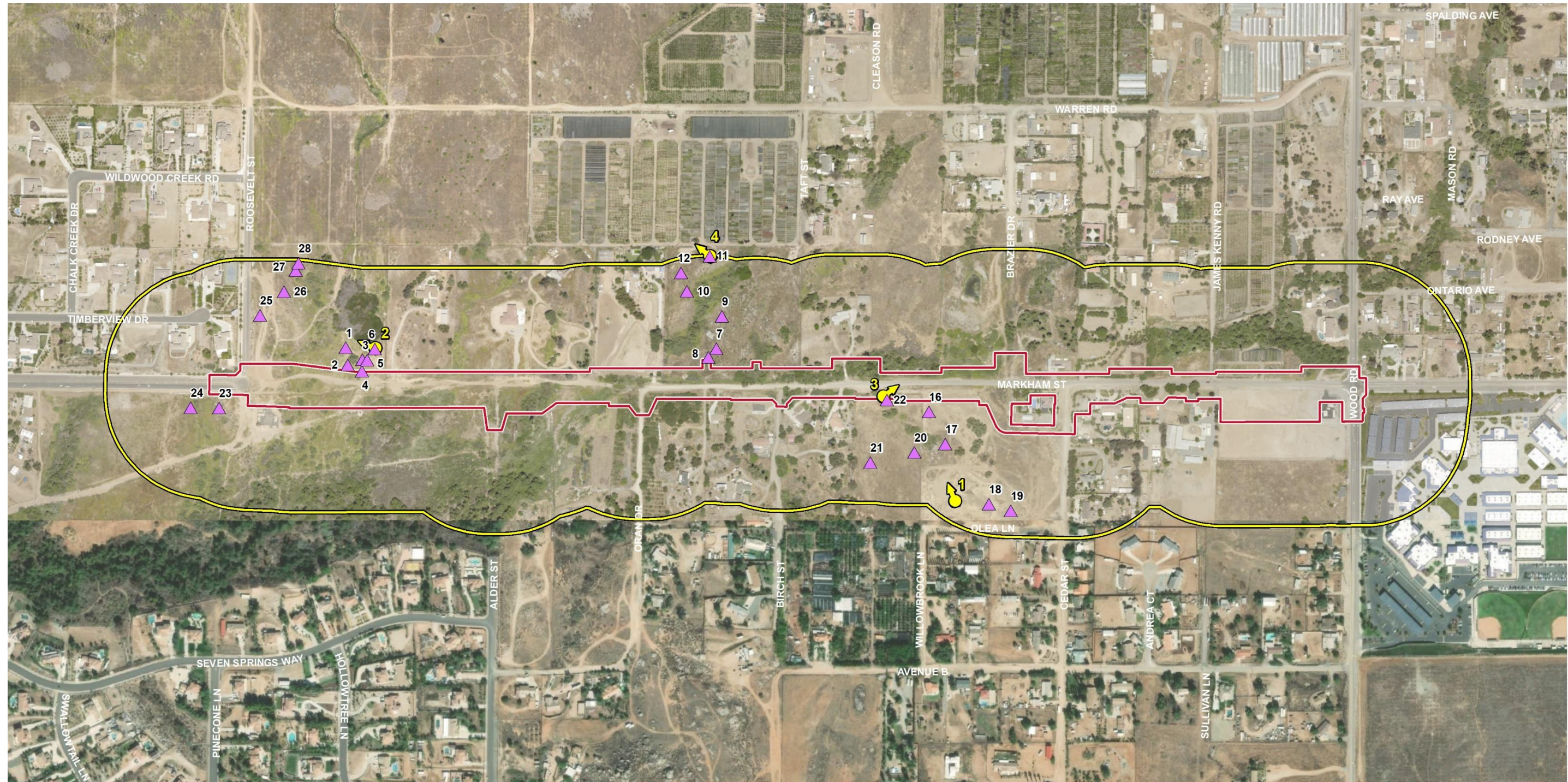
## Avoidance and Minimization Measures

In order to avoid potential Project impacts on BUOW that could occupy the Project area prior to construction, the following measure will be implemented:

**BIO-14 Burrowing Owl Preconstruction Survey.** Prior to construction, a survey for BUOW will be conducted by a qualified biologist within 30 days prior to vegetation clearing/grading. If BUOW are found within 500 feet (150 meters) of the Project area during the preconstruction survey, the County or its designated representative will immediately inform and coordinate with CDFW and USFWS to identify and implement applicable measures provided in WRCMSHCP BUOW Conservation Objective 6, as provided in Volume 1, Appendix E of the WRCMSHCP. Appropriate measures to avoid take of active BUOW nests may include establishment of an appropriate buffer until BUOW young have fledged or BUOW no longer occupy the burrow. If any burrows are identified within the Project area, passive relocation would be conducted by a qualified avian biologist outside of the nesting season, if necessary.

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Figure 5-3. Burrowing Owl Survey Results



**LEGEND**

- Burrowing Owl Survey Area
- Project Area
- Potential Burrow
- Photo Point
- BUOW Field Collection Point

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## Compensatory Mitigation

With implementation of Measure BIO-14, the Project would not result in direct impacts on BUOW. However, if BUOW are discovered within the Project area during preconstruction surveys, Project-specific mitigation may be required. Mitigation measures would be developed and authorized through consultation with the Western Riverside County RCA, CDFW, and USFWS, as outlined in Table 9.2 and Appendix E, Summary of Western Riverside County MSHCP Species Survey Requirements in the Western Riverside County MSHCP. Because BUOW is a Western Riverside County MSHCP Covered Species and the Project will comply with Western Riverside County MSHCP BUOW survey requirements, no compensatory mitigation for Project impacts to suitable BUOW habitat is required.

## Cumulative Impacts

Because BUOW is a Western Riverside County MSHCP Covered Species, cumulative impacts on BUOW and its habitat are addressed through participation in the Western Riverside County MSHCP.

### 5.2.5 Other Special-Status Wildlife Species

Other California Species of Special Concern that are not Western Riverside County MSHCP Covered Species and known to occur within the vicinity of the Project area include Crotch's bumble bee, glossy snake, coast patch nosed snake, two-striped garter snake, western mastiff bat, and western yellow bat.

Crotch's bumble bee (*Bombus crotchii*) was identified as a candidate for listing under the California Endangered Species Act on June 12, 2019 (CDFW, 2019c). That listing was subsequently legally challenged; however, courts upheld CDFW's decision and candidacy was reinstated on September 30, 2022. CDFW is currently conducting a status review for this species and no determination has been made since the time of preparation of this report. In the meantime, Crotch's bumble bee, as a candidate species, is provided the same legal protection afforded to an endangered or threatened species (California Fish and Game Code [FGC] Sections 2074.2 and 2085). It is a widespread secretive species that is known from more than two hundred locations over a broad geographic range (Hatfield et al., 2014). It is typically found in openings in grassland and scrub habitats where it burrows into the ground and lives in colonies. Crotch's bumble bee are generalist foragers best suited to forage at open flowers with short corollas (The Xerces Society 2018). The species feeds on native plants including milkweed, pincushion, lupine, phacelia, sage, snapdragon, clarkia, bush poppy, and buckwheat (Williams et al., 2014). Due to the timing of the listing of this species and the biological analysis for the Project, impacts to Crotch's bumble bee are undetermined at this time.

## Survey Results

Some of the known food plants for Crotch's bumble bee, notably sage and buckwheat, are present in the BSA and suitable burrowing and foraging habitat is also present. The BSA supports a total of 5.50 acres of California buckwheat scrub with suitable habitat components to potentially support this species.

Suitable habitat for California glossy snake and coast patch-nosed snake occurs within California buckwheat scrub and Mediterranean California naturalized annual and perennial grassland within the BSA. Suitable habitat for two-striped garter snake and suitable roosting habitat for western mastiff bat and western yellow bat occurs in riparian tree- and shrub- dominated habitats (black willow woodland, mule fat thickets, and ornamental riparian) associated with the Mockingbird Canyon Creek corridor.

## Project Impacts

While Crotch's bumble bee was not observed during 2022 field surveys, focused surveys for this species were not conducted. Therefore, it is not known if Crotch's bumble bee occurs within the BSA or not. If present, the Project would result in temporary impacts to up to 0.17 acre and permanent loss of up to 1.19 acres of suitable habitat (California buckwheat scrub) for this species. Because this species is a candidate for listing as a State Endangered species, should this species occur within the BSA an Incidental Take Permit pursuant to Section 2081(b) of the California Fish and Game Code may be required prior to commencement of Project activities in suitable habitat areas.

The Project would result in temporary impacts to up to 0.17 acre and permanent impacts to up to 1.19 acres of California buckwheat scrub and temporary impacts to up to 1.04 acres and permanent impacts to up to 2.23 acres of Mediterranean California naturalized annual and perennial grassland suitable for California glossy snake and coast patch-nosed snake.

The Project would result in temporary impacts to up to 0.35 acre and permanent loss of up to 1.59 acres of riparian habitat suitable for two-striped garter snake, western mastiff bat, and western yellow bat.

## Avoidance and Minimization Efforts

Implementation of Measures BIO-1 through BIO-5 will avoid or minimize potential Project impacts on all of these species. Should Crotch's bumble bee remain a candidate for listing or become a state-listed species prior to Project implementation, Measure BIO-3, and Measures BIO-7 through BIO-9 will be implemented to avoid potential Project impacts on Crotch's bumble bee. However, if the Crotch's bumble bee is no longer a candidate for listing or does not become listed under the CESA prior to Project implementation, then Measures BIO-7 through BIO-9 will not be required. In addition, Measure BIO-15 will be implemented to avoid direct impacts to special-status bats that could roost in trees and large shrubs within the Project area.

**BIO-7 Crotch's Bumble Bee Survey.** This measure will only be implemented should Crotch's bumble bee remain a candidate for listing or become a state-listed species prior to Project implementation. Within one year prior to construction, a habitat assessment for Crotch's bumble bee will be conducted within the Project area and an appropriate survey buffer be established by a qualified biologist with experience surveying for and observing Crotch's bumble bee. If the qualified biologist determines that suitable habitat is present, surveys shall be conducted to determine the presence/absence of Crotch's bumble bee. Surveys shall be conducted during flying season when the species is most likely to be detected above ground, between March 1 to September 1 (Thorp et al. 1983). Survey results, including negative findings, shall be submitted to the CDFW prior to implementing Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's bumble bee. At minimum, a survey report should provide the following: a) A description and map of the survey area, focusing on areas that could provide suitable habitat for Crotch's bumble bee; b) Field survey conditions that should include name(s) of qualified entomologist(s) and brief qualifications; date and time of survey; survey duration; general weather conditions; survey goals, and species searched; c) Map(s) showing the location of nests/colonies; and, d) A description of physical (e.g., soil, moisture, slope) and biological (e.g., plant composition) conditions where each nest/colony is found. A sufficient description of biological conditions, primarily impacted habitat, should include native plant

composition (e.g., density, cover, and abundance) within impacted habitat (e.g., species list separated by vegetation class; density, cover, and abundance of each species).

**BIO-8 Crotch's Bumble Bee Avoidance.** This measure will only be implemented should Crotch's bumble bee remain a candidate for listing or become a state-listed species prior to Project implementation. If Crotch's bumble bee is detected during the Crotch's bumble bee survey, the County shall ensure that a plan to fully avoid impacts to Crotch's bumble bee be developed in consultation with a qualified entomologist during final design. The plan shall include effective, specific, enforceable, and feasible measures. An avoidance plan should be submitted to CDFW prior to implementing Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's bumble bee. If Crotch's bumble bees are determined to be present within the Project area and it is determined the species will be impacted by Project implementation, appropriate mitigation shall be determined in consultation with CDFW.

**BIO-9 Crotch's Bumble Bee Incidental Take Permit.** This measure will only be implemented should Crotch's bumble bee remain a candidate for listing or become a state-listed species prior to Project implementation. If Crotch's bumble bee is detected during the survey (required by Measure BIO-7), and if impacts to Crotch's bumble bee cannot be feasibly avoided during Project construction, the County shall ensure that the designated qualified entomologist coordinate with CDFW to obtain appropriate permit for incidental take of Crotch's bumble bee prior to commencement of Project construction in habitat occupied by Crotch's bumble bee. The incidental take permit would quantify and provide appropriate mitigation for impacts on Crotch's bumble bee habitat. Mitigation for impacts to Crotch's bumble bee habitat would be at a ratio comparable to the Project's level of impacts.

**BIO-15 Bat Roosting Habitat Removal.** Prior to tree removal or trimming, large trees and snags shall be examined by a qualified bat biologist to ensure that no roosting bats are present. If trimming or removal of mature trees and snags is necessary for Project construction, trimming/removal activities should be performed outside of the general bat maternity season, which occurs from March 1st through October 1st, to avoid direct effects to nonvolant (flightless) young that may roost in trees within the study area. If trimming or removal of trees during the general bat maternity season cannot be avoided, a qualified biologist will monitor tree removal unless nighttime surveys conducted within one week of removal indicates no tree-roosting bat activity within the study area.

Palm frond trimming, if necessary, shall be conducted outside the bat maternity season to avoid potential mortality of flightless young. Since western yellow bats and western mastiff bats may be present in untrimmed palm tree fronds, a qualified bat biologist shall be present to monitor frond removal. Dead fronds shall be removed under the guidance of the bat biologist, following the two-day method described below.

DAY 1: Only trim the outermost fronds may be trimmed (no more than 50 percent of the palm fronds) using hand tools or chainsaws only (no dozers, backhoes, cranes, or other heavy equipment, other than to provide access for tree cutters using chainsaws).

DAY 2: The palm tree must be felled. Day 2 activities must occur the day immediately following the Day 1 activities. To accomplish this, work may need to be phased and Day 1/Day 2 steps can be repeated. Should bats emerge during the tree trimming, trimming activities must temporarily cease at the individual tree until bats are no longer actively emerging from the tree.

## Compensatory Mitigation

Because these species are not federally or State-listed species, compensatory mitigation is not required. However, should Crotch's bumble bee remain a candidate for listing or become a state-listed species prior to Project implementation, compensatory mitigation for Project impacts may be required. Should Crotch's bumble bee be determined to occur within the BSA, compensatory mitigation for impacts on this species would be determined during the incidental take permit process, as discussed in Measure BIO-9.

Participation in the MSHCP and payment of MSHCP mitigation fees will contribute toward assembly of reserve lands intended to provide plan-wide compensatory mitigation for Covered species associated with California buckwheat scrub habitat including California glossy snake and coast patch-nosed snake. Additionally, compensatory mitigation as discussed in Measure BIO-6 will offset Project impacts to suitable habitat for two-striped garter snake, western yellow bat, and western mastiff bat.

## Cumulative Impacts

The Western Riverside County MSHCP is designed to mitigate for impacts on Covered Species and habitat on a regional scale. With participation in the Western Riverside County MSHCP and implementation of the measures identified above, no substantial cumulative impacts are anticipated to occur on the special-status species that could occur in the BSA.

## 5.3 Jurisdictional Aquatic Resources

Mockingbird Canyon Creek traverses the ARDA (Project area plus 50-foot buffer) from the northeast towards the southwest and is the primary aquatic feature. Two other adjacent wetland features associated with excavated basins were also mapped within the ARDA.

Detailed information on the existing site conditions related to aquatic resources including photographs is provided in the *Aquatic Resources Delineation Report* (Appendix F).

### 5.3.1 United States Army Corps of Engineers Jurisdiction

#### United States Army Corps of Engineers

The ARDA supports three aquatic features [Feature A (Mockingbird Canyon Creek), Feature B and Feature C] with a total of 0.26 acre of aquatic resources potentially subject to USACE jurisdiction. This includes 0.20 acre of non-wetland WOTUS and 0.05 acre of wetland WOTUS. A total of nine wetland sampling points were conducted within the ARDA, and two separate wetland areas were identified (Feature B and Feature C).

Feature A (Mockingbird Canyon Creek) originates in the hills northeast of the ARDA and continues to the southwest of the ARDA where flows are collected in Mockingbird Canyon Reservoir, which was constructed to provide water for surrounding agricultural uses. Outflows from the Reservoir are eventually discharged to the Santa Ana River, which is tributary to the Pacific Ocean, a traditional navigable water. Within the BSA, Mockingbird Canyon Creek consists of a 4-foot to 6-foot-wide channel that supports perennial flows as a result of upstream urban runoff. The channel is unvegetated for the most part but supports cattail marsh in some areas where downstream flows are blocked, resulting in sufficient standing water to support cattails (*Typha* sp.). Because this feature is channelized and wetlands do not occur outside of the OHWM, all waters of the U.S. associated with Feature A were mapped as non-wetland.

Feature B occurs approximately 550-feet northwest of the intersection of Markham Street and Brazier Drive along a dirt road located between riparian habitat to the north and south. This area supports cocklebur patches and is located north of the existing Mockingbird Canyon Creek channel and south of the Creek’s historic flow line, which was diverted around 2014. Feature C occurs approximately 575-feet north of the intersection of Markham Street and Brazier Drive and is located within two basins that appear to have been excavated within the existing flow path of Mockingbird Canyon Creek following diversion of the creek in 2014, as previously discussed. The area where the basins are located may not have historically supported wetlands, but due to the excavation it now supports year-round ponding and hydrophytic vegetation. Vegetation communities within Feature B include black willow woodland, ornamental riparian, and cattail marsh.

A summary of federal jurisdictional aquatic resources within the ARDA is provided in Table 5-3 and depicted on Figure 5-4. A detailed description of USACE jurisdiction within the ARDA is provided in the *Aquatic Resources Delineation Report* (Appendix F).

**Table 5-3. Potential United States Army Corps of Engineers and Regional Water Quality Control Board Jurisdictional Areas within the Aquatic Resources Delineation Area**

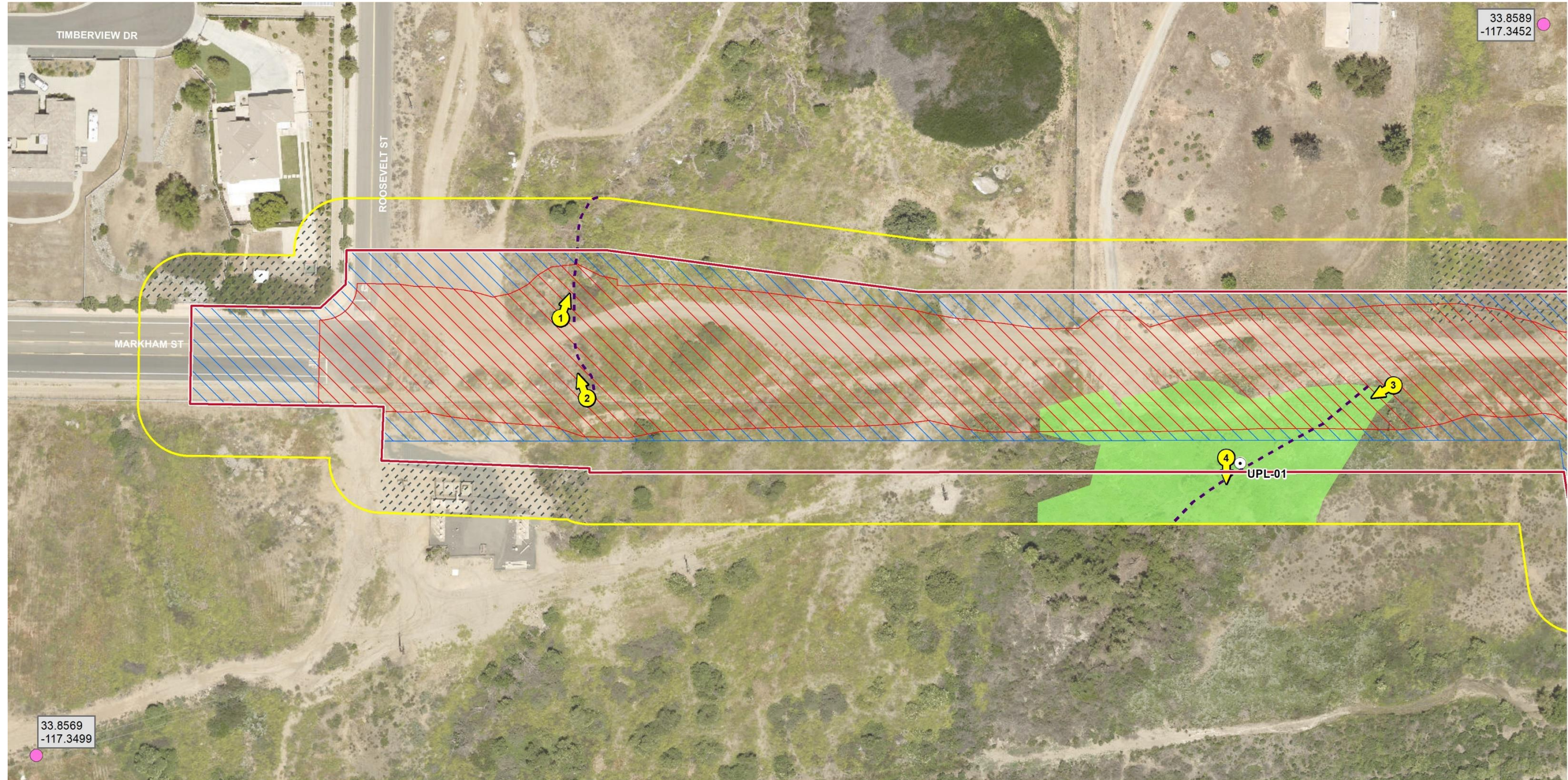
Feature	USACE/RWQCB Jurisdiction	
	Clean Water Act Section 404 and 401 Jurisdiction (Waters of the United States and Waters of the State)	
	Linear Feet	Acres <sup>a</sup>
<b><i>Non-wetland WOTUS</i></b>		
Feature A (Mockingbird Canyon Creek)	2,263	0.20
<b>Subtotal</b>	<b>2,263</b>	<b>0.20</b>
<b><i>Wetland WOTUS</i></b>		
Feature B	41	0.02
Feature C	119	0.03
<b>Subtotal</b>	<b>160</b>	<b>0.05</b>
<b>Total</b>	<b>2,423</b>	<b>0.26</b>

Notes:

<sup>a</sup> Totals may differ due to rounding.

RWQCB=Regional Water Quality Control Board; USACE=United States Army Corps of Engineers; and WOTUS=Waters of the United States

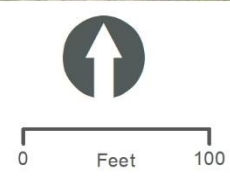
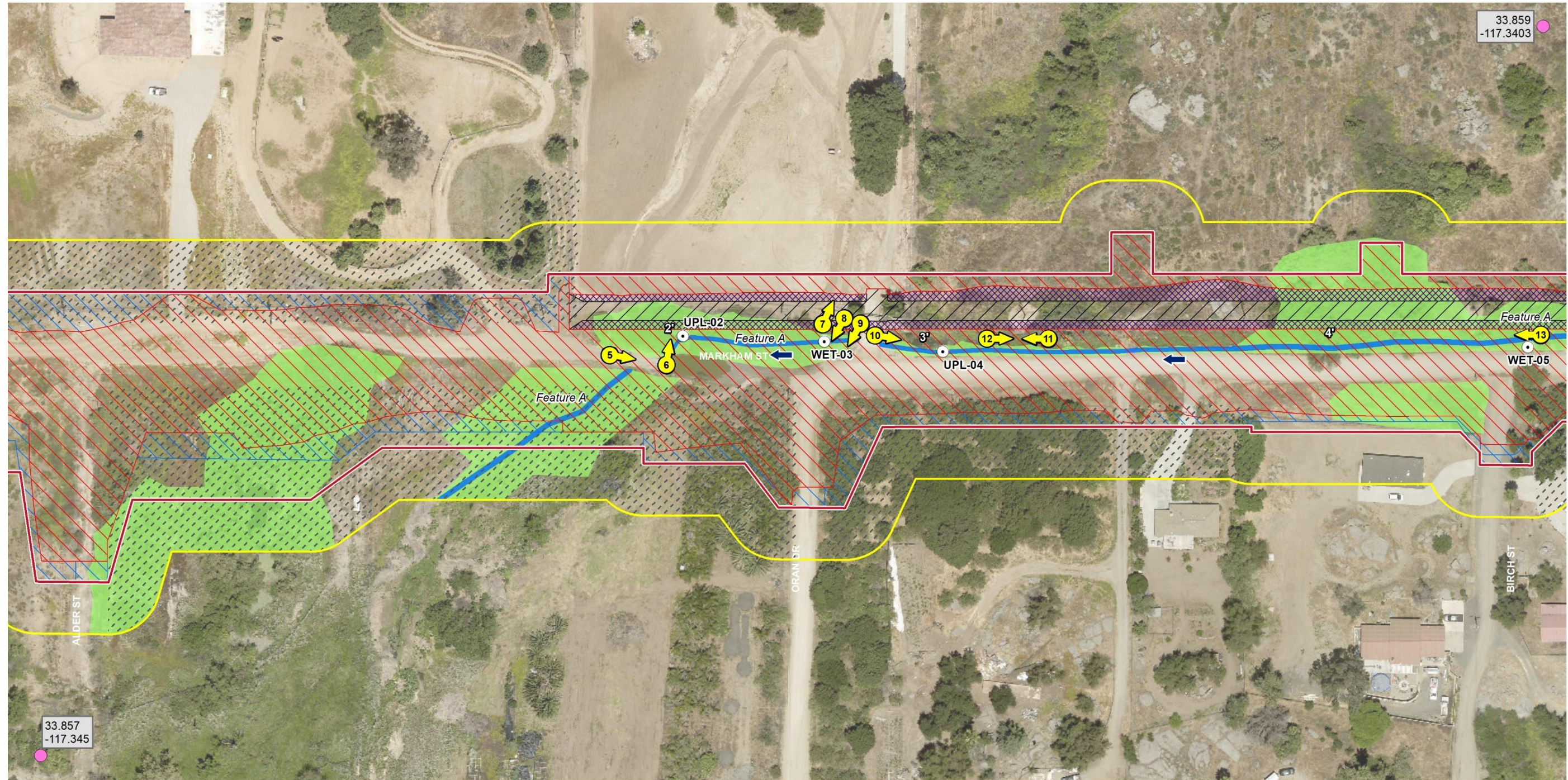
Figure 5-4. Project Impacts on Aquatic Resources (Sheet 1 of 4)



 	<b>LEGEND</b> Aquatic Resources Delineation Area Project Area No Right of Entry Map Reference Point Wetland Sample Point		Flow Direction Photo Point	<b>Impacts</b> Permanent Impacts Temporary Impacts	<b>USACE/RWQCB Jurisdiction</b> Non-wetland Wetland <b>CDFW Jurisdiction</b> Riparian Vegetation	No OHWM
	Page 1 of 4  Aerial: Esri World Imagery (2020) Date Prepared: 6/13/2023 Map Prepared by HDR					

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Figure 5-4. Project Impacts on Aquatic Resources (Sheet 2 of 4)



**LEGEND**  
 Aquatic Resources Delineation Area  
 Project Area  
 No Right of Entry  
 Map Reference Point  
 Wetland Sample Point

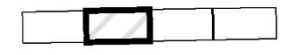
Flow Direction  
 Photo Point

**Impacts**  
 Permanent Impacts  
 Temporary Impacts

**Drainage Easement**  
 Channel Bank  
 Channel Bottom

**USACE/RWQCB Jurisdiction**  
 Non-wetland  
 Wetland  
 CDFW Jurisdiction  
 Riparian Vegetation

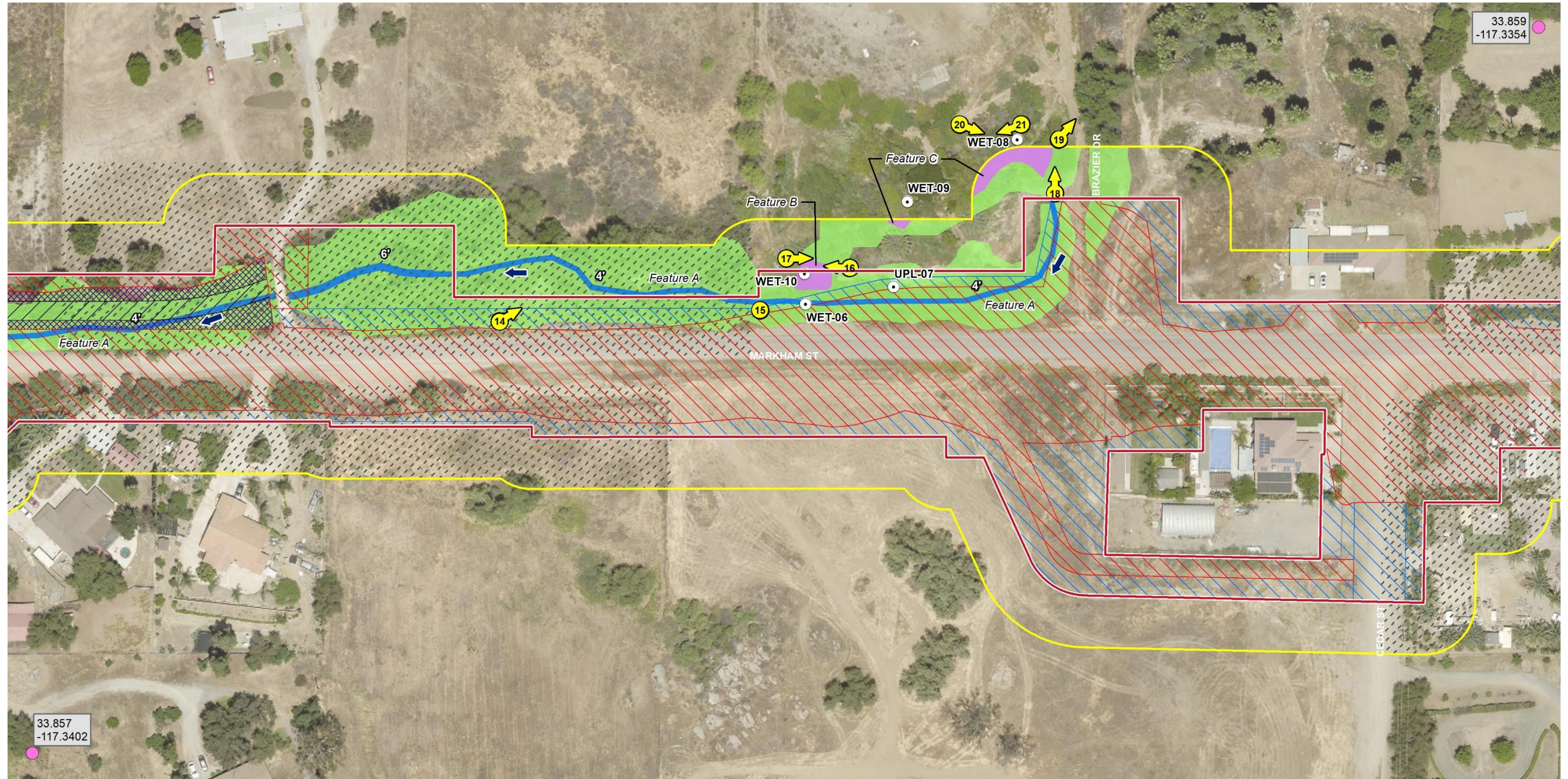
**No OHWM**





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Figure 5-4-. Project Impacts on Aquatic Resources (Sheet 3 of 4)



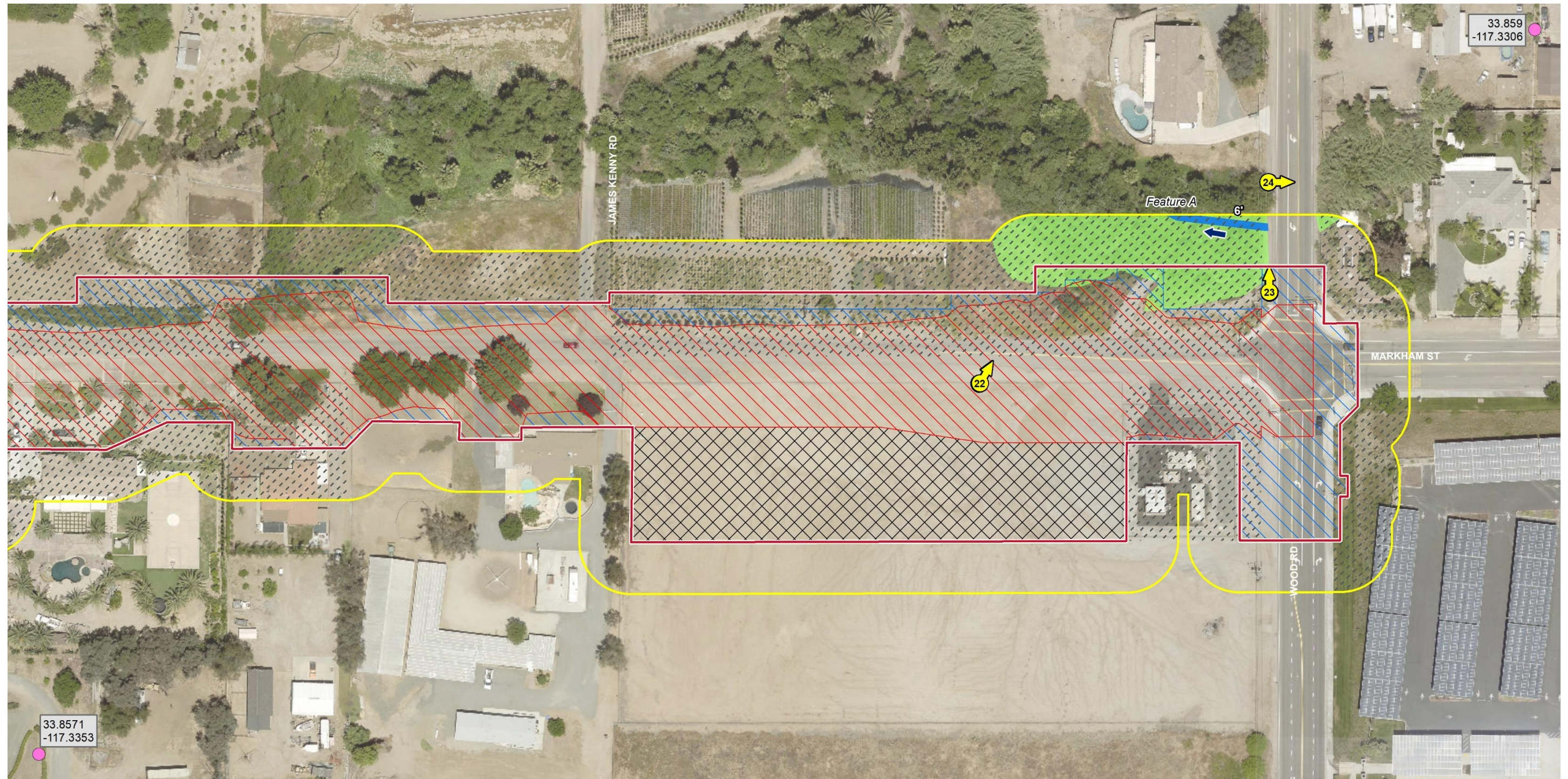
**LEGEND**

	Aquatic Resources Delineation Area	Flow Direction	Impacts: Permanent Impacts	Drainage Easement: Channel Bank	USACE/RWQCB Jurisdiction: Non-wetland
Project Area	No Right of Entry	Photo Point	Impacts: Temporary Impacts	Drainage Easement: Channel Bottom	USACE/RWQCB Jurisdiction: Wetland
Map Reference Point	Wetland Sample Point				CDFW Jurisdiction: Riparian Vegetation
					No OHWM



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Figure 5-4. Project Impacts on Aquatic Resources (Sheet 4 of 4)



**LEGEND**

	Aquatic Resources Delineation Area	Flow Direction	Impacts	Temporary Impacts	USACE/RWQCB Jurisdiction	No OHWM
	Project Area	Photo Point	Permanent Impacts	Laydown Area	Non-wetland	
	Map Reference Point		No Right of Entry		Wetland	
	Wetland Sample Point				CDFW Jurisdiction	
					Riparian Vegetation	

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### 5.3.2 Regional Water Quality Control Board Jurisdiction

RWQCB jurisdiction, for the purposes of CWA Section 401 Certification, is identical to USACE jurisdiction. In addition, the ARDA was evaluated for isolated features that would not be subject to federal jurisdiction but would be potentially regulated under the Porter-Cologne Water Quality Control Act. Potential state-regulated wetlands were evaluated using the SWRCB’s *Procedures for the Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2021). No areas that would be considered State-only regulated waters occur within the BSA.

### 5.3.3 California Department of Fish and Wildlife Jurisdiction

Features within the ARDA were determined to be riparian/riverine resources based on whether they exhibited a stream bed and bank, provided habitat value for terrestrial and/or aquatic wildlife, and/or were associated with a naturally occurring drainage feature. Riparian/riverine areas were mapped beyond the active channel to the top-of-bank (often including outer floodplain banks) and edge of riparian habitat (if present). A total of 5.40 acres of vegetated streambed and riparian habitat extending beyond the streambed were identified within the ARDA (Table 5-4; Figure 5-4). Riparian habitat includes native vegetation communities as well as disturbed/non-native vegetation communities that are dominated by non-native, invasive plant species.

**Table 5-4. Riparian Habitat within the Aquatic Resources Delineation Area**

Riparian Habitat Type	Riparian Habitat in Aquatic Resources Delineation Area Total (acres <sup>a</sup> )
<b><i>Vegetated Streambed and Riparian Habitat - Native Communities</i></b>	
Black willow woodland	3.20
Mule Fat Thickets	0.57
Cattail Marsh	0.16
Cocklebur Patches	0.08
<b>Subtotal</b>	<b>4.01</b>
<b><i>Vegetated Streambed and Riparian Habitat - Non-native/Disturbed Communities</i></b>	
Perennial Pepperweed Patches	1.32
Giant Reed Marsh	0.01
Ornamental Riparian	0.06
<b>Subtotal</b>	<b>1.39</b>
<b>Total</b>	<b>5.40</b>

Notes:

<sup>a</sup> Totals may differ due to rounding.

### 5.3.4 Project Impacts

The Project will not result in any impacts to WOTUS mapped within Feature B or Feature C. The Project would result in direct temporary impacts to up to 0.01 acre of non-wetland WOTUS subject to USACE and RWQCB jurisdiction, all associated with Feature A. The Project would result in direct

permanent impacts to up to 0.12 acre of non-wetland WOTUS and would not result in temporary or permanent impacts to any wetland WOTUS, all associated with Feature A.

The Project would result in direct temporary impacts to up to 0.37 acre of native riparian habitat and 0.07 acre of non-native/invasive riparian habitat subject to CDFW jurisdiction. Additionally, the Project would result in direct permanent impacts to up to 1.69 acres of native riparian habitat and 0.57 acre of non-native/invasive riparian habitat subject to CDFW jurisdiction. Potential Project impacts on jurisdictional aquatic resources are detailed in Table 5-5 and shown on Figure 5-4.

**Table 5-5. Project Impacts on Aquatic Resources**

Impact Category	USACE/RWQCB Jurisdiction		CDFW Jurisdiction	
	Non-wetland Waters of the U.S. (acres)	Wetland Waters of the U.S. (acres)	Native Riparian Habitat (acres)	Non-native/ Invasive Riparian Habitat (acres)
<b>Temporary Impacts</b>				
<b>Construction Easement</b>	0.01	—	0.37	0.07
<b>Laydown</b>	—	—	—	—
<b><i>Temporary Impacts Total<sup>a</sup></i></b>	<b><i>0.01</i></b>	<b><i>—</i></b>	<b><i>0.37</i></b>	<b><i>0.07</i></b>
<b>Permanent Impacts</b>				
<b>Drainage Easement</b>	0.02	—	0.63	—
<b>Roadway Improvements</b>	0.10	—	1.06	0.57
<b><i>Permanent Impacts Total<sup>a</sup></i></b>	<b><i>0.12</i></b>	<b><i>—</i></b>	<b><i>1.69</i></b>	<b><i>0.57</i></b>

Notes:

<sup>a</sup> Totals may differ due to rounding.

CDFW=California Department of Fish and Wildlife; RWQCB=Regional Water Quality Control Board; and USACE=United States Army Corps of Engineers

### 5.3.5 Avoidance and Minimization Efforts

Measures BIO-1 through BIO-5, will be implemented to avoid and/or minimize unnecessary Project impacts on jurisdictional aquatic resources.

USACE and RWQCB regulate the discharge of fill to WOTUS. pursuant to the CWA. CDFW regulates substantial modification of bed and bank or diversion or obstruction of flows of a stream pursuant to Section 1600 of the California Fish and Game Code and requires a Streambed Alteration Agreement when it determines that the activity may substantially adversely affect existing fish or wildlife resources. Project activities that result in the discharge of fill to, or modification of, any features subject to USACE, RWQCB, and CDFW jurisdiction, including temporary work areas would require permits and/or authorization from USACE, RWQCB, and CDFW.

Based on the type of proposed work, it is anticipated that the Project would be eligible for Section 404 authorization under current Nationwide Permit 14 for Transportation Projects, a Section 401 Water Quality Certification, and a standard Section 1602 Streambed Alteration Agreement, as detailed below:

- USACE – Section 404 Nationwide Permit
  - Nationwide Permit 14 for Linear Transportation Projects will likely be appropriate for implementation of the Project because it is expected to permanently impact less than 0.5 acre of waters of the U.S.
- CDFW – Section 1602 Streambed Alteration Agreement
  - A Streambed Alteration Notification would need to be prepared and submitted to CDFW to acquire a Streambed Alteration Agreement prior to construction.
- RWQCB – Section 401 Water Quality Certification
  - A Section 401 Water Quality Certification from RWQCB would be required for any proposed impacts on features determined subject to USACE jurisdiction.

### 5.3.6 Compensatory Mitigation

In order to offset Project impacts to jurisdictional aquatic resources, mitigation will be implemented through Measure BIO-6. Actual mitigation details will be determined during the permitting process and coordination with Western Riverside County Regional Conservation Authority (WRC RCA) and the regulatory agencies during the DBESP approval process.

### 5.3.7 Cumulative Impacts

The Project will participate in the Western Riverside County MSHCP and comply with regulatory permit requirements for compensatory mitigation. Because of this, the Project will ensure no net loss of aquatic resources and will not contribute to cumulative impacts to aquatic resources.



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## 6 Western Riverside County Multiple Species Habitat Conservation Plan Compliance

Specific survey requirements and conservation measures have been developed for the BSA in accordance with its location within the Western Riverside County MSHCP Planning Area. These survey requirements and conservation measures were identified by conducting a search of the online WRC RCA MSHCP Information Map (accessed February 2022) and a review of general conservation requirements identified in Volume 1 of the Western Riverside County MSHCP. Table 6-1 summarizes the Western Riverside County MSHCP Project Review Checklist to determine surveys and conservation measures necessary for Western Riverside County MSHCP Compliance.

**Table 6-1: Western Riverside County Multiple Species Habitat Conservation Plan Project Review Checklist**

	Yes	No
Is the project located in a Criteria Area or Public/Quasi-Public Land?		✓
Is the project located in Criteria Area Plant Survey Area?		✓
Is the project located in Criteria Area Amphibian Survey Area?		✓
Is the project located in Criteria Area Mammal Survey Area?		✓
Is the project located adjacent to Western Riverside County MSHCP Conservation Areas?		✓
Is the project located in Narrow Endemic Plant Species Survey Area?		✓
Are riverine/riparian/wetland habitats or vernal pools present?	✓	
Is the project located in Burrowing Owl Survey Area?	✓	

### 6.1 Consistency with Western Riverside County Multiple Species Habitat Conservation Plan Survey Requirements

#### 6.1.1 Riparian/Riverine Vernal Pool Requirements

Section 6.1.2 of the Western Riverside County MSHCP describes the process through which the protection of Riparian/Riverine areas and Vernal Pools is intended to occur within the Western Riverside County MSHCP Plan area. Riparian/riverine areas are lands that contain habitat dominated by trees, shrubs, and persistent emergents that occur close to or depend upon soil moisture from a nearby water source; or areas with fresh water flowing during all or a portion of the year. Unvegetated drainages (ephemeral streams) may be included if alterations to that drainage have the potential to affect Covered Species and Conservation Areas. Riparian/riverine areas align with those mapped as CDFW jurisdictional streambed and riparian habitats, as discussed in Section 5.4.3.

Native riparian/riverine habitats within the BSA include black willow woodland, cattail marshes, and mule fat thickets. Non-native or invasive riparian habitats within the BSA include ornamental riparian, perennial pepperweed patches and giant reed marsh. Perennial pepperweed patches and giant reed marsh are both dominated by plants listed as on the California Invasive Plant Council's Inventory as

High, meaning these species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2022).

Since there are riparian/riverine areas within the Project area, the County prepared a DBESP Report as required by the Western Riverside County MSHCP. The DBESP discusses avoidance, minimization, and/or mitigation measures that will be implemented to comply with the requirements of the Western Riverside County MSHCP and demonstrate that the Project would result in an equivalent or superior preservation of riparian habitat. The WRC RCA and applicable regulatory agencies (USFWS, CDFW, RWQCB and USFWS) will review and approve the DBESP Report prior to commencement of project construction. The County will adhere to all project commitments regarding riparian/riverine avoidance, minimization and/or mitigation provided in the approved DBESP Report.

With implementation of avoidance and minimization discussed in Measures BIO-1 through BIO-5 and compensatory mitigation discussed in Measure BIO-6, the Project will be in compliance with Riparian/Riverine protection requirements identified in Section 6.1.2 of the Western Riverside County MSHCP.

### Riparian Bird Species

Section 6.1.2 of the Western Riverside County MSHCP requires focused surveys for riparian birds [SWFL, LBV, and yellow-billed cuckoo (*Coccyzus americanus*)] if the Project area is evaluated to have suitable nesting habitat for these species. The Project area supports suitable habitat for SWFL and LBV but does not support a sufficiently sized riparian woodland and floodplain suitable to support yellow-billed cuckoo. Focused SWFL and LBV surveys were conducted for the Project, as discussed in Sections 5.2.2 and 5.2.3. As previously discussed, one migrant willow flycatcher and eight LBV territories were identified within the RBSA. Three of the LBV territories (Territory 1, Territory 4, and Territory 5) occur within the Project area. The *Riparian Bird Survey Report* (Appendix E) provides details regarding the survey methodology and results. Details regarding Project impacts to occupied LBV habitat and proposed avoidance, minimization, and mitigation are provided in Sections 5.2.2 and 5.2.3.

As discussed above, the County prepared a DBESP Report to comply with the requirements of the Western Riverside County MSHCP and demonstrate that the Project would result in an equivalent or superior preservation of riparian habitat.

## 6.2 Narrow Endemic and Criteria Area Plant Species Survey Areas

The Project is not located within any NEPSSA or CASSA. Because of this, focused plant surveys were not required for the Project and the Project will not result in impacts on any NEPSSA or CASSA species.

## 6.3 Consistency with the Western Riverside County Multiple Species Habitat Conservation Plan Objectives for Reserve Assembly

Certain areas within the Western Riverside County MSHCP Planning Area have been designated for potential inclusion in the Western Riverside County MSHCP Reserve Assembly. These include Criteria Cells, Cores or Linkages, and Public/Quasi-Public Lands. These areas have specific conservation

objectives identified and Projects with these resources must be considered for inclusion in the Western Riverside County MSHCP Reserve Area.

The Project is not located within or adjacent to any Western Riverside County MSHCP Criteria Cells, Cores or Linkages, Public/Quasi-Public Lands, or other proposed or existing Conservation Areas. As a result, implementation of Western Riverside County MSHCP Section 6.1.4, Guidelines Pertaining to the Urban/Wildlands Interface, is not required.

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- occidentalis*) as Endangered under the California Endangered Species Act. Submitted by The Xerces Society for Invertebrate Conservation, Defenders of Wildlife, Center for Food Safety. Available online at: <https://www.xerces.org/sites/default/files/2019-10/CESA-petition-Bombus-Oct2018.pdf>
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# Appendix A. Literature Review Results

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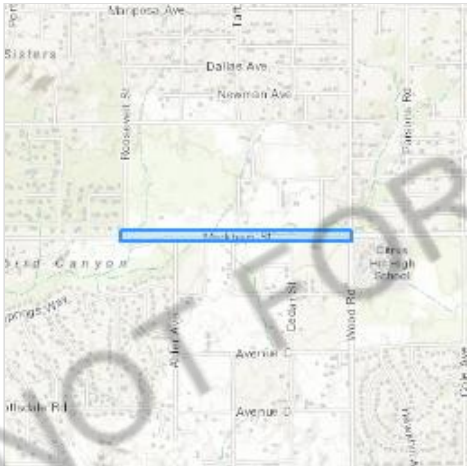
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Riverside County, California



## Local office

Carlsbad Fish And Wildlife Office

☎ (760) 431-9440

📠 (760) 431-5901

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

NAME

STATUS

---

Stephens' Kangaroo Rat *Dipodomys stephensi* (incl. *D. cascus*) Threatened

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3495>

## Birds

---

NAME

STATUS

---

Coastal California Gnatcatcher *Poliioptila californica californica* Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/8178>

Least Bell's Vireo *Vireo bellii pusillus* Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/5945>

Southwestern Willow Flycatcher *Empidonax traillii extimus* Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/6749>

## Insects

---

NAME

STATUS

---

Monarch Butterfly *Danaus plexippus* Candidate

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

Quino Checkerspot Butterfly *Euphydryas editha quino* (=E. e. Endangered

wrighti)

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/5900>

## Crustaceans

---

NAME

STATUS

---

Riverside Fairy Shrimp *Streptocephalus woottoni* Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/8148>

Vernal Pool Fairy Shrimp *Branchinecta lynchi* Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/498>

## Flowering Plants

NAME

STATUS

Munz's Onion *Allium munzii* Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/2951>

San Diego Ambrosia *Ambrosia pumila* Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/8287>

Spreading Navarretia *Navarretia fossalis* Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/1334>

Thread-leaved Brodiaea *Brodiaea filifolia* Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/6087>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird <i>Selasphorus sasin</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9637">https://ecos.fws.gov/ecp/species/9637</a>	Breeds Feb 1 to Jul 15
Belding's Savannah Sparrow <i>Passerculus sandwichensis beldingi</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/8">https://ecos.fws.gov/ecp/species/8</a>	Breeds Apr 1 to Aug 15

<p><b>Bullock's Oriole</b> <i>Icterus bullockii</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Mar 21 to Jul 25
<p><b>California Gull</b> <i>Larus californicus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 1 to Jul 31
<p><b>California Thrasher</b> <i>Toxostoma redivivum</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jan 1 to Jul 31
<p><b>Common Yellowthroat</b> <i>Geothlypis trichas sinuosa</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/2084">https://ecos.fws.gov/ecp/species/2084</a></p>	Breeds May 20 to Jul 31
<p><b>Lawrence's Goldfinch</b> <i>Carduelis lawrencei</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a></p>	Breeds Mar 20 to Sep 20
<p><b>Nuttall's Woodpecker</b> <i>Picoides nuttallii</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/9410">https://ecos.fws.gov/ecp/species/9410</a></p>	Breeds Apr 1 to Jul 20
<p><b>Oak Titmouse</b> <i>Baeolophus inornatus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9656">https://ecos.fws.gov/ecp/species/9656</a></p>	Breeds Mar 15 to Jul 15
<p><b>Wrentit</b> <i>Chamaea fasciata</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 15 to Aug 10

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish



a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

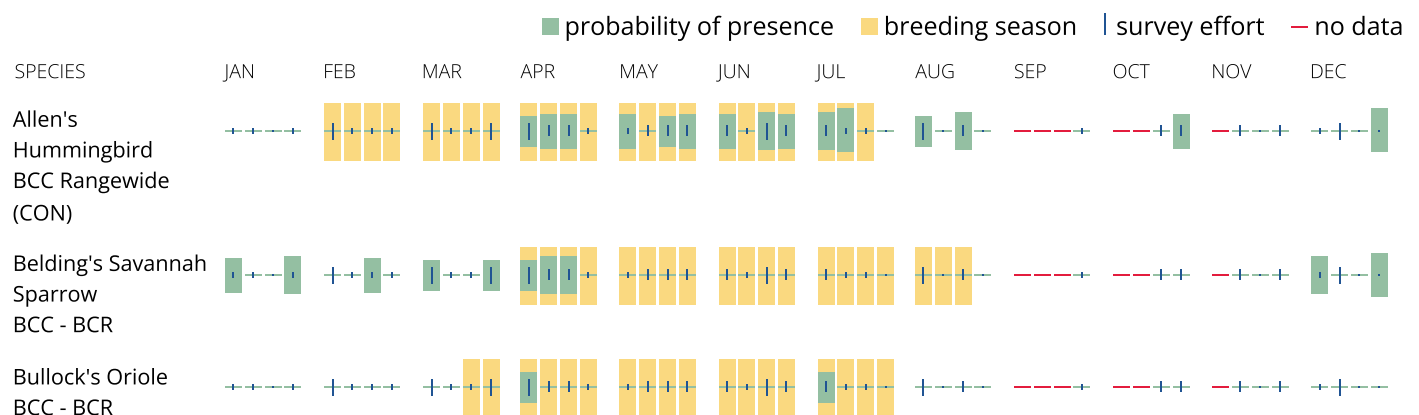
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

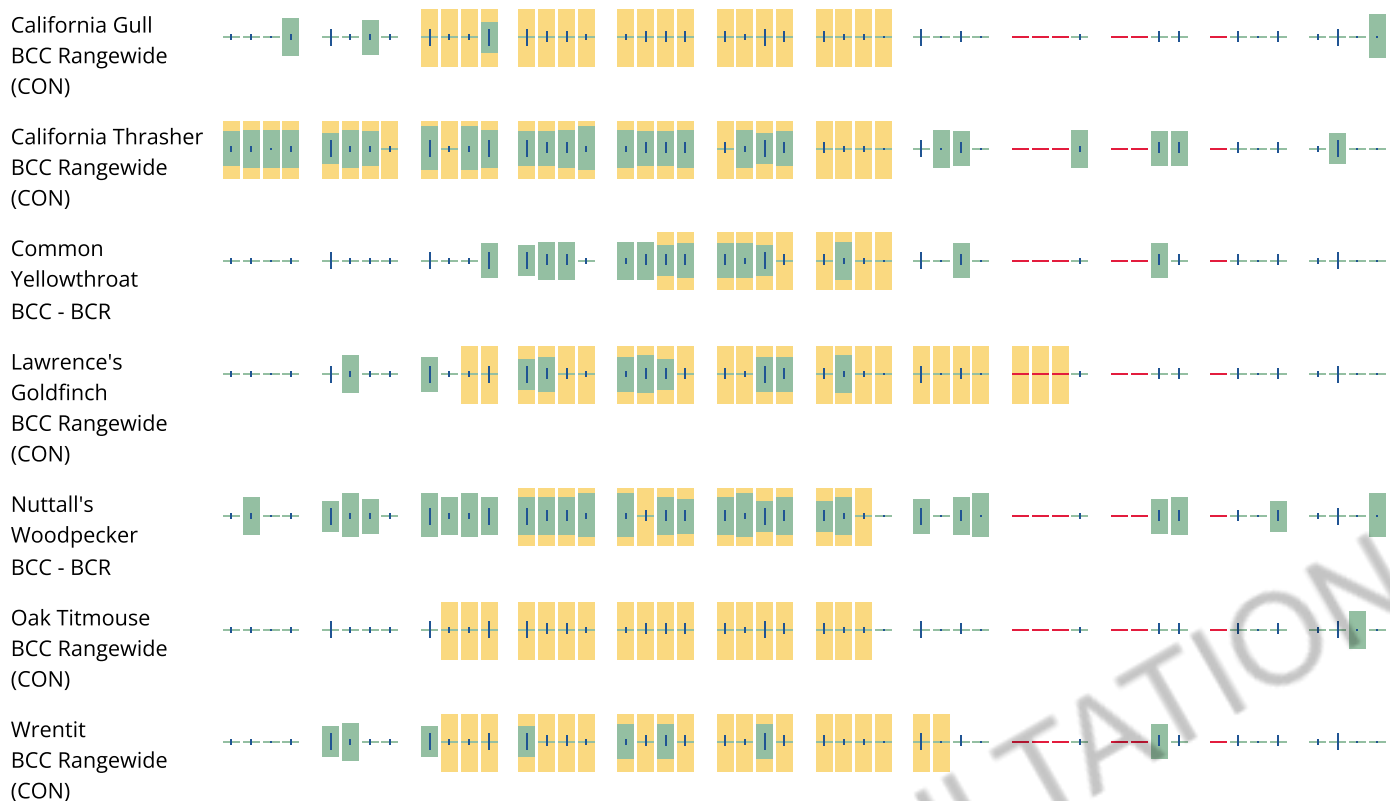
### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as

more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

### Fish hatcheries

There are no fish hatcheries at this location.

### Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

### Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

#### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use

of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

#### **Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

#### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



# Summary Table Report

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Query Criteria:** Quad (Steele Peak (3311773) OR Romoland (3311762) OR Riverside East (3311783) OR Riverside West (3311784) OR Lake Mathews (3311774) OR Perris (3311772) OR Sunnymead (3311782) OR Lake Elsinore (3311763) OR Alberhill (3311764)) AND Elevation IS greater than OR equal to "1320" AND Elevation IS less than OR equal to "1812"

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Abronia villosa var. aurita</i> chaparral sand-verbena	G5T2? S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,600 1,600	98 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Accipiter cooperii</i> Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,640 1,680	118 S:2	0	1	1	0	0	0	2	0	2	0	0
<i>Agelaius tricolor</i> tricolored blackbird	G1G2 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	1,420 1,675	955 S:4	0	0	0	0	0	4	3	1	4	0	0
<i>Aimophila ruficeps canescens</i> southern California rufous-crowned sparrow	G5T3 S3	None None	CDFW_WL-Watch List	1,320 1,800	235 S:21	1	6	2	0	0	12	16	5	21	0	0
<i>Allium munzii</i> Munz's onion	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,400 1,560	21 S:4	0	1	1	0	0	2	1	3	4	0	0
<i>Anniella stebbinsi</i> Southern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	1,397 1,668	426 S:5	0	3	1	0	0	1	2	3	5	0	0
<i>Aquila chrysaetos</i> golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern	1,580 1,580	325 S:1	0	0	0	0	0	1	1	0	1	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Arizona elegans occidentalis</i> California glossy snake	G5T2 S2	None None	CDFW_SSC-Species of Special Concern	1,369 1,642	260 S:10	0	0	0	0	0	10	7	3	10	0	0
<i>Artemisiospiza belli belli</i> Bell's sage sparrow	G5T2T3 S3	None None	CDFW_WL-Watch List	1,400 1,800	61 S:8	0	0	0	0	0	8	8	0	8	0	0
<i>Aspidoscelis hyperythra</i> orange-throated whiptail	G5 S2S3	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFS_S-Sensitive	1,350 1,800	369 S:34	2	5	4	0	0	23	30	4	34	0	0
<i>Aspidoscelis tigris stejnegeri</i> coastal whiptail	G5T5 S3	None None	CDFW_SSC-Species of Special Concern	1,500 1,783	148 S:3	0	1	0	0	0	2	2	1	3	0	0
<i>Athene cunicularia</i> burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,400 1,720	2011 S:45	3	7	7	4	2	22	12	33	43	1	1
<i>Atriplex coronata var. notatior</i> San Jacinto Valley crownscale	G4T1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,400 1,415	16 S:3	0	2	0	0	0	1	1	2	3	0	0
<i>Atriplex parishii</i> Parish's brittlescale	G1G2 S1	None None	Rare Plant Rank - 1B.1 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	1,420 1,420	15 S:2	0	0	0	0	1	1	2	0	1	1	0
<i>Atriplex serenana var. davidsonii</i> Davidson's saltscale	G5T1 S1	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,420 1,420	26 S:2	0	1	0	0	0	1	2	0	2	0	0
<i>Bombus crotchii</i> Crotch bumble bee	G2 S2	None Candidate Endangered	IUCN_EN-Endangered	1,500 1,802	437 S:6	0	0	0	0	0	6	4	2	6	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Brodiaea filifolia</i> thread-leaved brodiaea	G2 S2	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,400 1,420	141 S:6	0	1	3	1	1	0	2	4	5	1	0
<i>Buteo regalis</i> ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,440 1,500	107 S:2	0	2	0	0	0	0	0	2	2	0	0
<i>Centromadia pungens ssp. laevis</i> smooth tarplant	G3G4T2 S2	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,400 1,620	137 S:31	1	3	5	3	2	17	11	20	29	2	0
<i>Chaetodipus californicus femoralis</i> Dulzura pocket mouse	G5T3 S3	None None	CDFW_SSC-Species of Special Concern	1,480 1,480	54 S:1	0	0	0	1	0	0	1	0	1	0	0
<i>Chaetodipus fallax fallax</i> northwestern San Diego pocket mouse	G5T3T4 S3S4	None None	CDFW_SSC-Species of Special Concern	1,320 1,696	101 S:18	0	4	3	0	0	11	14	4	18	0	0
<i>Chorizanthe parryi var. parryi</i> Parry's spineflower	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,400 1,752	150 S:18	0	2	0	0	4	12	7	11	14	1	3
<i>Chorizanthe polygonoides var. longispina</i> long-spined spineflower	G5T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,330 1,770	166 S:28	2	12	1	0	0	13	9	19	28	0	0
<i>Cicindela senilis frosti</i> senile tiger beetle	G2G3T1T3 S1	None None		1,350 1,350	9 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive	1,690 1,690	165 S:1	0	1	0	0	0	0	1	0	1	0	0





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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Crotalus ruber</i> red-diamond rattlesnake	G4 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	1,320 1,800	192 S:29	0	2	2	0	1	24	19	10	28	1	0
<i>Diadophis punctatus modestus</i> San Bernardino ringneck snake	G5T2T3 S2?	None None	USFS_S-Sensitive	1,600 1,600	14 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Dipodomys merriami parvus</i> San Bernardino kangaroo rat	G5T1 S1	Endangered Candidate Endangered	CDFW_SSC-Species of Special Concern	1,400 1,756	81 S:4	0	0	0	0	1	3	4	0	3	1	0
<i>Dipodomys stephensi</i> Stephens' kangaroo rat	G2 S2	Threatened Threatened	IUCN_VU-Vulnerable	1,320 1,800	226 S:70	4	9	24	13	7	13	64	6	63	1	6
<i>Dudleya multicaulis</i> many-stemmed dudleya	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,600 1,600	154 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Emys marmorata</i> western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	1,450 1,716	1421 S:2	0	1	0	0	1	0	1	1	1	1	0
<i>Eremophila alpestris actia</i> California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,410 1,700	94 S:10	1	1	2	0	0	6	8	2	10	0	0
<i>Eumops perotis californicus</i> western mastiff bat	G4G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern	1,390 1,570	296 S:4	0	0	0	0	0	4	4	0	4	0	0
<i>Euphydryas editha quino</i> quino checkerspot butterfly	G5T1T2 S1S2	Endangered None		1,451 1,782	186 S:5	1	0	0	0	3	1	5	0	2	3	0
<i>Haliaeetus leucocephalus</i> bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive	1,400 1,440	332 S:5	0	0	0	0	0	5	5	0	5	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Harpagonella palmeri</i> Palmer's grapplinghook	G4 S3	None None	Rare Plant Rank - 4.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,540 1,550	57 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Icteria virens</i> yellow-breasted chat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,510 1,690	101 S:2	0	2	0	0	0	0	1	1	2	0	0
<i>Lanius ludovicianus</i> loggerhead shrike	G4 S4	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	1,408 1,700	110 S:3	0	0	1	1	0	1	2	1	3	0	0
<i>Lasiurus xanthinus</i> western yellow bat	G4G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,425 1,660	58 S:4	0	0	0	0	0	4	4	0	4	0	0
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,415 1,450	111 S:11	3	1	0	1	0	6	2	9	11	0	0
<i>Lepidium virginicum var. robinsonii</i> Robinson's pepper-grass	G5T3 S3	None None	Rare Plant Rank - 4.3	1,350 1,800	142 S:8	0	0	1	0	0	7	5	3	8	0	0
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	G5T3T4 S3S4	None None		1,340 1,665	103 S:10	1	3	1	0	0	5	6	4	10	0	0
<i>Navarretia fossalis</i> spreading navarretia	G2 S2	Threatened None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,400 1,500	82 S:12	1	5	2	0	0	4	3	9	12	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Neolarra alba</i> white cuckoo bee	GH SH	None None		1,700 1,700	8 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	G5T3T4 S3S4	None None	CDFW_SSC-Species of Special Concern	1,500 1,500	132 S:1	0	1	0	0	0	0	1	0	1	0	0
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,600 1,600	90 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Onychomys torridus ramona</i> southern grasshopper mouse	G5T3 S3	None None	CDFW_SSC-Species of Special Concern	1,450 1,580	28 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Orcuttia californica</i> California Orcutt grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,485 1,485	39 S:2	0	2	0	0	0	0	1	1	2	0	0
<i>Perognathus longimembris brevinasus</i> Los Angeles pocket mouse	G5T2 S1S2	None None	CDFW_SSC-Species of Special Concern	1,478 1,650	70 S:7	0	2	3	1	0	1	6	1	7	0	0
<i>Phrynosoma blainvillii</i> coast horned lizard	G3G4 S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,320 1,800	784 S:22	0	5	3	1	2	11	17	5	20	1	1
<i>Polioptila californica californica</i> coastal California gnatcatcher	G4G5T3Q S2	Threatened None	CDFW_SSC-Species of Special Concern NABCI_YWL-Yellow Watch List	1,320 1,800	1087 S:57	1	6	6	0	1	43	54	3	56	1	0
<i>Pseudognaphalium leucocephalum</i> white rabbit-tobacco	G4 S2	None None	Rare Plant Rank - 2B.2	1,345 1,345	62 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Salvadora hexalepis virgultea</i> coast patch-nosed snake	G5T4 S3	None None	CDFW_SSC-Species of Special Concern	1,600 1,672	34 S:2	0	0	1	0	0	1	0	2	2	0	0
<i>Southern Coast Live Oak Riparian Forest</i> Southern Coast Live Oak Riparian Forest	G4 S4	None None		1,580 1,800	246 S:9	0	0	0	0	2	7	9	0	7	0	2



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<b><i>Southern Cottonwood Willow Riparian Forest</i></b> Southern Cottonwood Willow Riparian Forest	G3 S3.2	None None		1,400 1,700	111 S:5	0	0	0	0	1	4	5	0	4	0	1
<b><i>Southern Sycamore Alder Riparian Woodland</i></b> Southern Sycamore Alder Riparian Woodland	G4 S4	None None		1,320 1,800	230 S:11	0	0	0	0	0	11	11	0	11	0	0
<b><i>Spea hammondi</i></b> western spadefoot	G2G3 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	1,321 1,740	1425 S:38	1	6	3	9	0	19	7	31	38	0	0
<b><i>Spinus lawrencei</i></b> Lawrence's goldfinch	G3G4 S4	None None	IUCN_LC-Least Concern NABCI_YWL-Yellow Watch List USFWS_BCC-Birds of Conservation Concern	1,690 1,690	4 S:1	0	1	0	0	0	0	1	0	1	0	0
<b><i>Streptocephalus woottoni</i></b> Riverside fairy shrimp	G1G2 S2	Endangered None	IUCN_EN-Endangered	1,485 1,540	83 S:5	0	1	0	1	3	0	3	2	2	1	2
<b><i>Taxidea taxus</i></b> American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,440 1,600	594 S:2	0	0	0	0	0	2	2	0	2	0	0
<b><i>Trichocoronis wrightii var. wrightii</i></b> Wright's trichocoronis	G4T3 S1	None None	Rare Plant Rank - 2B.1	1,420 1,429	12 S:3	0	1	0	0	0	2	2	1	3	0	0
<b><i>Vireo bellii pusillus</i></b> least Bell's vireo	G5T2 S2	Endangered Endangered	NABCI_YWL-Yellow Watch List	1,340 1,700	504 S:19	0	2	4	1	0	12	1	18	19	0	0


## Search Results

34 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1A:1B:2A:2B:3] , Quad is one of [3311773:3311784:3311783:3311782:3311772:3311762:3311763:3311764:3311774], 1320 feet between Plant low elevation and high elevation, 1815 feet between Plant low elevation and high elevation

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<a href="#"><i>Abronia villosa</i> var. <i>aurita</i></a>	chaparral sand-verbena	Nyctaginaceae	annual herb	(Jan)Mar-Sep	None	None	G5T2?	S2	1B.1		2001-01-01	 © 2011 Aaron E. Sims
<a href="#"><i>Allium munzii</i></a>	Munz's onion	Alliaceae	perennial bulbiferous herb	Mar-May	FE	CT	G1	S1	1B.1	Yes	1980-01-01	 © 2003 Guy Bruyey
<a href="#"><i>Ambrosia pumila</i></a>	San Diego ambrosia	Asteraceae	perennial rhizomatous herb	Apr-Oct	FE	None	G1	S1	1B.1		1974-01-01	 © 2010 Benjamin Smith
<a href="#"><i>Arctostaphylos rainbowensis</i></a>	Rainbow manzanita	Ericaceae	perennial evergreen shrub	Dec-Mar	None	None	G2	S2	1B.1	Yes	1994-01-01	No Photo Available
<a href="#"><i>Atriplex coronata</i> var. <i>notatior</i></a>	San Jacinto Valley crownscale	Chenopodiaceae	annual herb	Apr-Aug	FE	None	G4T1	S1	1B.1	Yes	1988-01-01	 © 2008 Larry Sward
<a href="#"><i>Atriplex parishii</i></a>	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	None	None	G1G2	S1	1B.1		1988-01-01	No Photo Available
<a href="#"><i>Berberis nevini</i></a>	Nevin's barberry	Berberidaceae	perennial evergreen shrub	(Feb)Mar-Jun	FE	CE	G1	S1	1B.1	Yes	1980-01-01	No Photo Available
<a href="#"><i>Brodiaea filifolia</i></a>	thread-leaved brodiaea	Themidaceae	perennial bulbiferous herb	Mar-Jun	FT	CE	G2	S2	1B.1	Yes	1974-01-01	 © 2016 Keir Morse
<a href="#"><i>Calochortus weedii</i> var. <i>intermedius</i></a>	intermediate mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G3G4T3	S3	1B.2	Yes	1994-01-01	No Photo Available
<a href="#"><i>Centromadia pungens</i> ssp. <i>laevis</i></a>	smooth tarplant	Asteraceae	annual herb	Apr-Sep	None	None	G3G4T2	S2	1B.1	Yes	1994-01-01	No Photo Available

<u><i>Chorizanthe parryi</i></u> <u>var. <i>parryi</i></u>	Parry's spineflower	Polygonaceae	annual herb	Apr-Jun	None	None	G3T2	S2	1B.1	Yes	1994- 01-01	No Photo Available
<u><i>Chorizanthe polygonoides</i></u> <u>var. <i>longispina</i></u>	long-spined spineflower	Polygonaceae	annual herb	Apr-Jul	None	None	G5T3	S3	1B.2		1994- 01-01	No Photo Available
<u><i>Chorizanthe xanti</i></u> <u>var. <i>leucotheca</i></u>	white- bracted spineflower	Polygonaceae	annual herb	Apr-Jun	None	None	G4T3	S3	1B.2	Yes	1994- 01-01	No Photo Available
<u><i>Clinopodium chandleri</i></u>	San Miguel savory	Lamiaceae	perennial shrub	Mar-Jul	None	None	G3	S2	1B.2		1974- 01-01	No Photo Available
<u><i>Dodecahema leptoceras</i></u>	slender- horned spineflower	Polygonaceae	annual herb	Apr-Jun	FE	CE	G1	S1	1B.1	Yes	1980- 01-01	No Photo Available
<u><i>Dudleya multicaulis</i></u>	many- stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	None	None	G2	S2	1B.2	Yes	1974- 01-01	No Photo Available
<u><i>Dudleya viscida</i></u>	sticky dudleya	Crassulaceae	perennial herb	May-Jun	None	None	G2	S2	1B.2	Yes	1974- 01-01	No Photo Available
<u><i>Eriastrum densifolium</i></u> <u>ssp. <i>sanctorum</i></u>	Santa Ana River woollystar	Polemoniaceae	perennial herb	Apr-Sep	FE	CE	G4T1	S1	1B.1	Yes	1980- 01-01	No Photo Available
<u><i>Hesperocyparis forbesii</i></u>	Tecate cypress	Cupressaceae	perennial evergreen tree		None	None	G2	S2	1B.1		1974- 01-01	 © 2011 Joey Malone
<u><i>Hordeum intercedens</i></u>	vernal barley	Poaceae	annual herb	Mar-Jun	None	None	G3G4	S3S4	3.2		1994- 01-01	No Photo Available
<u><i>Horkelia cuneata</i></u> <u>var. <i>puberula</i></u>	mesa horkelia	Rosaceae	perennial herb	Feb- Jul(Sep)	None	None	G4T1	S1	1B.1	Yes	2001- 01-01	 © 2008 Tony Morosco
<u><i>Lasthenia glabrata</i></u> <u>ssp. <i>coulteri</i></u>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1		1994- 01-01	 © 2013 Keir Morse
<u><i>Lepechinia cardiophylla</i></u>	heart-leaved pitcher sage	Lamiaceae	perennial shrub	Apr-Jul	None	None	G3	S2S3	1B.2		1974- 01-01	 © 2003 Vince Scheidt
<u><i>Monardella hypoleuca</i></u> <u>ssp. <i>intermedia</i></u>	intermediate monardella	Lamiaceae	perennial rhizomatous herb	Apr-Sep	None	None	G4T2?	S2?	1B.3	Yes	2012- 10-16	 © 2016 Ron

<u><i>Myosurus minimus</i></u> <u><i>ssp. apus</i></u>	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980- 01-01	No Photo Available
<u><i>Navarretia fossalis</i></u>	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	FT	None	G2	S2	1B.1		1980- 01-01	No Photo Available
<u><i>Orcuttia californica</i></u>	California Orcutt grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1		1974- 01-01	No Photo Available
<u><i>Phacelia keckii</i></u>	Santiago Peak phacelia	Hydrophyllaceae	annual herb	May-Jul	None	None	G1	S1	1B.3	Yes	1980- 01-01	No Photo Available
<u><i>Pseudognaphalium</i></u> <u><i>leucocephalum</i></u>	white rabbit- tobacco	Asteraceae	perennial herb	(Jul)Aug- Nov(Dec)	None	None	G4	S2	2B.2		2006- 11-03	No Photo Available
<u><i>Senecio aphanactis</i></u>	chaparral ragwort	Asteraceae	annual herb	Jan- Apr(May)	None	None	G3	S2	2B.2		1994- 01-01	No Photo Available
<u><i>Symphotrichum</i></u> <u><i>defoliatum</i></u>	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov	None	None	G2	S2	1B.2	Yes	2004- 01-01	No Photo Available
<u><i>Texosporium</i></u> <u><i>santi-jacobi</i></u>	woven- spored lichen	Caliciaceae	crustose lichen (terricolous)		None	None	G3	S2	3		2014- 03-01	 ©2021 Scot Loring
<u><i>Tortula californica</i></u>	California screw moss	Pottiaceae	moss		None	None	G2G3	S2?	1B.2	Yes	2001- 01-01	No Photo Available
<u><i>Trichocoronis</i></u> <u><i>wrightii</i></u> var. <u><i>wrightii</i></u>	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	None	None	G4T3	S1	2B.1		1988- 01-01	No Photo Available

Showing 1 to 34 of 34 entries

**Suggested Citation:**

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# Appendix B. Plant and Wildlife Species Observed



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# Plant and Wildlife Species Observed

Scientific Name	Common Name	Special Status
<b>PLANTS</b>		
<b>DICOT FLOWERING PLANTS</b>		
<b>Adoxaceae</b>	<b>Muskroot family</b>	
<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Blue elderberry	
<b>Amaranthaceae</b>	<b>Amaranth family</b>	
<i>Amaranthus albus</i> *	Prostrate pigweed	
<b>Anacardiaceae</b>	<b>Sumac family</b>	
<i>Schinus molle</i> *	Peruvian peppertree	
<b>Apiaceae</b>	<b>Carrot family</b>	
<i>Apium graveolens</i> *	Common celery	
<b>Apocynaceae</b>	<b>Dogbane family</b>	
<i>Nerium oleander</i> *	Oleander	
<b>Asteraceae</b>	<b>Sunflower family</b>	
<i>Ambrosia acanthicarpa</i>	Annual bur-sage	
<i>Ambrosia psilostachya</i>	Western ragweed	
<i>Artemisia californica</i>	California sagebrush	
<i>Artemisia douglasiana</i>	Mugwort	
<i>Baccharis pilularis</i>	Coyote brush	
<i>Baccharis salicifolia</i>	Mule fat	
<i>Centaurea melitensis</i> *	Tocalote	
<i>Conyza</i> sp.	Horseweed	
<i>Cotula coronopifolia</i> *	African brass-buttons	
<i>Encelia californica</i>	California encelia	
<i>Ericameria linearifolia</i>	Narrowleaf goldenbush	
<i>Erigeron canadensis</i>	Canadian horseweed	
<i>Gutierrezia californica</i>	California matchweed	
<i>Helianthus annuus</i>	Common sunflower	
<i>Heterotheca grandiflora</i>	Telegraph weed	
<i>Pseudognaphalium luteoalbum</i> *	Jersey cudweed	
<i>Sonchus asper</i> *	Prickly sow thistle	
<i>Stephanomeria</i> sp.	Stephanomeria	
<i>Xanthium strumarium</i>	Rough cocklebur	
<b>Boraginaceae</b>	<b>Borage family</b>	
<i>Amsinckia intermedia</i>	Common fiddleneck	
<i>Cryptantha similis</i>	Desert cryptantha	
<i>Pectocarya</i> sp.	Pectocarya	
<i>Phacelia cicutaria</i>	Caterpillar phacelia	
<b>Brassicaceae</b>	<b>Mustard family</b>	
<i>Descurainia pinnata</i>	Western tansymustard	

Scientific Name	Common Name	Special Status
<i>Hirschfeldia incana</i> *	Shortpod mustard	
<i>Lepidium latifolium</i> *	Broad-leaved peppergrass	
<i>Nasturtium officinale</i>	Watercress	
<i>Raphanus sativus</i> *	Wild radish	
<i>Sisymbrium irio</i> *	London rocket	
<b>Cucurbitaceae</b>	<b>Gourd family</b>	
<i>Marah macrocarpus</i>	Cucamonga manroot	
<b>Elaeagnaceae</b>	<b>Oleaster family</b>	
<i>Elaeagnus angustifolia</i> *	Russian olive	
<b>Euphorbiaceae</b>	<b>Spurge family</b>	
<i>Croton californicus</i>	California croton	
<i>Croton setigerus</i>	Dove weed	
<i>Euphorbia albomarginata</i>	Rattlesnake weed	
<i>Ricinus communis</i> *	Castor bean	
<b>Fabaceae</b>	<b>Pea family</b>	
<i>Medicago polymorpha</i> *	Bur-clover	
<i>Melilotus indicus</i> *	Annual yellow sweetclover	
<i>Parkinsonia aculeata</i> *	Mexican palo verde	
<b>Geraniaceae</b>	<b>Geranium family</b>	
<i>Erodium cicutarium</i> *	Redstem stork's bill	
<b>Lamiaceae</b>	<b>Mint family</b>	
<i>Salvia apiana</i>	White sage	
<b>Malvaceae</b>	<b>Mallow family</b>	
<i>Malva parviflora</i> *	Cheeseweed mallow	
<b>Plantaginaceae</b>	<b>Plantain family</b>	
<i>Veronica anagallis-aquatica</i> *	Great water speedwell	
<b>Polygonaceae</b>	<b>Buckwheat family</b>	
<i>Eriogonum fasciculatum</i>	California buckwheat	
<i>Eriogonum</i> sp.	Annual buckwheat	
<i>Rumex crispus</i> *	Curly dock	
<b>Salicaceae</b>	<b>Willow family</b>	
<i>Salix babylonica</i> *	Weeping willow	
<i>Salix gooddingii</i>	Goodding's willow	
<i>Salix laevigata</i>	Red willow	
<i>Salix lasiolepis</i>	Arroyo willow	
<b>Sapindaceae</b>	<b>Soapberry family</b>	
<i>Koelreuteria paniculata</i> *	Goldenrain tree	
<b>Simaroubaceae</b>	<b>Quassia family</b>	
<i>Ailanthus altissima</i> *	Tree of heaven	
<b>Solanaceae</b>	<b>Nightshade family</b>	
<i>Datura wrightii</i>	Sacred thorn-apple	
<i>Nicotiana glauca</i> *	Tree tobacco	

Scientific Name	Common Name	Special Status
<b>Tamaricaceae</b>	<b>Tamarisk family</b>	
<i>Tamarix</i> sp.*	Tamarisk	
<b>Urticaceae</b>	<b>Nettle Family</b>	
<i>Urtica dioica</i>	Stinging nettle	
<b>MONOCOT FLOWERING PLANTS</b>		
<b>Arecaceae</b>	<b>Palm family</b>	
<i>Phoenix canariensis</i> *	Canary island date palm	
<i>Washingtonia filifera</i>	California fan palm	
<i>Washingtonia robusta</i> *	Mexican fan palm	
<b>Cyperaceae</b>	<b>Sedge family</b>	
<i>Bolboschoenus maritimus</i>	Alkali bulrush	
<b>Lemnaceae</b>	<b>Duckweed family</b>	
<i>Lemna minuta</i>	Least duckweed	
<b>Poaceae</b>	<b>Grass family</b>	
<i>Arundo donax</i> *	Giant reed	
<i>Avena</i> sp.*	Oat	
<i>Bambusa vulgaris</i>	Common bamboo	
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	Red brome	
<i>Bromus tectorum</i> *	Cheatgrass	
<i>Hordeum murinum</i> *	Mouse barley	
<i>Polypogon monspeliensis</i> *	Annual rabbitsfoot grass	
<b>Typhaceae</b>	<b>Cattail family</b>	
<i>Typha domingensis</i>	Southern cattail	
<b>WILDLIFE</b>		
<b>REPTILES</b>		
<b>Crotaphytidae</b>	<b>Collared and Leopard Lizards</b>	
<i>Sceloporus occidentalis</i>	Western fence lizard	
<i>Uta stansburiana</i>	Common side-blotched lizard	
<b>BIRDS</b>		
<b>Odontophoridae</b>	<b>New World Quail</b>	
<i>Callipepla californica</i>	California quail	
<b>Cathartidae</b>	<b>American Vultures</b>	
<i>Cathartes aura</i>	Turkey vulture	
<b>Accipitridae</b>	<b>Kites, Hawks, and Eagles</b>	
<i>Accipiter cooperii</i>	Cooper's hawk	
<i>Buteo lineatus</i>	Red-shouldered hawk	
<i>Buteo jamaicensis</i>	Red-tailed hawk	
<b>Falconidae</b>	<b>Falcons</b>	
<i>Falco sparverius</i>	American kestrel	
<b>Charadriidae</b>	<b>Plovers and Lapwings</b>	
<i>Charadrius vociferus</i>	Killdeer	
<b>Columbidae</b>	<b>Pigeons and Doves</b>	

Scientific Name	Common Name	Special Status
<i>Columba livia</i> *	Rock pigeon	
<i>Zenaida macroura</i>	Mourning dove	
<b>Cuculidae</b>	<b>Cuckoos and Roadrunners</b>	
<i>Geococcyx californianus</i>	Greater roadrunner	
<b>Trochilidae</b>	<b>Hummingbirds</b>	
<i>Calypte anna</i>	Anna's hummingbird	
<b>Picidae</b>	<b>Woodpeckers</b>	
<i>Picoides nuttallii</i>	Nuttall's woodpecker	
<i>Colaptes auratus</i>	Northern flicker	
<b>Tyrannidae</b>	<b>Tyrant Flycatchers</b>	
<i>Empidonax traillii</i>	Willow flycatcher	SE
<i>Sayornis nigricans</i>	Black phoebe	
<i>Sayornis saya</i>	Say's phoebe	
<i>Tyrannus sp.</i>	Kingbird	
<b>Laniidae</b>	<b>Shrikes</b>	
<i>Lanius ludovicianus</i>	Loggerhead shrike	SSC
<b>Vireonidae</b>	<b>Vireos</b>	
<i>Vireo bellii pusillus</i>	Least Bell's vireo	FE, SE
<b>Corvidae</b>	<b>Crows and Ravens</b>	
<i>Aphelocoma californica</i>	Western scrub-jay	
<i>Corvus brachyrhynchos</i>	American crow	
<i>Corvus corax</i>	Common raven	
<b>Aegithalidae</b>	<b>Bushtits</b>	
<i>Psaltriparus minimus</i>	Bushtit	
<b>Timaliidae</b>	<b>Babblers</b>	
<i>Chamaea fasciata</i>	Wrentit	
<b>Mimidae</b>	<b>Mockingbirds and Thrashers</b>	
<i>Mimus polyglottos</i>	Northern mockingbird	
<i>Toxostoma redivivum</i>	California thrasher	
<b>Sturnidae</b>	<b>Starlings</b>	
<i>Sturnus vulgaris</i> *	European starling	
<b>Ptilonotidae</b>	<b>Silky flycatchers</b>	
<i>Phainopepla nitens</i>	Phainopepla	
<b>Parulidae</b>	<b>Wood Warblers</b>	
<i>Geothlypis trichas</i>	Common yellowthroat	
<b>Emberizidae</b>	<b>Emberizines</b>	
<i>Pipilo maculatus</i>	Spotted towhee	
<i>Melospiza crissalis</i>	California towhee	
<i>Melospiza melodia</i>	Song sparrow	
<i>Zonotrichia leucophrys</i>	White-crowned sparrow	
<b>Cardinalidae</b>	<b>Cardinals, Grosbeaks, and Allies</b>	
<i>Piranga ludoviciana</i>	Western tanager	

Scientific Name	Common Name	Special Status
<i>Pheucticus melanocephalus</i>	Black-headed grosbeak	
<b>Icteridae</b>	<b>Blackbirds, Orioles and Allies</b>	
<i>Molothrus ater</i>	Brown-headed cowbird	
<i>Icterus cucullatus</i>	Hooded oriole	
<b>Fringillidae</b>	<b>Finches</b>	
<i>Carpodacus mexicanus</i>	House finch	
<i>Spinus psaltria</i>	Lesser goldfinch	
<b>Passeridae</b>	<b>Old World Sparrows</b>	
<i>Passer domesticus</i> *	House sparrow	
<b>MAMMALS</b>		
<b>Leporidae</b>	<b>Rabbits and Hares</b>	
<i>Lepus californicus</i>	Black-tailed jackrabbit	
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	
<b>Sciuridae</b>	<b>Squirrels</b>	
<i>Spermophilus beecheyi</i>	California ground squirrel	
<b>Canidae</b>	<b>Foxes, Wolves and Dogs</b>	
<i>Canis latrans</i>	Coyote	

\* Denotes non-native and/or invasive species

SSC=State Species of Special Concern; SE=State Endangered; FE=Federal Endangered

# Appendix C. Site Photographs



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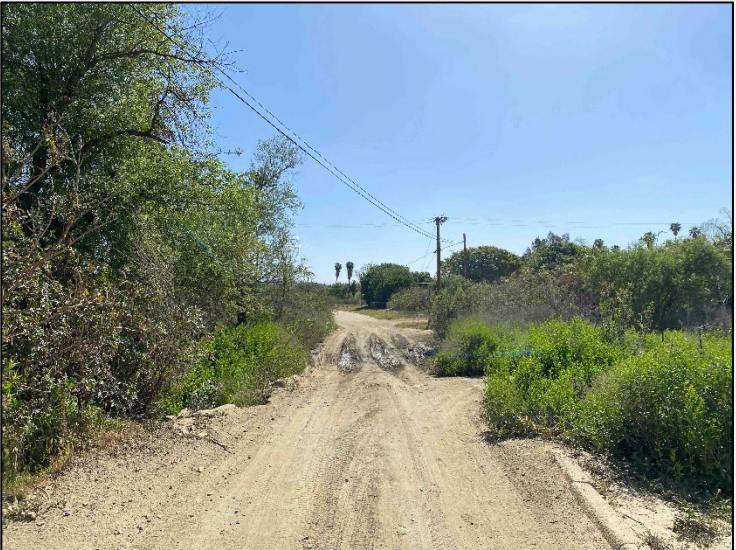


# Representative Site Photographs



Photograph	Information
	<p>Photograph #: 01</p> <p>Photo Date: 07/19/2022</p> <p>Latitude/Longitude: 33.858112 / -117.34827</p> <p>Direction: North</p> <p>Notes: View of earthen swale approximately 170 feet east of Markham Street/Roosevelt Street intersection. Swale had upland vegetation and no indicators of an OHWM. Topography/banks did not continue downstream (see Photo 2)</p>
	<p>Photograph #: 02</p> <p>Photo Date: 5/2/2022</p> <p>Latitude/Longitude: 33.857913 / -117.348185</p> <p>Direction: North</p> <p>Notes: View of area downstream of swale shown in Photo 1. No banks in this area and no indicators of an OHWM. Feature does not connect to any downstream aquatic resources.</p>
 <p>SE S SW W 120 150 180 210 240 270 300 207°SW (T) 33°51'28"N, 117°20'46"W ±9ft ▲ 1525ft</p> <p>JD - mule fat and lepidium HDR Inc. Markham Street 02 May 2022, 10:05:16</p>	<p>Photograph #: 03</p> <p>Photo Date: 5/2/2022</p> <p>Latitude/Longitude: 33.85796 / -117.345645</p> <p>Direction: East</p> <p>Notes: View of mule fat and perennial pepperweed in riparian habitat near Wetland Sample Point UPL-01.</p>



Photograph	Information
 A photograph showing a dense thicket of black willow trees and their branches, with green leaves and some brown, dried branches visible. The scene is a woodland area.	<p>Photograph #: 04</p> <p>Photo Date: 5/2/2022</p> <p>Latitude/Longitude: 33.857757 / -117.346138</p> <p>Direction: South</p> <p>Notes: View of dense black willow woodland vegetation at Wetland Sample Point UPL-01.</p>
 A photograph of a dirt road or path leading through a wooded area. The road is unpaved and has a visible water channel in the center. The surrounding vegetation includes trees and shrubs. Power lines are visible in the background under a clear blue sky.	<p>Photograph #: 05</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858062 / -117.343237</p> <p>Direction: East</p> <p>Notes: View of water in road where Mockingbird Canyon Creek crosses Markham Street near UPL-02.</p>



**Photograph**



**Information**

Photograph #:06

Photo Date: 4/12/2022

Latitude/Longitude: 33.858037 / -117.343057

Direction: Northeast

Notes: View of Mockingbird Canyon Creek at UPL-02, showing standing water in channel at time of survey.



Photograph #:07

Photo Date: 5/2/2022

Latitude/Longitude: 33.858149 / -117.342563

Direction: Northeast

Notes: View of culverts installed to convey flows from swale north of Mockingbird Canyon Creek into creek near WET-03. No OHWM was visible upstream of this area and the swale was not mapped as jurisdictional.



Photograph #:08

Photo Date: 5/2/2022

Latitude/Longitude: 33.858149 / -117.342456

Direction: West

Notes: View of Mockingbird Canyon Creek at UPL-03 in May 2022, showing standing water in creek at time of this field visit. Compare to same location in Photograph 09.



**Photograph**

**Information**



Photograph #:09

Photo Date: 7/15/2022

Latitude/Longitude: 33.858149 / -117.342456

Direction: West

Notes: View of Mockingbird Canyon Creek at UPL-03 in July 2022, showing dry creek at time of this field visit. Compare to same location in Photograph 08.



Photograph #: 10

Photo Date: 5/2/2022

Latitude/Longitude: 33.858121 / -117.342396

Direction: East

Notes: View of Mockingbird Canyon Creek just east of UPL-03.



Photograph #: 11

Photo Date: 4/12/2022

Latitude/Longitude: 33.858097 / -117.341915

Direction: West

Notes: View of Mockingbird Canyon Creek between UPL-04 and WET-05, showing vegetated channel at time of field visit. Compare to same location in July 2022, as shown in Photo 12.



Photograph	Information
	<p>Photograph #: 12</p> <p>Photo Date: 7/15/2022</p> <p>Latitude/Longitude: 33.858094 / -117.34199</p> <p>Direction: East</p> <p>Notes: View of Mockingbird Canyon Creek between UPL-04 and WET-05, showing dry channel with desiccated vegetation at time of July 2022 field visit. Compare to same location in May 2022, as shown in Photo 11.</p>
	<p>Photograph #: 13</p> <p>Photo Date: 5/19/2022</p> <p>Latitude/Longitude: 33.858117 / -117.340321</p> <p>Direction: West</p> <p>Notes: View of wetland sampling point WET-05.</p>
	<p>Photograph #: 14</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858199 / -117.348664</p> <p>Direction: Northeast</p> <p>Notes: View from road of riparian habitat along Mockingbird Canyon Creek in an area that delineators did not have access to.</p>



**Photograph**

**Information**



Photograph #: 15

Photo Date: 5/19/2022

Latitude/Longitude: 33.858228, -117.33786

Direction: N/A

Notes: Understory of black willow woodland showing approximately 4-foot-wide channel with surface water in May 2022. Surface water was not present in July 2022.



Photograph #: 16

Photo Date: 7/15/2022

Latitude/Longitude: 33.858343 / -117.337577

Direction: West

Notes: Cockerlebur and lambs quarters along access road between Mockingbird Canyon Creek and riparian basins to north. This vegetation was not present in May 2022 (see Photo 17 for conditions in May 2022) but had grown substantially by July 2022.



Photograph #: 17

Photo Date: 5/19/2022

Latitude/Longitude: 33.858366 / -117.337778

Direction: N/A

Notes: View of surface water on dirt road between Mockingbird Canyon Creek channel and riparian basin to north. This area was determined to support USACE wetlands.



**Photograph**

**Information**



Photograph #: 18

Photo Date: 5/19/2022

Latitude/Longitude: 33.858546 / -117.336926

Direction: North

Notes: Small patch of cattail marsh located at box culvert that conveys flows under dirt access road.



Photograph #: 19

Photo Date: 5/19/2022

Latitude/Longitude: 33.858689 / -117.336916

Direction: Northeast

Notes: View of riparian habitat at concrete pipe culvert in Mockingbird Canyon Creek conveying flows under dirt access road.





**Photograph**

**Information**



Photograph #: 20

Photo Date: 5/19/2022

Latitude/Longitude: 33.858726 / -117.337231

Direction: Southeast

Notes: Ornamental riparian habitat in excavated basin with ponded water. Photo taken from outside of ARDA, and most of ponded area is located outside of ARDA.



Photograph #: 21

Photo Date: 5/19/2022

Latitude/Longitude: 33.85871 / -117.337036

Direction: West

Notes: Ponded water in excavated basin supporting ornamental riparian vegetation.



Photograph #: 22



Photo Date: 4/12/2022

Latitude/Longitude: 33.858084 / -117.332338

Direction: Northeast

Notes: View from eastern edge of ARDA towards riparian habitat associated with Mockingbird Canyon Creek, which delineators did not have access to.



Photograph	Information
	<p>Photograph #: 23</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858334 / -117.331419</p> <p>Direction: North</p> <p>Notes: View of black willow woodland on west side of Wood Road, just north of Markham Street, which delineators did not have access to.</p>
	<p>Photograph #: 24</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858626 -117.331426</p> <p>Direction: East</p> <p>Notes: View of giant reed marsh on east side of Wood Road, just north of Markham Street, which delineators did not have access to.</p>

# Appendix D. Burrowing Owl Survey Report

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# Burrowing Owl Survey Report

*Markham Street Extension Project*

County Project No. D1-0078

*Riverside County, California*

August 22, 2022



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## Appendices

Appendix A. Wildlife Species Observed

Appendix B. Site Photographs

## Acronyms

BMP	best management practice
BSA	biological resources survey area
BUOW	burrowing owl
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
Project	Markham Street Extension Project
ROW	right-of-way



# 1 Introduction

This report details the results of a focused western burrowing owl (*Athene cunicularia hypugaea*; BUOW) habitat assessment and breeding season survey for the Markham Street Extension Project (Project). The Project proposes extension of Markham Street between Roosevelt Street and Wood Road in the community of Woodcrest in unincorporated Riverside County, California.

## 2 Project Description

The County of Riverside Transportation Department (County) is proposing improvements to Markham Street by extending the roadway between Roosevelt Street and Wood Road in the community of Woodcrest in unincorporated Riverside County, California (Figure 1 and Figure 2). The purpose of the Project is to improve traffic circulation systems within the community. Markham Street, in its ultimate classification, is designated as a secondary highway per the Riverside County General Plan (2015). The Project would construct a roadway section consisting of one lane in each direction, Class II bike lanes, and a sidewalk on the south side of Markham. The Project is subject to the requirements of the California Environmental Quality Act (CEQA). The County will serve as the CEQA lead agency for the proposed Project.

### 2.1 Project Location

The majority of the Project is located in unincorporated Riverside County, California. Figure 1 shows the regional location of the Project. Figure 2 depicts the Project area, which encompasses approximately 24.64 acres. The Project is located in the northwestern corner of the *Steele Peak, California* United States (U.S.) Geological Survey 7.5-minute quadrangle, specifically in Section 31, Township 3 South and Range 4 West.

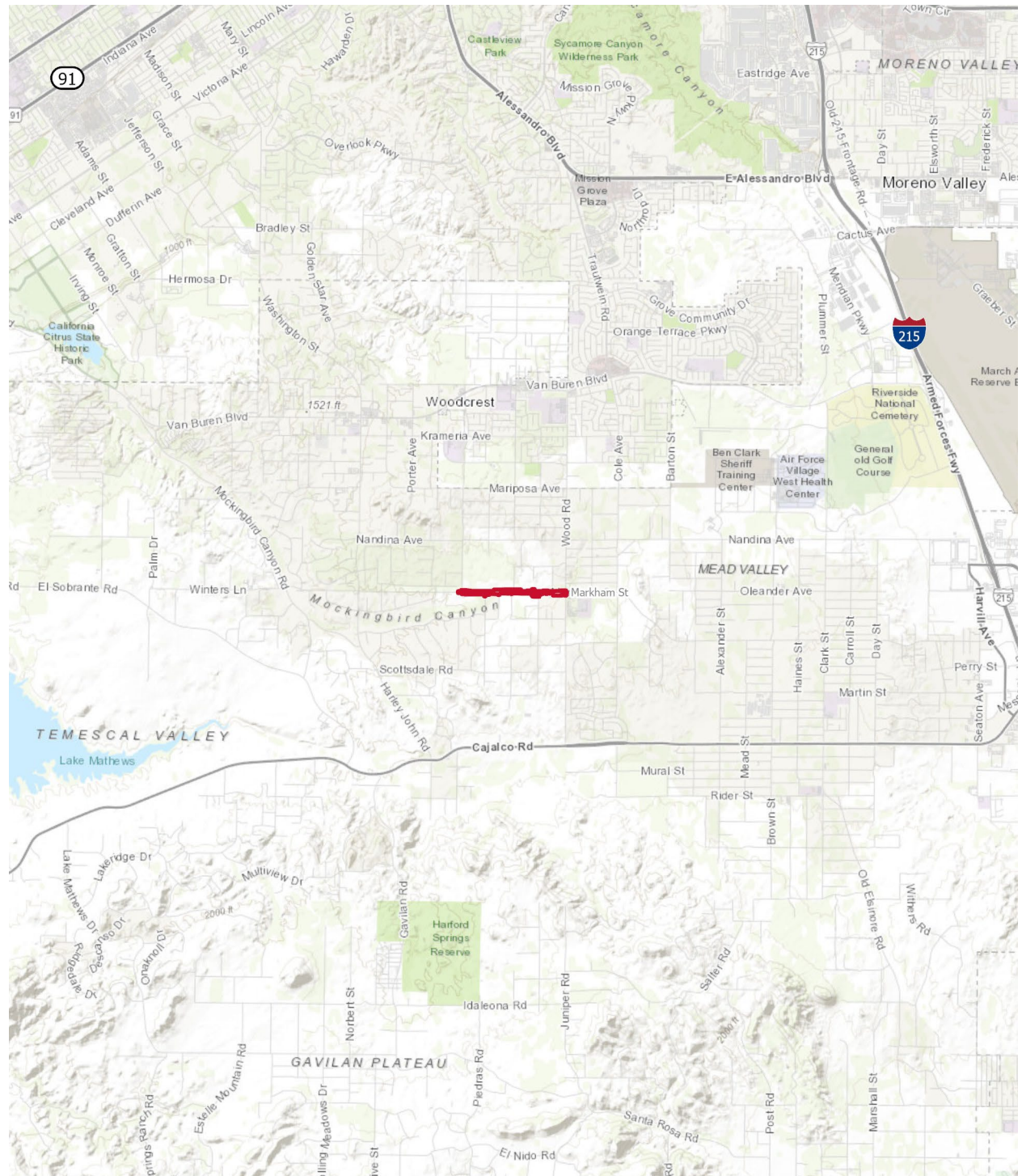
### 2.2 Proposed Project

The proposed Project would add one additional travel lane in each direction along Markham Street, between Roosevelt Street and Wood Road. Roadway improvements would include two 12-foot-wide travel lanes (one in each direction), with a 5-foot-wide westbound and 6-foot-wide eastbound Class II bike lane. The northern edge of the roadway would have an 8-foot-wide unpaved shoulder, and the southern edge of the roadway would include curb and gutters, a 6-foot-wide sidewalk, and a 6-foot-wide parkway.

Traffic signal improvements would be required at the Markham Street and Wood Road intersection to accommodate the extended roadway and the addition of a dedicated eastbound left-turn lane, a dedicated eastbound through lane, and a shared-through and right-turn lane. The Markham Street and Roosevelt Street intersection would remain as a stop-controlled intersection. The four smaller intersections (Oran Drive, Birch Street, Cedar Street, and James Kenny Road) would require roadway modifications to develop curb returns and American with Disabilities Act (ADA)-compliant pedestrian accessible ramps to tie into the existing roadways, and the intersections would be stop controlled. Existing property driveways would be modified to connect to new roadway improvements. Drainage improvements would include storm drain piping along the roadway and the addition of culverts to direct storm-flow drainage across the roadway.



Figure 1. Regional Vicinity and Project Location



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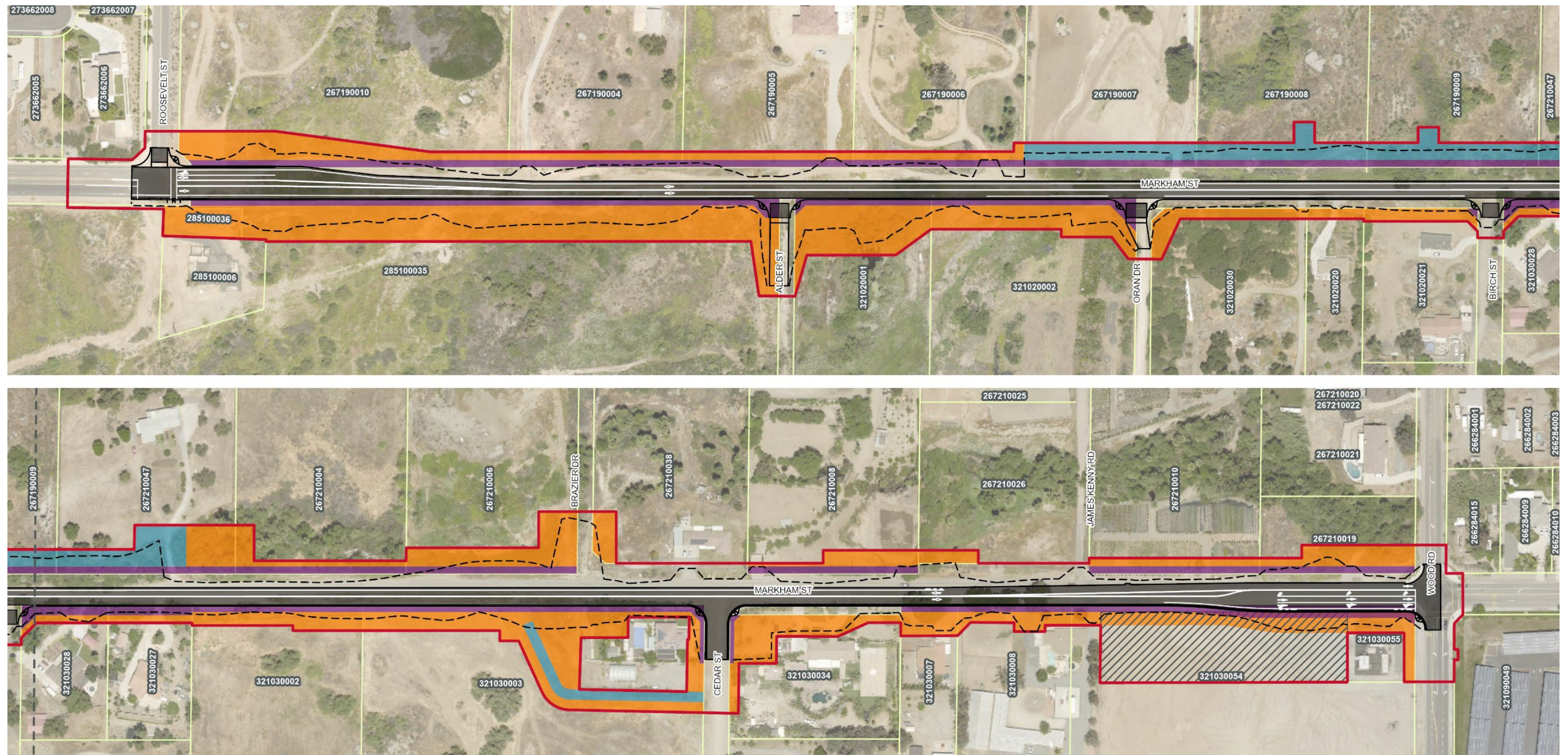
 Project Area



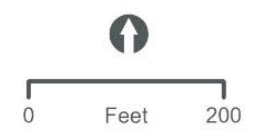
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Figure 2. Project Area



- LEGEND
- Project Area
  - Project Design
  - Cut and Fill
  - Potential R/W Acquisition
  - Potential Permanent Drainage Easement
  - Potential Contractor Laydown Area
  - TCE Limits
  - Parcel Boundary
  - Matchline



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Existing utilities that may require relocations or modifications to accommodate the roadway extension include water, gas, electrical, and telephone lines. In addition, traffic restriping west of Roosevelt Street would be needed to transition from the existing roadway to the new extended roadway.

Construction of the proposed Project would require partial acquisition, temporary construction easements, and drainage easements, as shown on Figure 2. The proposed earthen channel north of Markham Street will require a separate permanent drainage easement. In addition, a construction staging area could be located on a vacant parcel south of Markham Street and west of Wood Road in the southeastern portion of the Project area (Assessor's Parcel Number [APN] 321-030-054). The use of this parcel for staging would require a temporary construction easement (TCE) and the parcel would be returned to preconstruction condition upon completion of the proposed Project.

## 2.1 Existing Condition

The proposed Project is located between the intersection of Markham Street and Roosevelt Street and the intersection of Wood Road and Markham Street. Each of these intersections have been partially developed as part of previous roadway work. Markham Street, west of Roosevelt Street and east of Wood Street, has been improved to meet the secondary street classification standards. However, Markham Street, east of Roosevelt Street, is an unpaved dirt road and is not accessible from the Markham Street and Roosevelt Street intersection. There is an existing metal beam guardrail that blocks access to the dirt road segment of Markham Street. From the intersection of Wood Road to the west, Markham Street has been paved with a 20-foot-wide asphalt surface to provide access to the existing properties for a distance of 2,500-feet. Along this paved section, driveways to the existing properties have been set back to allow for roadway widening. The unpaved dirt road on the west-end of the Project extends approximately 0.5-mile to the east where it ties into the exiting paved roadway. Additionally, smaller street intersections, including Oran Drive, Birch Street, Cedar Street, and James Kenny Road connect to Markham Street within the Project area.

The Project is located in a semi-rural area with residential, commercial, and institutional land uses throughout the area. Adjacent properties along this roadway segment consist of vacant land, single-family homes, business properties, and water district properties utilized for a sewer-lift station and water-pumping station. Existing utilities consist of an overhead power line, water lines, a gas line, and communication lines.

## 3 Species Status and Biology

BUOW has a broad distribution that includes open country throughout the Midwest, western United States, Texas, southern Florida, parts of central Canada, Mexico, and the drier regions of Central and South America. In southern California, the species is known from lowlands over much of the region, particularly in agricultural areas. In California, BUOW has been extirpated as a breeding species during the last 10 to 15 years from approximately 8 percent of its former range (Klute 2003). Primary threats across the North American range of the BUOW are habitat loss and fragmentation, primarily due to intensive agricultural and urban development, and habitat degradation due to declines in populations of colonial burrowing mammals (Grant 1965, Konrad and Gilmer 1984, Ratcliff 1986, Dundas and Jensen 1994/95, Rodriguez-Estrella et al. 1998, Dechant et al. 1999).

BUOW is primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity (Shuford and Gardali 2008, references found therein). The overriding

characteristics of suitable habitat appear to be burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs and taller vegetation (Green and Anthony 1989). BUOW in agricultural environments nest along roadsides and water conveyance structures (open canals, ditches, and drains) surrounded by crops (DeSante et al. 2004, Rosenberg and Haley 2004). BUOW often nest near and under runways and associated structures (Thomsen 1971, Gervais et al. 2003). Individual BUOWs have moderate to high site fidelity to general breeding areas, prairie dog colonies, and even to particular nest burrows (Klute 2003). Burrow fidelity has been reported in some areas; however, more frequently, BUOWs reuse traditional nesting areas without necessarily using the same burrow (Dechant et al. 1999). Occupancy of suitable habitat can be verified at a site by observing BUOW during the spring and summer months or, alternatively, the presence of molted feathers, cast pellets, prey remains, eggshell fragments, or excrement (white wash) at or near a burrow entrance.

BUOW follow a crepuscular habit, being most active during the early morning and evening hours. Their diet is predominantly large insects and small rodents, but they will also take small birds, reptiles, amphibians, fish, scorpions, and other available prey. They are often observed perched on fence posts or utility wires or in close association with their burrow. They typically live eight years or more.

Migratory individuals arrive to breeding areas either singly or paired. Non-migratory owls retain pair bonds throughout the year (Poulin et al. 2011). The breeding season for BUOW generally begins during the month of April and ends in the month of August.

## 3.1 Local Regulations

### 3.1.1 Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (WRMSHCP) was adopted on June 17, 2003, and an Implementing Agreement was executed between the federal and state wildlife agencies (USFWS and CDFW) and participating entities (Riverside County Transportation and Land Management Agency 2003). The WRMSHCP is a comprehensive habitat conservation-planning program for western Riverside County. The intent of the WRMSHCP is to preserve native vegetation and meet the habitat needs of multiple species, rather than focusing preservation efforts on one species at a time. As such, the WRMSHCP is intended to streamline review of individual projects with respect to the species and habitats addressed in the WRMSHCP and provide for an overall conservation area that would be of greater benefit to biological resources than would result from a piecemeal regulatory approach. The WRMSHCP provides coverage (including take authorization for listed species) for special-status plant and animal species, as well as mitigation for impacts on special-status species.

The WRMSHCP serves as a habitat conservation plan pursuant to Section 10(a)(1)(B) of Federal Endangered Species Act (FESA), as well as the Natural Communities Conservation Plan (NCCP) under the State of California Natural Community Conservation Planning Act (Fish and Game Code Section 2800). U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion (USFWS 2004) for the WRMSHCP on June 22, 2004, and issued an amendment to the Biological Opinion on September 22, 2011. California Department of Fish and Wildlife (CDFW) also issued the NCCP Approval and Take Authorization for the WRMSHCP on June 22, 2004.



## 4 Survey Methods

### 4.1 Study Area and Survey Areas

The Project area includes the maximum footprint of disturbance including proposed roadway and infrastructure improvements, TCEs, construction staging areas, and proposed permanent drainage easements. The BUOW Survey Area includes the Project area and a 500-foot buffer, as shown in Figure 3.

### 4.2 Focused Burrowing Owl Surveys

#### 4.2.1 Habitat Assessment

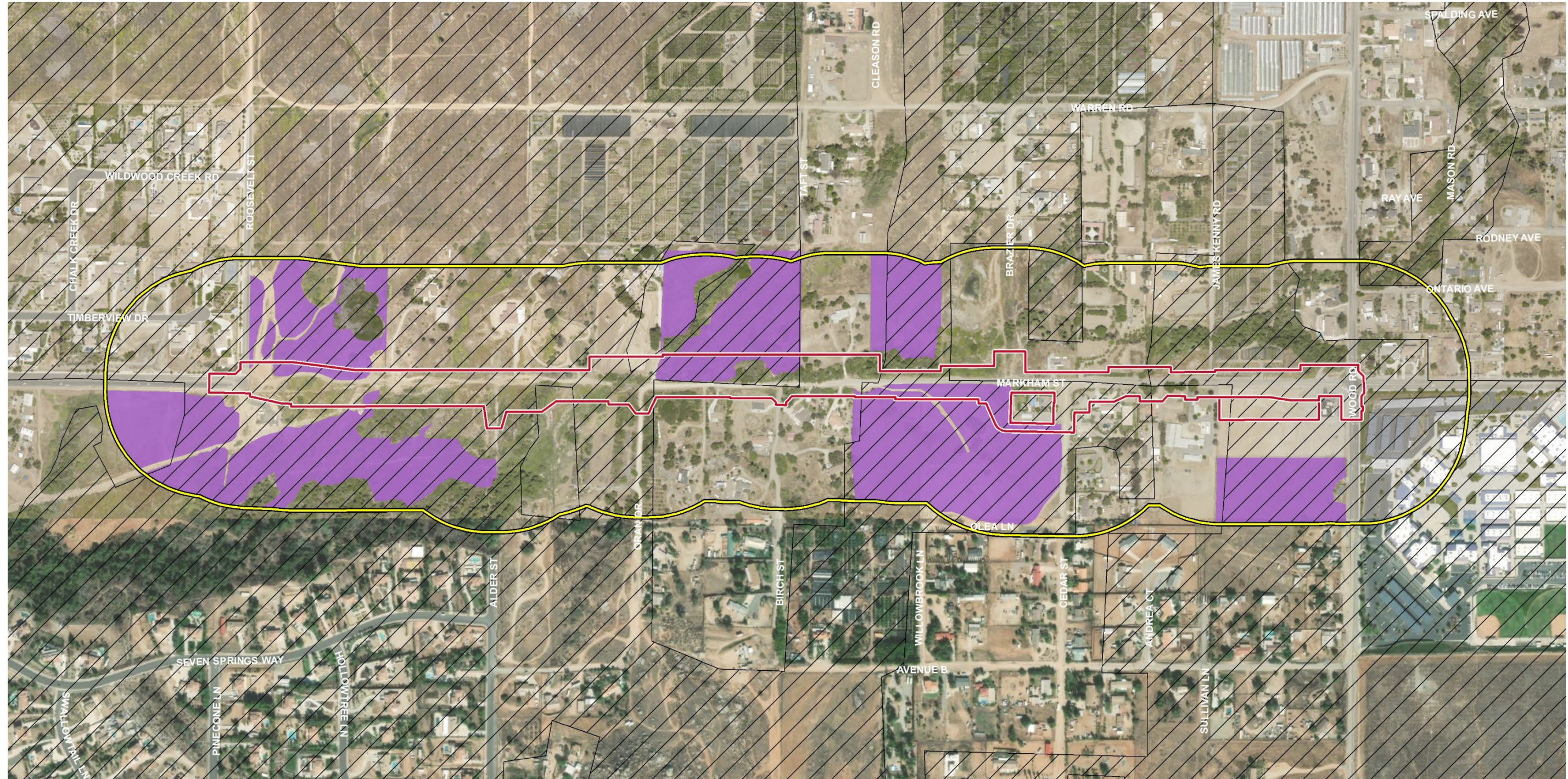
A BUOW habitat assessment was conducted by consultant biologists Sarah Barrera, Aaron Newton on April 12, 2022 in accordance with Step I of the *Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area* (WRC RCA 2006). The habitat assessment was conducted for all areas within the BUOW Survey Area that were located within the WRCMSHCP Burrowing Owl Survey Area (Figure 3-1). Surveyors assessed all habitat within the BUOW Survey Area for the presence of burrows, burrow surrogates, fossorial mammal dens, well drained soils, available prey, and short or sparse vegetation. Where access was prohibited (i.e., gated, private property, etc.), biologists used binoculars and aerial photography to determine suitability.

During the BUOW habitat assessment, locations of suitable habitat were identified and delineated as either having high or low potential based on the friability of the soil, whether the soils had been substantially altered (i.e. due to agricultural production or non-native fill soils) or had native soils, and the presence of fossorial mammal burrows 3-inches or larger in diameter. Dates, times, and weather conditions of the habitat assessment are included in Table 1.

**Table 1. Burrowing Owl Survey Dates, Times, and Environmental Conditions**

	Date	Surveyor <sup>1</sup>	Start/End Time	Temp (°F) Start/End	Wind (mph) Start/End	Cloud Cover (%) Start/End
Habitat Assessment	4/12/22	SB/AN	0830/1430	56/76	0/0	0/0
Protocol Survey #1	4/15/22	AN/RS	0710/1000	54/62	0/0	0/0
Protocol Survey #2	5/19/22	SB/AN	0705/1000	61/71	0-1/0-4	100/5
Protocol Survey #3	6/7/22	AN	0700/1000	62/73	0-1/0	0/0
Protocol Survey #4	7/7/22	AN	0720/1000	69/79	0/0	0/0
<p>Notes:            1: SB: Sarah Barrera; AN: Aaron Newton; RS: Ronell Santos            °F: Degrees Fahrenheit            mph: miles per hour            %: Percent</p>						

Figure 3. Burrowing Owl Survey Area



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## 4.2.1 Breeding Season Surveys

Consultant biologists Sarah Barrera, Aaron Newton and Ronell Santos conducted focused BUOW surveys in April 2022 in accordance with Step II of the *Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area* (WRC RCA 2006) for all suitable habitat within the BUOW Survey Area. Surveys were conducted during the breeding season (March 1 through August 31).

Focused BUOW surveys were conducted by walking transects through all areas identified as supporting suitable BUOW habitat during the BUOW habitat assessment. Areas within the 500-foot buffer zone that surveyors did not have permission to access were surveyed with binoculars. Dates, times, and weather conditions of surveys are included in Table 1.

Wildlife observations in addition to those of BUOWs were made opportunistically (Appendix A). Zoological nomenclature used in this report is taken from Stebbins (2003) for reptiles and amphibians, American Ornithological Society (2022) for birds, and Burt/Grossenheider (1998) for mammals

# 5 Survey Results

## 5.1 Habitat Assessment

Suitable BUOW habitat was identified in eleven locations within the BUOW Survey Area (Figure 4). Suitable habitat areas consisted of areas mapped as Mediterranean California Naturalized Annual and Perennial Grassland and California Buckwheat Scrub.

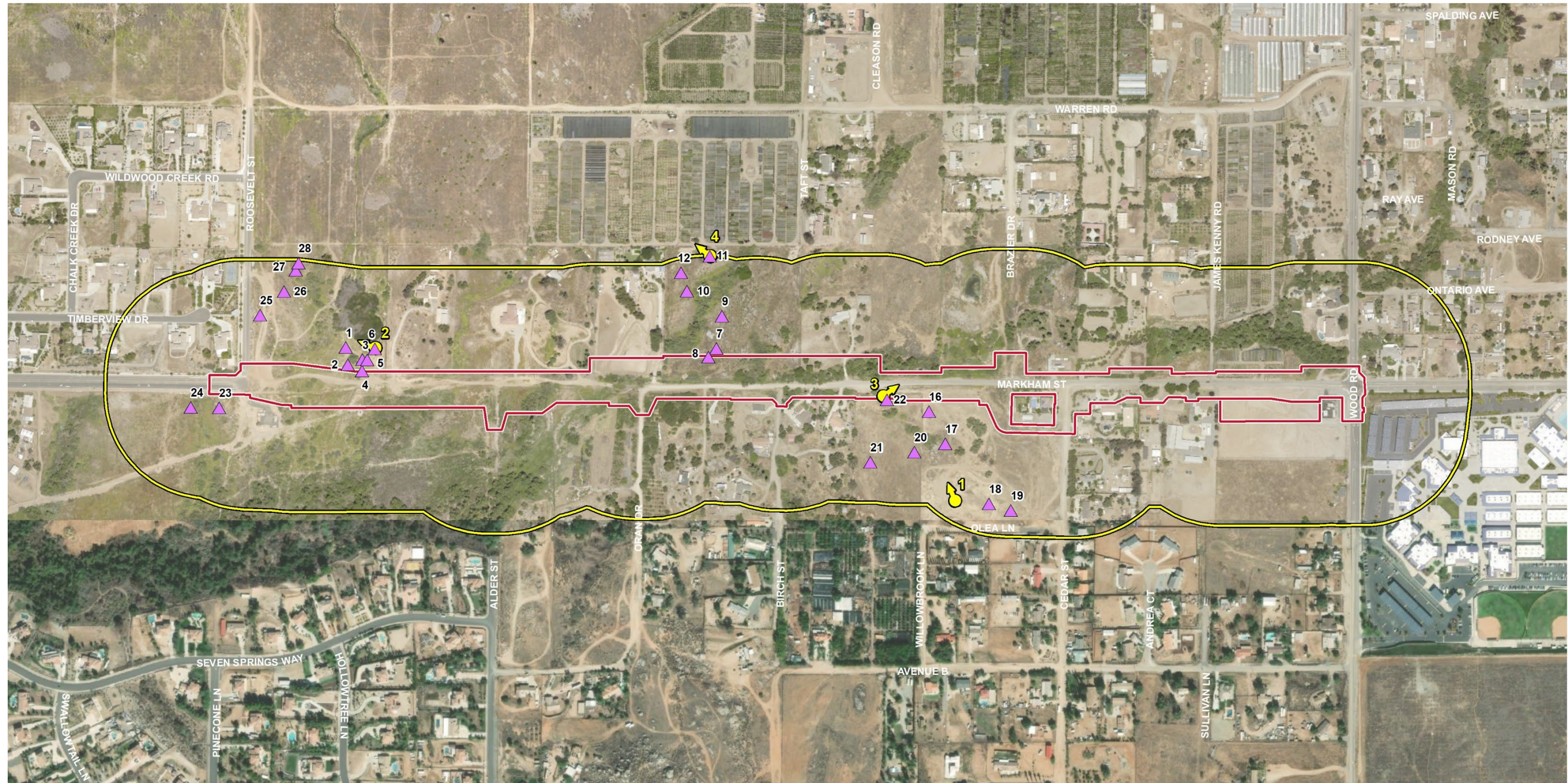
### Mediterranean California Naturalized Annual and Perennial Grassland

This community is dominated by shortpod mustard (*Hirschfeldia incana*) and non-native grasses (*Bromus* sp., *Avena* sp., *Hordeum* sp.) with other non-native herbaceous species including non-native tree tobacco (*Nicotiana glauca*) and castor bean (*Ricinis communis*). These areas have been previously physically disturbed but continue to retain a soil substrate. Appendix B, Photographs 1-3 shows undeveloped parcels and parcels that have been cleared of native vegetation but not regularly maintained.

### California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

California buckwheat scrub is dominated by California buckwheat, which accounts for at least 50 percent relative cover in the shrub layer. This alliance usually occurs on upland slopes, intermittently flooded arroyos, channels, and washes. Shrubs are typically less than 2-meters in height, with an intermittent-to-continuous canopy and a variable, grassy herbaceous layer (Sawyer et al. 2009). Appendix B, Photograph 4, shows potential burrows within the sparse herbaceous layer of the California buckwheat scrub.

Figure 4. Burrowing Owl Survey Results



**LEGEND**

- Burrowing Owl Survey Area
- Project Area
- Potential Burrow
- Photo Point
- 

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## 5.2 Focused Surveys

Several fossorial mammal burrows were mapped within the areas noted as suitable BUOW habitat. California ground squirrels (*Otospermophilus beechyi*) were observed using these burrows. Descriptions of the potential burrows are shown in Table 2, with Burrowing Owl Field Collection Points in the table corresponding to those shown on Figure 4. No BUOW sign such as pellets, feathers, scat or prey remains, were observed during the BUOW habitat assessment. Photographs of typical suitable burrowing owl habitat and typical potential burrows observed during the surveys are included in Appendix B.

**Table 2. Summary of Potential Burrows Observed During Focused Burrowing Owl Surveys**

BUOW Field Collection Points	Survey Date	Notes
1	4/12/2022	Fossorial mammal burrow in ruderal grass field, no sign of BUOW.
2	4/12/2022	Potential burrows in cement debris pile of ruderal grass field.
3	4/12/2022	Fossorial mammal burrow in ruderal grass field.
4	4/12/2022	Small mammal burrows along base of rock outcrop. No sign observed.
5	4/12/2022	Mammal burrow in cactus patch, no sign of BUOW.
6	4/12/2022	Potential burrows at base of rock outcrop, no BUOW sign observed.
7	4/12/2022	Mammal burrows near rock outcrop.
8	4/12/2022	Mammal burrows along rock outcrop.
9	4/12/2022	Mammal burrows along rock outcrop, no BUOW sign.
10	4/12/2022	Large opening, possibly fox?
11	4/12/2022	Fossorial mammal burrow in vacant lot, no BUOW sign.
12	4/12/2022	Single mammal burrow, no BUOW sign.
16	4/12/2022	Small mammal burrows along rock outcrop, no BUOW sign.
17	4/12/2022	Burrows in rock outcrop, no BUOW sign.
18	4/12/2022	Several burrows in small mound.
19	4/12/2022	A couple burrows in 10-foot radius, no BUOW sign.
20	4/12/2022	Mowed vegetation in surrounding area.
21	4/12/2022	Several 4-inch burrows in small mound of dirt.
22	4/12/2022	Several 5-inch burrows in 20-foot radius. Ground squirrel observed in one burrow.
23	4/12/2022	Rock piles with some burrows. Disturbed buckwheat scrub habitat.
24	4/12/2022	Mammal burrows, no sign of BUOW.
25	4/12/2022	Burrows along rock outcrop.
26	4/12/2022	Several burrows in base of rock pile. Disturbed buckwheat scrub.
27	4/12/2022	Burrow under matchweed, approximately 4-inch diameter.
28	4/12/2022	Several 4-inch burrows in 15-foot radius.

BUOW=burrowing owl

## 6 Conclusions and Recommendations

During focused surveys, no BUOW were detected within the BUOW Survey Area. Throughout the surveys, no evidence of molted feathers, cast pellets, prey remains, eggshell fragments, or excrement near burrow entrances were observed. While the BUOW Survey Area does have open habitat, the lack of large burrows, presence of other birds of prey, regularly mowed and disked fields and surrounding residential development have created less than ideal conditions to support populations of BUOW and nesting/foraging habitat.

However, given that burrowing mammals have the potential to excavate burrows over time making the unvegetated areas with exposed soil more suitable, a pre-construction survey is recommended prior to the initiation of construction.

In order to comply with the WRCMSHCP, California Fish and Game Code, and the Migratory Bird Treaty Act, a preconstruction survey for this species, identified in minimization measure BUOW-1, below, will be required prior to the clearing of potential BUOW habitat to avoid potential Project-related impacts, which may result from direct impacts (e.g., loss of occupied burrows with nests, eggs, or young) or indirect impacts (e.g., construction noise).

**BUOW-1 Burrowing Owl Preconstruction Survey.** Prior to construction, the County shall ensure that a preconstruction survey for burrowing owl be conducted by a qualified biologist within 30 days prior to vegetation clearing/grading. If burrowing owl are found within 500-feet (150-meters) of the Project area during the preconstruction survey, the qualified biologist shall determine appropriate measures necessary to ensure that there is no take of active BUOW nests and that WRCMSHCP requirements with regard to BUOW are met.



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## Appendix A. Wildlife Species Observed

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Markham Street Burrowing Owl Surveys Wildlife Species Observed	
<b>REPTILES</b>	
<b>Crotaphytidae</b>	<b>Collared and Leopard Lizards</b>
<i>Sceloporus occidentalis</i>	Western fence lizard
<i>Uta stansburiana</i>	Common side-blotched lizard
<b>BIRDS</b>	
<b>Cathartidae</b>	<b>American Vultures</b>
<i>Cathartes aura</i>	Turkey vulture
<b>Accipitridae</b>	<b>Kites, Hawks, and Eagles</b>
<i>Buteo jamaicensis</i>	Red-tailed hawk
<b>Falconidae</b>	<b>Falcons</b>
<i>Falco sparverius</i>	American kestrel
<b>Columbidae</b>	<b>Pigeons and Doves</b>
<i>Columba livia*</i>	Rock pigeon
<i>Zenaida macroura</i>	Mourning dove
<b>Trochilidae</b>	<b>Hummingbirds</b>
<i>Calypte anna</i>	Anna's hummingbird
<b>Tyrannidae</b>	<b>Tyrant Flycatchers</b>
<i>Sayornis nigricans</i>	Black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Tyrannus sp.</i>	Kingbird
<b>Laniidae</b>	<b>Shrikes</b>
<i>Lanius ludovicianus</i>	Loggerhead shrike
<b>Corvidae</b>	<b>Crows and Ravens</b>
<i>Corvus brachyrhynchos</i>	American crow
<b>Mimidae</b>	<b>Mockingbirds and Thrashers</b>
<i>Mimus polyglottos</i>	Northern mockingbird
<b>Sturnidae</b>	<b>Starlings</b>
<i>Sturnus vulgaris*</i>	European starling
<b>Parulidae</b>	<b>Wood Warblers</b>
<i>Geothlypis trichas</i>	Common yellowthroat

Markham Street Burrowing Owl Surveys Wildlife Species Observed	
<b>Emberizidae</b>	<b>Emberizines</b>
<i>Melospiza crissalis</i>	California towhee
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
<b>Cardinalidae</b>	<b>Cardinals, Grosbeaks, and Allies</b>
<i>Piranga ludoviciana</i>	Western tanager
<b>Icteridae</b>	<b>Blackbirds, Orioles and Allies</b>
<i>Icterus bullockii</i>	Bullock's oriole
<b>Fringillidae</b>	<b>Finches</b>
<i>Carpodacus mexicanus</i>	House finch
<i>Spinus psaltria</i>	Lesser goldfinch
<b>Passeridae</b>	<b>Old World Sparrows</b>
<i>Passer domesticus</i> *	House sparrow
<b>MAMMALS</b>	
<b>Leporidae</b>	<b>Rabbits and Hares</b>
<i>Lepus californicus</i>	Black-tailed jackrabbit
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit
<b>Sciuridae</b>	<b>Squirrels</b>
<i>Spermophilus beecheyi</i>	California ground squirrel
<b>Canidae</b>	<b>Foxes, Wolves and Dogs</b>
<i>Canis latrans</i>	Coyote

## Appendix B. Site Photographs

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**Photograph 1:** View of disturbed habitat which has been routinely mowed, typical of disturbed areas throughout the Project Area.



**Photograph 2:** View of typical rocky outcrop with small mammal burrows surrounded by disturbed habitat.



**Photograph 3:** View of potential burrowing owl burrows typical of burrows observed in the BUOW Survey Area.



**Photograph 4:** View of burrow complex in disturbed habitat typical of those observed in the BUOW Survey Area.

# Appendix E. Riparian Bird Survey Report

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August 26, 2022

Stacey Love  
U.S. Fish and Wildlife Service  
2177 Salk Avenue, Suite 250  
Carlsbad, California 92008

Re: Least Bell's Vireo and Southwestern Willow Flycatcher Survey Results for the Markham Street Extension Project

Dear Ms. Love,

This letter report documents the results of protocol surveys for the least Bell's vireo (*Vireo bellii pusillus*, LBVI) and southwestern willow flycatcher (*Empidonax traillii extimus*, SWFL) conducted by HDR Engineering, Inc. for the Markham Street Extension Project (Project) located in the community of Woodcrest in unincorporated Riverside County, California (Figure 1, all figures attached).

The County of Riverside Transportation Department is proposing improvements to Markham Street by extending the roadway between Roosevelt Street and Wood Road for approximately 1.3 miles in the community of Woodcrest in unincorporated Riverside County, California (Figure 1). The purpose of the Project is to accommodate existing and planned growth and improve traffic circulation systems within the community. Markham Street, in its ultimate classification, is designated as a secondary highway per the 2015 Riverside County General Plan. The Project would construct a roadway section consisting of two lanes with one lane in each direction, Class II bike lanes, and a sidewalk on the south side of Markham Street.

The SWFL and LBVI are listed as endangered by the United States Fish and Wildlife Service (USFWS) and the State of California. Additionally, the Project is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) area. The MSHCP requires surveys for SWFL and LBVI when suitable habitat for these species occurs within or adjacent to a project.

### **Project Location and Riparian Bird Survey Area**

The Project is located east of Interstate 215, between Wood Road and Roosevelt Street in Sections 31 and 32, Township 3 South, Range 4 West; Section 31, Township 4 South, Range 4 West; and Section 31 Township 4 South, Range 5 West, San Bernardino Baseline and Meridian as shown on the United States Geological Survey (USGS) *Steele Peak, California* 7.5-minute topographic quadrangle map (Figure 1). The Riparian Bird Survey Area includes the proposed Project area and a 500-foot buffer and is shown overlain on an aerial in Figure 2.

Riparian habitat within the Riparian Bird Survey Area occurs along Mockingbird Canyon Creek and is dominated by black willow (*Salix lasiolepis*) woodland, ornamental riparian woodland, mule fat (*Baccharis salicifolia*) thickets, cattail (*Typha* sp.) marsh, and giant reed (*Arundo donax*) marsh. Riparian habitat mapped within the Riparian Bird Survey Area is shown on Figure 3. Non-riparian vegetation communities within the Project area consist of California buckwheat (*Eriogonum*

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U.S. Fish and Wildlife Service  
August 26, 2022

*fasciculatum*) scrub, blue elderberry (*Sambucus mexicana*) shrubland, mediterranean California naturalized annual and perennial grassland, perennial pepperweed (*Lepidium latifolium*) patches, cocklebur (*Xanthium strumarium*) patches, residential and developed/disturbed/bare ground.

## **Methods**

A 15-day prior notification for surveys was provided to the USFWS on April 14, 2022 (Appendix A, attached). All potentially suitable habitat subject to surveys is depicted on Figure 3. HDR biologist Adam Lockyer (Permitted Biologist, TE55135D-0) and assisting biologist Aaron Newton conducted seven protocol LBVI surveys (which also comprised of five protocol SWFL surveys) from May 2 to July 19, 2022. On days when both species were surveyed for by only one biologist, the surveys were not conducted concurrently. The SWFL surveys were conducted first followed by the LBVI surveys. Seven of eight protocol LBVI surveys were completed. The last LBVI protocol survey was canceled as biologists confirmed LBVI were present at several locations throughout the Riparian Bird Survey Area during the preceding surveys and the additional survey would provide no new information. During each of the surveys, the biologist walked slowly along the edge of riparian habitat, listening for LBVI and SWFL. During the SWFL surveys, a recording of SWFL vocalizations was played at 60 to 100 foot intervals along the survey route during all of the SWFL surveys. The surveying biologist, with the aid of binoculars for viewing wildlife species, waited for several minutes after each playback to look and listen for SWFL. Surveys for LBVI were conducted by stopping at similar intervals along the survey route to watch and listen for LBVI. All surveys were completed between dawn and 11:00 AM for LBVI and by 10:30 AM for SWFL. No surveys were conducted during extreme weather conditions (i.e., winds exceeding 15 miles per hour, rain, or temperatures in excess of 95°F).

The surveying biologists did not have access to all parcels within the Riparian Bird Survey Area, including several that supported suitable riparian habitat, due to dense vegetation or right of entry restrictions. However, the surveying biologists was able to get close enough to all suitable riparian habitat to confidently conduct visual and aural surveys.

Table 1 and Table 2 present the survey dates, times, and weather conditions for the surveys.

**Table 1. Summary of Southwestern Willow Flycatcher Survey Dates, Times, and Weather Conditions for the Markham Street Extension Project**

Survey	Date	Surveyor	Time (start/end)	Weather	Temp. Range (°F)	WIFL Detected
SWFL 1	5/23/22	AL	0705-0815	Start: 0 mph, overcast; End: 3 mph, partly cloudy	54-58	1
SWFL 2	6/3/22	AL	0655-0900	Start: 0 mph, overcast; End: 0 mph, overcast	57-63	0
SWFL 3	6/17/22	AL	0715-0815	Start: 0 mph, cloudy; End: 3 mph, clear	63-70	0
SWFL 4	6/27/22	AL	0635-0730	Start: calm, clear; End: calm, clear	73-78	0
SWFL 5	7/8/22	AL	0758-0905	Start: calm, clear; End: breezy, clear	68-70	0

Notes:

AL: Adam Lockyer – Permitted Biologist (TE55135D-0)

°F = degrees Fahrenheit

WIFL = willow flycatcher

SWFL = southwestern willow flycatcher

mph = miles per hour

**Table 2. Summary of Least Bell's Vireo Survey Dates, Times, and Weather Conditions for the Markham Street Extension Project**

Survey	Date	Surveyor	Time (start/end)	Weather	Temp. Range (°F)	LBVI Detected
LBVI 1	5/2/22	AN	0645-1040	Start: 0 mph wind, cloudy; End: 0 mph wind, clear skies	56-63	3
LBVI 2	5/23/22	AL	0815-1015	Start: 3 mph, partly cloudy; End: 2 mph, clear skies	58-68	5
LBVI 3	6/3/22	AN	0655-0900	Start: 0 mph, overcast; End: 0 mph, overcast	57-63	4
LBVI 4	6/17/22	AL	0815-0928	Start: 3 mph, clear; End: 0 mph, clear	70-73	9
LBVI 5	6/27/22	AL	0730-0825	Start: calm, clear; End: breezy, clear	78-80	3
LBVI 6	7/8/22	AL	0905-1004	Start: breezy, clear; End: calm, clear	70-80	2
LBVI 7	7/19/22	AN	0710-0940	Start: calm, clear; End: 2 mph, clear	73-84	4
LBVI 8	--	--	--	--	--	--

Notes:

AL: Adam Lockyer, AN: Aaron Newton

°F = degrees Fahrenheit

mph = miles per hour

LBVI = least Bell's vireo

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U.S. Fish and Wildlife Service  
August 26, 2022

## Results

Multiple LBVI were detected during protocol LBVI and SWFL surveys and during other biological resources surveys (i.e. aquatic resources delineation and burrowing owl surveys) conducted for the Project. Locations and dates for all LBVI observations are shown on Figure 4. While nesting and pairing were not directly observed during protocol surveys, it is estimated that throughout the Riparian Bird Survey Area there are eight LBVI territories (Figure 4). Additionally, a single willow flycatcher (*Empidonax traillii*) was observed calling on May 23, 2022, but was not observed during subsequent surveys. It is presumed that the individual willow flycatcher observed on May 23, 2022 was dispersing through the Riparian Bird Survey Area. Active brown-headed cowbird (*Molothrus ater*) trapping was observed within the Oleander Domestic/Irrigation Pump Station located at the west end of the Riparian Bird Survey Area. Locations of LBVI and estimated territories, the single willow flycatcher, and cowbird trapping location observed during surveys can be found on Figure 4. A complete list of birds and other wildlife observed on-site during surveys is included as Appendix B. A completed Willow Flycatcher Survey and Detection Form is included as Appendix C.

If you have any questions regarding this survey report, please contact me at (702) 283-9429.

***I certify that the information in this survey report and attached exhibits fully and accurately depict my work.***

Sincerely,  
HDR Engineering, Inc.



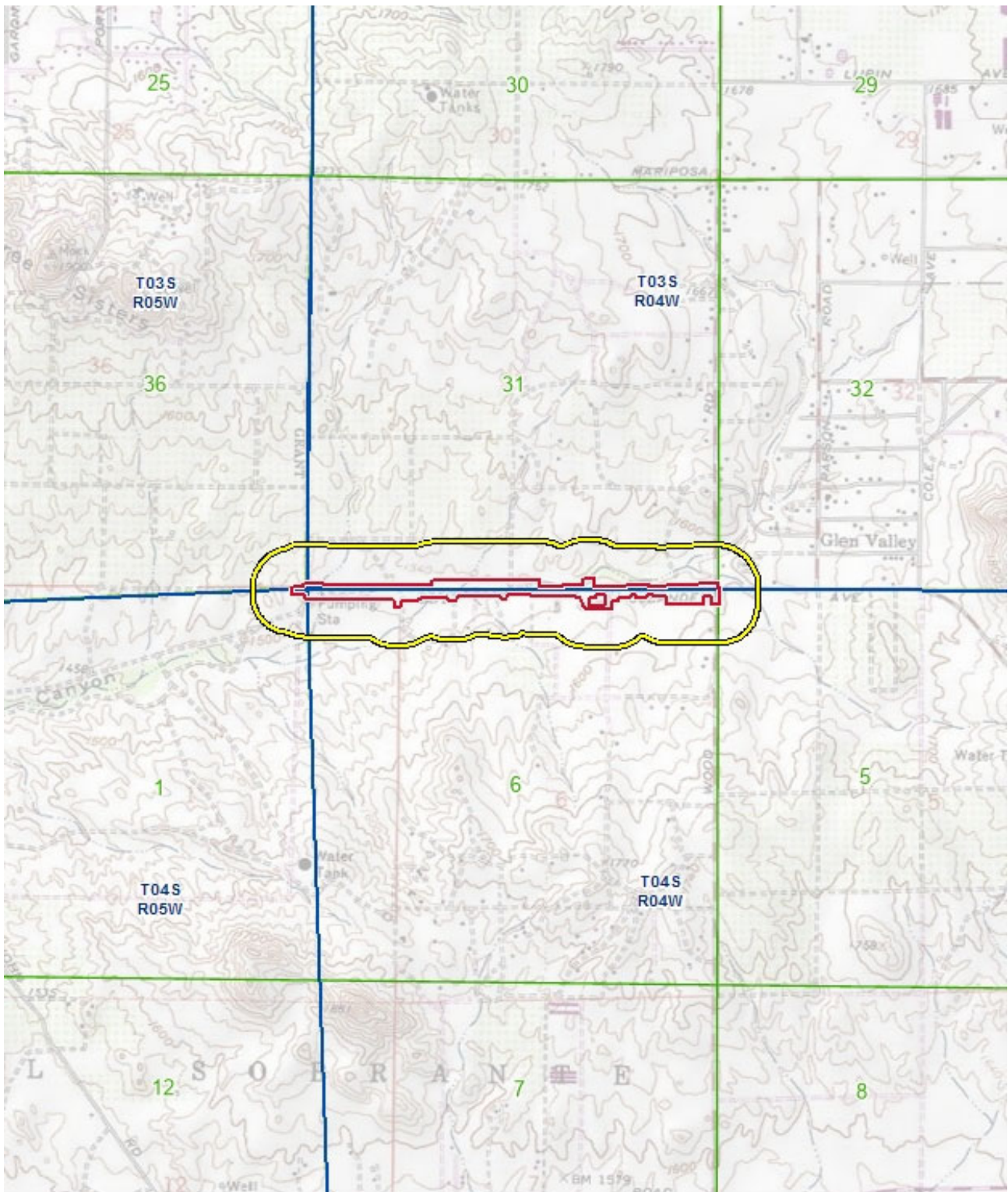
Adam Lockyer, TE55135D-0  
*Biologist*

### Attachments:

Figure 1. Markham Street Extension Project Area – USGS 7.5-Minute *Steele Peak*, CA Quadrangle  
Figure 2: Markham Street Extension Project Area and 500-Foot Buffer  
Figure 3: Markham Street Extension Project Riparian Bird Survey Area  
Figure 4: Markham Street Extension Project Riparian Bird Survey Results  
Appendix A: USFWS 15-Day Notification (April 14, 2022)  
Appendix B: Inventory of Wildlife Species Observed During 2022 Protocol Surveys  
Appendix C: Willow Flycatcher Survey and Detection Form



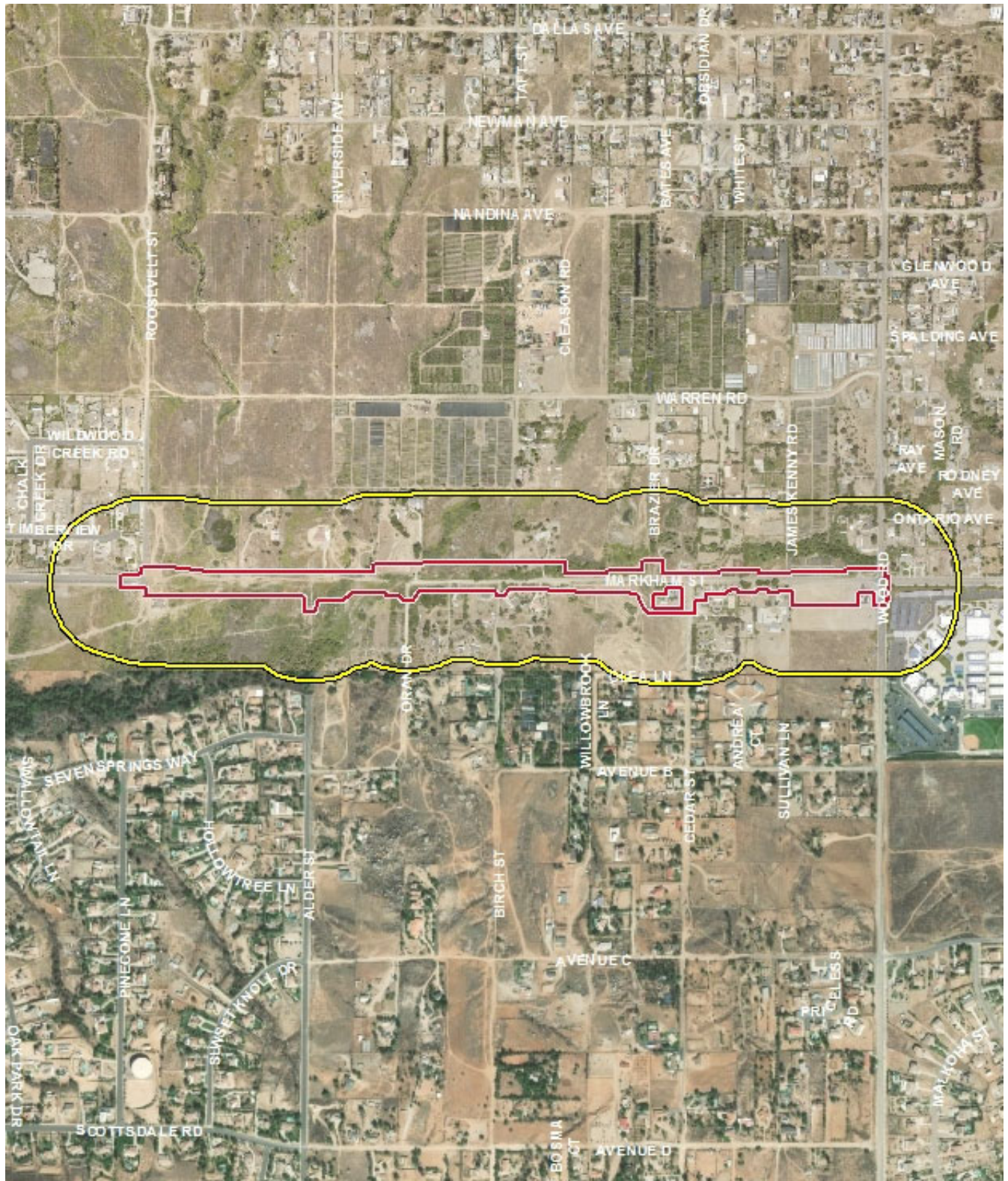
Figure 1. Markham Street Extension Project Area – USGS 7.5-Minute Steele Peak, CA Quadrangle



-  Riparian Bird Survey Area
-  Project Area
-  USGS Steele Peak Quad
-  Township and Range
-  Section



Figure 2. Markham Street Extension Project Area and 500-Foot Buffer



-  Project Area
-  500ft Buffer

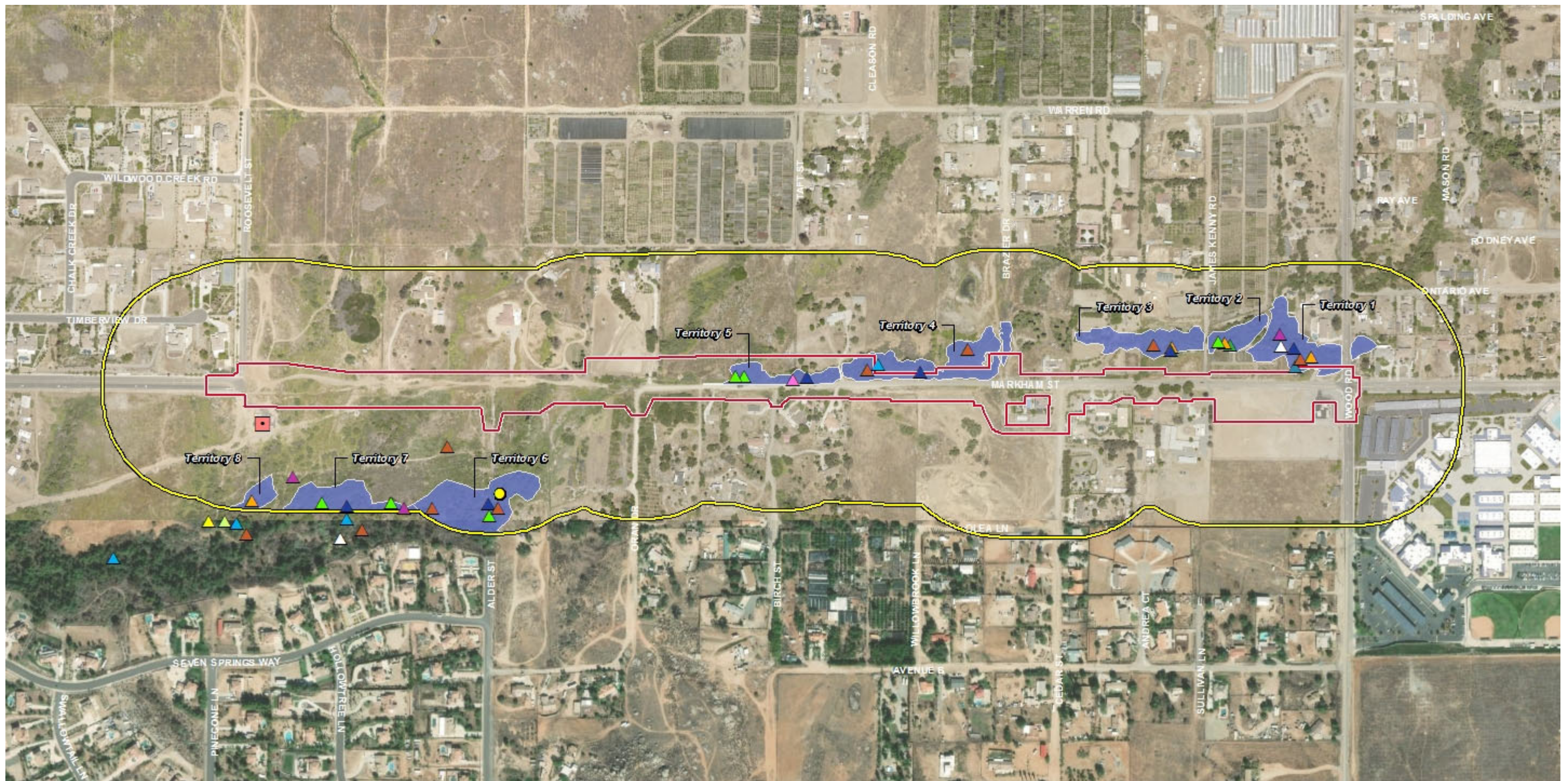


0 Feet 1,000

Figure 3. Markham Street Extension Project Riparian Bird Survey Area



Figure 4. Markham Street Extension Project Riparian Bird Survey Results



**LEGEND**  
 [Yellow Outline] Riparian Bird Survey Area  
 [Red Outline] Project Area  
 [Blue Area] Riparian Bird Survey  
 [Red Square] Cowbird Trapping  
 [Yellow Circle] Willow Fly Catcher Observation (5/23/2022)

Least Bell's Vireo Observation by Date

▲ 4/12/2022	▲ 4/15/2022	▲ 5/19/2022	▲ 5/2/2022	▲ 5/23/2022	▲ 6/17/2022	▲ 6/27/2022	▲ 6/3/2022	▲ 6/7/2022	▲ 7/19/2022	▲ 7/7/2022	▲ 7/8/2022
-------------	-------------	-------------	------------	-------------	-------------	-------------	------------	------------	-------------	------------	------------

# Appendix A: USFWS 15-Day Notification

**From:** [Lockyer, Adam T](#)  
**To:** ["stacey\\_love@fws.gov"](mailto:stacey_love@fws.gov)  
**Subject:** 15-Day Notification for LBVI/SWFL Surveys  
**Date:** Thursday, April 14, 2022 7:57:00 AM  
**Attachments:** 55135D-0 Lockyer R2 s20191206 sas - SWFL FWS Permit.pdf  
Regional Topo.ipq  
ProjectLocation.ipq

---

Hi Stacey,

This is my 15-day notification to conduct southwestern willow flycatcher (SWFL) surveys along with least Bell's vireo surveys for the areas depicted in the attached maps. These surveys are being conducted as part of due diligence in support of planned road improvement along Markham Street in Riverside, California. Also attached is my federal permit for SWFL surveys. Scheduled dates for those surveys are below. Please let me know if you need any further information.

May 2 – LBVI 1  
May 23 – LBVI 2 / SWFL 1  
June 3 – LBVI 3 / SWFL 2  
June 16 – LBVI 4 / SWFL 3  
June 27 – LBVI 5 / SWFL 4  
July 8 – LBVI 6 / SWFL 5  
July 19 – LBVI 7  
July 29 – LBVI 8

Thank You,

**Adam Lockyer**

*Biologist*

**HDR**

591 Camino de la Reina, Suite 300

San Diego, CA 92108

**M** 702.283.9429

[adam.lockyer@hdrinc.com](mailto:adam.lockyer@hdrinc.com)

[hdrinc.com/follow-us](https://hdrinc.com/follow-us)

# Appendix B: Inventory of Wildlife Species Observed During 2022 Protocol Surveys



## Inventory of Wildlife Species Observed During 2022 Protocol Surveys

Scientific Name	Common Name	Listing Status
<b>BIRDS</b>		
<b>ACCIPITRIDAE - RAPTOR FAMILY</b>		
<i>Accipiter cooperii</i>	Cooper's Hawk	-
<i>Buteo jamaicensis</i>	Red-tailed Hawk	-
<i>Buteo lineatus</i>	Red-shouldered Hawk	-
<b>AEGITHALIDAE - BUSHTIT FAMILY</b>		
<i>Psaltriparus minimus</i>	Bushtit	-
<b>CARDINALIDAE - CARDINAL FAMILY</b>		
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	-
<b>CHARADRIIDAE - PLOVER FAMILY</b>		
<i>Charadrius vociferus</i>	Killdeer	-
<b>COLUMBIDAE - PIGEON FAMILY</b>		
<i>Zenaida macroura</i>	Mourning Dove	-
<b>CORVIDAE - CROW FAMILY</b>		
<i>Aphelocoma californica</i>	California Scrub-Jay	-
<i>Corvus brachyrhynchos</i>	American Crow	-
<i>Corvus corax</i>	Common Raven	-
<b>CUCULIDAE - CUCKOO FAMILY</b>		
<i>Geococcyx californianus</i>	Greater Roadrunner	-
<b>FALCONIDAE - FALCON FAMILY</b>		
<i>Falco sparverius</i>	American Kestrel	-
<b>FRINGILLIDAE - NEW WORLD FINCH FAMILY</b>		
<i>Haemorhous mexicanus</i>	House Finch	-
<i>Spinus psaltria</i>	Lesser Goldfinch	-
<b>ICTERIDAE - NEW WORLD ORIOLE FAMILY</b>		
<i>Icterus cucullatus</i>	Hooded Oriole	-
<i>Molothrus ater</i>	Brown-headed Cowbird	-
<b>MIMIDAE - THRASHER FAMILY</b>		
<i>Mimus polyglottos</i>	Northern Mockingbird	-
<i>Toxostoma redivivum</i>	California Thrasher	-





Scientific Name	Common Name	Listing Status
<b>ODONTOPHORIDAE - NEW WORLD QUAIL FAMILY</b>		
<i>Callipepla californica</i>	California Quail	-
<b>PARULIDAE - WARBLER FAMILY</b>		
<i>Geothlypis trichas</i>	Common Yellowthroat	-
<b>PASSERELLIDAE - NEW WORLD SPARROW FAMILY</b>		
<i>Melospiza melodia</i>	Song Sparrow	-
<i>Melospiza crissalis</i>	California Towhee	-
<i>Pipilo maculatus</i>	Spotted Towhee	-
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	-
<b>PASSERIDAE - OLD WORLD SPARROW FAMILY</b>		
<i>Passer domesticus*</i>	House Sparrow	-
<b>PICIDAE - WOODPECKER FAMILY</b>		
<i>Colaptes auratus</i>	Northern Flicker	-
<i>Dryobates nuttallii</i>	Nuttall's Woodpecker	-
<b>PTILIOGONATIDAE - SILKY-FLYCATCHER FAMILY</b>		
<i>Phainopepla nitens</i>	Phainopepla	-
<b>SYLVIIDAE - WRENTIT FAMILY</b>		
<i>Chamaea fasciata</i>	Wrentit	-
<b>TROCHILIDAE - HUMMINGBIRD FAMILY</b>		
<i>Calypte anna</i>	Anna's Hummingbird	-
<b>TROGLODYTIDAE - WREN FAMILY</b>		
<i>Troglodytes aedon</i>	House Wren	-
<b>TYRANNIDAE - TYRANT FLYCATCHER FAMILY</b>		
<i>Empidonax traillii</i>	Willow Flycatcher	-
<i>Sayornis nigricans</i>	Black Phoebe	-
<i>Sayornis saya</i>	Say's Phoebe	-
<b>VIREONIDAE - VIREO FAMILY</b>		
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	FE; SE



Scientific Name	Common Name	Listing Status
<b>MAMMALS</b>		
<b>CANIDAE - CANINE FAMILY</b>		
<i>Canis latrans</i>	Coyote	-
<b>LEPORIDAE - RABBIT FAMILY</b>		
<i>Sylvilagus audubonii</i>	Desert Cottontail	-
<b>SCIURIDAE - SQUIRREL FAMILY</b>		
<i>Otospermophilus beecheyi</i>	California Ground Squirrel	-
<b>Notes:</b> * = Non-native species FE = Federal (U.S. Fish and Wildlife Service) Endangered SE = State Endangered		



## Appendix C: Willow Flycatcher Survey and Detection Form

## Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Markham Street State: California County: Riverside  
 USGS Quad Name: Steele Peak Elevation: 467 (meters)  
 Creek, River, or Lake Name: Mockingbird Canyon Creek

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes X No       

Survey Coordinates: Start: E 469,332 N 3,746,632 UTM Datum: NAD27 (See instructions)  
 Stop: E 467,691 N 3,746,188 UTM Zone: 11S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**\*\*Fill in additional site information on back of this page\*\***

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N  If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s): A. Lockyer	Date:	1	0	NA	No	Individual singing after call-back played. Song only heard, no visual confirmation.	# Birds	Sex	UTM E	UTM N
	Observer(s):						1	Unk	468,106	3,746,312
	Start:									
	Stop:									
	Total hrs:									
Survey # 2 Observer(s): A. Lockyer	Date:	0	N/A	N/A	N/A		# Birds	Sex	UTM E	UTM N
	Observer(s):									
	Start:									
	Stop:									
	Total hrs:									
Survey # 3 Observer(s): A. Lockyer	Date:	0	N/A	N/A	N/A		# Birds	Sex	UTM E	UTM N
	Observer(s):									
	Start:									
	Stop:									
	Total hrs:									
Survey # 4 Observer(s): A. Lockyer	Date:	0	N/A	N/A	N/A		# Birds	Sex	UTM E	UTM N
	Observer(s):									
	Start:									
	Stop:									
	Total hrs:									
Survey # 5 Observer(s): A. Lockyer	Date:	0	N/A	N/A	N/A		# Birds	Sex	UTM E	UTM N
	Observer(s):									
	Start:									
	Stop:									
	Total hrs:									
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes <u>      </u> No <u>X</u>				
Total survey hrs: <u>6:17</u>		0	0	0	0	If yes, report color combination(s) in the comments section on back of form and report to USFWS.				

Reporting Individual: Adam Lockyer Date Report Completed: 8/17/2022  
 US Fish & Wildlife Service Permit #: TE55135D-0 State Wildlife Agency Permit #: MOU - Esther Burkett

**Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.**

Fill in the following information completely. **Submit form by September 1<sup>st</sup>. Retain a copy for your records.**

Reporting Individual Adam Lockyer Phone # 702-283-9429  
 Affiliation HDR Engineering, Inc. E-mail Adam.Lockyer@hdrinc.com  
 Site Name \_\_\_\_\_ Date report Completed 8/17/2022  
 Was this site surveyed in a previous year? Yes \_\_\_ No X Unknown \_\_\_  
 Did you verify that this site name is consistent with that used in previous yrs? Yes \_\_\_ No X Not Applicable X  
 If name is different, what name(s) was used in the past? \_\_\_\_\_  
 If site was surveyed last year, did you survey the same general area this year? Yes \_\_\_ No \_\_\_ If no, summarize below.  
 Did you survey the same general area during each visit to this site this year? Yes X No \_\_\_ If no, summarize below.  
 Management Authority for Survey Area: Federal \_\_\_ Municipal/County X State \_\_\_ Tribal \_\_\_ Private \_\_\_  
 Name of Management Entity or Owner (e.g., Tonto National Forest) \_\_\_\_\_

Length of area surveyed: Approximately 1.5 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- \_\_\_\_\_ Native broadleaf plants (entirely or almost entirely, > 90% native)  
X Mixed native and exotic plants (mostly native, 50 - 90% native)  
 \_\_\_\_\_ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)  
 \_\_\_\_\_ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix Gooddingii, Populus spp., Tamarix spp.

Average height of canopy (Do not include a range): 7 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;  
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;  
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).  
Attach additional sheets if necessary.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM E	UTM N	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

# Appendix F. Aquatic Resources Delineation Report

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# Aquatic Resources Delineation Report

*Markham Street Extension Project*

Markham Street between Roosevelt Street and  
Wood Road

Riverside County Project No. D1-0078

*Riverside County, California*

August 19, 2022





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- Appendix C. Wetland Determination Data Forms

## Acronyms

ADA	Americans with Disabilities Act
APN	Assessor's Parcel Number
ARDA	aquatic resources delineation area
ARDR	aquatic resources delineation report
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
County	County of Riverside Transportation Department
CWA	Clean Water Act
FAC	facultative wetland plants = occur in wetlands and non-wetlands
JD	jurisdictional determination
NRCS	Natural Resources Conservation Service
OBL	obligate
OHWM	ordinary high water mark
Project	Markham Street Extension Project
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TCE	Temporary Construction Easement
TNW	Traditionally Navigable Water
UPL	upland plants = almost never occur in wetlands
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
WOS	waters of the state
WOUS	waters of the United States

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# 1 Introduction

This aquatic resources delineation report (ARDR) was prepared to summarize the extent of United States (U.S.) Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act (CWA) and Section 1600 et seq. of the California Fish and Game Code, respectively, for the proposed Markham Street Extension Project (Project). The 39.98-acre aquatic resources delineation area (ARDA), which includes the Project area (24.64 acres) and a 50-foot buffer, is located in unincorporated Riverside County, California near the community of Woodcrest. The Project proposes improvements to an approximately 1.3-mile segment of Markham Street between Roosevelt Street and Wood Road.

Fieldwork for the aquatic resources delineation was conducted in May 2022 and July 2022. Wetland and non-wetland waters of the U.S., as well as vegetated and unvegetated streambed and riparian habitat, were mapped within the ARDA.

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## 2 Project Description

### 2.1 Introduction

The County of Riverside Transportation Department (County) is proposing improvements to Markham Street by extending the roadway between Roosevelt Street and Wood Road for approximately 1.3 miles in the community of Woodcrest in unincorporated Riverside County, California (Figure 2-1 and Figure 2-2). The purpose of the Markham Street Extension Project (Project) is to accommodate existing and planned growth and improve traffic circulation systems within the community. Markham Street, in its ultimate classification, is designated as a secondary highway per the Riverside County General Plan (2015). The Project would construct a roadway section consisting of one lane in each direction, Class II bike lanes, and a sidewalk on the south side of Markham. The Project is subject to the requirements of the California Environmental Quality Act (CEQA). The County will serve as the CEQA lead for the proposed Project.

### 2.2 Existing Conditions

The proposed Project is located between the intersection of Markham Street and Roosevelt Street and the intersection of Wood Road and Markham Street. Each of these intersections have been partially developed as part of previous roadway work. Markham Street, west of Roosevelt Street and east of Wood Road, has been improved to meet the secondary street classification standards. However, Markham Street, east of Roosevelt Street, is an unpaved dirt road and is not accessible from the Markham Street and Roosevelt Street intersection. There is an existing metal beam guardrail that blocks access to the dirt road segment of Markham Street. From the intersection of Wood Road to the west, Markham Street has been paved with a 20-foot-wide asphalt surface to provide access to the existing properties for a distance of 2,500 feet. Along this paved section, driveways to the existing properties have been set back to allow for roadway widening. The unpaved dirt road on the west-end of the Project extends approximately 0.5 mile to the east where it ties into the exiting paved roadway. Additionally, smaller street intersections, including Oran Drive, Birch Street, Cedar Street, and James Kenny Road connect to Markham Street within the Project area.

The Project is located in a semi-rural area with residential, commercial, and institutional land uses throughout the area. Adjacent properties along this roadway segment consist of vacant land, single-family homes, business properties, and water district properties utilized for a sewer-lift station and water-pumping station. Existing utilities consist of an overhead power line, water lines, a gas line, and communication lines.

### 2.3 Proposed Project

The proposed Project would add one additional travel lane in each direction for approximately 1.3 miles along Markham Street, between Roosevelt Street and Wood Road. Roadway improvements would include two 12-foot-wide travel lanes (one in each direction), with a 5-foot-wide westbound and 6-foot-wide eastbound Class II bike lane. The northern edge of the roadway would have an 8-foot-wide unpaved shoulder, and the southern edge of the roadway would include curb and gutters, a 6-foot-wide sidewalk, and a 6-foot-wide parkway.

Traffic signal improvements would be required at the Markham Street and Wood Road intersection to accommodate the extended roadway and the addition of a dedicated eastbound left-turn lane, a



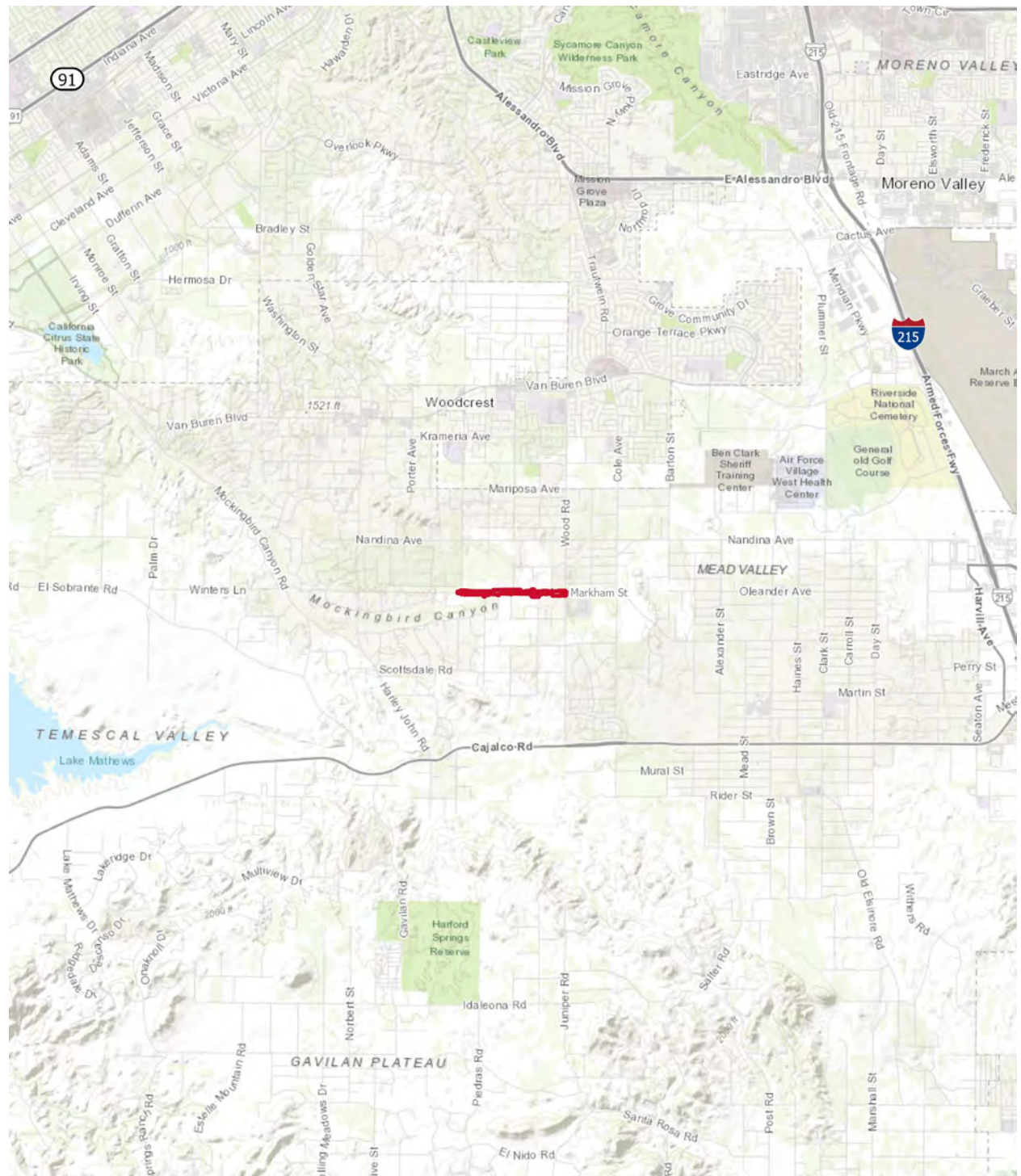
dedicated eastbound through lane, and a shared-through and right-turn lane. The Markham Street and Roosevelt Street intersection would remain as a stop-controlled intersection. The four smaller intersections (Oran Drive, Birch Street, Cedar Street, and James Kenny Road) would require roadway modifications to develop curb returns and Americans with Disabilities Act (ADA)-compliant pedestrian accessible ramps to tie into the existing roadways, and the intersections would be stop controlled. Existing property driveways would be modified to connect to new roadway improvements. Drainage improvements would include storm drain piping along the roadway and the addition of culverts to direct storm-flow drainage across the roadway. Existing utilities that may require relocations or modifications to accommodate the roadway extension include water, gas, electrical, and telephone lines. In addition, traffic restriping west of Roosevelt Street would be needed to transition from the existing roadway to the new extended roadway.

Construction of the proposed Project would require partial acquisition, temporary construction easements, and drainage easements, as shown on Figure 2-2. In addition, a construction staging area could be located on a vacant parcel south of Markham Street and west of Wood Road in the southeastern portion of the Project area (Assessor's Parcel Number [APN] 321-030-054). The use of this parcel for staging would require a Temporary Construction Easement (TCE) and the parcel would be returned to preconstruction condition upon completion of the proposed Project.


## 2.4 Aquatic Resources Delineation Area

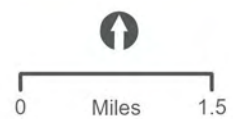
The ARDA includes the proposed Project area and a 50-foot buffer, as shown on Figure 2-3. The Project area includes all areas within the potential Project impact area, including TCEs, drainage easements, and construction staging areas. A 50-foot buffer from the proposed Project area was included within the ARDA in order to identify aquatic resources that could be subject to indirect Project impacts and allow for minor modifications to the Project area following completion of the ARDA.

Figure 2-1. Regional Vicinity and Project Location



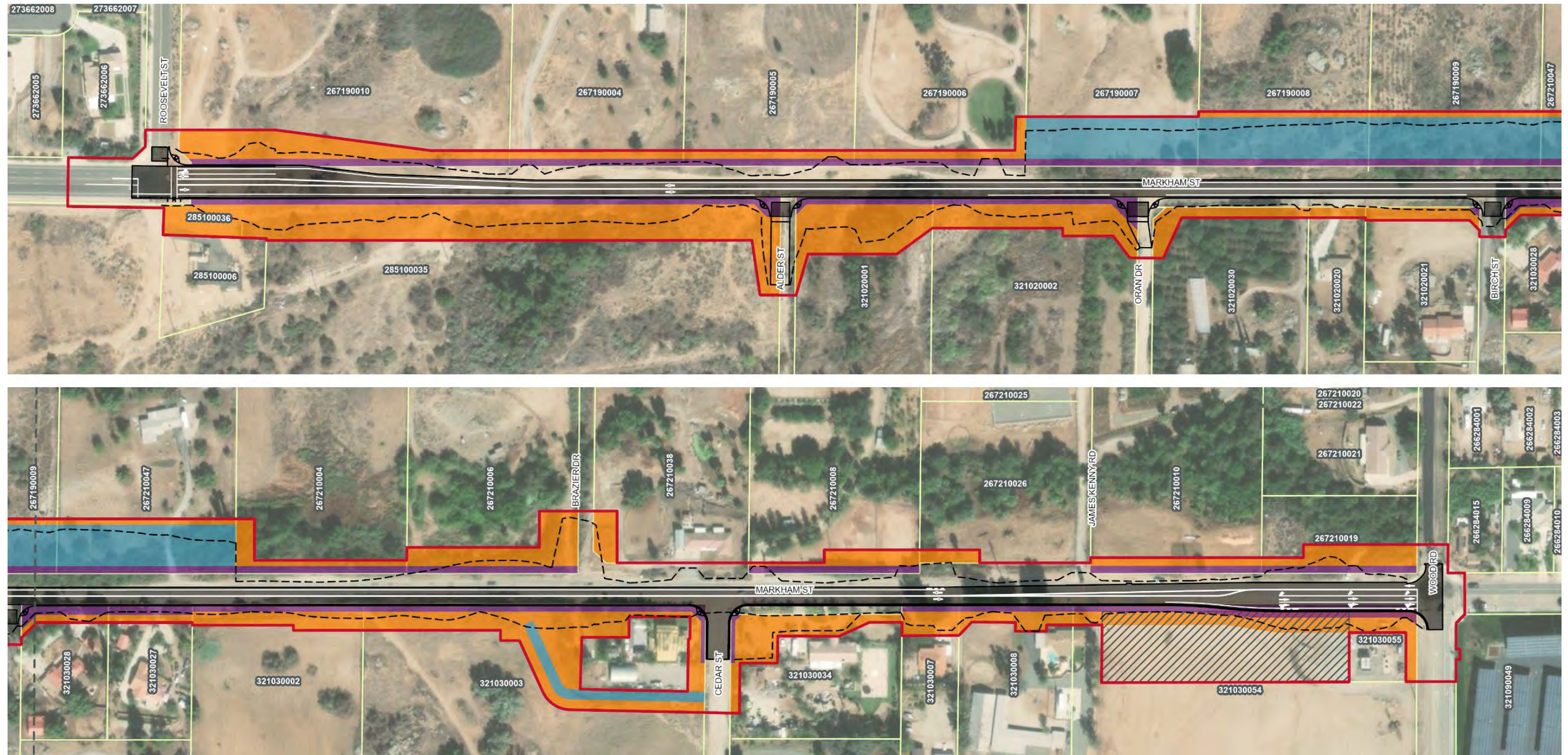
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 Project Area



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Figure 2-2. Project Area



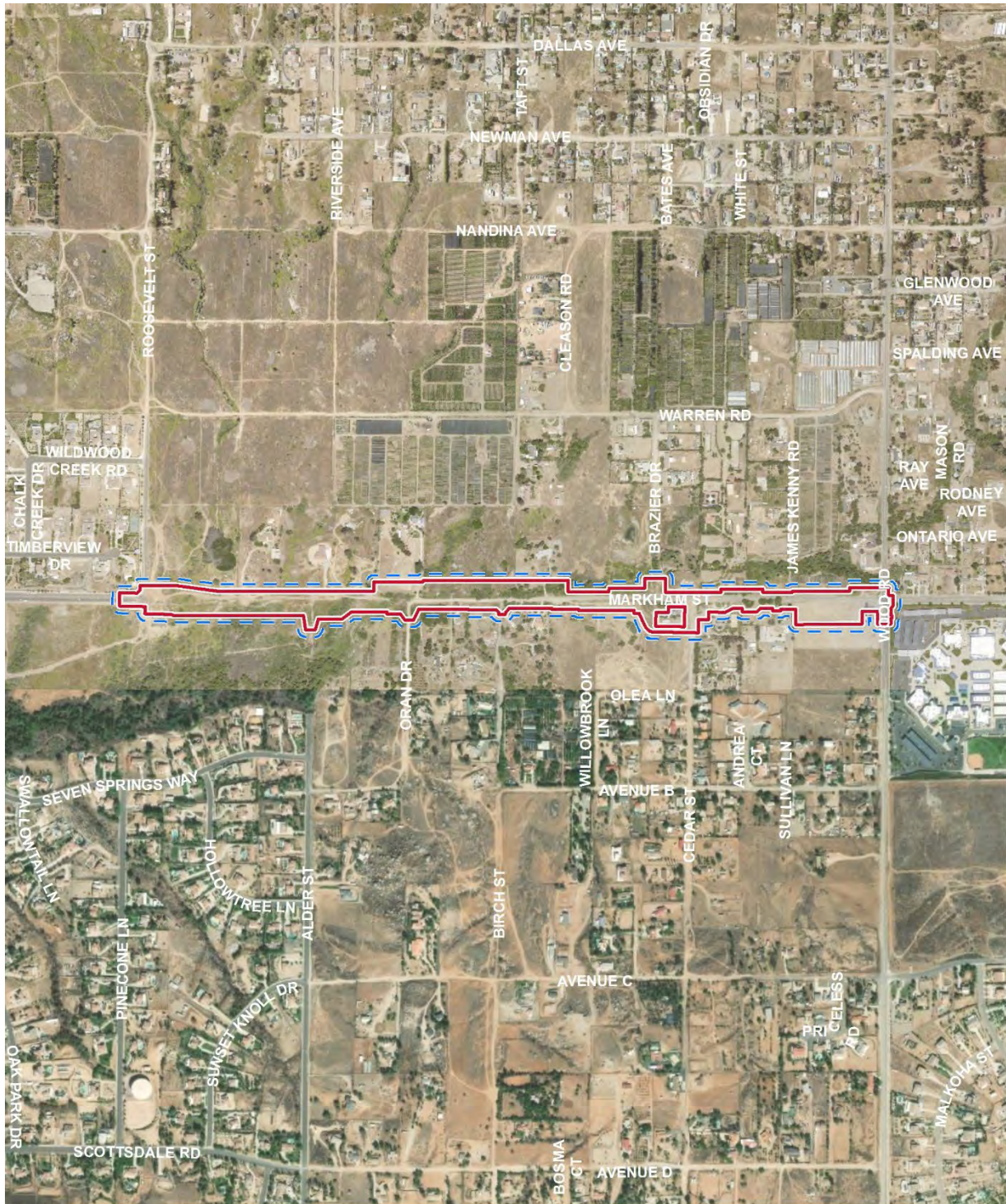
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- |                |                                       |                 |
|----------------|---------------------------------------|-----------------|
| Project Area   | Potential R/W Acquisition             | TCE Limits      |
| Project Design | Potential Permanent Drainage Easement | Parcel Boundary |
| Cut and Fill   | Potential Contractor Laydown Area     | Matchline       |



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Figure 2-3. Aquatic Resources Delineation Area



-  Aquatic Resources Delineation Area
-  Project Area



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## 3 Regulatory Setting

### 3.1 United States Army Corps of Engineers

#### 3.1.1 Section 404 of the Clean Water Act

Section 404 of the CWA establishes a program for USACE to regulate the discharge of dredge and fill material into waters of the U.S. (WOUS), including wetlands. Activities regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. An individual Section 404 permit or authorization to use an existing USACE nationwide permit must be obtained if any portion of an activity would result in dredge or fill impacts on a river or stream that has been determined to be jurisdictional under Section 404 of the CWA. When applying for a permit, a company or organization must show that they would either avoid wetlands where practicable, minimize wetland impacts, or provide compensation for any unavoidable destruction of wetlands.

#### Waters of the United States

On June 9, 2021, the U.S. Environmental Protection Agency and the Department of the Army announced their intent to revise the Navigable Waters Protection Rule's definition of WOUS. That rulemaking process is anticipated to take approximately 2 years. In the meantime, pursuant to an August 30, 2021, U.S. District Court for the District of Arizona order vacating and remanding the Navigable Waters Protection Rule (*Pascua Yaqui Tribe v. U.S. Environmental Protection Agency*), the U.S. Environmental Protection Agency and USACE have halted implementation of the Navigable Waters Protection Rule that became effective on June 22, 2020, and are interpreting WOUS consistent with the pre-2015 regulatory regime until further notice. On December 7, 2021, the U.S. Environmental Protection Agency and Department of the Army announced a proposed rule to restore the pre-2015 definition of WOUS. The pre-2015 definition of WOUS was defined in the USACE regulations at 33 Code of Federal Regulations Part 328.3(a) as:

1. All waters which are 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;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters;
  - a. Which or could be used by interstate or foreign travelers for recreation or other purposes; or
  - b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - c. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as Waters of the U.S. under the definition;



5. Tributaries of waters identified in paragraph(s) (1) through (4) of this section;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.
8. Waters of the U.S. do not include prior converted cropland.

The limits of USACE jurisdiction in non-tidal waters extends to the ordinary high water mark (OHWM), which is defined at 33 Code of Federal Regulations 328.3(e) as:

*...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses 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 areas.*

Per USACE Regulatory Guidance Letter 08-02, when applying for a Section 404 permit, applicants may choose to proceed under the assumption that all drainage features that exhibit an OHWM within a project footprint are subject to regulation if a discharge of fill is proposed. This assumption is considered a preliminary jurisdictional determination (JD). Alternatively, applicants may request an approved JD, which is USACE's concurrence that the jurisdictional delineation's findings are correct and is an official USACE determination that jurisdictional aquatic resources are present or absent from the subject site. An approved JD is typically valid for up to 5 years and allows for the USACE to exclude features that they have reviewed and deemed non-jurisdictional. The use of a preliminary JD may expedite the permitting process when compared to the approved JD process, which requires the JD to be coordinated with the U.S. Environmental Protection Agency.

## Wetlands

The term wetlands (a subset of WOUS) is defined at 33 Code of Federal Regulations 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987, USACE published a manual to guide its field personnel in determining jurisdictional wetland boundaries followed by the Arid West Supplement in 2008 (USACE 2008a). The methodology set forth in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* generally requires that to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria (three parameter definition).

The plant community must be determined to be hydrophytic based on:

1. The dominance test applied using the 50/20 rule,<sup>1</sup> or where the vegetation fails the dominance test and wetland hydrology and hydric soils are present, vegetation is determined to be

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<sup>1</sup> If a particular species accounts for more than 50 percent of the total coverage of vegetation in the stratum, or for at least 20 percent of the total coverage in the stratum which the species was found, that species is defined as dominant.

hydrophytic using the Prevalence Index test<sup>2</sup> based upon the indicator status (i.e., rated as facultative or wetter in the 2018 National List of Plant Species that Occur in Wetlands [USACE 2020]);

2. Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., redoximorphic features with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
3. Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for a sufficient period to cause: the formation of hydric soils; and establishment of a hydrophytic plant community. A positive test for wetland hydrology is based on the presence of one primary or two secondary indicators.

## Supreme Court Decisions

### *Solid Waste Agency of North Cook County*

On January 9, 2001, the Supreme Court of the U.S. issued a decision on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* with respect to whether USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County ruling stated that USACE does not have jurisdiction over non-navigable, isolated, intrastate waters.

### *Rapanos/Carabell*

In the Supreme Court cases of *Rapanos v. United States* and *Carabell v. United States* (herein referred to as *Rapanos*), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the court. In light of the *Rapanos* decision, the USACE will assert jurisdiction over traditional navigable waters (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical, and biological integrity of downstream TNWs. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration and frequency of flow, proximity to TNWs, size of watershed, average annual rainfall, and average annual winter snowpack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

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<sup>2</sup> A Prevalence Index is calculated using wetland indicator status and relative abundance for each vascular plant species present.

According to a USACE guidance document (USACE 2008b), USACE generally will not assert jurisdiction over the following features: swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short-duration flow) and ditches (including roadside ditches) excavated wholly in, and draining only, uplands that generally do not carry a relatively permanent flow of water.

## 3.2 Regional Water Quality Control Board

In California, the State Water Resources Control Board (SWRCB) and nine RWQCBs regulate activities within state and federal waters under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. SWRCB is responsible for setting statewide policy, coordinating and supporting RWQCB efforts, and reviewing petitions that contest RWQCB actions. Each RWQCB is semiautonomous and has the authority to set water quality standards, issue Section 401 certifications and waste discharge requirements, and take enforcement action for projects occurring within its boundary. However, when a project crosses multiple RWQCB jurisdictional boundaries, SWRCB becomes the regulating agency that issues project permits.

### 3.2.1 Section 401 of the Clean Water Act

Section 401 specifies that certification from the state is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into WOUS. A federal permit or license cannot be issued that may result in a discharge to WOUS unless certification under Section 401 of the CWA is granted or waived by the U.S. Environmental Protection Agency, state, or tribe where the discharge would originate (SWRCB 2014). The ARDA is located within the boundaries of the Los Angeles (Region 4) RWQCB, which would have the authority to grant, grant with conditions, deny, or waive water quality certification for the Project.

Under Section 401, all activities regulated at the federal level by USACE are also regulated at the state level. Therefore, state jurisdiction usually includes all waters or tributaries to waters that are determined to be WOUS and, similar to WOUS, are typically delineated at the OHWM.

### 3.2.2 Porter-Cologne Water Quality Control Act

RWQCB also regulates discharge of waste to waters of the state (WOS), pursuant to California's Porter-Cologne Water Quality Control Act enacted in 1969, which provides the legal basis for water quality regulation within California. Under this act, WOS are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050(e)). Should RWQCB determine that discharge of pollutants (including fill) is proposed to waters that meet the definition of WOS but not WOUS, waste discharge requirements may be required.

### 3.2.3 State Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to Waters of the State

On April 2, 2019, SWRCB adopted the State Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to WOS. The procedures became effective May 28, 2020, and were revised on April 6, 2021. These rules define what SWRCB considers a wetland and include a framework for determining if a feature that meets the SWRCB wetland definition is a WOS, subject to regulation.

Second, the rules clarify requirements for permit applications to discharge dredged or fill material to any WOS.

SWRCB defines an area as wetland as follows:

*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 (SWRCB 2021).*

SWRCB considers the following wetlands (as determined using methodology in the USACE *Wetland Delineation Manual* [USACE Environmental Laboratory 1987]) as WOS:

1. Natural wetlands
2. Wetlands created by modification of a surface water of the state
3. Artificial wetlands that meet any of the following criteria:
  - a. Approved by an agency as compensatory mitigation for impacts on other WOS, except where the approving agency explicitly identifies the mitigation as being of limited duration
  - b. Specifically identified in a water quality control plan as a wetland or other water of the state
  - c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape
  - d. Greater than or equal to 1 acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not WOS unless they also satisfy the criteria set forth in 2, 3a, or 3b):
    - i. Industrial or municipal wastewater treatment or disposal
    - ii. Settling of sediment
    - iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program
    - iv. Treatment of surface waters
    - v. Agricultural crop irrigation or stock watering
    - vi. Fire suppression
    - vii. Industrial processing or cooling
    - viii. Active surface mining – even if the site is managed for interim wetlands functions and values
    - ix. Log storage
    - x. Treatment, storage, or distribution of recycled water
    - xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits)

xii. Fields flooded for rice growing

All artificial wetlands that are less than 1 acre in size and do not satisfy the criteria set forth in numbers 2, 3.a, 3.b, or 3.c are not WOS. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state.

### 3.3 California Department of Fish and Wildlife

#### 3.3.1 California Fish and Game Code Section 1600 et seq.

The State of California regulates water resources under Section 1600 et seq. of the California Fish and Game Code. Section 1602 states:

*An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.*

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated, or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated.

## 4 Methodology

### 4.1 Literature Review

The following literature and materials were reviewed prior to conducting aquatic resources delineation fieldwork and in the process of determining jurisdictional status of aquatic features identified in the field:

- Current and historical aerial photographs, various dates (Google Earth 2022; Historic Aerials 2022)
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil mapping data (USDA NRCS 2022a)
- National Hydrography Dataset (U.S. Geological Survey 2022)
- U.S. Fish and Wildlife Service National Wetlands Inventory (U.S. Fish and Wildlife Service 2022)

### 4.2 Field Investigation

Field surveys of the ARDA were conducted on May 2, May 19, and July 15, 2022. Accessible areas within the ARDA were investigated on foot for the potential to support aquatic features. Areas that were not accessible were viewed from the nearest access point, using binoculars when needed. Data was recorded on aerial photographs by hand or with location data using the Esri Field Maps application on an iPhone 12. Notes describing aquatic resource type, substrate type, flow regime, presence or absence of vegetation, and any other pertinent details regarding observed hydrology were taken at each feature. All features were later digitized and refined using geographic information system software.

Plant species observed were identified by visual characteristics and morphology in the field. Taxonomic nomenclature for plants follows the *Jepson Manual: Vascular Plants of California*, second edition (Baldwin et al. 2012) and the Jepson eFlora database (Jepson Flora Project 2020). Vegetation communities were characterized using *A Manual of California Vegetation*, second edition (Sawyer et al. 2009).

#### 4.2.1 United States Army Corps of Engineers Aquatic Resources Delineation

Aquatic resources potentially subject to USACE jurisdiction were delineated according to 33 Code of Federal Regulations Part 328.4 and using the methods outlined in the USACE Wetland Delineation Manual (USACE Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008c).

Aquatic features were investigated for evidence of an OHWM or other jurisdictional indicators, such as presence of hydrophytic vegetation. Nine wetland sampling points were assessed within the ARDA in areas exhibiting potential wetland conditions, notably potentially hydrophytic vegetation and hydrologic indicators. Wetland indicator status of plant species was determined using the 2020 *USACE National Wetland Plant List, Version 3.5* (USACE 2020). Soils were analyzed using the *Natural*

*Resources Conservation Service Field Indicators of Hydric Soils in the U.S., Version 8.2* (USDA NRCS 2018), the Hydric Soils List for Orange County and Part of Riverside County, California (USDA NRCS 2021), and *Munsell® Soil Color Book* (Munsell Color X-Rite 2013).

Features, such as swales or erosional features and ditches (including roadside ditches), that may have historically carried flows but no longer do as a result of upstream alterations or that were excavated wholly in and draining only uplands and did not exhibit signs of carrying a relatively permanent flow of water, were studied in the field but were only mapped where the feature occurred in the same location as those mapped on the National Wetlands Inventory or topographic maps. Features that were evaluated but did not exhibit an OHWM are shown with a dashed line on Figure 5-5.

#### 4.2.2 Regional Water Quality Control Board

RWQCB jurisdiction, for the purposes of CWA Section 401 Certification, is identical to USACE jurisdiction. In addition, the ARDA was evaluated for isolated features that would not be subject to federal jurisdiction but would be potentially regulated under the Porter-Cologne Water Quality Control Act. Potential state-regulated wetlands were evaluated using the SWRCB's *Procedures for the Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2021)

#### 4.2.3 California Department of Fish and Wildlife

The ARDA was surveyed for features that exhibit streambed and stream banks and/or riparian vegetation and would, therefore, be subject to CDFW jurisdiction. Any such features were mapped from top-of-bank to top-of-bank, or to the extent of riparian vegetation, whichever is greater.

Features, such as swales or erosional features and ditches (including roadside ditches), that may have historically carried flows but no longer do as a result of upstream alterations or that were excavated wholly in and draining only uplands and did not exhibit signs of carrying a relatively permanent flow of water, were studied in the field but were only mapped where the feature occurred in the same location as those mapped on the National Wetlands Inventory or topographic maps. Features that were evaluated but did not exhibit a streambed are shown with a dashed line on Figure 5-5.

### 4.3 Limitations that may Influence Results

Surveyors did not have access to all parcels within the ARDA, including several that supported potential aquatic resources, due to dense vegetation or right of entry restrictions. While features were mapped to the best of surveyors' abilities from the nearest accessible locations, dense vegetation prevented surveyors from being able to observe important drainage characteristics, including OHWM width and drainage substrates. Additionally, inaccessible parcels supported some areas with hydrophytic vegetation that could potentially support wetland WOUS. Without access to these, surveyors were unable to definitively determine the presence or absence of wetland WOUS. At these locations, indicated on maps as "No Right of Entry", wetland WOUS were assumed where conditions were similar to accessible areas within the ARDA that were confirmed to support wetland WOUS.

## 5 Results

### 5.1 Soils

The following soil associations are mapped by the USDA NRCS Soils Survey within the ARDA (Figure 5-1) (USDA NRCS 2019):

- **Buren series:** The Buren series consists of well drained slow to moderately slowly permeable soils. These soils are on gently to strongly sloping alluvial fans and terraces. They formed in alluvium derived mostly from basic igneous rocks and partly from other crystalline rocks. Average annual precipitation of 12 to 15 inches. Buren sandy loam (8-15 percent slopes, eroded) is mapped within the ARDA. Buren soils do not have a hydric soil rating (USDA 2022a).
- **Cieneba series:** The Cieneba series consists of very shallow and shallow, somewhat excessively drained soils that formed in material weathered from granitic rock. Cieneba soils are on hills and mountains and have slopes of 9 to 85 percent. Cieneba sandy loam (8-15 percent slopes, eroded) and Cieneba rocky sandy loam (15-50 percent slopes, eroded) is mapped within the ARDA. Cieneba soils do not have a hydric soil rating (USDA 2022a).
- **Fallbrook series:** The Fallbrook series consists of deep, well drained soils that formed in material weathered from granitic rocks. Fallbrook soils are on rolling hills and have slopes of 5 to 75 percent. Fallbrook sandy loam (8-15 percent slopes, eroded) is mapped within the ARDA. Fallbrook soils do not have a hydric soil rating (USDA 2022a).
- **Hanford series:** The Hanford series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Hanford soils are on stream bottoms, floodplains and alluvial fans and have slopes of 0 to 15 percent. Hanford coarse sandy loam (2-8 percent slopes) is mapped within the ARDA. Hanford soils do not have a hydric soil rating (USDA 2022a).
- **Monserate series:** The Monserate series is a member of the fine-loamy, mixed, thermic family of Typic Durixeralfs. Typically, Monserate soils have brown and yellowish red, slightly acid, sandy loam A horizons, reddish brown, neutral, sandy clay loam B2t horizons underlain by silica-cemented duripans. Monserate sandy loam (0-5 percent slopes) and Monserate sandy loam (8-15 percent slopes, eroded) are mapped within the ARDA. Monserate soils do not have a hydric soil rating (USDA 2022a).

### 5.2 Climate and Hydrology

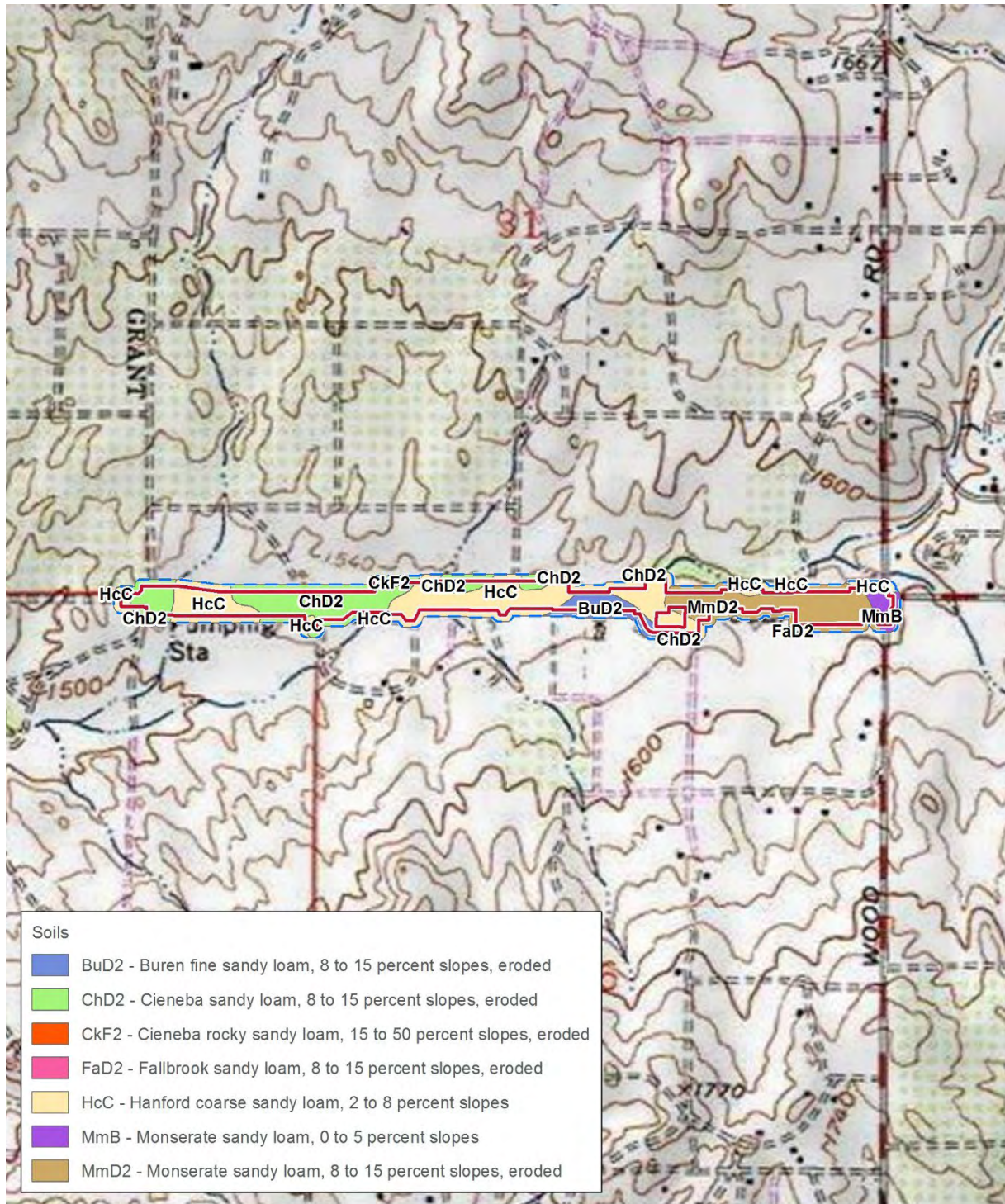
The ARDA is located in Southern California which has a Mediterranean climate, characterized by warm, dry summers and cool, moist winters. Riverside County is warm and temperate with more rain occurring during winter. The average precipitation within the ARDA is 10.2 inches per year, with most of the rainfall occurring between November and February (USDA 2022b). The ARDA is located at approximately 560 to 610 feet in elevation.

The ARDA is located within the Temescal Wash sub-watershed (Hydrologic Unit Code 1807020306), which is within the Santa Ana River Watershed (Hydrologic Unit Code 18070203) (California Water Indicators Portal [CWIP] 2022). The Santa Ana River Watershed covers approximately 2,650 square



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Figure 5-1. United States Department of Agriculture Mapped Soils



 Aquatic Resources Delineation Area

 Project Area



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miles in San Bernardino, Riverside, Orange, and Los Angeles counties (USACE 2013) and the Temescal Wash sub-watershed covers approximately 253 square miles in Riverside County (CWIP 2022). The Santa Ana River is the main receiving water of this watershed and is a historic feature that originates in the San Bernardino Mountains and travels through the Inland Empire, Prado Basin, and the Santa Ana Mountains. It eventually discharges into the Pacific Ocean between Huntington Beach and Costa Mesa, approximately 62 river miles from the ARDA.

According to the Drainage Report prepared for the Project, the ARDA supports three drainage areas with a total drainage area of 2,304 acres (Figure 5-2) (HDR 2022). Mockingbird Canyon Creek is the major drainage course through the ARDA. Based on aerial photography, Mockingbird Canyon Creek appears to originate in the hills northeast of the ARDA and continues to the southwest of the ARDA where flows are collected in Mockingbird Canyon Reservoir, which was constructed to provide water for surrounding agricultural uses. Outflows from the Reservoir are eventually discharged to the Santa Ana River.

The National Wetlands Inventory identifies portions of Mockingbird Canyon Creek as supporting freshwater forested/shrub wetland and riverine aquatic resources within the ARDA (Figure 5-3). Freshwater forested/shrub wetland within the ARDA is classified as Palustrine, Forested, Temporary Flooded (PFOA) and Palustrine, Scrub-Shrub, Temporary Flooded (PSSA). Riverine habitat within the ARDA is classified as Riverine, Intermittent, Streambed, Seasonally Flooded (R4SBC) (USFWS 2022).

## 5.3 Vegetation and Land Cover Types

Acreages of vegetation communities and other land cover types within the ARDA are provided in Table 5-1. Vegetation communities and other land cover types within the ARDA are shown on Figure 5-4. Descriptions of vegetation communities and other land cover types follow.

### Black Willow Woodland (*Salix gooddingii* Forest and Woodland Alliance)

Black willow woodland is dominated by black willow (*Salix gooddingii*), with lesser amounts of other willow species (*Salix* spp.). Black willow is dominant or co-dominant in the tree layer with at least 50 percent relative cover. It generally occurs on terraces along large rivers and canyons and along floodplains of streams, seeps, springs, and ditches. Trees are less than 30 meters in height, with an open-to-continuous canopy with a sparse shrub layer and a variable herbaceous layer (Sawyer et al. 2009).

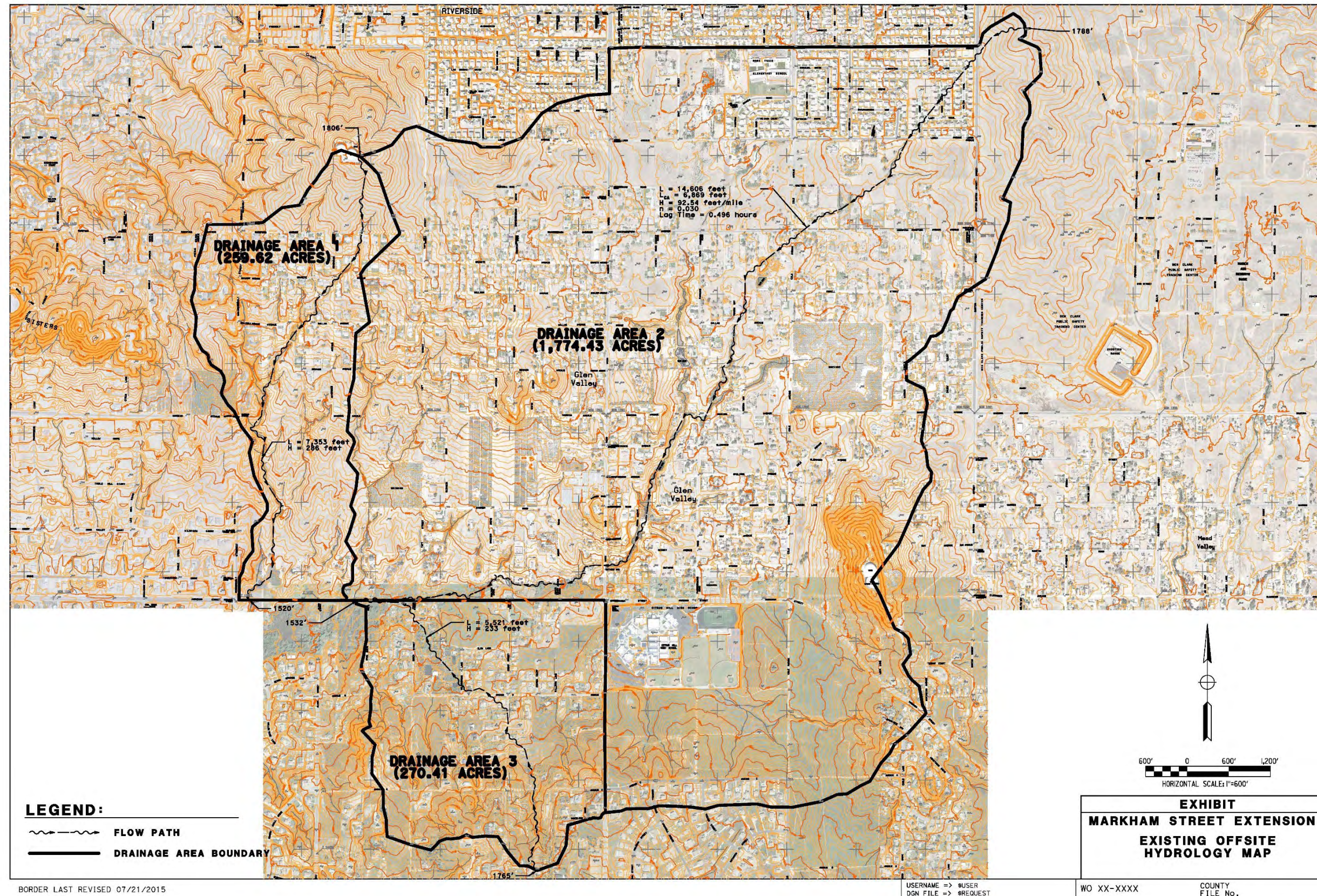
Within the ARDA, black willow woodland occurs along Mockingbird Canyon Creek and in two isolated patches south of Markham Street and covers approximately 3.28 acres.

### Ornamental Riparian Woodland

The Manual of California Vegetation does not provide descriptions for disturbed vegetation communities. However, some of the riparian woodland habitat within the ARDA supports a high percentage of ornamental, non-native species and is mapped and described separately for this report. Within the ARDA, ornamental riparian woodland is dominated by bamboo (*Bambusa vulgaris*), papyrus (*Cyperus papyrus*), weeping willow (*Salix babylonica*), giant reed (*Arundo donax*), and Mexican fan palm (*Washingtonia robusta*), with a smaller percentage of black willows.

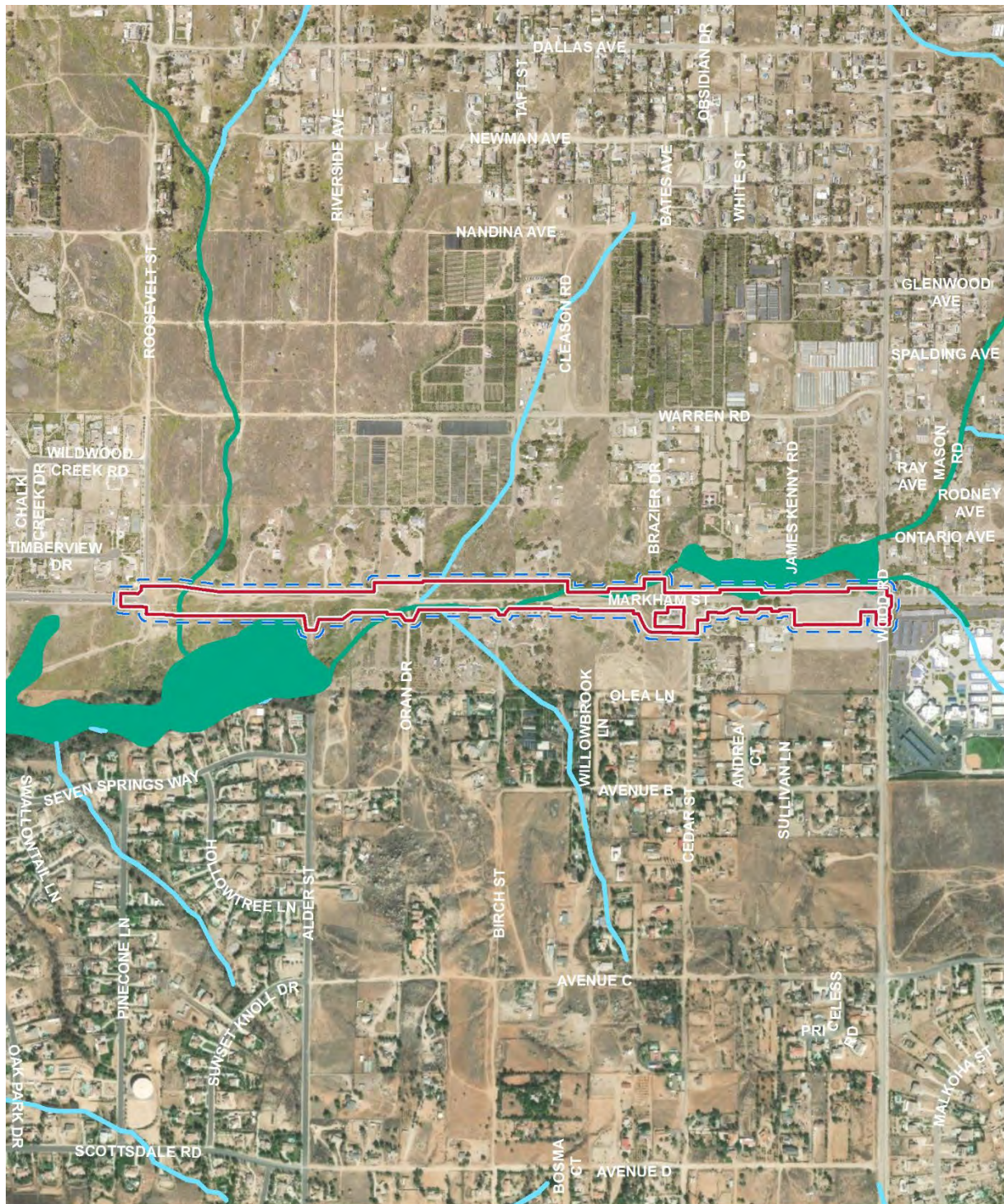
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Figure 5-2. Hydrology Map

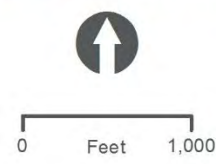


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Figure 5-3. National Wetlands Inventory Mapping



-  Aquatic Resources Delineation Area
-  Project Area
- National Wetlands Inventory Data
  -  Freshwater Forested/Shrub Wetland
  -  Riverine





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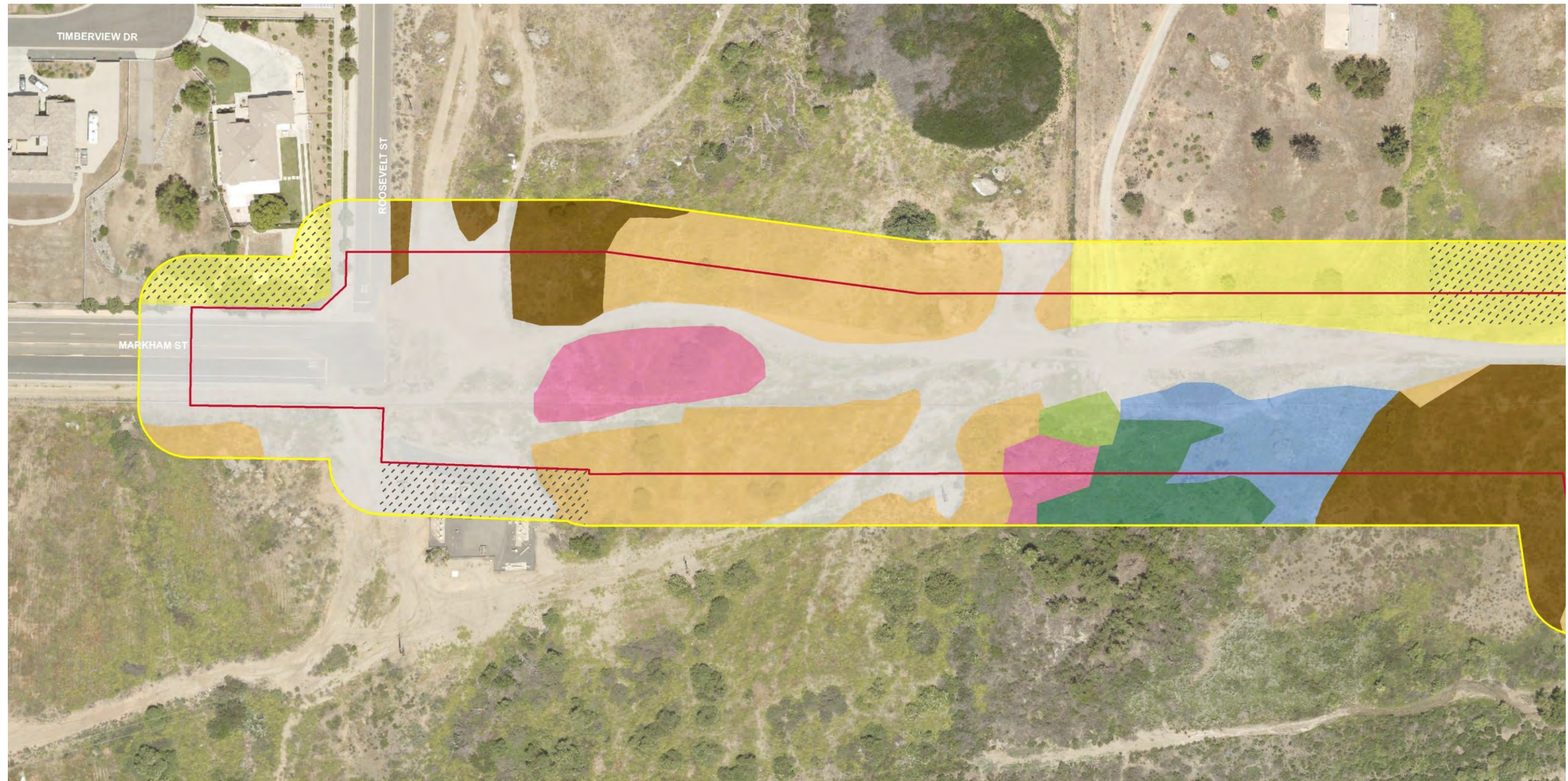
**Table 5-1. Vegetation Communities and Other Land Cover Types within the Aquatic Resources Delineation Area**

Vegetation Community or Other Land Cover Type	Acres in Aquatic Resources Delineation Area
<b><i>Tree-dominated habitats</i></b>	
Black willow woodland	3.28
Ornamental riparian woodland	0.06
<b><i>Shrub-dominated habitats</i></b>	
California buckwheat scrub	3.51
Blue elderberry shrubland	0.54
Mule fat thickets	0.50
<b><i>Herbaceous-dominated habitats</i></b>	
Mediterranean California naturalized annual and perennial grassland	6.54
Cattail marsh	0.16
Perennial pepperweed patches	1.32
Cocklebur patches	0.08
Giant reed marsh	0.01
<b><i>Other land cover types</i></b>	
Residential	10.88
Orchard/Agricultural	1.60
Developed/Disturbed/Bare Ground	11.51
<b>Total*</b>	<b>39.98</b>

\* Column totals may differ due to rounding

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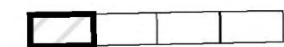
Figure 5-4. Vegetation Communities and Land Covers within the Aquatic Resources Delineation Area  
 (Sheet 1 of 4)



**LEGEND**  
 [Yellow outline] Aquatic Resources Delineation Area (39.98 acres)  
 [Red outline] Project Area (24.64 acres)  
 [Hatched] No Right of Entry

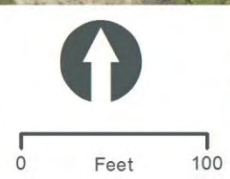
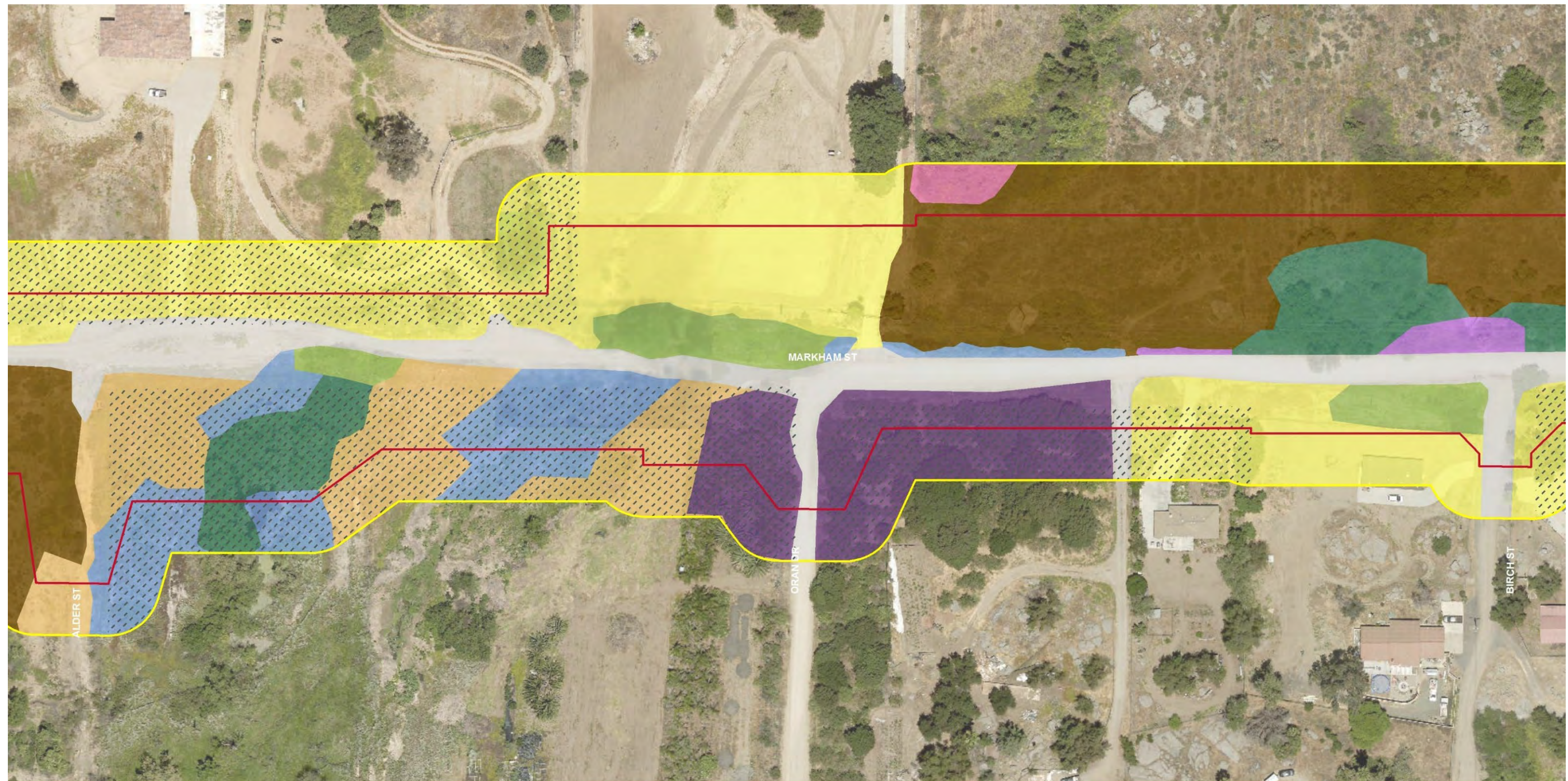
**Vegetation**

- [Green] Black willow woodland
- [Pink] Blue elderberry shrubland
- [Brown] California buckwheat scrub
- [Grey] Developed/Disturbed/Bare Ground
- [Orange] Mediterranean California naturalized annual and perennial grassland
- [Light Green] Mule fat thickets
- [Blue] Perennial pepperweed patches
- [Yellow] Residential



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Figure 5-4. Vegetation Communities and Land Covers within the Aquatic Resources Delineation Area  
 (Sheet 2 of 4)



**LEGEND**

- Aquatic Resources Delineation Area (39.98 acres)
- Project Area (24.64 acres)
- No Right of Entry

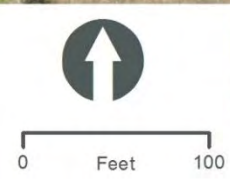
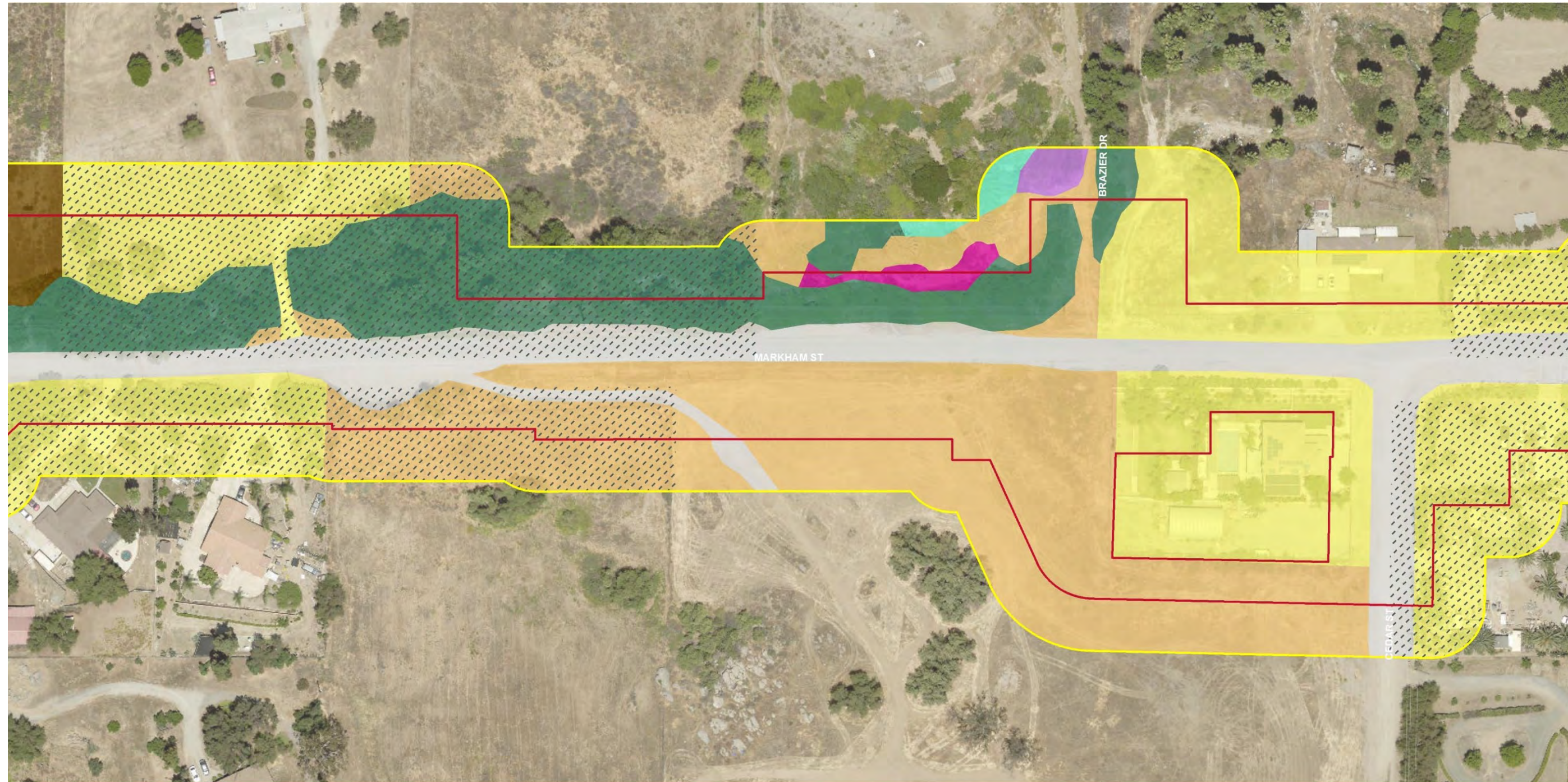
**Vegetation**

- |  |   |  |  |
|--|---|--|--|
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #2e8b57; margin-right: 5px;"></span> Black willow woodland      | <span style="display: inline-block; width: 15px; height: 10px; background-color: #d3d3d3; margin-right: 5px;"></span> Developed/Disturbed/Bare Ground                                     | <span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; margin-right: 5px;"></span> Cattail marshes              | <span style="display: inline-block; width: 15px; height: 10px; background-color: #483d8b; margin-right: 5px;"></span> Orchard/Agricultural |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #ff69b4; margin-right: 5px;"></span> Blue elderberry shrubland  | <span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; margin-right: 5px;"></span> Mediterranean California naturalized annual and perennial grassland | <span style="display: inline-block; width: 15px; height: 10px; background-color: #6495ed; margin-right: 5px;"></span> Perennial pepperweed patches | <span style="display: inline-block; width: 15px; height: 10px; background-color: #ffff00; margin-right: 5px;"></span> Residential          |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #8b4513; margin-right: 5px;"></span> California buckwheat scrub | <span style="display: inline-block; width: 15px; height: 10px; background-color: #90ee90; margin-right: 5px;"></span> Mule fat thickets   |  |  |



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Figure 5-4. Vegetation Communities and Land Covers within the Aquatic Resources Delineation Area  
 (Sheet 3 of 4)



LEGEND

- Aquatic Resources Delineation Area (39.98 acres)
- Project Area (24.64 acres)
- No Right of Entry

Vegetation

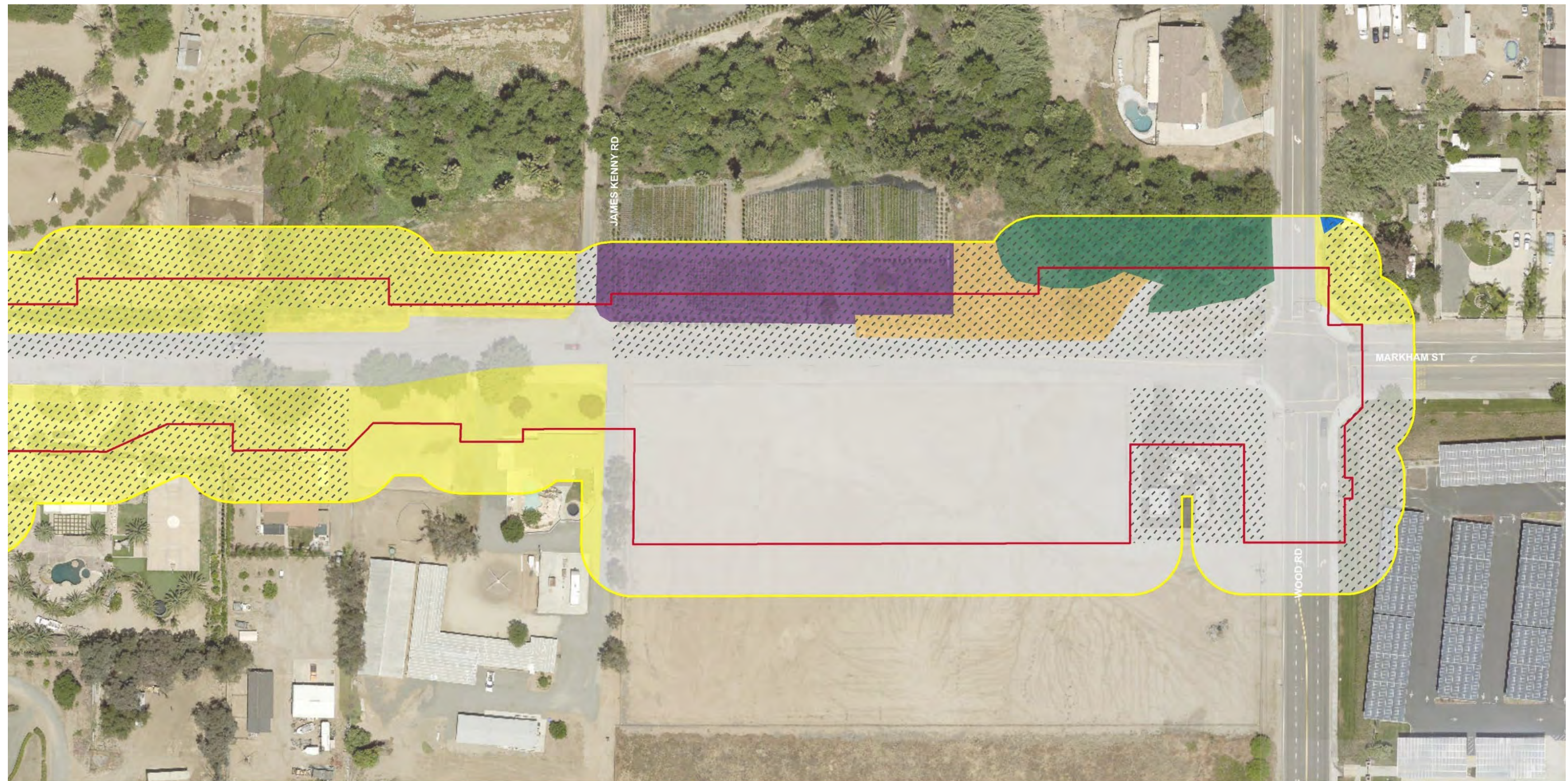
- Black willow woodland
- Cattail marshes
- Mediterranean California naturalized annual and perennial grassland
- California buckwheat scrub
- Cocklebur patches
- Ornamental riparian
- Developed/Disturbed/Bare Ground
- Residential





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Figure 5-4. Vegetation Communities and Land Covers within the Aquatic Resources Delineation Area  
 (Sheet 4 of 4)



**LEGEND**

	Aquatic Resources Delineation Area (39.98 acres)	<b>Vegetation</b>	Giant reed marsh	Orchard/Agricultural
Project Area (24.64 acres)	Black willow woodland	Mediterranean California naturalized annual and perennial grassland	Residential	
No Right of Entry	Developed/Disturbed/Bare Ground			

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Within the ARDA, ornamental riparian woodland occurs approximately 400 feet northeast of the intersection of Markham Street and Cedar Street and is associated with two artificially created ponds that appear to be part of a remnant plant nursery. Ornamental riparian woodland covers approximately 0.06 acres within the ARDA.

#### California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

California buckwheat scrub is dominated by California buckwheat (*Eriogonum fasciculatum*), which accounts for at least 50 percent relative cover in the shrub layer. This alliance usually occurs on upland slopes, intermittently flooded arroyos, channels, and washes. Shrubs are typically less than 2 meters in height, with an intermittent-to-continuous canopy and a variable, grassy herbaceous layer (Sawyer et al. 2009). Within the ARDA, California buckwheat scrub covers 3.51 acres.

#### Blue Elderberry Shrubland (*Sambucus* sp. Shrubland Semi-Natural Alliance)

Blue elderberry woodland occurs as dense stands of blue elderberry (*Sambucus nigra*) with small amounts of mule fat (*Baccharis salicifolia*), shortpod mustard (*Hirschfeldia incana*), California buckwheat, and perennial pepperweed (*Lepidium latifolium*) and generally occurs in upland areas adjacent to riparian habitats. Within the ARDA, blue elderberry shrubland covers 0.54 acre.

#### Mule Fat Thickets (*Baccharis salicifolia* Shrubland Alliance)

Within this alliance, mule fat is dominant or co-dominant in the shrub canopy with California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), tree tobacco (*Nicotiana glauca*), and willow species (*Salix* spp.). Emergent trees may be present at low cover, including sycamore (*Platanus racemosa*), cottonwood (*Populus fremontii*), oak (*Quercus* spp.), or willow (*Salix* spp.). Mule fat is at least 50 percent relative cover in the shrub canopy and grows along canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels. Shrubs are less than 5 meters in height, with a continuous canopy and a sparse herbaceous layer. Within the ARDA, mule fat thickets cover 0.49 acre.

#### Mediterranean California Naturalized Annual and Perennial Grassland

This community is dominated by shortpod mustard and non-native grasses (*Bromus* sp., *Avena* sp., *Hordeum* sp.) with other non-native herbaceous species including non-native tree tobacco and castor bean (*Ricinus communis*). These areas have been previously physically disturbed but continue to retain a soil substrate. Within the ARDA this community occurs in undeveloped parcels and within parcels that have been cleared of native vegetation but not regularly maintained. Within the ARDA, this community covers approximately 6.54 acre.

#### Cattail Marsh (*Typha* sp. Herbaceous Alliance)

Cattail marsh is dominated by one or more species of cattail (*Typha* spp.), with at least 50 percent relative cover in the herbaceous layer. Cattails are rhizomatous and grow in dense colonies forming uniform stands that are not proximally associated with other plants except generally with wetland affiliates. This alliance usually occurs in semi-permanently flooded freshwater or brackish marshes. Herbaceous plants are typically less than 1.5 meter in height, with intermittent-to-continuous cover (Sawyer et al. 2009). Within the ARDA cattail marsh covers 0.16 acre associated with a culverted portion of Mockingbird Canyon Creek directly adjacent to the north side of Markham Street.

### Perennial Pepperweed Patches (*Lepidium latifolium* Herbaceous Semi-Natural Alliance)

Perennial pepperweed patches are dominated by perennial pepperweed with at least 30 percent relative cover in the herbaceous layer. This community most commonly occurs in intermittently and seasonally flooded fresh and saltwater marshes and riparian corridors. Perennial pepperweed is an invasive weed and is invading riparian and wetland settings in California. The species spreads rapidly and forms extensive, dense patches in both freshwater and brackish water sites. Within the ARDA, perennial pepperweed patches almost exclusively consist of perennial pepperweed and cover 1.32 acres, associated with Mockingbird Canyon Creek and adjacent riparian habitat.

### Cocklebur Patches (*Xanthium strumarium* Herbaceous Alliance)

Cocklebur patches are dominated by cocklebur (*Xanthium strumarium*) with at least 50 percent relative cover in the herbaceous layer. This community occurs in marshes, regularly disturbed vernal wet ponds, lakeshores, reservoirs, fields, stream terraces, floodplains, and mudflats. Cocklebur is a robust, native annual that occurs worldwide, particularly in disturbed areas such as seasonally flooded streamsides and alluvial flats. Within the ARDA, cocklebur patches are dominated by cocklebur and lambs quarters (*Chenopodium album*) and occur along one seasonally wet access road located adjacent to Mockingbird Canyon Creek, covering 0.08 acre.

### Giant Reed Marsh (*Arundo donax* Herbaceous Semi-Natural Alliance)

Giant reed marsh is dominated by giant reed (*Arundo donax*), with at least 60 percent relative cover in the herbaceous layer. Giant reeds are rhizomatous and grow in dense colonies that form uniform stands. This alliance usually occurs in riparian areas along low-gradient streams and ditches and in semi-permanently flooded and slightly brackish marshes. Herbaceous plants are typically less than 8 meters in height with continuous cover (Sawyer et al. 2009). Giant reed marsh occurs at the eastern edge of the ARDA and covers 0.01 acre.

### Residential

Residential areas consist of parcels that have been developed for residential uses and include the constructed buildings as well as landscaped and non-landscaped yards. The ARDA is located within a rural area that consists of larger parcels with residential yards that are not entirely developed but have been cleared of native vegetation. For the most part the yards support only ornamental species or non-native weedy species. While some areas support habitat that could be suitable for wildlife species, they are all surrounded by fences, precluding most wildlife aside from resident and migratory birds. Residential areas occur throughout the ARDA, covering approximately 10.88 acres.

### Orchard/Agricultural

Orchard/agricultural areas consist of parcels that are planted with fruit or landscaping trees or vegetable crops. The ARDA supports a mix of rural, residential and agricultural uses, often on the same properties. Species planted within orchard/agricultural areas were not identified. Orchard/agricultural areas cover approximately 1.60 acres within the ARDA.

### Developed/Disturbed/Bare Ground

Developed/disturbed/bare ground refers to areas that have been manipulated by grading and compacting soils to build infrastructure, such as roads, buildings, parks, fields, etc. These areas have no biological function or value, except that they may provide habitat for nesting birds. Within the ARDA,

paved and unpaved roads and associated landscaping were mapped as developed/disturbed/bare ground, covering approximately 11.51 acres of the ARDA.

## 5.4 Aquatic Resources Delineation Results

A map showing the results of the aquatic resources delineation is included as Figure 5-5 and representative photographs are provided in Appendix A.

Mockingbird Canyon Creek traverses the ARDA from the northeast towards the southwest and is the primary aquatic feature within the ARDA. It enters the ARDA at the eastern boundary, just north of the intersection of Markham Street and Wood Road, where it supports giant reed marsh and black willow woodland habitat. Surveyors did not have access to the ARDA at this location and could not view an OHWM from adjacent areas due to the dense woodland vegetation. Mockingbird Canyon Creek continues towards the west as a vegetated channel that meanders in and out of the ARDA. The channel has been modified from its natural course in several locations within the ARDA. Just west of Brazier Drive, the channel was diverted from its natural path of crossing diagonally through the center of APN 267-210-006 to flowing directly adjacent to the northern edge of Markham Street. The diversion occurred sometime in 2013 or 2014, as determined by a review of historic aerial photographs (Google Earth 2022 and NETROnline 2022). Historic aerial photographs of this location between 2012, 2014 and 2021 are included in Appendix B.

At this same location, a large area was excavated where the channel originally flowed, creating two basins that support ponding for several months of the year. Ponding was observed in the eastern basin in May 2022 and July 2022. Ponding was observed in the western basin in May 2022, but the area was not ponded in July 2022. The basins support ornamental riparian woodland vegetation dominated by bamboo, papyrus, and giant reed with some black willows interspersed. Landscaping pots and water barrels were discarded in this area, indicating that the location may be used as a nursery.

The channel continues west from APN 267-210-006, where it flows adjacent to the north side of Markham Street as a modified earthen channel that supports black willow woodland, perennial pepperweed patches, and cattail marsh habitat. The channel eventually terminates at a crushed corrugated metal pipe (CMP) approximately 170 feet west of Oran drive. No indication of flows were observed downstream of the blocked CMP, although there was some minor flooding of Markham Street at a low point near this location, indicating that the channel may overflow with sufficient water levels. The blocked CMP does not allow flows to continue downstream, however riparian habitat occurs in downstream areas that appear to follow the projected flow line of the channel. No OHWM was present in these areas at the time of the surveys, however some evidence of a flow line can be seen on historic aerial photographs.

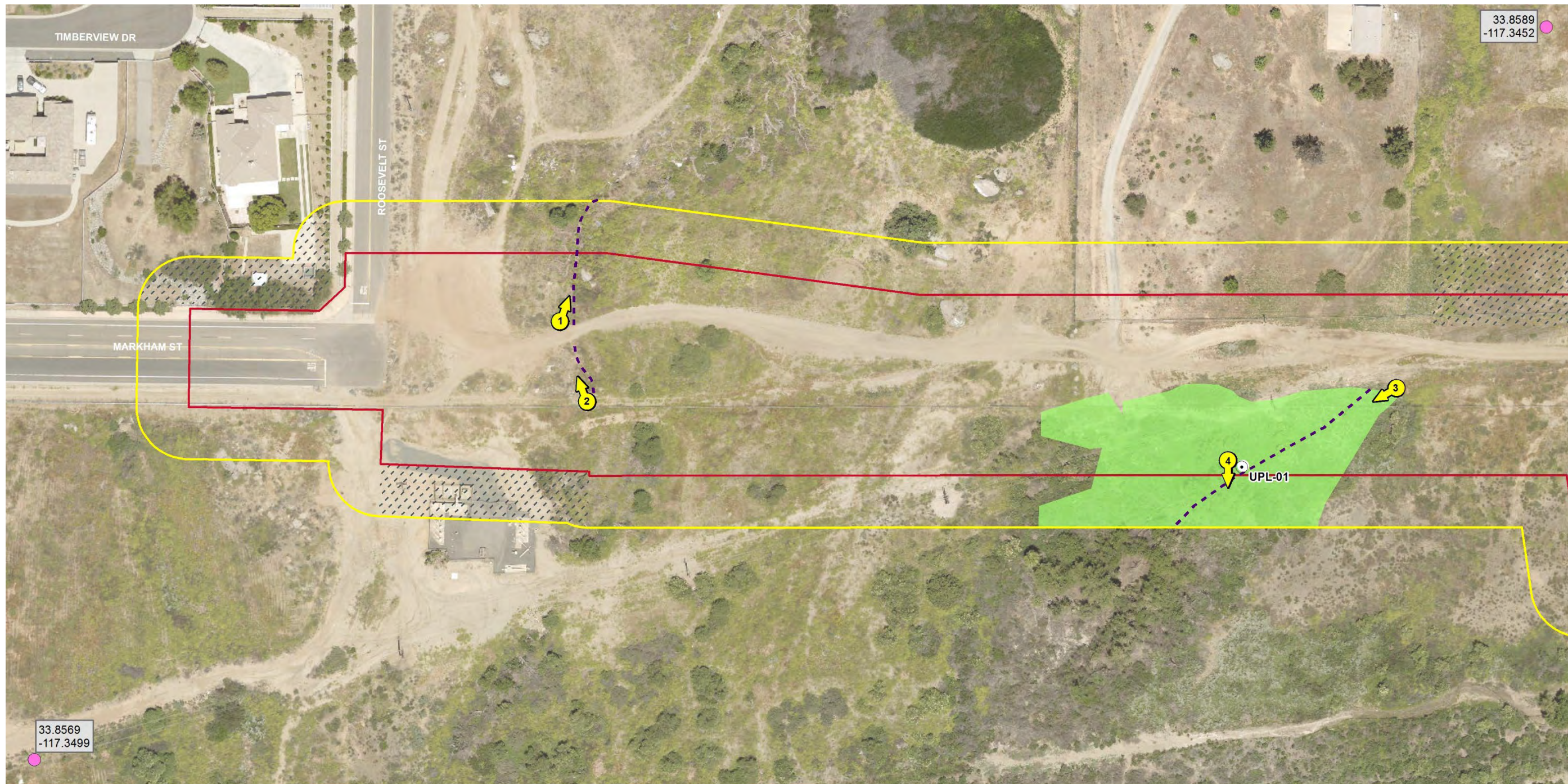
Based on historic aerial photography and observed hydrology during 2022 biological surveys, Mockingbird Canyon Creek supports perennial flows on the north side of Markham Street. Mockingbird Canyon Creek does not support a visible OHWM or other indicators of surficial flow on the south side of Markham Street, however riparian habitat occurs along the projected flow line of the creek to the point where it converges with the main Mockingbird Canyon riparian corridor.

### 5.4.1 United States Army Corps of Engineers

Approximately 0.26 acre of aquatic resources potentially subject to USACE jurisdiction occur within the ARDA. This includes 0.08 acre of non-wetland WOUS and 0.18 acre of wetland WOUS. Table 5-2 provides a summary of WOUS within the ARDA. A description of USACE jurisdiction within the ARDA is provided below and aquatic resource boundaries are depicted on Figure 5-5. Wetland Determination Data Forms are provided in Appendix C.

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Figure 5-5. United States Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife Aquatic Resources within the Aquatic Resources Delineation Area (Sheet 1 of 4)



**LEGEND**

	Aquatic Resources Delineation Area (39.98 acres)	Wetland Sample Point	USACE/RWQCB Jurisdiction (0.26 acre)	CDFW Jurisdiction (5.17 acres)	No OHWM
Project Area (24.64 acres)	Flow Direction	Non-wetland (0.08 acre)	Wetland (0.18 acre)	Riparian Vegetation (5.17 acres)	
No Right of Entry	Photo Point				
Map Reference Point					

0 Feet 100

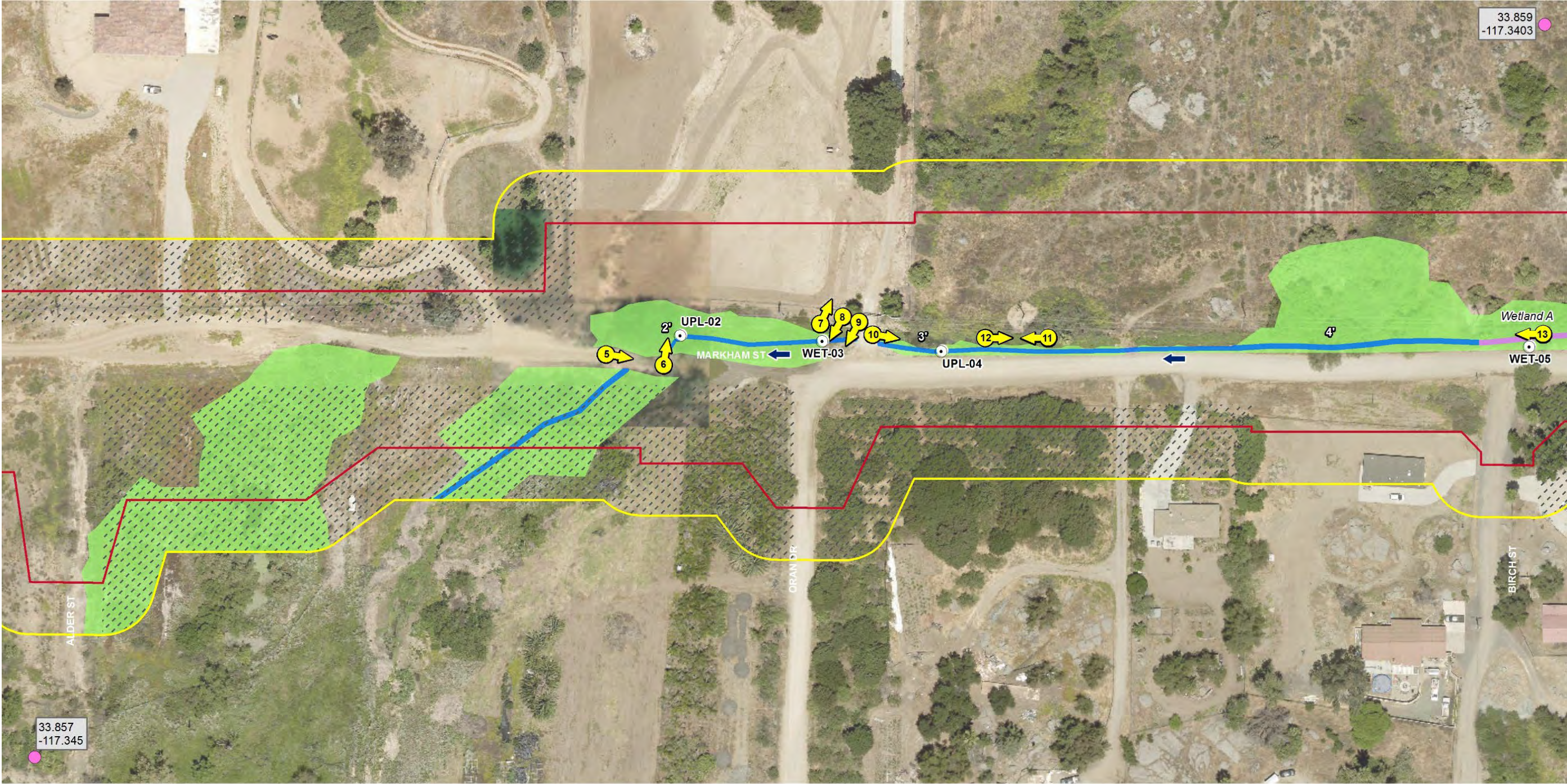
Page 1 of 4

Aerial: Esri World Imagery (2020)  
Date Prepared: 7/21/2022  
Map Prepared by HDR



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Figure 5-5. United States Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife Aquatic Resources within the Aquatic Resources Delineation Area  
 (Sheet 2 of 4)



**LEGEND**

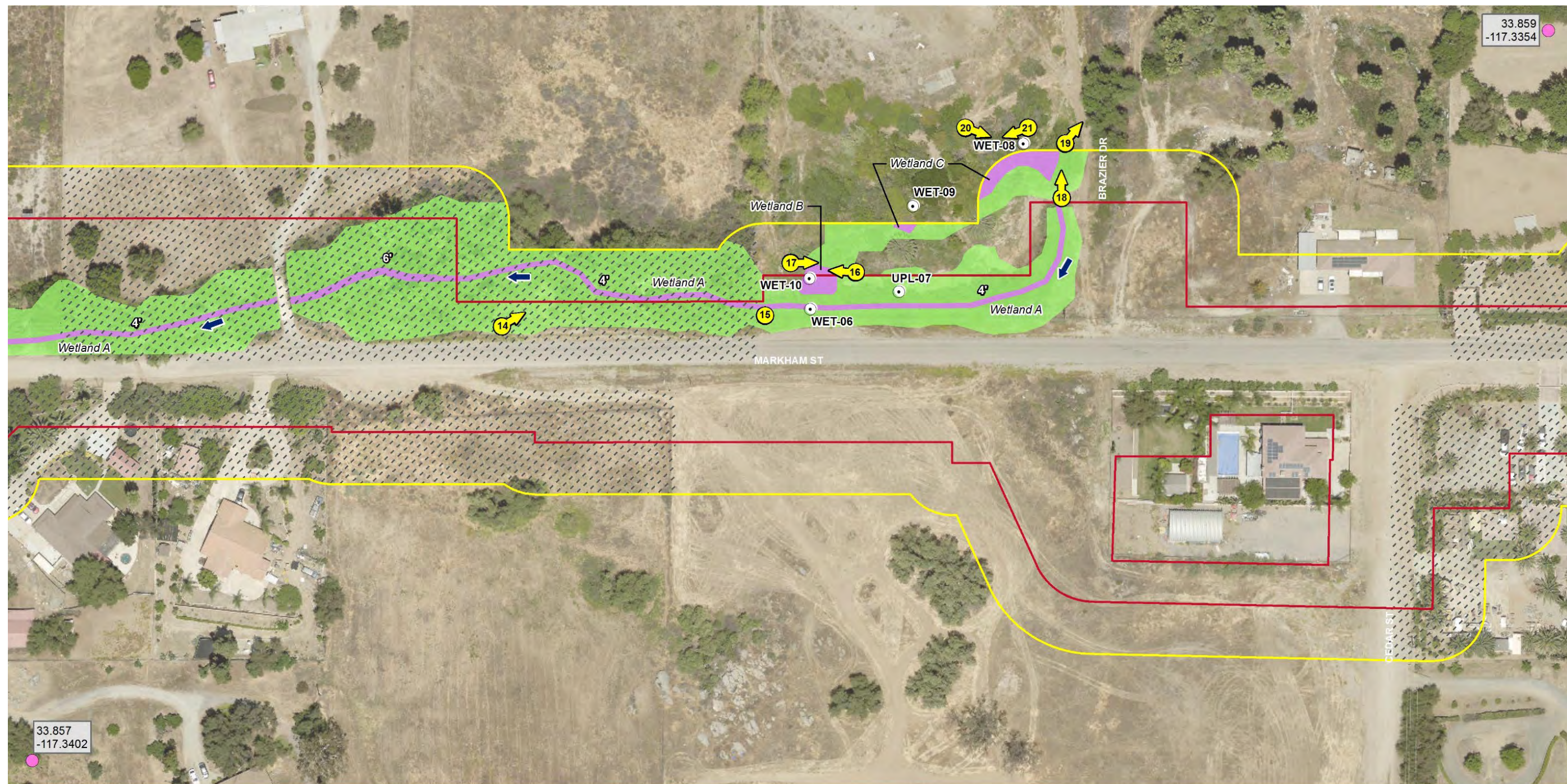
	Aquatic Resources Delineation Area (39.98 acres)	Wetland Sample Point	USACE/RWQCB Jurisdiction (0.26 acre)	CDFW Jurisdiction (5.17 acres)	No OHWM
Project Area (24.64 acres)	Non-wetland (0.08 acre)	Flow Direction	Wetland (0.18 acre)	Riparian Vegetation (5.17 acres)	
No Right of Entry	Photo Point				
Map Reference Point					

Page 2 of 4

Aerial: Esri World Imagery (2020)  
 Date Prepared: 7/21/2022  
 Map Prepared by HDR

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Figure 5-5. United States Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife Aquatic Resources within the Aquatic Resources Delineation Area (Sheet 3 of 4)



**LEGEND**

	Aquatic Resources Delineation Area (39.98 acres)	Wetland Sample Point	USACE/RWQCB Jurisdiction (0.26 acre)	CDFW Jurisdiction (5.17 acres)	No OHWM
	Project Area (24.64 acres)	Flow Direction	Non-wetland (0.08 acre)	Riparian Vegetation (5.17 acres)	
	No Right of Entry	Photo Point	Wetland (0.18 acre)		
	Map Reference Point				

Page 3 of 4

Aerial: Esri World Imagery (2020)  
 Date Prepared: 7/21/2022  
 Map Prepared by HDR

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Figure 5-5. United States Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife Aquatic Resources within the Aquatic Resources Delineation Area (Sheet 4 of 4)



**LEGEND**

	Aquatic Resources Delineation Area (39.98 acres)	Map Reference Point	Wetland Sample Point	USACE/RWQCB Jurisdiction (0.26 acre)	CDFW Jurisdiction (5.17 acres)	No OHWM
	Project Area (24.64 acres)	Flow Direction	Non-wetland (0.08 acre)	Wetland (0.18 acre)	Riparian Vegetation (5.17 acres)	
	No Right of Entry	Photo Point				

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**Table 5-2. Potential United States Army Corps of Engineers and Regional Water Quality Control Board Jurisdictional Areas within the Aquatic Resources Delineation Area**

Feature	USACE/RWQCB Jurisdiction	
	Clean Water Act Section 404 and 401 Jurisdiction (Waters of the United States and Waters of the State)	
	Linear Feet	Acres
<b>Non-wetland WOUS</b>		
Non-wetland	1,012	0.08
<b>Subtotal</b>	<b>1,012</b>	<b>0.08</b>
<b>Adjacent Wetlands</b>		
Wetland A (Mockingbird Canyon Creek)	1,251	0.13
Wetland B	41	0.02
Wetland C	119	0.03
<b>Subtotal</b>	<b>1,411</b>	<b>0.18</b>
<b>Total</b>	<b>2,423</b>	<b>0.26</b>

Wetland sampling point UPL-01 was conducted in an area with black willow woodland approximately 800 feet east of the intersection of Markham Street and Roosevelt Street. This area did not exhibit an OHWM or have any visible wetland hydrology indicators, but much of the ground was covered with a dense layer of vegetation including hydrophytic species (e.g. stinging nettle [FAC] and perennial pepperweed [FAC]), so surveyors conducted a wetland sample point in case hydrology indicators were present but not discernible. This location supported hydrophytic vegetation, but did not support hydric soils, and did not meet all three USACE wetland parameters.

Five wetland sampling points (UPL-02, UPL-03, UPL-04, WET-05, and WET-06) were conducted in the Mockingbird Canyon Creek channel where it runs adjacent to Markham Street. The various wetland sampling locations were conducted where changes in vegetation or hydrology indicated that wetlands may be present. The channel does not support wetlands at sampling points UPL-02, UPL-03, and UPL-04. Although habitat in non-wetland portions of the channel includes mule fat thickets and pepperweed patches, the soils did not exhibit hydric indicators. The western extent of wetlands in this channel was determined to occur where WET-05 was sampled, in an area with 100% cover of cattails (OBL). At the time of the original wetland sampling for this channel in May 2022 the channel supported standing water and vegetation along its entire length. Upon a return visit in July 2022, the channel was entirely dry and all vegetation, including the patch of cattails, was dead. The surface water observed in this portion of the channel during the May 2022 site visit may have been residual from rainfall in April 2022.

Delineators did not have access to the Mockingbird Canyon Creek channel between WET-05 and WET-06, either due to a dense herbaceous cover of stinging nettle or right of entry restrictions. WET-06 was conducted at the closest accessible point to WET-05. The creek exhibited a 4-foot wide OHWM



at this location and had approximately 3 inches of surface water at the time of the delineation. WET-06 met all three USACE wetland parameters. Although not directly delineated, wetlands were mapped within the OHWM for all areas between WET-05 and WET-06 because conditions in the creek (incised creek channel, surface water, herbaceous understory dominated by hydrophytic vegetation such as stinging nettle, cattails, giant reed, and watercress) were similar to conditions observed at WET-06. All areas upstream of WET-06 within Mockingbird Canyon Creek were also mapped as wetlands because either conditions in the creek were similar to conditions observed at WET-06 or the creek was not accessible due to right of entry restrictions but conditions appeared from afar to be similar. Wetlands within the OHWM limits of Mockingbird Canyon Creek are shown as Wetland A on Figure 5-5.

Wetland B occurs approximately 550 feet northwest of the intersection of Markham Street and Brazier Drive along a dirt road located between riparian habitat to the north and south. This area is located north of the existing Mockingbird Canyon Creek channel and south of the historic flow line, which was diverted around 2014, as previously discussed. Two wetland sampling points were conducted in the dirt road, WET-08 and UPL-07. Wetland sampling point WET-08 was conducted near the western edge of the road in an area that supported hydrophytic vegetation and surface water at the time of the delineation. It appears that water from the excavated basin to the north may overflow onto the road at this location, providing surface water for sufficient time to support potential wetlands. This area met all three wetland parameters, and a wetland polygon was mapped to the extent of hydrophytic vegetation and wetland hydrology indicators (surface water, soil cracks). Wetland sampling point UPL-07 was conducted approximately 75 feet east of WET-08 in an area that supported hydrophytic vegetation and wetland hydrology (i.e. surface water and salt crust). This location was selected as it is the lowest point in the road and exhibited the most distinct wetland hydrology indicators in areas adjacent to Wetland B. However, this area did not support hydric soils; therefore, it was mapped as non-wetland riparian habitat consisting of cocklebur patches. The access road did not exhibit an OHWM at either location; however, Wetland B is potentially subject to USACE jurisdiction because it appears to be supported by overflow or groundwater from directly adjacent Mockingbird Canyon Creek.

Wetland C is located within two basins that appear to have been excavated within the existing flow path of Mockingbird Canyon Creek following diversion of the creek in 2014, as previously discussed. The area where the basins are located may not have historically supported wetlands, but due to the excavation it now supports year-round ponding and hydrophytic vegetation. Wetland sampling points WET-09 and WET-10 were conducted at this location, one in each basin. Both areas meet all three wetland parameters. A paired sampling point was not conducted for this location because the potential hydrophytic vegetation and wetland hydrology do not occur outside of the ponded area due to the confining banks.

## 5.4.2 Regional Water Quality Control Board

The Project is within the jurisdiction of the Santa Ana (Region 5) RWQCB district. The ARDA supports WOUS as discussed in 5.4.1. Two isolated riparian habitat patches located at the western end of the ARDA were determined to not be WOUS because they lacked an OHWM and were isolated from any other WOUS. These isolated features were examined for their potential to support WOS according to the SWRCB's procedures and are shown on Figure 5-5, Sheet 1. Neither of these areas were mapped as potential WOS because they do not support an OHWM or any other surficial hydrology indicators, thereby not qualifying as WOS, as defined by the SWRCB's procedures. Therefore, RWQCB jurisdiction within the ARDA was mapped the same as USACE jurisdiction, as detailed in Table 5-2 and shown on Figure 5-5.

### 5.4.3 California Department of Fish and Wildlife

Features within the ARDA were assessed for CDFW jurisdiction based on whether they exhibited a stream bed and bank, provided habitat value for terrestrial and/or aquatic wildlife, and/or were associated with a naturally occurring drainage feature. CDFW jurisdiction extends beyond the active channel to the top-of-bank (often including outer floodplain banks) and edge of riparian habitat (if present). A total of 5.17 acres of vegetated streambed and riparian habitat extending beyond the streambed were identified within the ARDA (Table 5-3; Figure 5-5). CDFW riparian habitat includes native vegetation communities as well as disturbed/non-native vegetation communities that are dominated by non-native, invasive plant species.

**Table 5-3. Potential California Department of Fish and Wildlife Streambed and Riparian Habitat within the Aquatic Resources Delineation Area**

CDFW Jurisdiction Type	CDFW Jurisdiction in Aquatic Resources Delineation Area Total (acres)
<b><i>Vegetated Streambed and Riparian Habitat - Native Communities</i></b>	
Black willow woodland	3.20
Mule Fat Thickets	0.35
Cattail Marsh	0.16
Cocklebur Patches	0.08
<b>Subtotal</b>	<b>3.79</b>
<b><i>Vegetated Streambed and Riparian Habitat - Non-native/Disturbed Communities</i></b>	
Perennial Pepperweed Patches	1.31
Giant Reed Marsh	0.01
Ornamental Riparian	0.06
<b>Subtotal</b>	<b>1.38</b>
<b>TOTAL</b>	<b>5.17</b>

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## 6 Conclusions

Within the ARDA, Mockingbird Canyon Creek supports wetland and non-wetland WOUS potentially subject to USACE and RWQCB jurisdiction pursuant to Clean Water Act Sections 404 and 401, and vegetated streambed and riparian habitat potentially subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code, as described herein and summarized in the subsections below. Should the Project require discharge of fill material within USACE/RWQCB jurisdictional resources or modification of CDFW jurisdictional resources, the Project would require authorization, as described below. Findings presented in this aquatic resources delineation report are preliminary and subject to verification by USACE, RWQCB, and CDFW.

### 6.1 Clean Water Act Sections 404 and 401

The ARDA contains 0.26 acre of WOUS/WOS potentially subject to jurisdiction pursuant to CWA Sections 404 and 401, of which 0.08 acre is non-wetland WOUS/WOS and 0.18 acre is wetland WOUS/WOS. A USACE Section 404 CWA permit and RWQCB 401 certification would be required to authorize any discharge of fill material within WOUS/WOS.

### 6.2 California Department of Fish and Wildlife Jurisdiction

The ARDA contains 5.17 acres of areas potentially subject to CDFW jurisdiction pursuant to California Fish and Game Code Section 1602, all of which consists of vegetated streambed and adjacent riparian habitat. Should Project activities result in modification of CDFW regulated streambed, including riparian vegetation that extends beyond the banks, a CDFW Streambed Alteration Notification would be required.

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# Appendix A. Site Photographs






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# Aquatic Resources Delineation Photographs



Photograph	Information
	<p>Photograph #: 01</p> <p>Photo Date: 07/19/2022</p> <p>Latitude/Longitude: 33.858112 / -117.34827</p> <p>Direction: North</p> <p>Notes: View of earthen swale approximately 170 feet east of Markham Street/Roosevelt Street intersection. Swale had upland vegetation and no indicators of an OHWM. Topography/banks did not continue downstream (see Photo 2)</p>
	<p>Photograph #: 02</p> <p>Photo Date: 5/2/2022</p> <p>Latitude/Longitude: 33.857913 / -117.348185</p> <p>Direction: North</p> <p>Notes: View of area downstream of swale shown in Photo 1. No banks in this area and no indicators of an OHWM. Feature does not connect to any downstream aquatic resources.</p>
 <p>SE 120 150 180 S 180 210 SW 240 270 W 300</p> <p>207°SW (T) 33°51'28"N, 117°20'46"W ±9ft ▲ 1525ft</p> <p>JDI - mule fat and lepidium HDR Inc</p> <p>Markham Street 02 May 2022, 10:05:16</p>	<p>Photograph #: 03</p> <p>Photo Date: 5/2/2022</p> <p>Latitude/Longitude: 33.85796 / -117.345645</p> <p>Direction: East</p> <p>Notes: View of mule fat and perennial pepperweed in riparian habitat near Wetland Sample Point UPL-01.</p>



Photograph	Information
 A photograph showing a dense thicket of black willow trees and their branches, with green leaves and some bare, tangled branches visible.	<p>Photograph #: 04</p> <p>Photo Date: 5/2/2022</p> <p>Latitude/Longitude: 33.857757 / -117.346138</p> <p>Direction: South</p> <p>Notes: View of dense black willow woodland vegetation at Wetland Sample PointUPL-01.</p>
 A photograph of a dirt road or path leading through a wooded area. The road is filled with water, and there are utility poles and power lines visible in the distance under a clear blue sky.	<p>Photograph #: 05</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858062 / -117.343237</p> <p>Direction: East</p> <p>Notes: View of water in road where Mockingbird Canyon Creek crosses Markham Street near UPL-02.</p>



**Photograph**

**Information**



Photograph #:06

Photo Date: 4/12/2022

Latitude/Longitude: 33.858037 / -117.343057

Direction: Northeast

Notes: View of Mockingbird Canyon Creek at UPL-02, showing standing water in channel at time of survey.



Photograph #:07

Photo Date: 5/2/2022

Latitude/Longitude: 33.858149 / -117.342563

Direction: Northeast

Notes: View of culverts installed to convey flows from swale north of Mockingbird Canyon Creek into creek near WET-03. No OHWM was visible upstream of this area and the swale was not mapped as jurisdictional.



Photograph #:08

Photo Date: 5/2/2022

Latitude/Longitude: 33.858149 / -117.342456

Direction: West

Notes: View of Mockingbird Canyon Creek at UPL-03 in May 2022, showing standing water in creek at time of this field visit. Compare to same location in Photograph 09.



**Photograph**

**Information**



Photograph #:09

Photo Date: 7/15/2022

Latitude/Longitude: 33.858149 / -117.342456

Direction: West

Notes: View of Mockingbird Canyon Creek at UPL-03 in July 2022, showing dry creek at time of this field visit. Compare to same location in Photograph 08.



Photograph #: 10

Photo Date: 5/2/2022

Latitude/Longitude: 33.858121 / -117.342396

Direction: East

Notes: View of Mockingbird Canyon Creek just east of UPL-03.



Photograph #: 11

Photo Date: 4/12/2022

Latitude/Longitude: 33.858097 / -117.341915

Direction: West

Notes: View of Mockingbird Canyon Creek between UPL-04 and WET-05, showing vegetated channel at time of field visit. Compare to same location in July 2022, as shown in Photo 12.



Photograph	Information
	<p>Photograph #: 12</p> <p>Photo Date: 7/15/2022</p> <p>Latitude/Longitude: 33.858094 / -117.34199</p> <p>Direction: East</p> <p>Notes: View of Mockingbird Canyon Creek between UPL-04 and WET-05, showing dry channel with desiccated vegetation at time of July 2022 field visit. Compare to same location in May 2022, as shown in Photo 11.</p>
	<p>Photograph #: 13</p> <p>Photo Date: 5/19/2022</p> <p>Latitude/Longitude: 33.858117 / -117.340321</p> <p>Direction: West</p> <p>Notes: View of wetland sampling point WET-05.</p>
	<p>Photograph #: 14</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858199 / -117.348664</p> <p>Direction: Northeast</p> <p>Notes: View from road of riparian habitat along Mockingbird Canyon Creek in an area that delineators did not have access to.</p>



**Photograph**

**Information**



Photograph #: 15

Photo Date: 5/19/2022

Latitude/Longitude: 33.858228, -117.33786

Direction: N/A

Notes: Understory of black willow woodland showing approximately 4-foot-wide channel with surface water in May 2022. Surface water was not present in July 2022.



Photograph #: 16

Photo Date: 7/15/2022

Latitude/Longitude: 33.858343 / -117.337577

Direction: West

Notes: Cockerlebur and lambs quarters along access road between Mockingbird Canyon Creek and riparian basins to north. This vegetation was not present in May 2022 (see Photo 17 for conditions in May 2022) but had grown substantially by July 2022.



Photograph #: 17

Photo Date: 5/19/2022

Latitude/Longitude: 33.858366 / -117.337778

Direction: N/A

Notes: View of surface water on dirt road between Mockingbird Canyon Creek channel and riparian basin to north. This area was determined to support USACE wetlands.





**Photograph**



**Information**

Photograph #: 18

Photo Date: 5/19/2022

Latitude/Longitude: 33.858546 / -117.336926

Direction: North

Notes: Small patch of cattail marsh located at box culvert that conveys flows under dirt access road.



Photograph #: 19

Photo Date: 5/19/2022

Latitude/Longitude: 33.858689 / -117.336916

Direction: Northeast

Notes: View of riparian habitat at concrete pipe culvert in Mockingbird Canyon Creek conveying flows under dirt access road.



**Photograph**

**Information**



Photograph #: 20

Photo Date: 5/19/2022

Latitude/Longitude: 33.858726 / -117.337231

Direction: Southeast

Notes: Ornamental riparian habitat in excavated basin with ponded water. Photo taken from outside of ARDA, and most of ponded area is located outside of ARDA.



Photograph #: 21

Photo Date: 5/19/2022

Latitude/Longitude: 33.85871 / -117.337036

Direction: West

Notes: Ponded water in excavated basin supporting ornamental riparian vegetation.



Photograph #: 22



Photo Date: 4/12/2022

Latitude/Longitude: 33.858084 / -117.332338

Direction: Northeast

Notes: View from eastern edge of ARDA towards riparian habitat associated with Mockingbird Canyon Creek, which delineators did not have access to.



Photograph	Information
 A photograph showing a dense thicket of green black willow trees. A single palm tree stands prominently in the center-right of the frame. The ground is dry and sandy with some sparse vegetation.	<p>Photograph #: 23</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858334 / -117.331419</p> <p>Direction: North</p> <p>Notes: View of black willow woodland on west side of Wood Road, just north of Markham Street, which delineators did not have access to.</p>
 A photograph showing a dense stand of tall, thin reeds or grasses. In the foreground, there is a paved road with a double yellow line. The sky is blue with scattered white clouds.	<p>Photograph #: 24</p> <p>Photo Date: 4/12/2022</p> <p>Latitude/Longitude: 33.858626 -117.331426</p> <p>Direction: East</p> <p>Notes: View of giant reed marsh on east side of Wood Road, just north of Markham Street, which delineators did not have access to.</p>

# Appendix B. Historic Aerial Photographs

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**Historic Aerial 1:** View of ARDA near Wetland B and Wetland C, just west of Brazier Drive, showing original flowline of Mockingbird Canyon Creek prior to realignment. Photo dated June 2012 (Google Earth 2022).



**Historic Aerial 2:** View of ARDA near Wetland B and Wetland C, just west of Brazier Drive, showing realignment of Mockingbird Canyon Creek to flow along Markham Street. Photo dated April 2014 (Google Earth 2022)



**Historic Aerial 3:** View of ARDA near Wetland B and Wetland C, just west of Brazier Drive, showing vegetation growth in realigned portion of Mockingbird Canyon Creek along Markham Street. Photo dated August 2021 (Google Earth 2022)



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# Appendix C. Wetland Determination Data Forms

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## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Markham Street City/County: Riverside county Sampling Date: 05/02/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: UPL-01  
 Investigator(s): S. Barrera I. Eich, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): shallow basin/flat Local relief (concave, convex, none): none Slope (%): <1  
 Subregion (LRR): C - Mediterranean Lat: 33.857757 Long: -117.346139 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cieneba sandy loam, 8-15% slopes, eroded NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: very shallow basin area, almost flat. Supports black willow overstory with stinging nettle herbaceous layer. Surrounded by broad-leaved pepperweed and mustards. No OHWM - maybe supported by groundwater? Wood rat nests in riparian habitat, indicating non-frequent flows.	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>25'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix gooddingii</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>50</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>200</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>2.5</u>
<b>Sapling/Shrub Stratum (Plot size: <u>25'</u> diameter )</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum (Plot size: <u>25'</u> diameter )</b>				
1. <u>Urtica dioica</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks:  
 Dense black willow overstory with dense stinging nettle herbaceous layer





## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Markham Street City/County: Riverside county Sampling Date: 05/02/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: UPL-02  
 Investigator(s): S. Barrera I. Eich, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): concave Slope (%): 1  
 Subregion (LRR): C - Mediterranean Lat: 33.858119 Long: -117.343019 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cieneba sandy loam, 8-15% slopes, eroded NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: Roadside culvert on north side of Markham Street. Flows end in this location at a CMP culvert intended to convey flows under road. Culvert is blocked and water ponds upstream. No standing water at this location in May. Standing water observed here in April.	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>12x25</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Washingtonia robusta</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
2. <u>Olea europaea</u>	<u>15</u>	<u>Y</u>	<u>-</u>	
3. <u>Salix lasiolepis</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<u>50</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>12x25</u> )				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>12x25</u> )				
1. <u>Lepidium latifolium</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Nasturtium officinale</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3. <u>Hirschfeldia incana</u>	<u>3</u>	<u>N</u>	<u>-</u>	
4. <u>Xanthium strumarium</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
5. <u>Sonchus asper</u>	<u>1</u>	<u>N</u>	<u>UPL</u>	
6. _____				
7. _____				
8. _____				
<u>55</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>45</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

Remarks:





## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Markham Street City/County: Riverside county Sampling Date: 05/02/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: UPL-03  
 Investigator(s): S. Barrera, I. Eich, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): <1  
 Subregion (LRR): C - Mediterranean Lat: 33.858089 Long: -117.342193 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Hanford coarse sandy loam, 2-8% slopes NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: roadside culvert north of Markham Street. Vegetation transitions from dense riparian woodland to east into freshwater marsh/pepperweed patch habitat at this location, dominated by herbaceous species.	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>30</u> x 1 = <u>30</u> FACW species _____ x 2 = _____ FAC species <u>70</u> x 3 = <u>210</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>100</u> (A) <u>240</u> (B) Prevalence Index = B/A = <u>2.4</u>
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
<b>Herb Stratum (Plot size: <u>8x20</u>)</b>				
1. <u>Typha domingensis</u>	30	Y	OBL	
2. <u>Lepidium latifolium</u>	40	Y	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
70 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>30</u>		% Cover of Biotic Crust <u>0</u>		

**Hydrophytic Vegetation Indicators:**  
 Dominance Test is >50%  
 Prevalence Index is ≤3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks:  
 30% open water

**SOIL**

Sampling Point: UPL-03

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/2						sandy loam	no redox

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>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<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: rock  
 Depth (inches): 6

**Hydric Soil 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): 3  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks:

standing water at sampling location

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Markham Street City/County: Riverside County Sampling Date: 05/02/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: UPL-04  
 Investigator(s): S. Barrera, I. Eich, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): <1  
 Subregion (LRR): C - Mediterranean Lat: 33.858088 Long: -117.342192 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Hanford coarse sandy loam, 2 to 8% slopes NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: Excavated roadside channel on north side of Markham Street. Representative point for length of channel up until vegetation changes to east to cattail marsh.	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>40</u> x 1 = <u>40</u> FACW species _____ x 2 = _____ FAC species <u>60</u> x 3 = <u>180</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>100</u> (A) <u>220</u> (B) Prevalence Index = B/A = <u>2.2</u>
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>8'w x 15'l</u>)</b>				
1. <u>Veronica anagallis-aquatica</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Nasturtium officinale</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Perennial pepperweed</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>30</u>		% Cover of Biotic Crust <u>0</u>		
<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				

Remarks:  
 30% open water

**SOIL**

Sampling Point: UPL-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/2						sandy loam	no redox

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>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<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: rock  
 Depth (inches): 6

Hydric Soil Present?    Yes     No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7)                        | <input type="checkbox"/> Shallow Aquitard (D3)                     |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                    | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)          |

**Field Observations:**

Surface Water Present?    Yes     No     Depth (inches): 2  
 Water Table Present?    Yes     No     Depth (inches): \_\_\_\_\_  
 Saturation Present?    Yes     No     Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present?    Yes     No

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

Remarks:

standing water at sampling location. Rain event May 10 (0.19" rain)

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Markham Street City/County: Riverside County Sampling Date: 05/19/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: WET-05  
 Investigator(s): S. Barrera, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): excavated channel Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR): C Lat: 33.858117 Long: -117.340338 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Hanford coarse sandy loam, 2 to 8% slopes NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Cattail patch in channel. Only location dominated by cattails. Pepperweed patch downstream, black willow woodland upstream.	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>
_____ = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				OBL species <u>90</u> x 1 = <u>90</u>
1. _____	_____	_____	_____	FACW species _____ x 2 = _____
2. _____	_____	_____	_____	FAC species _____ x 3 = _____
3. _____	_____	_____	_____	FACU species _____ x 4 = _____
4. _____	_____	_____	_____	UPL species _____ x 5 = _____
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
_____ = Total Cover				Prevalence Index = B/A = <u>1</u>
<b>Herb Stratum</b> (Plot size: <u>8'w x 15'l</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Typha domingensis</u>	<u>90</u>	<u>Y</u>	<u>OBL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u>		% Cover of Biotic Crust _____		
Remarks:				

**SOIL**

Sampling Point: WET-05

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8							loamy sand	Not colored - hydrogen sulfide

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: rock/compact soil?  
 Depth (inches): 8

Hydric Soil Present? Yes  No

Remarks:

Difficult to color due to water and sand content.

**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): 2  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Markham Street City/County: Riverside county Sampling Date: 05/19/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: WET-06  
 Investigator(s): S. Barrera, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Excavated channel Local relief (concave, convex, none): none Slope (%): <1  
 Subregion (LRR): C - Mediterranean Lat: 33.858245 Long: -117.337726 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Hanford coarse sandy loam, 2-8% slopes NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: 4' wide OHWM in channel bottom with 3" deep flowing water. Accessible area in dense riparian corridor. Salix gooddingii woodland alliance. Channel was excavated around 2014 to divert flow path around parcel.	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>25' diameter</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Parkinsonia aculeata</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>Salix gooddingii</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
3. _____				
4. _____				
	<u>50</u>	= Total Cover		
<b>Sapling/Shrub Stratum (Plot size: <u>15'x10'</u>)</b>				
1. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>55</u> x 1 = <u>55</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>55</u> x 3 = <u>165</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>125</u> (A) <u>260</u> (B)  Prevalence Index = B/A = <u>2.08</u>
2. _____				
3. _____				
4. _____				
5. _____				
<b>Herb Stratum (Plot size: <u>15'x10'</u>)</b>				
1. <u>Urtica dioica</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Typha domingensis</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
3. <u>Nasturtium officinale</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	
4. <u>Arundo donax</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
5. <u>Xanthium strumarium</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
6. _____				
7. _____				
8. _____				
	<u>80</u>	= Total Cover		
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
% Bare Ground in Herb Stratum <u>20</u> % Cover of Biotic Crust <u>0</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				
Remarks: Open water. Dense canopy and dense herbaceous cover. Banks transition quickly to palo verde dominant with mustard understory.				

**SOIL**

Sampling Point: WET-06

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12								not colored - Hydrogen sulfide

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>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<sup>3</sup>:**

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes  No

Remarks:

Strong hydrogen sulfide odor. Greasy/muck feel. Difficult to sample/color soils due to saturation, sample pit filling with water.

**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): 3  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks:

4' wide OHWM with steep banks, quickly transitioning out of wetland above OHWM.





## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Markham Street City/County: Riverside county Sampling Date: 05/19/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: UPL-07  
 Investigator(s): S. Barrera, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Low spot in road Local relief (concave, convex, none): none Slope (%): <1  
 Subregion (LRR): C - Mediterranean Lat: 33.858313 Long: -117.337448 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Hanford coarse sandy loam, 2-8% slopes NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: Lowest spot in dirt road between two riparian areas. Tire marks, disturbance in road, salt crust. Some vegetation growing in road.	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>17</u> x 4 = <u>68</u> UPL species _____ x 5 = _____ Column Totals: <u>37</u> (A) <u>88</u> (B) Prevalence Index = B/A = <u>2.38</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>15'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Bolboschoenus maritimus</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Ricinus communis</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Erigeron canadensis</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>37</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>25</u> % Cover of Biotic Crust <u>0</u>				

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks:  
 Sample point conducted in low spot of road where soils are moist and vegetation is growing. Dirt road is bare ground outside of sample plot.

**SOIL**

Sampling Point: UPL-07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10 YR 3/2	56	7.5YR 4/6	40	C	M	loamy sa	not colored - Hydrogen sulfide
0-8			Gley 2 10B	4	C	M		dark nodules; see notes
8-9	5YR 3/1	100					loamy sa	no redox
9-14	10YR 4/3	100					sand	hard to color - large sand grains

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes _____ No <input checked="" type="checkbox"/>
--	--

Remarks:  
 Pit filled with water at 10" depth after about 30 seconds. Dark nodules not quite "gley" color - they looked almost completely black with no green or gray tinge.

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>10</u> Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  
 Remarks:  
 Debris deposits, salt crust, soil pit filled with water at 10" depth after about 30 seconds.



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Markham Street City/County: Riverside county Sampling Date: 05/19/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: WET-08  
 Investigator(s): S. Barrera, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): pond Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): C - Mediterranean Lat: 33.858693 Long: -117.337057 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cieneba sandy loam, 8-15% slopes, eroded NWI classification: PFOA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Ponded area that appears to have been created when original channel re-aligned (2014). Landscaping plants (bamboo, tree of heaven, papyrus) mixed with naturalized non-natives (palms, arundo) and native willow canopy. Walking paths, plant pots, throughout area	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30'</u> diameter )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Washingtonia robusta</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)
2. <u>Salix gooddingii</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. _____				
4. _____				
	<u>80</u>	<u>= Total Cover</u>		<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>17</u> x 4 = <u>68</u> UPL species _____ x 5 = _____ Column Totals: <u>117</u> (A) <u>248</u> (B)  Prevalence Index = B/A = <u>2.12</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>30'</u> diameter )				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
	<u>0</u>	<u>= Total Cover</u>		
<u>Herb Stratum</u> (Plot size: <u>30'</u> diameter )				
1. <u>Typha domingensis</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Arundo donax</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Lemna sp</u>	<u>2</u>	<u>N</u>	<u>OBL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>37</u>	<u>= Total Cover</u>		
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
% Bare Ground in Herb Stratum <u>25</u> % Cover of Biotic Crust <u>0</u>				

Remarks:  
 Vegetation disturbed. Ponded area quickly transitions to upland/unvegetated. Pond looks to be created. Landscaped plants in pots in pond and surrounding upland area.

**SOIL**

Sampling Point: WET-08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12								not colored - Hydrogen sulfide

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:  
Soils not colored - strong hydrogen sulfide odor when pulling up sample

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>8</u> Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Markham Street City/County: Riverside County Sampling Date: 07/19/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: WET-09  
 Investigator(s): A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Excavated basin Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR): C Lat: 33.858503 Long: -117.337369 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Hanford coarse sandy loam, 2 to 8% slopes NWI classification: PSSA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Excavated basin in original flowline of Mockingbird Creek that has now been diverted away from this location. Non-native ornamental plants (bamboo, papyrus). Landscaping pots and water barrels littering area.	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Washingtonia robusta</u>	25	Y	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. <u>Salix gooddingii</u>	25	Y	FACW	
3. _____				
4. _____				
	50	= Total Cover		
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>60</u> x 4 = <u>240</u> UPL species _____ x 5 = _____ Column Totals: <u>160</u> (A) <u>450</u> (B)  Prevalence Index = B/A = <u>2.81</u>
1. <u>Bambusa vulgaris</u>	60	Y	FACU	
2. _____				
3. _____				
4. _____				
	60	= Total Cover		
<b>Herb Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Cyperus papyrus</u>	20	Y	OBL	
2. <u>Arundo donax</u>	20	Y	FAC	
3. <u>Xanthium strumarium</u>	10	N	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
	70	= Total Cover		
<b>Woody Vine Stratum (Plot size: _____)</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____				
2. _____				
% Bare Ground in Herb Stratum <u>40</u> % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____

Remarks:  
 Disturbed, dominated by non-natives and ornamental plants. Area appears to have been used as a nursery or garden.







**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: Markham Street City/County: Riverside county Sampling Date: 05/19/22  
 Applicant/Owner: County of Riverside State: CA Sampling Point: WET-10  
 Investigator(s): S. Barrera, A. Newton Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): low spot along road Local relief (concave, convex, none): concave Slope (%): <1  
 Subregion (LRR): C - Mediterranean Lat: 33.858334 Long: -117.337731 Datum: \_\_\_\_\_  
 Soil Map Unit Name: Hanford coarse sandy loam, 2-8% slopes NWI classification: PFOA

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks:  Low spot along dirt road where water from pond flows when overtopping pond. Wetland mapped to extent of surface water, vegetation polygon.	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. _____				
3. _____				
4. _____				
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species _____ x 5 = _____ Column Totals: <u>90</u> (A) <u>250</u> (B)  Prevalence Index = B/A = <u>2.78</u>
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>10'x15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Xanthium strumarium</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Bolboschoenus maritimus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>0</u>				
Remarks:  Vegetation growing in low area of dirt road where water flows when pond to north is overtopped. No vegetation on road outside of plot. Historic aerials show this area highly modified - may have been original stream channel before modified around 2013/2014.				

Remarks:  
  
 Vegetation growing in low area of dirt road where water flows when pond to north is overtopped. No vegetation on road outside of plot. Historic aerials show this area highly modified - may have been original stream channel before modified around 2013/2014.



