

Biological Resources Report

Oakcrest Specific Plan Project, City of San Marcos, San Diego County, California



Project: 2159-24 Oakcrest Specific Plan

Date: November 2025

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Recommended Citation:	Bargas. 2025. Biological Resources Technical Report – Oakcrest Specific Plan Project, City of San Marcos, San Diego County, California. September.



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Acronyms and Abbreviations

ACE	Areas of Conservation Emphasis
APN	Assessor's Parcel Number
Bargas	Bargas Environmental Consulting, LLC
BMP	Best Management Practices
BIO	Biological mitigation measure prefix (e.g., BIO-1, BIO-2)
BCLA	Biological Core and Linkage Areas
BUOW	Burrowing Owl
CAGN	Coastal California Gnatcatcher
CBB	Crotch's Bumble Bee
CCD	California Candidates for Delisting
CCE	California Candidates for Endangered status
CCT	California Candidates for Threatened status
CDFW	California Department of Fish and Wildlife
CE	California Endangered
CEHC	California Essential Habitat Connectivity
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CS	Covered Species Under a Multiple Habitat Conservation Plan
CT	California Threatened
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
EPA	Environmental Protection Agency
ESRI	Environmental Systems Research Institute
FC	Federal Candidates for Listing
FE	Federally Endangered
FESA	Federal Endangered Species Act
FP	Fully Protected
FPD	Federally Proposed for Delisting
FPE	Federally Proposed as Endangered
FPP	Fire Protection Plan
FPT	Federally Proposed as Threatened



FT	Federally Threatened
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HOA	Home Owner's Association
IPaC	Information for Planning and Consultation
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MHCP	Multiple Habitat Conservation Plan
MSCP	Multiple Species Conservation Program
NE	Narrow Endemic List
NCCP	Natural Communities Conservation Plan
NCRS	Natural Resources Conservation Service
NPDES	National Pollutant Discharge Elimination System
OHWM	Ordinary High Water Mark
PMP	Preserve Management Plan
Project Report	Oakcrest Specific Plan Project Biological Resources Technical Report
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SDG&E	San Diego Gas & Electric
SE	State Endangered
SSC	Species of Special Concern
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VWD	Vallecitos Water District



Executive Summary

Bargas Environmental Consulting, LLC (Bargas) prepared this Biological Resources Report to evaluate existing biological conditions and potential environmental effects associated with the proposed Oakcrest Specific Plan Project (Project), located in the City of San Marcos, within San Diego County, California. The report supports compliance with the California Environmental Quality Act (CEQA) and applicable local habitat conservation requirements.

The Project site is situated in a semi-urbanized, fragmented landscape, but recognized as a Biological Core and Linkage Area (BCLA) and Focused Planning Area (FPA) within the Multiple Habitat Conservation Program (MHCP). The dominant vegetation community is Diegan coastal sage scrub, a sensitive natural community recognized by both the California Department of Fish and Wildlife (CDFW) and the California Native Plant Society (CNPS). Other vegetation communities present include intensive agriculture-pasture, non-native woodland, eucalyptus woodland, and urban/developed areas. The site also supports ephemeral drainages subject to jurisdiction by the Regional Water Quality Control Board (RWQCB) and CDFW. However, no riparian habitat or federally regulated wetlands under U.S. Army Corps of Engineers (USACE) jurisdiction are present.

Special-status plant species observed (i.e., known to occur) on-site include graceful tarplant (*Holocarpha virgata* ssp. *elongata*; CNPS CRPR 4.2), ashy spike-moss (*Selaginella cinerascens*; California Native Plant Society [CNPS] California Rare Plant Rank [CRPR] 4.1), and golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*; CNPS CRPR 4.2). Special-status wildlife species observed on-site include Cooper's hawk (*Accipiter cooperii*; CDFW Watch List, MHCP covered species), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; CDFW Watch List, MHCP covered species), monarch butterfly (*Danaus plexippus*; federal candidate, proposed threatened), Crotch's bumble bee (*Bombus crotchii*; state candidate endangered), coastal California gnatcatcher (*Poliioptila californica californica*; federally listed threatened, state species of special concern, MHCP covered species), and Western bluebird (*Sialia mexicana*; MHCP covered species).

Implementation of the Project would result in permanent impacts to a sensitive vegetation community, special-status species habitat, and regulated aquatic resources. Temporary, indirect effects to adjacent habitat and wildlife from construction noise, dust, and increased human presence would be avoided and minimized with implementation of standard best management practices and proposed avoidance and minimization measures. Several existing utility and road easements traverse the site and are considered impact neutral. Project-related impacts are considered permanent and are a result of grading, development, and fire buffer vegetation removals and management. Two scenarios (i.e., Options) are proposed regarding fuel modification "fire buffer" areas, particularly zone 2. Option A treats zone 2 as impact-neutral and measures the 150-foot defensible space buffer from the lot line. Under this option, zone 2 is considered impact neutral because treatments would be limited to selective thinning of woody biomass and highly flammable understory material such that functional habitat remains. Option B assumes zone 2 is a permanent impact area, measuring the buffer from the edge of the primary structure. Both options are analyzed to maintain flexibility during agency review and to ensure full disclosure of potential impacts.

Under Option A, which proposes the largest quantity of impacts to biological resources on-site, the Project would permanently affect approximately 23.5 acres of Diegan coast sage scrub, 38.2 acres of intensive agriculture-pasture, 1.9 acres of non-native woodland, 0.9 acres of eucalyptus woodland, and 1.0 acres of urban/developed land. Jurisdictional aquatic resources impacts under Option A include approximately 0.19 acre of permanent



impacts on RWQCB-jurisdictional non-wetland waters of the State and approximately 0.28 acre of CDFW-jurisdictional stream.

Consultation with CDFW and U.S. Fish and Wildlife is anticipated for Project impacts to coastal California gnatcatcher and Crotch's bumble bee. However, the Project is not expected to substantially interfere with regional wildlife movement or habitat connectivity, given the semi-developed nature of the surrounding area but more so the expanse of contiguous habitat (including reserve lands) to the west of the site that would be perpetually conserved by the Project. Approximately 53 acres of natural habitat on-site would be conserved as biological open space, under Option A. The project incorporates Mitigation Measures (MM) MM-BIO-1 through MM-BIO-9, which include confinement of authorized work limits, environmental awareness training to workers, biological construction monitoring with weekly reporting, pre-construction protocol surveys and avoidance buffers for protected wildlife species, habitat mitigation via preservation and/or restoration, preparation of a Preserve Management Plan with perpetual funding and adaptive management, and compliance with RWQCB and CDFW permitting requirements for aquatic resources, as adherence with the Federal and State Endangered Species Acts regulations and permitting. With implementation of these measures, the project would comply with CEQA, be consistent with the City's General Plan Conservation and Open Space Element, and support MHCP conservation goals. Potential impacts to nesting birds, including special-status species, would be avoided or minimized through compliance with the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code requirements for pre-construction surveys and implementation of avoidance buffers. Biological impacts as a result of the Project would be reduced to less than significant and the Project would not hinder the City's ability to meet regional conservation objectives.

Cumulative impacts have also been identified for issues related to special status species, sensitive natural communities, and jurisdictional aquatic resources. Implementation of the Project's MM-BIO-1 through MM-BIO-9 would mitigate the Project's contribution on the cumulative impacts.



1 Introduction

1.1 Purpose of the Report

Bargas Environmental Consulting, LLC (Bargas) prepared this Biological Resources Technical Report (Report) on behalf of the Oakcrest Specific Plan Project (Project) Applicant. Huffman Environmental, a County of San Diego approved biologist and subcontractor to Bargas, conducted the field surveys for this Report. This Report documents the existing biological conditions at the proposed Project site and evaluates potential impacts to sensitive biological resources in accordance with applicable federal, state, and local regulations. The Project is subject to review under CEQA, with the City of San Marcos serving as the Lead Agency.

The following definitions for areas of the Project are followed throughout this Report:

- **Project site:** The approximate 136.1-acre site
- **Regional Setting:** The Project site and a surrounding 1-mile radius

1.2 Project Location and Project Description

The approximately 136.1-acre Project site is located on the west side of North Twin Oaks Valley Road, between Legacy Drive and Deerbrook Drive, in the City of San Marcos, California. The site lies within Section 31, Township 11 South, Range 3 West of the San Bernardino Base and Meridian, on the U.S. Geological Survey (USGS) 7.5-minute San Marcos topographic quadrangle map (**Appendix A: Figure 1** and **Figure 2**). The site is identified by Assessor's Parcel Numbers (APNs): 218-330-05, -08, -09, -13, -26, -27, -28 and 218-110-02, -03. The site is zoned Agriculture 1 (A-1) and Estate (R-1-20) under the City of San Marcos General Plan Zoning Code that allow for low-intensity residential hillside development (Section 20.210.020) that is consistent with single-family detached estate or ranch style homes (Section 20.215.020), respectively (City 2012). The site is also located within the planning boundaries of the Multiple Habitat Conservation Program (MHCP)(SANDAG 2003). Within the MHCP, the site is part of a Biological Core and Linkage Area (BLCA) and considered a Focused Planning Area (FPA), with a softline preserve identified within almost the entirety of the site considered to have high and moderately high value habitat (**Appendix A: Figure 3**).

The Project includes multiple entitlements, including a Specific Plan (SP25-0004), General Plan Amendment (GPA25-0005), Rezone (R25-0004), Tentative Subdivision Map (TSM25-0006), two Site Development Plans (SDP25-0002 and SDP25-0003), a Conditional Use Permit (CUP25-0001), and adoption of an Environmental Impact Report (EIR25-004). The Project proposes residential development on approximately 50 percent (%) of the site, including 257 detached single-family homes, with 145 located on individual lots and 112 configured as "airspace condominiums" on common lots. Approximately 53 acres of the site would be preserved as biological open space and approximately 33 acres of a fire buffer that is located between the proposed residential development boundary and the proposed biological open space. The fire buffer defensible space zones are not accounted for as part of the proposed biological open space preserve areas. The fire buffer fuel modification zones are detailed in the Fire Protection Plan (FPP) (Dudek 2025), which was reviewed and approved by the City's Fire Marshal.

To account for Resource Agency uncertainty regarding treatment of fire buffer areas, the Project proposes two options for fuel modification "fire buffer" zone 2. Option A assumes that zone 2 is considered impact neutral and measures the required 150-foot fuel modification defensible space buffer distance from the edge of the lot. Option B, assumes that zone 2 would be treated as a permanent impact and measures the required 150-foot fire



buffer from the edge of the primary structure rather than the lot line, which is consistent with the Project's design intent to maximize avoidance of biological resources on-site. Under Option B approximately 56 acres would be preserved as biological open space on-site whereas Option A would preserve 53 acres on-site. Both options are included in the analysis of this report to provide flexibility during Resources Agency review of the Project and to ensure potential effects of the Project are fully disclosed.

Maintenance of the fuel modification zones would be the responsibility of the Homeowners Association. The biological open space is entirely outside of the fire buffer zones and would be subject to a biological conservation easement and would be preserved in perpetuity. A Preserve Management Plan would be required which would guide the perpetual protection and stewardships of the biological open space. The Project also includes the development of a new public park, approximately six (6) acres in size.

The Project incorporates widening the North Twin Oaks Valley Road right-of-way along the site frontage to accommodate new multimodal (i.e., bicycle lanes and pedestrian) facilities. In addition, at the northeastern portion of the site frontage, the Project would remove an existing concrete-lined stormwater channel and replace it with a subsurface culvert of sufficient width to convey on-site runoff, which would connect to the existing infrastructure beneath North Twin Oaks Valley Road. This improvement would occur within a City drainage easement located entirely on-site.

In addition to the City easement, there are multiple utility easements currently on-site. The site lies partially within the Vallecitos Water District (VWD) service area for water. A ten (10)-foot-wide VWD utility easement traverses the property, entering from North Twin Oaks Valley Road, following the existing unpaved access road, and then turning southwest across the site. San Diego Gas & Electric (SDG&E) also has recorded easements on-site. The Project would be served by SDG&E for electricity and gas service. The Project design for dry utilities connections are still under preparation; however the connection to tie into to existing infrastructure within North Twin Oaks Valley Road and the utilities on-site would be underground.

Demolition, clearing and grubbing, as well as grading for the Project is anticipated to start in December 2026 with residence occupancy starting in July 2028. Construction is estimated to be completed by December 2028. Given to the size of the Project site, it is expected that all construction materials and vehicles will be accommodated on-site.

2 Agency Consultation

No formal or informal consultations have been initiated or conducted with the United States Fish and Wildlife Service (USFWS), United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), San Diego Regional Water Quality Control Board (RWQCB), or California Department of Fish and Wildlife (CDFW) for the preparation of this report.

3 Environmental Setting

The site and surrounding regional area represent a transitional landscape at the urban-wildland interface. Based on a review of aerial imagery going back to 1938, many portions of the site (excluding the hillsides to the west) have been graded and used extensively for agriculture purposes, consisting primarily of planted orchards and pastureland for livestock (i.e., cattle) grazing (NETR 2025). While the orchard groves were removed in the 1970's,



the site continued to provide pastureland for free-range cattle grazing, which has been on-going and remains currently active to this day; however, there are substantially (i.e., dozens) less heads of cattle on-site currently. On-site conditions currently consist of a mix of undeveloped land supporting coastal sage scrub and intensive agriculture (i.e., livestock pasture) vegetation communities, interspersed with three (3) residential homesteads and associated ranch outbuildings as well as public utility infrastructure, but overall the site remains largely undeveloped.

The site is situated within a semi-urban context, bordered by vacant parcels, residential neighborhoods, public recreational areas, and infrastructure corridors. Although habitat fragmentation from surrounding development has occurred, the site retains biological value due to its size, habitat diversity, and connectivity to adjacent open space to the west. Private lands are present within the Project Site, as well as to the east, north, and west of the site, whereas conservation lands owned by The Environmental Trust is located outside, but immediately adjacent to, the southwestern boundary of the Project Site. The conservation lands immediately adjacent to the Project Site consist of natural habitat interspersed between residential neighborhoods.

3.1 Climate

The Project Site has a Mediterranean climate with mild, wet winters and warm, dry summers. Average temperatures during the warmest months (June–September) range from 69.6 degrees Fahrenheit (°F) to 70.8°F, while the coldest months (December through February) average 56.0°F to 56.7°F. The City receives approximately 9.87 inches of rainfall annually, with the wettest months occurring between January and March. January is typically the rainiest month, receiving approximately 1.97 inches, followed by approximately 2.37 inches in February and approximately 1.49 inches in March. Summer months (June and July) usually receive minimal rainfall of approximately 0.03 inches to 0.06 inches (Regional Climate Centers 2025).

3.2 Topography

The topography of the Project site ranges in elevation from 635 feet to 935 feet above mean sea level, with the highest point at the northwestern boundary and the lowest elevations at the northeastern and southeastern boundaries of the site. The terrain on-site consists of east- and north-facing slopes, with narrow valleys and ridgelines. The lowest topographic point is along the northern boundary, where the site connects with North Twin Oaks Valley Road.

3.3 Soils

Six (6) soil series are mapped within the Project site collectively referred to as the Area of Interest (AOI). These include the following: Escondido very fine sandy loam five (5) to nine (9) percent (%) slopes; Escondido very fine sandy loam fifteen (15) to thirty (30) % slopes, eroded; Friant rocky fine sandy loam nine (9) to thirty (30) % slopes; Friant rocky fine sandy loam thirty (30) to seventy (70) % slopes; Huerhuero loam two (2) to nine (9) % slopes; and Visalia sandy loam two (2) to five (5) % slopes. None of these soils are classified as hydric according to the NRCS soil data (NRCS 2025). Soil types and their spatial distribution within the AOI are illustrated in **Figure 4 (Appendix A)**.

3.4 Hydrology

The Project site occurs within the Carlsbad Watershed (HUC: 18070303), specifically within the San Marcos Hydrologic Area (904.5) and Subwatershed (HUC12: 180703030503)(RWQCB 2021). A reach of an unnamed fork



to San Marcos Creek occurs further to the east of the Project site, on the eastern side of Twin Oaks Valley Road. Drainage on the project site itself generally trends east-west and north-south, with no direct surface water or other observable connections to the unnamed fork of San Marcos Creek further to the east of the site. According to the USFWS National Wetlands Inventory data, the western portions of the Project site are overlaid by data for a single drainage feature and tributary classified as R4SBC (intermittent, seasonally flooded riverine streambed), while the northwestern portion is overlaid by data for an unnamed fork to San Marcos Creek located off-site to the east classified as PEM1A (palustrine emergent wetland that is persistent, and temporarily flooded)(USFWS 2025d). The aquatic resources delineation conducted for the proposed Project confirmed the presence of an ephemeral drainage feature in the western portions of the Project site, generally in agreement with the National Wetlands Inventory for the R4SBC feature, although comprising only a single feature encompassing five reaches, herein referred to as NWW-1, NWW-S1, NWW-2, NWW-3, and NWW-S2. This feature was found to convey stormwater surface flow eastward across the site and through gently sloping terrain, before terminating within uplands. In addition, the aquatic resources delineation confirmed the presence of a single concrete-lined flood control feature in the northeastern portion of the site, herein referred to as NWW-S3.

4 Regulatory Setting

The Project must comply with the regulatory requirements prescribed by federal, State, and local agencies. Pertinent biological resources-related laws and other regulations that apply to the Project are summarized below.

4.1 Federal

4.1.1 Endangered Species Act

The Federal Endangered Species Act (FESA) is the federal government's primary regulation protecting rare and declining plant and wildlife species. FESA is jointly implemented by the USFWS and the National Marine Fisheries Service (NMFS, addressing marine resources only). FESA protects species using the following status designations:

- A federally **endangered** species is a species of invertebrate, plant, or wildlife formally listed by the USFWS under FESA as facing extinction throughout all or a significant portion of its geographic range.
- A federally **threatened** species is one formally listed by the USFWS as likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- A **proposed** threatened or endangered species is one officially proposed by the USFWS for addition to the federal threatened or endangered species list.
- **Candidate** species are "plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under FESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities" (USFWS 2017).

"Take" of a federally endangered or threatened species or its habitat is prohibited by federal law without a special permit. The term "take," under FESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. "Harm" is defined by the USFWS to encompass "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it



actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR § 17.3).

Section 10(a)(1)(B) of the FESA allows for take of a threatened or endangered species incidental to development activities once a Habitat Conservation Plan (HCP) has been prepared to the satisfaction of the USFWS and a Section 10(a) incidental take permit has been issued to an applicant. For federal projects (including those involving federal funding), Section 7 of the FESA allows for consultation between the affected agency and the USFWS to determine what measures may be necessary to compensate for the incidental take of a listed species. A federal project is any project that is proposed by a federal agency or is at least partially funded or authorized by a federal agency. Additionally, if the listed species or its habitat occurs in a portion of the project subject to federal jurisdiction (such as waters of the United States by the USACE under Section 404 Clean Water Act (CWA), then consultation under Section 7 of the FESA is usually permissible and may be required.

FESA also requires the USFWS to consider whether there are areas of habitat essential to conservation for each listed species. Critical habitat designations protect these areas, including habitat that is currently unoccupied but may be essential to the recovery of a species. An area is designated as critical habitat after the USFWS publishes a proposed federal regulation in the Federal Register and then receives and considers public comments on the proposal. The final boundaries of critical habitat are officially designated when published in the Federal Register.

4.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) is a federal law governing the taking, killing, possession, transportation, and importation of various birds, their eggs, parts, and nests. The take of any number of a bird species listed as protected on any one of four treaty lists is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over utilization. The MBTA also prohibits taking, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, certain bird species, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11).

4.1.3 Clean Water Act of the United States

The regulatory setting with regards to aquatic resources is framed by current enabling legislation and case law. Under Section 404 of the CWA, the USACE regulates the discharge of dredged and fill materials into "waters of the U.S." Jurisdictional waters of the U.S. include "territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries; lakes and ponds, and impoundments of jurisdictional waters; and adjacent wetlands" (33 CFR § 328.3). Certain waters of the U.S. are considered "special aquatic sites" because they are generally recognized as having ecological value; such sites include sanctuaries and refuges, wetlands, mudflats, vegetated shallows, and riffle and pool complexes (40 CFR § 230). Special aquatic sites are defined by the U.S. Environmental Protection Agency (USEPA) and may be afforded additional consideration in a project's permit process. Recent federal rulemaking has modified how the USACE defines certain waters of the U.S. As a result of the Supreme Court's May 25, 2023 decision in *Sackett v. Environmental Protection Agency (EPA)*, the USACE is now interpreting waters of the U.S. consistent with the Supreme Court's decision, which ruled that the federal Clean Water Act extends to only aquatic features and "wetlands with a continuous surface connection to



bodies that are ‘waters of the United States’ in their own right,” so that they are “indistinguishable” from those waters (U.S. Supreme Court, 2023; U.S. EPA & U.S. Army, 2023). Projects that place fill in jurisdictional wetlands and non-wetland waters of the U.S. require a permit from the USACE under Section 404 of the CWA. The USACE issues nationwide permits for specific types of activities with minimal individual or cumulative adverse environmental impacts. Individual permits are required for large and/or complex projects or projects that exceed the impact threshold for nationwide permits.

4.2 State

4.2.1 California Environmental Quality Act

CEQA is a public disclosure process codified by California Public Resources Code 21000, requiring decision-makers to analyze the environmental impacts of a project, disclose those impacts to the public, and mitigate environmental impacts to the extent feasible. The state or local lead agency provides an evaluation of project effects on biological resources; determining the significance of those effects is guided by Appendix G of the CEQA Guidelines (AEP 2025). These evaluations must consider direct effects on a biological resource within the project site itself, indirect effects on adjacent resources, and cumulative effects within a larger area or region. Effects can be locally important but not significant according to CEQA if they would not substantially affect the regional population of the biological resource.

4.2.2 California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of state-listed threatened and endangered species. Under CESA, state agencies are required to consult with CDFW when preparing CEQA documents. Under CESA, CDFW is responsible for maintaining a list of rare, threatened, and endangered species designated under state law (California Fish and Game Code [CFG] § 2070-2079). CDFW also maintains lists of candidate species, species of special concern (SSC), and fully-protected species. Candidate species are those taxa that have been formally recognized by the CDFW and are under review for addition to the state threatened and endangered list. Species of special concern are those taxa that are considered sensitive, and this list serves as a “watch list.” The CDFW can authorize “take” if an incidental take permit is issued by the Secretary of the Interior or of Commerce in compliance with FESA, or if the director of the CDFW issues a permit under Section 2080 in those cases where it is demonstrated that the impacts are minimized and mitigated.

4.2.3 California Fish and Game Code

Section 1600. – Lake and Streambed Alteration Agreement. Section 1600 provides provisions for protecting riparian systems, including the bed, banks, and riparian habitat of lakes, seasonal and perennial streams, and rivers. This section requires an applicant to notify CDFW and obtain a Lake and Streambed Alteration Agreement (LSAA) if their project would divert or obstruct the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; or deposit or dispose of material into any river, stream, or lake.

Section 2050 et seq. – California Endangered Species Act. CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA is administered by CDFW and prohibits the take of any species that the California Fish and Game Commission determines to be a threatened or endangered species. CESA also mandates that “state agencies should not approve projects as



proposed which would jeopardize the continued existence of any endangered species or threatened species” if reasonable and prudent alternatives are available that would avoid jeopardy. CDFW administers CESA and authorizes take through CFGC 2081 Incidental Take Permits or through Section 2080.1. (For species also listed under FESA, consistency determination is with a USFWS Biological Opinion).

Section 3511 – Fully Protected Species. The legislature of the State of California designated certain species as “fully protected” prior to the creation of CESA. Section 3511 states that “fully protected” birds or parts thereof may not be taken or possessed at any time. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, mammals, amphibians and reptiles, and birds. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA.

Sections 3503, 3503.5, 3505, 3513 — Birds. These CFGC sections protect all birds, including birds of prey and all nongame birds, as well as their eggs and nests, for species that are not already listed as fully protected and that occur naturally within the state. Sections 3503 and 3503.5 of the CFGC stipulate the following regarding eggs and nests: Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by CFGC or any regulation made pursuant thereto; and Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by CFGC or any regulation adopted pursuant thereto. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. Section 3513 further incorporates the California Assembly Bill 454 (AB 454), also known as the California Migratory Bird Protection Act, which provides protection for migratory birds in California.

4.2.4 California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (California Fish and Game Code § 1900-1913) affords the CDFW Commission the authority to designate native plants as endangered or rare and protect them from “take.” The California Native Plant Society (CNPS) maintains a list of sensitive plant species native to California and assigns each a rank in the California Rare Plant Rank (CRPR) system:

- 1A: Plants presumed extirpated in California and either rare or extinct elsewhere;
- 1B: Plants are rare, threatened, or endangered in California and elsewhere;
- 2A: Plants presumed extirpated in California, but more common elsewhere;
- 2B: Plant are rare, threatened, or endangered in California, but more common elsewhere;
- 3: Plants about which more information is needed (on a review list);
- 4: Plants of limited distribution (on a watch list).

This CRPR system is further defined as described below:

- 0.1: Seriously threatened in California, meaning there is a high degree (over 80% of occurrences) and immediacy of threat;
- 0.2: Moderately threatened in California, meaning there is a moderate degree (20-80% of occurrences) and immediacy of threat;



- 0.3: Not very threatened in California, meaning there is a low degree (less than 20% of occurrences) and immediacy of threat.

Plants with a CRPR of 1 and 2 meet the standards for state listing under the CEQA Guidelines (14 CCR § 15380). While CNPS considers plants with a CRPR 1 or 2 as highly sensitive, CNPS recommends that plants of a CRPR of 3 and 4 also be evaluated for consideration under CEQA.

4.2.5 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 established the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB), collectively referred to as the Water Boards, and authorized them to provide oversight for water rights and water quality. It uses the National Pollutant Discharge Elimination System (NPDES) to monitor point source discharges into the waters of the State to prevent water quality degradation. It also protects wetlands, surface waters, and groundwater from both point and nonpoint sources of pollution.

4.2.6 State Wetland Definition and Procedures

The SWRCB adopted the State Wetland Definition and Procedures for Discharges or Fill Material to Waters of the State in 2019 and completed revisions to this set of procedures in 2021 (SWRCB 2021).

1. Wetland definition:

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 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.

2. Framework for determining waters of the state:

Waters of the state are broadly defined by the Porter-Cologne Water Quality Control Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The 2021 procedures expand upon this definition to clearly include natural wetlands, wetlands created by modification of surface water of the state, and artificial wetlands meeting specific criteria.

The criteria for an artificial wetland include wetlands created for agency-approved compensatory mitigation; those identified in a water quality control plan; and those greater than or equal to one acre in size unless they are constructed and maintained for wastewater treatment or disposal, sediment settling, stormwater permitting program pollutant or runoff management, surface water treatment, agricultural crop irrigation or stock watering, fire suppression, industrial processing and cooling, active surface mining, log storage, recycled water management, maximizing groundwater recharge, or rice paddies.

3. Wetland delineation procedures:

USACE-defined procedures for aquatic resources delineation assess the presence or absence of hydrophytic vegetation, hydric soils, and wetland hydrology are required by the SWRCB to delineate waters of the state, with one modification being that “the lack of vegetation does not preclude the determination of such an area that meets the definition of wetland.”



4.3 Regional

4.3.1 Multiple Habitat Conservation Plan

Given the Project site location within the incorporated City limits, it is subject to regional habitat conservation goals established under the MHCP. These policies emphasize the protection of sensitive habitats, wildlife corridors, and special-status species, and require that development avoid, minimize, or mitigate impacts on biological resources. The MHCP, administered by the SANDAG, is a comprehensive, multi-jurisdictional habitat conservation plan developed for northwestern San Diego County (SANDAG 2003). The MHCP study area encompasses approximately 175 square miles (111,908 acres) and includes seven incorporated cities in northwestern San Diego County including, Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista, while unincorporated areas are planned separately by the County as part of the North County Subarea of the Multiple Species Conservation Program (MSCP). The MHCP provides a framework to conserve native habitat, protect sensitive species, and support sustainable urban development. While the City does not have an adopted Subarea Plan, it has developed a draft Subarea Plan for review that outlines potential conservation strategies, preserve design objectives, and future coordination with wildlife agencies.

4.4 Local

4.4.1 City of San Marcos General Plan

The City General Plan provides the overarching framework for development and resource conservation in the city (City of San Marcos 2025). Specific policies that address biological resources are included in the Conservation and Open Space Element. Key goals, policies and guidelines for biological resource protection include:

- **Goal 1, Policy COS-1.1:** Support the protection of biological resources through the establishment, restoration, and conservation of high-quality habitat areas.
- **Goal 1, Policy COS-1.2:** Ensure that new development, including Capital Improvement Projects, maintain the biotic habitat value of riparian areas, oak woodlands, habitat linkages, and other sensitive biological habitats.
- **Goal 2, Policy COS-2.1:** Provide and protect open space areas throughout the City for its recreational, agricultural, safety, and environmental value.
- **Goal 2, Policy COS-2.2:** Limit, to the extent feasible, the conversion of open space to urban uses and place a high priority on acquiring and preserving open space lands for recreation, habitat protection and enhancement, flood hazard management, water and agricultural resources protection, and overall community benefit.
- **Goal 2, Policy COS-2-6:** Preserve healthy mature trees where feasible; where removal is necessary, trees shall be replaced at a ratio of 1:1.

5 Survey Methods

This Report is informed by data from a comprehensive desktop analysis of the literature, maps, and numerous resource databases pertaining to biological resources, as well as field surveys at the Project Site. Additional details on the methods employed are described below.



5.1 Literature and Database Review

Prior to conducting the field surveys, an initial review of literature and data sources was completed to characterize biological setting of the site and to compile records of sensitive biological resources known to occur in the Regional Area. The biological setting includes terrain, hydrology, soils, land uses, and other features that support or inhibit biological resources in an area. To better understand the biological setting of the Project site, the following resources were reviewed in detail:

- U.S. Department of Agriculture Natural Resources Conservation Service (NCRS) *Web Soil Survey* (NRCS 2025);
- USFWS' National Wetlands Inventory (USFWS 2025d), for spatial data on unverified aquatic resources locations.
- Google Earth Pro (Google 2025);

In addition to the biological setting, it is important to identify a well-defined list of habitats and species, particularly special-status species that could reasonably be expected to occur on the Project site to analyze potential Project effects on such species and their habitats. Special-status species are recognized by a variety of agencies and respected non-profit organizations, which assess the conservation status of plant and wildlife species. The following are primary special-status designations considered when determining special-status species to be discussed in this Report:

- **Federal Status:** Species listed as Endangered (FE) or Threatened (FT), as well as species Proposed as Endangered (FPE), Proposed as Threatened (FPT), Proposed for Delisting (FPD), and Candidates (FC) for listing under the FESA (USFWS 2025a).
- **California Status:** Species listed as Endangered (CE) or Threatened (CT), as well as species that are Candidates for Endangered (CCE) status, Threatened (CCT) status, or Delisting (CCD) under the California Endangered Species Act. Also considered are species listed as Fully Protected (FP) and Species of Special Concern (SSC).
- **CNPS Status:** All California CRPR maintained by the CNPS *Inventory of Rare and Endangered Plants*.

Records of special-status species and habitat occurrences were queried from the following resources:

- USFWS's *Information for Planning and Consultation* portal (IPaC) (USFWS 2025b), for a list of federally listed species and designated critical habitat recommended for impact analysis consideration, based on an upload of the Project site limits.
- SanGIS' *SanBIOS Species Data* (SanGIS 2025), for spatial data on special-status species records in San Diego County.
- California Department of Fish and Wildlife's *California Natural Diversity Database* (CNDDDB) (CDFW 2025) for special-status species records within the Regional Area.

CNPS's *Inventory of Rare and Endangered Plants* (CNPS 2025), for a list of special-status plant species occurrences within the USGS 7.5-minute quadrangle that overlaps the Regional Study Area. iNaturalist and other public community-science databases (e.g., eBird), for supplemental species observations reported by the public in the vicinity of the Project. While not regulatory sources, these platforms can provide additional insight into local biodiversity patterns and potential species presence. Naming standards used in this Report are those commonly



recognized by the scientific community. Some common names used in this report may not be the same as those used by the underlying data sources for species records.

- Birds – Cornell Lab of Ornithology, All About Birds (2024).
- Mammals – The reference list in the CDFW’s California Wildlife Habitats Relationships (CWHHR) Database (CDFW 2024, with updates based on the American Society of Mammologists Mammal Diversity Database (ASM 2024).
- Reptiles and Amphibians – The technical website californiaherps.com (Nafis 2024).
- Invertebrates – The reference list in the CDFW’s CWHHR Database (CDFW 2025) for special-status invertebrates.
- Plants – The Jepson eFlora database (Jepson Flora Project 2024).

5.2 General Biological Surveys

Huffman Environmental biologists conducted a comprehensive series of biological surveys, including focused surveys, at the Project site during the 2025 field season. These surveys were designed to document the existing biological resources at the Project site and assess the presence and habitat conditions of key special-status species and jurisdictional resources in accordance with federal, state, and local regulatory requirements. Survey protocols followed established guidelines from agencies including the USFWS, CDFW, and the CNPS. Qualified biologists employed systematic field methods, combining direct observation, habitat mapping, and standardized survey techniques to ensure accurate and reliable data collection. The following subsections summarize the methods and results for each targeted species and resource category. A summary of surveys and focus types can be found in **Table 1**.

Vegetation communities within the Project site were identified and mapped using the Holland (1986) and Oberbauer (2008) classification system. Field surveys were conducted on foot using meandering transects and supplemented with drone-assisted aerial surveys to delineate plant communities across the site. Vegetation mapping units were applied at 1/8-acre scale. Observers recorded dominant species, community structure, and habitat quality. Mapping outputs were digitized using Environmental Systems Research Institute (ESRI) Field Maps to create vegetation community maps for analysis and reporting. Plant and animal species detected on-site during the general and focused surveys conducted in 2025 were recorded and presented in **Appendix B**.

5.3 Focused Species Surveys

5.3.1 Burrowing Owl

Protocol-level surveys for the burrowing owl (*Athene cunicularia*) were conducted by Huffman Environmental in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). A preliminary habitat assessment was also conducted on April 13, 2025 by Blanca Martinez and Garrett Huffman, with temperatures ranging from 62–69°F, cloud cover 10%, and winds zero (0) to seven (7) mile per hour (mph). Four survey rounds were completed on April 14, May 7, May 30, and June 18, 2025. Surveys were conducted by Garrett Huffman, Melissa Tu, and Jon Walker during the species' breeding season (February 1 through August 31), with at least three weeks between visits. Each survey was completed between civil dawn and 10:00 AM and avoided adverse conditions such as rain, fog, or wind over twenty (20) mph. Surveys were conducted on foot using meandering transects



spaced approximately seven (7) to twenty (20) meters apart to ensure full coverage of suitable habitat. Biologists surveyed the sight on foot using meandering transects approximately seven (7) to twenty (20) meters apart. Additionally, drone-assisted aerial surveys were conducted to inspect burrows and open areas that were difficult to access on foot. Both visual and acoustic cues were used to detect owls and associated signs, including pellets, feathers, prey remains, and whitewash. Burrows with recent sign or direct sightings would be considered active. Observations and burrows were documented using ESRI Field Maps. Following the surveys a focal report was prepared to discuss the survey methodology and results in detail (**Appendix C**).

5.3.2 Coastal California Gnatcatcher

Presence/absence surveys for the coastal California gnatcatcher were conducted by Huffman Environmental biologists in accordance with USFWS guidelines. Six (6) surveys were completed between April 20 and May 30, 2025 by USFWS permitted biologists Garrett Huffman (TE-20186A-3.3), Melissa Tu (PER0008918-0), and Jon Walker (TE-08087D-0). The site is outside an adopted Natural Community Conservation Plan (NCCP) area; thus, requiring a six-survey protocol. Surveys were spaced at least seven days apart during the breeding season (March 15–June 30). Surveys were conducted on foot using meandering transects. Passive visual and acoustic observation was combined with limited playback of coastal California gnatcatcher calls, used in accordance with the protocol. All bird species were identified using binoculars and auditory cues. Following the surveys a focal report was prepared to discuss the survey methodology and results in detail (**Appendix C**).

5.3.3 Crotch's Bumble Bee

Three protocol-level surveys were conducted for Crotch's bumble bee (*Bombus crotchii*) on April 29, May 14, and May 30, 2025 by Huffman Environmental biologists Blanca Martinez and Garrett Huffman. The surveys followed CDFW (2023) guidelines and were spaced at least two weeks apart. Efforts were timed to align with peak blooming conditions to maximize detection potential. Weather during surveys met protocol criteria: on-site temperatures between 60–90°F, winds below eight (8) mph, and no fog or precipitation. Biologists focused on areas with abundant, high-quality nectar sources. Surveys were performed on foot using slow, meandering transects and passive observation. Survey speed generally covered at least three (3) acres per hour, with flexibility based on site conditions, nectar density, and insect activity. *Bombus* individuals detected were observed visually with binoculars and photographed to assist with identification. No individuals were captured. Following the surveys a focal report was prepared to discuss the survey methodology and results in detail (**Appendix C**).

5.3.4 Rare Plants

Rare plant surveys were conducted by qualified botanists from Huffman Environmental in accordance with CDFW (2018) and CNPS (2024) protocols. Surveys targeted special-status species potentially occurring on site based on habitat suitability and regional occurrence data. Pre-survey research included review of the CNDDDB, CNPS Rare Plant Inventory, the Consortium of California Herbaria, and Calflora databases. Field surveys were conducted during the appropriate bloom periods for target species under favorable weather conditions (i.e., no recent disturbance, extreme heat, or drought stress). Botanists traversed the project footprint on foot using meandering transects to achieve full visual coverage. Special attention was given to microhabitats, soil types, and vegetation communities likely to support rare plants. Observers considered both direct evidence (e.g., live flowering plants) and indirect evidence (e.g., dried structures or rosettes). All special-status plant species encountered were



recorded, the number of individuals were estimated, and their locations on-site were mapped using Global Positioning System (GPS).

5.4 Aquatic Resources Delineation

A field assessment to identify and map potentially jurisdictional aquatic resources, including ephemeral, intermittent, and perennial drainages, was conducted by experienced Huffman Environmental biologists Kris Alberts and Garrett Huffman under suitable weather conditions on July 3, 2025. The survey followed delineation guidance from USACE 1987 Wetland Delineation Manual and 2008 Arid West Regional Supplement, the 2008 USACE field Guide to the Identification of the Ordinary High Water Mark (OHWM), the 2021 SWQCB wetland identification and delineation guidance, and relevant CDFW streambed alteration and hydrology guidance. The objective of the delineation was to identify, characterize, and assess the hydrological features within the site, and evaluate whether such features are potentially jurisdictional aquatic resources subject to regulation by USACE, RWQCB, and/or CDFW.

Biologists systematically walked the entire project site to identify aquatic features using direct observation, aerial maps, and sub-meter (GPS) mapping (<1-foot accuracy). The survey focus included topographic depressions, linear drainage features, and areas with soil or vegetation indicative of hydrologic activity. Indicators of jurisdictional resource status included but were not limited to: inundation or saturation, watermarks, drainage patterns, soil cracks and sediment deposits, drift lines, presence of aquatic invertebrates, OHWMs, bed and bank morphology, hydrophytic vegetation, hydric soils, and hydrologic connectivity. For each feature detected on-site, data were collected on GPS coordinates (upstream and downstream), width and depth, dominant vegetation and substrate, flow presence and direction, ponding, and signs of erosion. Soil pits were also dug where potentially jurisdictional aquatic resources were present to determine if hydrologic soils were present that would indicate the presence of water. Photographs were taken of features from multiple angles and annotated with orientation notes. Mapped features were delineated conservatively using measurements of length and width and processed with GIS software for sub-meter acreage calculations. All delineation data were recorded on standard USACE arid west and OHWM data sheets. An Aquatic Resources Delineation Report was prepared to discuss the methodologies employed and results in detail (**Appendix C**).



Table 1. Summary of Surveys by Focus Type

Survey Focus	Date	Surveyor(s)	Start-End Time	Start-End Temp (°F)	Start-End Cloud Cover (%)	Start-End Wind (mph)	Permit Number
Burrowing Owl							
Habitat Assessment	04/13/25	Blanca Martinez, Garrett Huffman	1030–1630	62–69	10–10	0–2; 0–7	–
Focused Survey #1	04/14/25	Blanca Martinez, Garrett Huffman	0700–1000	53–64	10–5	0; 0–4	–
Focused Survey #2	05/07/25	Blanca Martinez	0700–0900	56–65	100–50	2–5; 2–5	–
Focused Survey #3	05/30/25	Blanca Martinez	0700–0900	62–70	0–0	0–2; 0–2	–
Focused Survey #4	06/18/25	Blanca Martinez, Garrett Huffman	0730–0930	65–76	20–10	3–6; 3–6	–
Coastal California Gnatcatcher							
Focused Survey #1	04/20/25	Jon Walker	0630–1200	51–72	0–0	0–2; 0–7	TE-08087D-0
Focused Survey #2	04/29/25	Melissa Tu	0731–1240	56–72	10–5	0; 0–4	PER0008918-0
Focused Survey #3	05/07/25	Garrett Huffman	0618–1156	55–75	100–50	2–5; 2–5	TE-20186A-3.3
Focused Survey #4	05/14/25	Garrett Huffman, Gregory Garcia	0700–1122	51–65	10–10	0–2; 2–5	TE-20186A-3.3
Focused Survey #5	05/22/25	Melissa Tu	0715–1304	59–80	20–10	0–1; 2–3	PER0008918-0
Focused Survey #6	05/30/25	Garrett Huffman	0720–1119	62–75	0–0	0–3; 0–4	TE-20186A-3.3
Crotch's Bumble Bee							



Survey Focus	Date	Surveyor(s)	Start-End Time	Start-End Temp (°F)	Start-End Cloud Cover (%)	Start-End Wind (mph)	Permit Number
Focused Survey #1	04/29/25	Blanca Martinez, Garrett Huffman	1100–1500	66–72	10–10	3–5; 3–5	TE-20186A-3.3
Focused Survey #2	05/14/25	Blanca Martinez, Garrett Huffman, Gregory Garcia	0927–1400	65–73	10–10	1–3; 2–5	TE-20186A-3.3
Focused Survey #3	05/30/25	Blanca Martinez, Garrett Huffman	0900–1500	72–77	0–0	0–4; 1–6	TE-20186A-3.3
Rare Plants							
Survey #1	05/03/25	Ryan Meszaros	1000–1700	61–60	100–100	0–2; 2–6	–
Survey #2	05/05/25	Ryan Meszaros	0900–1600	56–62	100–100	2–7; 2–4	–
Survey #3	06/07/25	Ryan Meszaros	0900–1600	65–72	100–100	0–2; 0–2	–
Jurisdictional Delineation							
Survey #1	04/14/25	Garrett Huffman, Blanca Martinez	1000–1500	64–75	5–5	0–4; 2–3	–
Survey #2	07/03/25	Garrett Huffman, Kris Alberts	1400–1800	85–82	0–0	2–6; 3–8	–



5.5 Survey Limitations

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the lists of species identified are not necessarily comprehensive accounts of all species that utilize the Project site, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Those species that are of special status and have the potential to occur at the Project site, however, are still addressed in this report. Vegetation mapping and botanical surveys incorporated a floristic approach whereby plant species observed opportunistically and by targeted search were inventoried and recorded during various times of year. The rare plant surveys were conducted during the typical flowering period for target special-status plant species; however, it is noted that the 2024/2025 water year in the region endured below average rainfall, which may have affected the expression of certain species.

6 Results

This section discusses the biological resources at the Project site based on information from field surveys, forty-three (43) CNDDDB records, thirty-one (31) CNPS records, and eighteen (18) IPaC records from in the Regional Area. The information, analyses, and discussions in the following sections primarily focus on the Project site; additional areas within the buffer surrounding the Project site (i.e., Study Area and Regional Area) were reviewed for adjacency context only, are generally summarized herein, but are not discussed in detail.

6.1 Vegetation Communities and Land Cover Types

Five (5) vegetation communities and land cover types were identified including; Diegan coastal sage scrub, urban/developed, intensive agriculture-pasture, non-native woodland, and eucalyptus woodland. The spatial distribution of vegetation and land cover mapping of the site is presented in **Figure 5 (Appendix A)**. Representative photographs of vegetation conditions during the field surveys are attached to **Appendix D**. The mapping was conducted with precision down to 1/8 of an acre. The acreages of these vegetation and land cover types on-site are summarized below in **Table 2a**, which represent Option A, and **Table 2b** which reflects Option B.

The permanent impacts associated with Option A reflect areas that would be graded for the implementation of the Project as well as areas of fire buffer zone 1 beyond the grading limits (**Table 2a**). Temporary impacts are not expected. Areas considered impact neutral under Option A reflect existing easements recorded and maintained by SDG&E, VWD, and private access roads, as well as areas designated as fire buffer zone 2 (selective thinning of dense vegetation, targeting woody shrubs and trees, by removing a minimum 50% of the square footage of this area [DUDEK 2025]) that are outside the permanent impact footprint of Project grading.

Table 2a. On-Site Vegetation Communities and Land Cover Summary (Option A)

Vegetation Community/Land Cover Type (Holland Code)	Total On-Site (acres) ¹	Impacts(acres) ¹			Total Impacts (acres) ¹
		Temporary	Permanent	Neutral ²	
Upland					
Diegan coastal sage scrub (32500)	84.7	0	23.5	8.9	32.4
Eucalyptus Woodland (79100)	1.0	0	0.9	0.1	1.0



Intensive Agriculture - Pasture (18200)	44.7	0	38.2	4.6	42.8
Non-native Woodland (79000)	3.2	0	1.9	1.2	3.1
Developed/Disturbed					
Urban/Developed (12000)	2.5	0	1.0	1.1	2.1
Total	136.1	0	65.5	15.9	81.4

¹ Rounding was limited to the nearest tenths place during calculations.

² Reflects existing easements and fire buffer zone 2 outside of project grading.

Permanent impacts associated with Option B in **Table 2b** below reflect areas that would be graded for the implementation of the Project as well as both fire buffer fuel modification zones 1 and 2. Areas considered impact neutral under Option B reflect existing easements recorded and maintained by SDG&E, VWD, and private access roads.

Table 3b. On-Site Vegetation Communities and Land Cover Summary (Option B)

Vegetation Community/Land Cover Type (Holland Code)	Total On-Site (acres) ¹	Impacts(acres) ¹			Total Impacts (acres) ¹
		Temporary	Permanent	Neutral ²	
Upland					
Diegan coastal sage scrub (32500)	84.7	0	28.9	0.8	29.7
Eucalyptus Woodland (79100)	1.0	0	0.9	0.1	1.0
Intensive Agriculture - Pasture (18200)	45.5	0	37.8	2.9	40.7
Non-native Woodland (79000)	3.2	0	2.1	0.8	2.9
Developed/Disturbed					
Urban/Developed (12000)	2.5	0	1.0	1.4	2.4
Total	136.1	0	70.7	6.0	76.7

¹ Rounding was limited to the nearest tenths place during calculations.

² Reflects existing easements within grading and easements outside grading within fire buffer zones 1 and 2.

6.1.1 Diegan Coastal Sage Scrub

Diegan coastal sage scrub is a sensitive ecological community commonly found in the coastal regions of Southern California, primarily occurring in low- to moderate-elevation coastal areas with steep, xeric slopes or clay-rich soils. According to Holland (1986), this habitat type is characterized by low-growing, soft, often drought-deciduous shrubs that typically reach a height of around one (1) meter. The plants in this community are most active in the winter and early spring, with many taxa being facultatively drought-deciduous. While stem- and leaf-succulents are present, they are not as conspicuous as in maritime succulent scrub. Regionally, Diegan coastal sage scrub often integrates at higher elevations with chaparral communities or, in inland areas, with Riversidean sage scrub.



Diegan coastal sage scrub provides critical habitat for a variety of wildlife, including sensitive species such as the coastal California gnatcatcher, and plays a key role in maintaining ecological connectivity across southern California's coastal landscapes. This community is increasingly rare due to habitat fragmentation and urban development, making the conservation of intact patches particularly important for regional biodiversity.

On-site, Diegan coastal sage scrub occurs primarily along the western and southern edges of the project site, forming patches that integrate with intensive agriculture pasture. The community is moderately intact, with a well-developed native shrub layer and multiple canopy layers that include shrubs, subshrubs, and herbaceous plants. Dominant species observed on-site include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and laurel sumac (*Malosma laurina*), which together form the dominant structure of the habitat. Co-dominant species typically observed in the community include black sage (*Salvia mellifera*), sticky monkeyflower (*Diplacus puniceus*), lemonadeberry (*Rhus integrifolia*), and deerweed (*Acmispon glaber*). These species contribute to the characteristic shrub layer and support a wide range of wildlife, including sensitive species such as the coastal California gnatcatcher (*Polioptila californica californica*). This habitat provides essential nesting and foraging areas for wildlife and supports ecological connectivity in the broader San Marcos region. The site contains relatively intact patches compared to more degraded or fragmented habitats nearby, underscoring its high conservation value and regional importance. Diegan coastal sage scrub is considered a sensitive vegetation community.

6.1.2 Eucalyptus Woodland

Eucalyptus Woodland is a non-native vegetation community dominated by eucalyptus species, typically forming dense stands with a mostly closed canopy. According to Oberbauer (2008), this habitat occurs in coastal and foothill regions, often dominated by blue gum (*Eucalyptus globulus*) or red gum (*Eucalyptus camaldulensis*). The canopy produces substantial leaf and bark litter, which can inhibit understory development through allelopathic effects, resulting in limited understory diversity. Regionally, eucalyptus woodland is common in urbanized areas throughout San Diego County, where it often occurs in previously cleared or landscaped areas and contributes to local urban canopy and wildlife habitat.

On-site, eucalyptus woodland occurs in small, scattered groves, primarily in the southeastern portion of the Project site. Observed species within this community include blue gum as the dominant canopy tree, with occasional non-native understory plants such as tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), and loquat (*Eriobotrya japonica*). The habitat provides canopy cover and structural complexity, offering refuge and perching sites for birds and other urban-adapted wildlife, although native plant diversity is low. This vegetation type is not considered a sensitive natural community.

6.1.3 Intensive Agriculture - Pasture

Intensive agriculture is one of several types of agriculture classifications according to Oberbauer (2008), which is characterized by lands that are actively used for dairies, nurseries, poultry ranches, and livestock. When lands are used extensively for livestock grazing, but are not under active cultivation or regular irrigation, these areas are classified as pasture and typically dominated by a mix of non-native annual grasses, ruderal forbs, and occasional native species to compete a near 100% cover. These areas are heavily altered from natural conditions and typically lack a native species composition or structure. They are often mowed, tilled, or otherwise altered and managed on a regular basis and composed of grass species such as barely (*Hordeum vulgare*), wild oat (*Avena fatua*), soft



chess (*Bromus hordeaceus*), alfalfa (*Medicago sativa*), and orchard grass (*Dactylis glomerata*). While dominated by non-native species, pastureland provides ground cover and foraging opportunities for small mammals, birds, and pollinators, and represents a common but altered ecological community across Southern California.

Given the site use for agriculture orchard coupled with pasture for free-range cattle historically and currently, intensive agriculture areas are widespread across the site, currently these areas are primarily within the relatively flat (less than 15% slopes) areas below the slopes and hillsides of Diegan coastal sage scrub where cattle are most frequently present. Dominant species observed on-site include ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), and soft chess (*Brachypodium distachyon*). Co-dominant species observed include redstem filaree (*Erodium botrys*), short-pod mustard (*Hirschfeldia incana*), and blue-eyed grass (*Sisyrinchium bellum*). There are also scattered California sagebrush, California buckwheat, and other shrubs associated with coastal sage scrub within some areas of the pasture on-site. This pasture vegetation community is most active during the winter and producing vegetative growth and flowering stalks in spring following late fall rains, and by summer, the herbaceous layer senescens, leaving seeds to persist until the next rainy season. On-site these pasture lands provide limited but important habitat value for small mammals, pollinators, and ground-foraging birds. This community is relatively widespread across California, but has become less prevalent across the region due to urban expansion. Intensive agriculture land is not considered sensitive a sensitive natural vegetation community.

6.1.4 Non-Native Woodland

Non-native woodland is a vegetation community composed of exotic tree species, often planted intentionally in disturbed or urbanized areas, but not actively maintained or irrigated. According to Oberbauer (2008), this community is characterized by open to partially closed canopies with limited understory development due to shading and competition from non-native trees. Regionally, non-native woodlands are common in urban and semi-urban areas, providing structural habitat but generally low native species diversity.

On-site, non-native woodland occurs in small, scattered patches in the northern and central portions of the site. Dominant species observed include Peruvian pepper tree (*Schinus molle*), loquat, and mulberry (*Morus* sp.), with occasional non-native understory plants such as tree tobacco (*Nicotiana glauca*) and castor bean (*Ricinus communis*). This vegetation provides structural cover, nesting opportunities, and perching sites for urban-adapted wildlife, although native understory species are largely absent. Although, non-native, these woodlands provide some local habitat value and contribute to ecological connectivity for urban wildlife in the broader landscape, but their conservation value is low relative to native habitats. Non-native woodland is common throughout urban areas of coastal San Diego County, representing a non-native but structurally significant component of the landscape; this vegetation community is not considered sensitive.

6.1.5 Urban/Developed

Urban/developed areas are locations that have been physically altered such that native vegetation is no longer present or functional. According to Oberbauer (2008), these areas are dominated by permanent or semi-permanent structures, pavement, landscaped gardens, or other hard-scape features, often requiring irrigation. Regionally, urban/developed areas are common across southern California and typically represent highly modified landscapes with minimal native biodiversity. On-site, urban/developed areas occur primarily in the northeastern portion of the Site and include scattered residences, a barn, small outbuildings, paved and dirt access roads, and landscaped areas. Observed species within these areas are largely ornamental and non-native, including garden



nasturtium (*Tropaeolum majus*), loquat and Peruvian pepper tree. Native species are largely absent. Despite being highly modified, these areas provide some habitat value for urban wildlife such as birds and small mammals, while also influencing hydrology and soil conditions through impervious surfaces and landscaping. Although highly modified, these areas provide some habitat value for urban-adapted wildlife such as birds and small mammals and influence local hydrology and soil conditions through impervious surfaces and landscaping. Their conservation value is low, but they can function as minor corridors for wildlife in the broader urban landscape. Urban/developed land is widespread throughout San Diego County and are representative of human-modified landscapes that interrupt natural vegetation patterns. Such areas not recognized as a sensitive natural community.

6.2 Aquatic Resources

The delineation identified a single drainage system that flows in a west-to-east direction across the Project site. Additional hydrologic features were observed beyond the Project site to the east, including man-made spillway inlets, seepage outlets, and concrete culverts that direct surface flow beneath North Twin Oaks Valley Road, facilitate downstream conveyance to San Marcos Creek, and ultimately drains into Lake San Marcos, approximately five (5) miles southwest of the Project site. The drainage features on-site (except for NWW-S3, encased with fencing) show substantial on-going disturbance from free-range cattle, which use the drainages as travel corridors, thereby resulting in compacted and disturbed soils, suppressed vegetation establishment, and altered OHWM and bed-to-bank characteristics. These impacts are ongoing due to the current uses on-site and they complicated interpretation of hydrologic and biological indicators.

Overall, the on-site drainage system was found to consist of six (6) discrete segments, labeled as non-wetland waters (NWW) features: NWW-1 through NWW-3, two anthropogenically excavated basins (labeled NWW-S1 and NWW-S2), and a constructed concrete-lined storm water channel (labeled NWW-S3) (**Appendix A: Figure 6 and Table 3**). These NNW features were found to exhibit OHWM with bed and bank characteristics, although these characteristics were variable and not strongly discernable or contiguous given the disturbances on-site. Other than the concrete-lined storm water channel (i.e., NWW-S3) in the northeastern portion of the site, this drainage system observed on-site does not appear to connect to the eastern boundary of the Project site as a defined feature; the drainage system terminates near the central-east portion of the site at one of the excavated basins (i.e., NWW-S2), then seems to transition to sheet flow (no evidence of surface hydrology) across the eastern portion of the site heading toward North Twin Oaks Valley Road. NWW-S3 collects off-site surface runoff north of the site and conveys flows from north to south, which then redirects the storm water beneath Twin Oaks Valley Road via an underground spillway and culvert system.

The on-site drainage system is relatively consistent with feature mapped in the western portions of the site by the USFWS National Wetlands Inventory (NWI) (USFWS 2024; 2025b). However, portions of the feature did not meet criteria for RWQCB or CDFW as described above; thus, were classified as swales and considered non-jurisdictional. Specifically, two (2) swales were identified on-site, one (1) located between NWW-3 and NNW-S2, and another located north of NNW-S2. These areas lacked a discernible OHWM, did not exhibit defined bed and bank morphology, or have hydrological signs of sediment deposits or drift/rack lines; thus, indicating that they function more as upland drainage swales rather than jurisdictional waterways. Further, the vegetation within these features consisted entirely of upland species, with no riparian or aquatic vegetation present, suggesting insufficient hydrologic influence. Additionally, no hydric indicators were visible, confirming the absence of prolonged saturation or inundation. Based on these on-site characteristics, all of the NNW features observed on-



site are classified as ephemeral, with flow likely occurring primarily during or immediately following precipitation events.

In terms of regulatory agency jurisdiction, no features on-site met the criteria for USACE jurisdiction, as all identified aquatic features were ephemeral and lacked a continuous hydrologic surface connection to relatively permanent waters. However, these on-site NNW features, totaling approximately 0.399 acres (2,265 linear feet), may fall under the jurisdiction of the RWQCB as isolated waters of the state pursuant to the Porter-Cologne Water Quality Control Act. Additionally, these waters of the state features on-site would also be considered CDFW jurisdictional stream. Further areas above the OHWM to the top of bank (i.e., bank to bank) would also be subject to CDFW jurisdiction per Section 1600 et seq. of the California Fish and Game Code. Thus, CDFW jurisdiction on-site would total approximately 0.524 acres of stream. The aquatic resources delineation completed for the proposed Project represents the best available scientific information gathered by experts following survey protocols and regulatory guidance from the USACE, RWQCB, and CDFW; however, it is noted that only the USACE, RWQCB, and CDFW can make the final determinations on their respective jurisdictional boundaries.

Impacts (permanent, temporary, and neutral) to jurisdictional aquatic resources would be consistent with the evaluation of impacts to vegetation for Option A and Option B, described earlier in Section 6.1. Given the location and nature of the impacts on jurisdictional aquatic resources, the impacts are the same for both Option A and Option B, as summarized below in Tables 3a and 3b.

Table 4a. Aquatic Resources On-Site (Option A)

Feature Name	Total On-Site		Impacts (Acres/Length) ^{1,2}			
	Acres ¹	Length ²	Temporary	Permanent	Neutral ³	Total
RWQCB (Non-Wetland Waters of the State)						
NWW-1	0.010	525	0	0.001	0	0.001
NWW-2	0.004	180	0	0.004	0	0.004
NWW-3	0.017	870	0	0.017	0.001	0.018
NWW-S1	0.062	100	0	0.062	0	0.062
NWW-S2	0.098	80	0	0.098	0	0.098
NWW-S3	0.208	510	0	0.011	0.190	0.201
Total	0.399	2,265	0	0.193	0.191	0.384
CDFW (Stream Bank-to-Bank)³						
NWW-1	0.054	525	0	0.006	0	0.006
NWW-2	0.036	180	0	0.036	0	0.036
NWW-3	0.066	870	0	0.064	0.001	0.065
NWW-S1	0.062	100	0	0.062	0	0.062
NWW-S2	0.098	80	0	0.098	0	0.098
NWW-S3	0.208	510	0	0.011	0.190	0.201
Total	0.524	2,265		0.277	0.191	0.468

¹Rounding was limited to the thousandths place during calculations.

²Rounding was to the nearest foot.

³Reflects existing easements and fire buffer zone 2 outside of project grading.

⁴CDFW acreages and linear feet includes RWQCB features. RWQCB and CDFW do not sum.



Table 5b. Aquatic Resources On-Site (Option B)

Feature Name	Total On-Site		Impacts (Acres/Length) ^{1,2}			
	Acres ¹	Length ²	Temporary	Permanent	Neutral	Total
RWQCB (Non-Wetland Waters of the State)						
NWW-1	0.010	525	0	0.001	0	0.001
NWW-2	0.004	180	0	0.004	0	0.004
NWW-3	0.017	870	0	0.017	0.001	0.018
NWW-S1	0.062	100	0	0.062	0	0.062
NWW-S2	0.098	80	0	0.098	0	0.098
NWW-S3	0.208	510	0	0.011	0.190	0.201
Total	0.399	2,265	0	0.193	0.191	0.384
CDFW (Stream Bank-to-Bank)³						
NWW-1	0.054	525	0	0.006	0	0.006
NWW-2	0.036	180	0	0.036	0	0.036
NWW-3	0.066	870	0	0.064	0.001	0.065
NWW-S1	0.062	100	0	0.062	0	0.062
NWW-S2	0.098	80	0	0.098	0	0.098
NWW-S3	0.208	510	0	0.011	0.190	0.201
Total	0.524	2,265	0	0.277	0.191	0.468

¹Rounding was limited to the thousandths place during calculations.

²Rounding was to the nearest foot.

³Reflects existing easements within grading and easements outside grading within fire buffer zones 1 and 2.

⁴CDFW acreages and linear feet includes RWQCB features. RWQCB and CDFW do not sum.

6.3 Observed Plants

6.3.1 Plant Diversity

A total 218 plant taxa were detected during the field surveys conducted in 2025, of which approximately 52% were native and approximately 48% were non-native species. A list of plants detected during the field surveys is provided in **Appendix B**. Floral diversity varied across the Project Site, with intact natural plant communities supporting the greatest number of native species, while areas heavily disturbed by anthropogenic activities, such as urban/development and intensive agriculture-pasture, exhibited lower species richness and were dominated by generalist or non-native plants.

6.4 Observed Wildlife

6.4.1 Wildlife Diversity

A total of 69 wildlife taxa were detected during the field surveys in 2025. Given the semi-urban setting of the site, limited habitat diversity, and on-going anthropogenic activities on-site, low diversity of wildlife species is expected. Of the 69 wildlife species detected, approximately 88% were native species and 12% were non-native species. A list of wildlife taxa detected during the field surveys is provided in **Appendix B**.



6.5 Sensitive Species

Following the desktop review, field surveys, and habitat analyses, Huffman Environmental and Bargas assessed the potential for the occurrence of special-status species at the Project site. Biological conditions (e.g. vegetation communities, wildlife habitats, disturbances, etc.) as well as the habitat and life cycle requirements of special-status species identified for analysis in the desktop review were considered. “Recent” occurrences are defined as observed within the past 30 years. Based on these considerations, species were assigned to the following categories:

- **Known to Occur:** Species was detected during recent biological surveys conducted for the Project.
- **High:** Species with recorded occurrence(s) within or near the Study Area and suitable habitat (e.g., appropriate elevation, hydrology, soils, cover, habitat type, food resources, and etc.) exists in the Project site; however, the species was not observed during biological surveys for the Project.
- **Moderate:** Species with no known recorded occurrence(s) within or near the Study Area and the species was not observed during biological surveys for the Project. However, habitat within the Project site is suitable to support the species.
- **Low:** Species with no known recorded occurrence(s) within or near the Study Area. No suitable habitat present on-site; or habitat is within the Project site, but habitat on-site is substantially disturbed, fragmented, or is small in extent such that is very unlikely to support the species.
- **Not Expected:** There are no records of the species occurring within or near the Study Area, the Project site is not within the known geographic range for the species, and/or suitable habitat (e.g., soil, vegetation, elevational range, etc.) was not found during the field surveys conducted for the Project. The species is detectable year-round and would have been detected during surveys, but was not detected, or focused surveys were conducted for the species and the species was not detected.

The potential for bird species was further distinguished into those that may: 1) nest within or near the Project site; 2) forage within or near the Project site; and/or 3) occur on or near the Project site only as transients during migratory flights or other dispersal events.

Special-Status Plants

Special-Status plants reflect species’ specifically recognized by the USFWS, CDFW, and CNPS; however, local jurisdictions may also recognize species as special-status. A species or subspecies is considered sensitive if listed as rare, endangered, or threatened under Section 670.2 or 670.5, Title 14, California Code of Regulations (CFR), or the Federal Endangered Species Act, Title 50, CFR § 17.11 or § 17.12, or candidate species under the California CFR. Additionally, a plant species meets the standards for state listing under the CEQA Guidelines (14 CCR § 15380) and is considered to be sensitive if it is included in the CNPS Inventory of Rare and Endangered Plants with an assigned CRPR of 2 or lower (CNPS 2024). Species with higher, less sensitive, CRPR (i.e., CRPR 3 and 4 species) may also be considered sensitive species by local documentation, such as Narrow Endemic (NE) species identified by the MHCP.

Three (3) special-status plant species were detected during the biological survey conducted by Huffman for the Project in 2025: golden-rayed pentachaeta (*Pentachaeta aurea*) and graceful tarplant (*Holocarpha virgata* ssp. *elongata*) which both holds a CRPR of 4.2 and ashy spike-moss (*Selaginella cinerascens*) which holds a CRPR of 4.1.



The desktop review for special-status plant species was based on multiple sources, including a one (1)-Quad search for the CNDDDB, a nine (9)-quad search area for the CNPS of Rare and Endangered Plants (CNPS 2025a), within a five (5)-mile radius around the Project site. In addition to the CNDDDB and CNPS sources, the review also considered species lists covered under the MHCP as well as NE species list to ensure a comprehensive assessment of potential special-status plant species in the region. Habitat preferences for these species were sourced from the CNPS Inventory as well as from the CDFW California Wildlife Habitat Relationships database and the USFWS Species Search (CNDDDB 2025, USFWS, 2025). As summarized in **Table 4**, fifty-six (56) special-status plant taxa were identified through desktop analysis.

Table 6. Special-Status Plant Species and Potential for Occurrence

Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
<i>Acanthomintha ilicifolia</i>	San Diego Thorn-mint	Federal: FT State: CE CRPR: 1B.1 MHCP: CS NE: Yes	Annual herb. Clay openings in chaparral, coastal scrub, grassland, and vernal pools in coastal San Diego County up to 3,150 feet elevation. Blooms April-June.	No	Not Expected. Although Diegan coastal sage scrub occurs on-site, the clay openings typically used by this annual were not observed. Focused plant surveys were conducted in 2025 during this species' bloom period, none were detected.
<i>Acmispon prostratus</i>	Nuttall's Lotus	Federal: None State: None CRPR: 1B.1 MHCP: CS NE: Yes	Annual herb. Coastal dunes and coastal scrub habitats in elevations up to 35 feet. Blooms March-June (and early July)	No	Not Expected: Costal dune habitat not present on-site. Sandy soils are not present on-site to support the species. Focused plant surveys were conducted in 2025 during this species' bloom period, none were detected.
<i>Adolphia californica</i>	California Adolphia	Federal: None State: None CRPR: 2B.1 MHCP: No NE: No	Perennial deciduous shrub. Chaparral, coastal scrub, valley and foothill grassland in coastal San Diego County below 2430 feet elevation. Blooms December to May.	Yes	Not Expected. Suitable coastal sage scrub habitat is on-site; however, this deciduous shrub was not detected. Focused plant surveys conducted in 2025 coincided with its December–May blooming period, and it was not observed during surveys.
<i>Ambrosia pumila</i>	San Diego Ambrosia	Federal: FE State: None CRPR: 1B.1	Perennial rhizomatous herb. Often in disturbed	Yes	Not Expected. Grassland pasture and scrub habitat occur on-site, but the



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
		MHCP: CS NE: No	areas on alkaline, clay, loam, or sandy soils in chaparral, coastal scrub, grassland, and vernal pools in Riverside and San Diego Counties below 1,360 feet elevation. Blooms April-October		alkaline and clay soils required by this perennial were not found. Focused plant surveys were conducted in 2025 during its April–October blooming period, and it was not observed during surveys.
<i>Aphanisma blitoides</i>	Aphanisma	Federal: None State: None CRPR: 1B.2 MHCP: CS NE:	Annual herb. Occurs in Coastal bluff scrub, coastal dune, and coastal scrub habitats at elevations between 5 and 1,000 feet. Sometimes grows in gravelly and sandy soils. Blooms February-June	No	Not Expected: Suitable coastal habitats and soils no present on Project site. Focused plant surveys were conducted in 2025 during its February-June blooming period, none were detected.
<i>Arctostaphylos glandulosa ssp. crassifolia</i>	Del Mar Manzanita	Federal: FE State: None CRPR: 1B.1 MHCP: CS NE: Yes	Perennial evergreen shrub. Sandy, coastal chaparral in San Diego County below 1,200 feet elevation. Blooms generally December-April.	Yes	Not Expected. Chaparral habitat occurs on-site, but the sandy maritime soils required by this shrub are absent. Focused plant surveys conducted in 2025 overlapped with its December–April bloom period, and it was not observed during surveys.
<i>Arctostaphylos rainbowensis</i>	Rainbow Manzanita	Federal: None State: None CRPR: 1B.1 MHCP: No NE: No	Perennial evergreen shrub. Chaparral on the coastal slope of Riverside and San Diego Counties from 675 to 2,200 feet elevation. Blooms December-March.	Yes	Not Expected. Chaparral habitat is present on-site, but this species is restricted to northern San Diego and Riverside County slopes. Focused plant surveys were conducted in 2025 during its December–March bloom period, and it was not observed during surveys.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
<i>Artemisia palmeri</i>	San Diego Sagewort	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Perennial deciduous shrub. Sandy mesic soils in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland in Riverside, San Bernardino, and San Diego Counties below 3000 feet elevation. Blooms (Feb) May-Sept	Yes	Not Expected. Although chaparral and coastal scrub are present on-site, sandy mesic soils typically associated with this perennial shrub are not present. Focused plant surveys conducted in 2025 occurred during its May–September blooming window, and it was not observed during surveys.
<i>Asplenium vespertinum</i>	Western Spleenwort	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Perennial rhizomatous herb. Rocky chaparral, cismontane woodland, and coastal scrub in LA, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties between 590 and 3,280 feet elevation. Blooms Feb-June.	Yes	Not Expected. Suitable coastal scrub and woodland habitat is present, but the rocky substrates this fern requires are not common on-site. Focused plant surveys conducted in 2025 occurred during its February–June bloom season, and it was not observed during surveys.
<i>Atriplex coulteri</i>	Coulter’s Saltbush	Federal: None State: None CRPR: 1B.2 MHCP: No NE: No	Perennial herb. Alkaline or clay soils in coastal bluff scrub, coastal dunes, coastal scrub, or grassland in LA, Orange, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Ventura Counties below 1,510 feet elevation. Blooms March-October	No	Not Expected. Pasture land on-site is not suitable for this species. Although coastal scrub occurs on-site, the alkaline or clay soils required by this perennial herb were not identified. Focused plant surveys conducted in 2025 occurred during its March–October blooming period was covered by surveys, but the species was not observed during surveys.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
<i>Atriplex pacifica</i>	South Coast Saltscale	Federal: None State: None CRPR: 1B.2 MHCP: No NE: No	Annual herb. Coastal bluff scrub, coastal dunes, coastal scrub, and playas in LA, Orange, San Diego, Santa Barbara, and Ventura Counties below 460 feet elevation. Blooms March-October.	No	Not Expected. This annual requires coastal bluff scrub or playas at lower elevations than those on-site. Focused plant surveys were conducted in 2025 during its March–October bloom period, and it was not observed during surveys.
<i>Baccharis vanessae</i>	Encinitas baccharis	Federal: FT State: CE CRPR: 1B.1 MHCP: CS NE: Yes	Perennial deciduous shrub. Chaparral and cismontane woodland in coastal San Diego County below 2,360 feet elevation. Blooms August-November.	Yes	Not Expected. Chaparral and cismontane woodland occur on-site, but this perennial shrub was not detected. Focused plant surveys conducted in 2025 overlapped with its August–November blooming period, and the species was not observed during surveys.
<i>Bahiopsis laciniata</i>	San Diego County Viguiera	Federal: None State: None CRPR: 4.3 MHCP: No NE: No	Perennial shrub. Chaparral and coastal scrub in Orange, Riverside, and San Diego Counties below 2,460 feet elevation.	Yes	Not Expected. Chaparral and coastal scrub are present on-site, but this perennial shrub was not found. Focused plant surveys conducted in 2025 coincided with its bloom period, and it was not observed during surveys.
<i>Berberis nevini</i>	Nevin’s Barberry	Federal: FE State: CE CRPR: 1B.1 MHCP: No NE: No	Perennial evergreen shrub. Occurs in chaparral, cismontane woodlands, coastal scrub, and riparian scrub habitats at elevations between 230 and 2705 feet. Blooms March-June	No	Not Expected: Suitable scrub habitat present on-site but lacks soils to sustain the species. Focused plant surveys were conducted in 2025 within the bloom period for this species, and it was not detected.
<i>Bloomeria clevelandii</i>	San Diego Goldenstar	Federal: None State: None	Perennial buliferous herb. Clay soils in	No	Not Expected. While coastal sage scrub is



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
		CRPR: 1B.1 MHCP: No NE: No	chaparral, coastal scrub, grassland, and vernal pools in coastal San Diego County up to 1,525 feet elevation. Blooms April-May		present on-site, clay soils are lacking. Focused plant surveys were conducted in 2025 during its April–May blooming period, and the species was not observed during surveys.
<i>Brodiaea filifolia</i>	Thread-leaved Brodiaea	Federal: FT State: CE CRPR: 1B.1 MHCP: CS NE: Yes	Perennial bulbiferous herb. Often in clay soils in coastal scrub, cismontane woodland, vernal pools, playas, grassland, and openings in chaparral in LA, Orange, Riverside, San Bernardino, and San Diego Counties up to 3,675 feet elevation. Blooms March-June.	No	Not Expected. Although pasture grassland and scrub habitat occur on-site, the clay soils and vernal pool conditions this species requires are absent. Focused plant surveys conducted in 2025 overlapped with its March–June blooming season, and it was not observed during surveys.
<i>Brodiaea orcuttii</i>	Orcutt’s Brodiaea	Federal: None State: None CRPR: 1B.1 MHCP: No NE: No	Perennial bulbiferous herb. Clay and mesic soils in vernal pools, grasslands, coastal scrub, chaparral, meadows and seeps, cismontane woodland, and closed-cone conifer forest in Riverside and San Diego Counties below 5,550 feet. Blooms May-July.	No	Not Expected. Pasture grassland and coastal scrub occurs on-site; however, the mesic and clay soils typical for this species are not present. Focused plant surveys were conducted in 2025 during its May–July blooming period and the species was not detected.
<i>Calandrinia breweri</i>	Brewer’s Calandrinia	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Annual herb. Burned or disturbed areas on loam or sandy soils in chaparral or coastal scrub in Los Angeles, Orange, Riverside, San Diego, San Luis	Yes	Not Expected. Coastal scrub and chaparral are present on-site, but this disturbance-adapted annual was not detected. Focused plant surveys conducted in 2025



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			Obispo, Santa Barbara, and Ventura Counties (and additional counties in northern California) below 4,005 feet elevation. Blooms (Jan) March-June.		overlapped with its March–June bloom period, and it was not observed during surveys.
<i>Calochortus plummerae</i>	Plummer’s Mariposa-lily	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Perennial bulbiferous herb. Rocky, granitic soils in chaparral, cismontane woodland, coastal scrub, lower montane conifer forest, and grassland in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties between 330 and 5,580 feet elevation. Blooms May-July.	Yes	Not Expected. Chaparral habitat occurs on-site, but the rocky granitic soils typically associated with this species were not present. Focused plant surveys were conducted in 2025 during its May–July blooming season and this species was not detected.
<i>Camissoniopsis lewisii</i>	Lewis’ Evening-Primrose	Federal: None State: None CRPR: 3 MHCP: No NE: No	Annual herb. Clay or sandy soils in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and grassland in Los Angeles, Orange, and San Diego Counties below 985 feet elevation. Blooms March-May (June).	Yes	Not Expected. Although scrub habitats occur on-site, the sandy soils typical of this annual were not detected. Focused plant surveys occurred in 2025 during its March–June bloom period, and it was not observed during surveys.
<i>Ceanothus cyaneus</i>	Lakeside Ceanothus	Federal: None State: None CRPR: 1B.2 MHCP: No NE: No	Perennial evergreen shrub. Chaparral and closed-cone conifer forest in San Diego County between 770 and 2,475 feet	Yes	Not Expected. Chaparral occurs on-site, but this shrub has a very restricted distribution in San Diego County. Focused plant surveys were conducted in



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			elevation. Blooms April-June,		2025 during its April–June blooming period and did not detect the species.
<i>Ceanothus verrucosus</i>	Wart-stemmed Ceanothus	Federal: None State: None CRPR: 2B.2 MHCP: CS NE: No	Perennial evergreen shrub. Chaparral and coastal scrub on the coastal slope of San Diego County up to 1,245 feet. Blooms December-May.	Yes	Not Expected. Chaparral and coastal scrub occur on-site, but the species’ known coastal slope distribution is not represented here. Focused plant surveys conducted in 2025 overlapped with its December–May bloom period, and it was not observed during surveys.
<i>Centromadia parryi ssp. australis</i>	Southern Tarplant	Federal: None State: None CRPR: 1B.1 MHCP: No NE: No	Annual herb. Margins of marshes, vernal mesic grasslands, and vernal pools in Los Angeles, Orange, San Diego, Santa Barbara, and Ventura Counties up to 1,575 feet elevation. Blooms May-November.	No	Not Expected. This annual herb occurs in marshes and vernal mesic areas, which are not present on-site. Focused plant surveys were conducted in 2025 during its May–November bloom period and the species was not detected.
<i>Centromadia pungens ssp. laevis</i>	Smooth Tarplant	Federal: None State: None CRPR: 1B.1 MHCP: No NE: No	Annual herb. Alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and grassland in Los Angeles, Riverside, San Bernardino, and San Diego Counties below 2,100 feet elevation. Blooms April-September.	No	Not Expected. Alkaline habitats required by this annual are not present on-site. Focused plant surveys conducted in 2025 overlapped with its April–September bloom period, and the species was not observed during surveys.
<i>Chamaebatia australis</i>	Southern Mountain Misery	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Perennial evergreen shrub. Gabbroic, metavolcanic soils in chaparral in San Diego County	No	Not Expected. This species occurs in gabbroic soils of chaparral, which are not present on-site. Focused plant surveys were



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			between 985 and 3,345 feet elevation. Blooms November-May.		conducted in 2025 during its November–May bloom period and did not detect the species.
<i>Chorizanthe orcuttiana</i>	Orcutt’s Spineflower	Federal: FE State: CE CRPR: 1B MHCP: CS NE: Yes	Annual herb. Sandy soil and openings in closed-cone coniferous forest, maritime chaparral, and coastal scrub in southwest San Diego County below 410 feet elevation. Blooms March-May	Yes	Not Expected. Although coastal scrub occurs on-site, the sandy soils typically required by this annual are not present. Focused plant surveys were conducted in 2025 during its March–May blooming season and did not detect the species.
<i>Cistanthe maritima</i>	Seaside Cistanthe	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Annual herb. Sandy soils in coastal bluff scrub, coastal scrub, and grassland in Los Angeles, Marin, Orange, San Diego, Santa Barbara, and Ventura Counties below 985 feet elevation. Blooms (Feb) March-June (Aug).	Yes	Not Expected. Sandy soils suitable for this annual were not detected on-site. Focused plant surveys conducted in 2025 overlapped with its March–June bloom season, and it was not observed during surveys.
<i>Clarkia delicata</i>	Delicate Clarkia	Federal: None State: None CRPR: 1B.1 MHCP: No NE: No	Annual herb. Often on gabbroic soils in chaparral and cismontane woodland in San Diego County between 770 and 3,280 feet elevation. Blooms April-June.	No	Not Expected. Chaparral is present, but gabbroic soils required by this species are lacking. Focused plant surveys occurred were conducted in 2025 during its April–June bloom period, and it was not observed during surveys.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Summer Holly	Federal: None State: None CRPR: 1B.2 MHCP: CS NE: No	Perennial evergreen shrub. Chaparral and cismontane woodland in Orange and San Diego Counties up to 2,590	Yes	Not Expected. Chaparral is present on-site, but individuals were not detected. Focused plant surveys conducted in 2025 overlapped with its April–



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			feet elevation. Blooms April-June.		June blooming season and it was not detected.
<i>Convolvulus simulans</i>	Small-flowered Morning-glory	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Annual herb. Clay and serpentine soils, seeps, coastal scrub, grassland, and openings in chaparral in Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Ventura Counties (found in additional counties in northern California) below 2,430 feet elevation. Blooms March-July.	No	Not Expected. Although scrub habitats occur on-site, the clay and serpentine soils this species requires are absent. Focused plant surveys were conducted in 2025 during its March–July blooming period and it was not detected.
<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i>	Del Mar Mesa Sand Aster	Federal: None State: S1 CRPR: 1B.1 MHCP: CS NE: Yes	Perennial herb. Sandy soils in coastal bluff scrub, coastal scrub, and openings in maritime chaparral in San Diego County below 490 feet elevation. Blooms May-September.	Yes	Not Expected. Sandy coastal bluff soils suitable for this perennial species are not on-site. Focused plant surveys were conducted in 2025 during the bloom period for this species (March–June), and it was not observed during surveys.
<i>Dichondra occidentalis</i>	Western Dichondra	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Perennial rhizomatous herb. Chaparral, cismontane woodland, coastal scrub, and grassland in Los Angeles, Marin, Orange, San Diego, Santa Barbara, and Ventura Counties below 1,640 feet elevation. Blooms March-July.	Yes	Not Expected. Scrub habitat occurs on-site, but this perennial plant species was not detected. Focused plant surveys conducted in 2025 overlapped with its March–July bloom season, and it was not observed during surveys.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	Blochman's Dudleya	Federal: None State: None CRPR: 1B.1 MHCP: CS NE: No	Perennial herb. Occurs in chaparral, coastal bluff scrub, and within valley and foothill grassland habitats at elevations between 15 and 1,475 feet. Blooms April-June.	No	Not Expected: Pasture grassland is present on-site and lacks sufficient soils to support the species. Focused plant surveys were conducted in 2025 during this species bloom period and it was not detected.
<i>Dudleya brevifolia</i>	Short-leaved Dudleya	Federal: None State: CE CRPR: 1B.1 MHCP: CS NE: Yes	Perennial herb. Occurs in chaparral and coastal scrub habitats at elevations between 100 and 820 feet. Prefers sandstone. Blooms April-May	No	Not Expected: Suitable scrub habitat present on-site but lacks preferred sandstone substrate. Focused plant surveys were conducted in 2025 during this species bloom period, and it was not detected.
<i>Dudleya variegata</i>	Variegated Dudleya	Federal: None State: None CRPR: 1B.1 MHCP: No NE: Yes	Perennial herb. Clay soils in chaparral, cismontane woodland, coastal scrub, grassland, and vernal pools in San Diego County below 1,905 feet elevation. Blooms April-June.	Yes	Not Expected. Chaparral and scrub habitats are present, but this clay-associated perennial was not found. Focused plant surveys conducted in 2025 overlapped with its April-June bloom season, and it was not observed during surveys.
<i>Dudleya viscida</i>	Stickly Dudleya	Federal: None State: None CRPR: 1B.1 MHCP: CS NE: No	Perennial herb. Rocky soils in coastal bluff scrub, chaparral, cismontane woodland, and coastal scrub in Orange, Riverside, and San Diego Counties below 1,805 feet elevation. Blooms May-June.	Yes	Not Expected. Coastal scrub is present on-site, but the rocky substrates preferred by this species were absent. Focused plant surveys conducted in 2025 during its May-June blooming season did not detect it.
<i>Ericameria palmeri</i> var. <i>palmeri</i>	Palmer's Goldenbush	Federal: None State: None CRPR: 1B.1	Perennial evergreen shrub. Mesic soils in chaparral and coastal	No	Not Expected. Chaparral and scrub are present, but mesic soils required by this



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
		MHCP: No NE: No	scrub in San Diego County below 1,970 feet elevation. Blooms (July) September–November.		species are lacking on-site. Focused plant surveys conducted in 2025 overlapped with its September–November bloom season, and it was not observed during surveys.
<i>Eryngium aristulatum var. parishii</i>	San Diego Button-celery	Federal: FE State: CE CRPR: 1B.1 MHCP: CS NE: Yes	Annual/perennial herb. Mesic coastal scrub, grassland, and vernal pools in Imperial, Los Angeles, Orange, Riverside, and San Diego Counties below 2,035 feet elevation. Blooms April–June.	Yes	Not Expected. While mesic lands occurs regionally, vernal pools required by this species are absent on-site. Focused plant surveys were conducted in 2025 during its April–June bloom period and did not detect it.
<i>Erythranthe diffusa</i>	Palomar Monkeyflower	Federal: None State: None CRPR: 4.3 MHCP: No NE: No	Annual herb. Sometime sandy or gravelly soils in chaparral and lower montane conifer forest in Los Angeles, Orange, Riverside, San Diego, and Santa Clara Counties between 4,005 and 6,005 feet elevation. Blooms April–June.	Yes	Not Expected. Elevation range and coniferous forest habitats for this species are not present on-site. Focused plant surveys conducted in 2025 during its April–June bloom period did not detect this species.
<i>Euphorbia misera</i>	Cliff Spurge	Federal: None State: None CRPR: 2B.2 MHCP: Yes NE: No	Perennial shrub. Occurs in coastal bluff scrub, coastal scrub, and Mojavean desert scrub habitats at elevations between 35 and 1,640 feet. Typically grows in rocky soils. Blooms December–August	No	Not Expected: Suitable coastal scrub habitat is present on-site but lacks rocky soils needed to support the species. Focused plant surveys conducted in 2025 did not detect this species.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
<i>Ferocactus viridescens</i>	San Diego Barrel Cactus	Federal: None State: None CRPR: 2B.1 MHCP: CS NE: No	Perennial stem. Chaparral, coastal scrub, grassland, and vernal pools in San Diego County below 1,475 feet elevation. Blooms May-June	No	Not Expected. Coastal scrub is present, but this cactus species was not found. Focused plant surveys conducted in 2025 overlapped with its May–June bloom season, and it was not observed during surveys.
<i>Harpagonella palmeri</i>	Palmer’s Grappling-hook	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Annual herb. Clay openings in chaparral, coastal scrub, and grassland in Los Angeles, Orange, Riverside, and San Diego Counties up to 3,135 feet elevation. Blooms March-May.	No	Not Expected. Clay openings are not present on-site. Focused plant surveys conducted in 2025 overlapped with its March–May bloom period, and it was not observed during surveys.
<i>Hazardia orcuttii</i>	Orcutt’s Hazardia	Federal: None State: No CRPR: 1B.1 MHCP: CS NE: Yes	Perennial evergreen shrub. Often on clay soils in coastal scrub and maritime chaparral in San Diego County below 280 feet elevation. Blooms August-October.	Yes	Not Expected. Coastal scrub is present on-site. Focused plant surveys conducted in 2025 overlapped with its August–October blooming period, and it was not observed during surveys.
<i>Heterotheca sessiflora ssp. sessiflora</i>	Beach Goldenaster	Federal: None State: S1 CRPR: 1B.1 MHCP: CS NE: Yes	Perennial herb. Coastal dunes, coastal scrub, and coastal chaparral in San Diego County below 4,020 feet elevation. Blooms March-December.	No	Not Expected. This species is restricted to coastal dunes and scrub at lower elevations not represented on-site. Focused plant surveys conducted in 2025 overlapped with its March–December bloom period, and it was not observed during surveys.
<i>Holocarpha virgata ssp. elongata</i>	Graceful Tarplant	Federal: None State: None CRPR: 4.2	Annual herb. Chaparral, cismontane woodland, coastal	Yes	Known to Occur. This annual herb was detected in the pasture grassland during focused plant



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
		MHCP: No NE: No	scrub, and grassland in Orange, Riverside, and San Diego Counties below 3,610 feet elevation. Blooms May–November.		surveys conducted in 2025, confirming its presence on-site.
<i>Hordeum intercedens</i>	Vernal Barley	Federal: None State: None CRPR: 3.2 MHCP: No NE: No	Annual herb. Coastal dunes, coastal scrub, vernal pools, and depressions and saline flats in grassland. Los Angeles, Orange, Riverside, San Diego, Santa Barbara, and Ventura Counties (and additional counties in central and northern California) below 3,280 feet elevation. Blooms March–June.	No	Not Expected. Vernal pool and saline flats habitat required for this annual are absent on-site. Focused plant surveys conducted in 2025 during its March–June bloom season did not detect it.
<i>Horkelia truncata</i>	Ramona Horkelia	Federal: None State: None CRPR: 1B.3 MHCP: No NE: No	Perennial herb. Clay and gabbroic soils in chaparral and cismontane woodland. in San Diego County from 1,310 to 4,265 feet elevation. Blooms May–June.	No	Not Expected. Chaparral occurs on-site, but gabbroic soils required by this perennial are not present. Focused plant surveys conducted in 2025 during its May–June bloom period did not detect it.
<i>Isocoma menziesii</i> var. <i>decumbens</i>	Decumbent Goldenbush	Federal: None State: None CRPR: 2B.1 MHCP: No NE: No	Perennial shrub. Often disturbed and sandy areas in coastal scrub and chaparral in Los Angeles, Orange, Ventura, and San Diego Counties below 820 feet	Yes	Not Expected. Coastal scrub is present, but sandy soils typically required by this shrub are lacking. Focused plant surveys were conducted in 2025 during its April–November bloom season and the species was not detected.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			elevation. Blooms April-November.		
<i>Iva hayesiana</i>	San Diego Marsh-elder	Federal: None State: None CRPR: 2B.2 MHCP: CS NE: No	Perennial herb. Playas, marshes and swamps in coastal San Diego County up to 1,640 feet elevation. Blooms April-October.	No	Not Expected. Marsh habitat required by this species is not present on-site. Focused plant surveys conducted in 2025 overlapped with its April–October bloom season, and it was not observed during surveys.
<i>Juglans californica</i>	Southern California Black Walnut	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Perennial deciduous tree. Alluvial soils in chaparral, cismontane woodland, coastal scrub, and riparian woodland in Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, Santa Clara, and Ventura Counties (and additional counties in central California) below 2,955 feet elevation. Blooms March-August.	No	Not Expected. Riparian woodland is absent on-site, and this tree was not detected. Focused plant surveys conducted in 2025 during its March–August bloom season did not detect it.
<i>Juncus acutus ssp. leopoldii</i>	Southwestern Spiny Rush	Federal: None State: None CRPR: 4.2 MHCP: No NE: No	Perennial rhizomatous herb. Mesic coastal dunes, coastal scrub, alkaline seeps, and coastal salt marshes in Imperial, Los Angeles, Marin, Orange, Riverside, San Diego, San Luis Obispo, Santa Barbara, and Ventura	Yes	Not Expected. Marsh and alkaline habitats required by this perennial are absent on-site. Focused plant surveys conducted in 2025 overlapped with its May–June bloom period, and it was not observed during surveys.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			Counties below 2,955 feet elevation. Blooms (March) May-June.		
<i>Lasthenia glabrata ssp. coulteri</i>	Coulter's Goldfields	Federal: None State: None CRPR: 4 MHCP: No NE: No	Annual herb. Coastal salt marshes, playas, and vernal pools in Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Ventura Counties (and additional counties in central and northern California) below 4,005 feet elevation. Blooms February-June.	Yes	Not Expected. Vernal pool habitat required by this annual is not present on-site. Focused plant surveys conducted in 2025 during its February-June bloom period did not detect it.
<i>Lathyrus splendens</i>	Pride-of-California	Federal: None State: S4 CRPR: 4.2 MHCP: No NE: No	Perennial herb. Chaparral in Los Angeles, Riverside, and San Diego Counties between 655 and 5,005 feet elevation. Blooms March-June.	No	Not Expected. Chaparral is present, but this species was not detected. Focused plant surveys conducted in 2025 overlapped with its March-June blooming season and it was not detected.
<i>Lepidium virginicum ssp. robinsonii</i>	Robinson's Pepper-grass	Federal: None State: S2 CRPR: 1B.2 MHCP: No NE: No	Annual herb. Chaparral and coastal scrub in Los Angeles, Mono, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura Counties below 2,905 feet elevation. Blooms January-July.	Yes	Not Expected. While scrub occurs on-site, this annual is tied to coastal bluff habitats not present. Focused plant surveys conducted in 2025 during its January-July bloom period did not detect it.
<i>Leptosyne maritima</i>	Sea Dahlia	Federal: None State: S2 CRPR: 1B.2	Perennial herb. Coastal scrub and coastal bluff scrub on	No	Not Expected. Coastal bluff scrub required by this species is absent. Focused



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
		MHCP: No NE: No	the San Diego coast up to 490 feet elevation. Blooms March-May.		plant surveys conducted in 2025 overlapped with its March–May bloom season, and it was not observed during surveys.
<i>Lycium californicum</i>	California Box-thorn	Federal: FT State: SE CRPR: 1B.1 MHCP: No NE: No	Perennial shrub. Coastal bluff scrub and coastal scrub in Los Angeles, Orange, San Diego, Santa Barbara, and Ventura Counties below 490 feet elevation. Blooms March-August (September).	No	Not Expected. Scrub habitat occurs on-site, but coastal bluff scrub preferred by this shrub is not present. Focused plant surveys conducted in 2025 during its March–September bloom season did not detect it.
<i>Microseris douglasii</i> ssp. <i>platycarpa</i>	Small-flowered Microseris	Federal: None State: S4 CRPR: 4.3 MHCP: No NE: No	Annual herb. Clay soils in cismontane woodland, coastal scrub, grassland, and vernal pools in Los Angeles, Orange, Riverside, and San Diego Counties below 3,510 feet elevation. Blooms March-May.	Yes	Not Expected. Clay soils and cismontane woodland habitats required by this annual were not observed on-site. Focused plant surveys conducted in 2025 during its March–May bloom period did not detect it.
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	Felt-leaved Monardella	Federal: None State: S3 CRPR: 1B.1 MHCP: No NE: No	Perennial rhizomatous herb. Chaparral and cismontane woodland on the coastal slope of San Diego County between 985 and 5,170 feet elevation. Blooms June-August.	Yes	Not Expected. Chaparral occurs on-site, but this perennial was not detected. Focused plant surveys conducted in 2025 during its June–August bloom period did not detect it.
<i>Myosurus minimus</i> ssp. <i>apus</i>	Little Mousetail	Federal: None State: None CRPR: 3.1 MHCP: CS NE:	Annual herb. Occurs in valley and foothill grasslands as well as vernal pools at elevations between	No	Not Expected: Vernal pool habitat not present on-site. Focused plant surveys were conducted in 2025 during this species bloom period, none detected.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			65 and 2,100 feet. Blooms March-June		
<i>Navarretia fossalis</i>	Spreading Navarretia	Federal: FT State: CE CRPR: 1B.1 MHCP: Yes, CS NE: No	Annual herb. Chenopod scrub, shallow freshwater marshes and swamps, playas, and vernal pools in Los Angeles, Riverside, San Diego, and San Luis Obispo Counties up to 2,150 feet elevation. Blooms April-June.	Yes	Not Expected. Vernal pools and playas required by this annual are absent on-site. Focused plant surveys conducted in 2025 overlapped with its April-June bloom period, and the species was not observed during surveys.
<i>Ophioglossum californicum</i>	California Adder's-tongue	Federal: None State: S2 CRPR: 1B.1 MHCP: No NE: No	Perennial rhizomatous herb. Mesic soils in chaparral, grassland, and the margins of vernal pools in Los Angeles, Monterey, Orange, San Diego, and Santa Barbara Counties below 1,725 feet elevation. Blooms January-June (December).	Yes	Not Expected. Suitable coastal scrub on-site; however, vernal pools do not occur. Focused plant surveys conducted in 2025 overlapped with its April-June bloom period, and the species was not observed during surveys.
<i>Orcuttia californica</i>	California Orcutt Grass	Federal: FE State: CE CRPR: 1B.1 MHCP: CS NE: Yes	Annual herb. Occurs within vernal pools at elevations between 50 and 2,165 feet. Blooms April-August.	No	Not Expected: No vernal pool habitats present on-site. Focused plant surveys were conducted in 2025 during this species bloom period, none were detected.
<i>Pentachaeta aurea</i>	Golden-rayed Pentachaeta	Federal: None State: S4 CRPR: 4.2 MHCP: No NE: No	Annual herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and	Yes	Known to Occur. This annual herb was detected during focused plant surveys in 2025, confirming its presence on-site.



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			grassland in Orange, Riverside, San Bernardino, and San Diego Counties between 260 and 6,070 feet elevation. Blooms March-July.		
<i>Pinus torreyana</i> <i>ssp. torreyana</i>	Torrey Pine	Federal: None State: None CRPR: 1B.2 MHCP: CS NE: No	Perennial evergreen tree. Occurs within chaparral and closed-coned coniferous forest at elevations between 100 and 525 feet.	No	Not Expected: Focused plant surveys were conducted in 2025 during this species bloom period, none were detected.
<i>Pogogyne abramsii</i>	San Diego Mesa Mint	Federal: None State: S4 CRPR: 4.2 MHCP: No NE: Yes	Annual herb. Vernal pools in southwest San Diego County between 295 and 655 feet elevation. Blooms March-July.	Yes	Not Expected. Vernal pool habitats required by this annual are absent on-site. Focused plant surveys conducted in 2025 overlapped with its March-July bloom period, and it was not observed during surveys.
<i>Quercus dumosa</i>	Nuttall's Scrub Oak	Federal: None State: S4 CRPR: 1B.1 MHCP: CS NE: No	Perennial evergreen shrub. Clay, loam, and sandy soils in chaparral, closed-cone coniferous forest, and coastal scrub in San Diego, Orange, Los Angeles, Ventura, and Santa Barbara Counties below 1,310 feet elevation. Blooms February-April (May-August).	Yes	Not Expected. Scrub habitat occurs on-site, but this oak species was not detected. Focused plant surveys were conducted in 2025 during its February-April bloom period and this species was not detected.
<i>Quercus engelmannii</i>	Engelmann Oak	Federal: None State: S2 CRPR: 1B.2 MHCP: Yes, CS NE: No	Perennial deciduous tree. Chaparral, cismontane woodland, riparian woodland, and	Yes	Not Expected. Woodland habitat is present regionally, but individuals were not detected on-site. Focused plant surveys



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			grassland in Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties below 4265 feet elevation. Blooms March-June.		conducted in 2025 overlapped with its March-June bloom period and none were detected.
<i>Rupertia rigida</i>	Parish's Rupertia	Federal: None State: S2 CRPR: 2B.2 MHCP: No NE: No	Perennial herb. Chaparral, cismontane, lower montane coniferous forest, meadows and seeps, pebble plain, and grassland in Los Angeles, Riverside, San Bernardino, and San Diego Counties between 2,295 and 8,205 feet elevation. Blooms June-August.	Yes	Not Expected. Montane habitat and soils for this species are absent on-site. Focused plant surveys conducted in 2025 overlapped with its June-August bloom season, and it was not observed during surveys.
<i>Salvia munzii</i>	Munz's Sage	Federal: None State: S2 CRPR: 1B.1 MHCP: No NE: No	Perennial evergreen shrub. Chaparral and coastal scrub in southwest San Diego County between 345 and 3,495 feet elevation. Blooms February-April.	Yes	Not Expected. Coastal sage scrub habitat on-site support this shrub. However, focused surveys conducted in 2025 overlapped with its bloom season, and it was not observed during surveys.
<i>Selaginella cinerascens</i>	Ashy Spike-moss	Federal: None State: S2 CRPR: 4.1 MHCP: No NE: No	Perennial rhizomatous herb. Chaparral and coastal scrub in Orange and San Diego Counties below 2,100 feet elevation.	Yes	Known to Occur. This perennial was observed during focused plant surveys conducted in 2025 within Diegan coastal sage scrub.
<i>Sphaerocarpos drewiae</i>	Bottle Liverwort	Federal: None State: S4 CRPR: 4.2 MHCP: No NE: No	Ephemeral liverwort. Openings in chaparral and coastal scrub in Riverside and San Diego Counties between	Yes	Not Expected. Coastal scrub occurs on-site, but this ephemeral liverwort was not observed. Focused plant surveys were conducted in 2025 during



Scientific Name	Common Name	Status	Habitat Preferences	Soils On-site	Potential To Occur On-Site
			295 and 1,970 feet elevation.		its seasonal window but this species was not detected.
<i>Stemodia durantifolia</i>	Purple Stemodia	Federal: FE State: SE CRPR: 1B MHCP: No NE: No	Perennial herb. Wetlands, riparian, mesic and sandy soils in Sonoran desert scrub in the vicinity of Palm Springs, Riverside County, and southwest San Diego County between 590 and 985 feet elevation. Blooms (January) April-December.	Yes	Not Expected. Although mesic conditions occur nearby, sandy and wetland habitat typical of this perennial were not present on-site. Focused plant surveys conducted in 2025 during its April–December bloom season did not detect it.
<i>Tetracoccus dioicus</i>	Parry's Tetracoccus	Federal: None State: S3 CRPR: 4.2 MHCP: Yes, CS NE: No	Perennial deciduous herb. Chaparral and coastal scrub in Orange, Riverside, and San Diego Counties from 540 to 3,280 feet elevation. Blooms April-May.	Yes	Not Expected. While chaparral occurs on-site, the habitat quality does not support this species. Focused plant surveys conducted in 2025 during its April–May bloom period did not detect it.
<i>Xanthisma junceum</i>	Rush-like Bristleweed	Federal: None State: None CNDDDB: S3 CRPR: 1B.1 MHCP: No NE: No	Perennial herb. Chaparral and coastal scrub in San Diego County between 785 and 3,280 feet elevation. Blooms January to October.	Yes	Not Expected. Coastal scrub is present on site and focused plant surveys conducted in 2025 overlapped with its January–October bloom period, and it was not observed during surveys.

Special-Status Wildlife

Special-Status animal species are those that have been afforded special-status recognition by the USFWS and CDFW. Local jurisdictions may also recognize species as special-status. A species or subspecies is considered special-status when designated as endangered, threatened, proposed for listing, or as a candidate for listing at the state or federal level. Additional designations may be provided under state or local regulations, including the MHCP and NE species lists.

The review of special-status wildlife was based on multiple sources, including a 1-Quad search for the CNDDDB and a project-site review from USFWS IPAC. The review also considered species lists from the MHCP and the NE species



lists to ensure a comprehensive assessment of potential special-status plant species in the region. Habitat preferences for these species were sourced from the CDFW California Wildlife Habitat Relationships database and the USFWS Species Search (CNDDDB 2025, USFWS, 2025). The desktop analysis identified fifty-nine (59) special-status wildlife taxa documented within the Regional Study Area. These taxa and their occurrence potential within the Project site are summarized in **Table 5**.

Table 7. Special-Status Wildlife Species and Potential for Occurrence

Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Accipiter cooperii</i>	Cooper's hawk	Federal: None State: None CDFW: Watch List (WL) MHCP: CS NE: No	Found in wooded areas like forests, riparian woodlands, and suburbs with tall trees. Cooper's hawks mainly nest in deciduous trees near rivers but also use pines, oaks, and other trees. Nests are usually 20–50 feet high, built about two-thirds up the tree in a branch fork or on a horizontal branch.	Known to Occur: Species detected on surveys conducted for the Project.
<i>Actinemys pallida</i>	Southwestern Pond Turtle	Federal: FPT State: None CDFW: SSC MHCP: CS NE: No	Found in aquatic habitats such as ponds, lakes, rivers, streams, etc. The species seeks refuge and forages within vegetation. Logs, rocks, and exposed banks are typically used as basking sites.	Not Expected: No aquatic habitat present on-site.
<i>Agelaius tricolor</i>	Tricolored Blackbird	Federal: None State: CT CDFW: SSC MHCP: CS NE: No	Inhabits wetlands, with cattail and willow thickets, as well as agricultural fields, towns and business parks for nesting. Foraging occurs in wetland habitats, cultivated fields, and feedlots.	Not Expected: No suitable aquatic or wetland habitats present on-site.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Aimophila ruficeps canescens</i>	Southern California Rufous-crowned Sparrow	Federal: None State: None CDFW: WL MHCP: CS NE: No	Found in open, shrubby habitats on rocky, xeric slopes within sage scrub, burned chaparral, or grassland with scattered shrubs. Coastal slope between 2,000 and 6,000 feet elevation.	Known to Occur: Suitable sage scrub habitat present on site. Species detected during surveys conducted for the Project.
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	Federal: None State: None CDFW: SSC MHCP: CS NE: No	Inhabits grasslands, prairies, hayfields, and open pastures with bare ground and minimal shrub cover. Western populations avoid overgrown areas.	Not Expected: Sufficient pasture grassland habitat present on-site. However, was not detected through multiple rounds of avian surveys.
<i>Anaxyrus californicus</i>	Arroyo Toad	Federal: FE State: None CDFW: SSC MHCP: CS NE: No	Found in grasslands and oak woodlands with hot, dry summers and cool, wet winters, primarily in California's Central Valley and surrounding foothills.	Not Expected: No aquatic or wetlands habitat present on-site.
<i>Anniella stebbinsi</i>	Southern California Legless Lizard	Federal: None State: None CDFW: SSC MHCP: No NE: No	Found in loose sandy soil with leaf litter in coastal scrub, coastal dune, valley-foothill, and chaparral from Ventura County to Baja, sea level to 6,000 feet elevation.	Moderate: Sandy soils and appropriate vegetation types are present. No recent records for the species within or near the Study Area.
<i>Aquila chrysaetos</i>	Golden Eagle	Federal: None State: None CDFW: FP, WL MHCP: CS NE: No	Found in open or semi-open areas such as grasslands, scrublands, and woodlands, including valley and foothill grasslands, coastal prairies, and montane coniferous forests,	Not Expected: Lack of suitable roosting habitats such as mature woodlands or orchards on-site. No recent records for the species within or near the Study Area.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
			often nesting on steep cliffs or in large trees.	
<i>Arizona elegans occidentalis</i>	California Glossy Snake	Federal: None State: None CDFW: SSC MHCP: No NE: No	Prefers scrub, rocky washes, grassland, chaparral, and loose soil for burrowing. Coastal slope from San Francisco Bay area to Baja.	Moderate: Rocky habitat is not on-site. Pasture grassland is not suitable for this species. No recent records for the species within or near the Study Area.
<i>Artemisospiza belli belli</i>	Bell's Sparrow	Federal: None State: None CDFW: WL MHCP: Yes NE: No	Found in semi-open habitats with shrubs 1-2 meters high, including less dense stands of fire-recovering chaparral in coastal ranges from northwestern to southern CA.	Not Expected: Suitable semi-open shrub habitats present on-site. Species not detected through multiple rounds of avian surveys.
<i>Aspidoscelis hyperythra</i>	Orange-throated Whiptail	Federal: None State: None CDFW: WL MHCP: CS NE: No	Semi-brushy areas with loose soil and rocks, including washes, streams, rocky hillsides, and coastal chaparral. Coastal slope from Santa Ana River to Baja.	Moderate: Suitable soils and vegetation cover present on-site in the form of coastal and chaparral habitat. No recent records for the species within or near the Study area.
<i>Aspidoscelis tigris stejnegeri</i>	Coastal Whiptail	Federal: None State: None CDFW: SSC MHCP: No NE: No	Found in hot, dry areas with sparse foliage, scrub, chaparral, woodland, and riparian habitats from south of the Transverse Range to Baja.	Moderate: Suitable thermal and ground conditions are present, as well as scrub habitat. No recent records for the species within or near the Study area.
<i>Athene cunicularia</i>	Burrowing Owl	Federal: None State: CCE CDFW: SSC MHCP: CS NE: No	Primarily occupies grasslands, agricultural fields, and open urban areas throughout the central and southern regions of the state, with notable	Not Expected: Focused surveys conducted in 2025 for the Project, but no active burrows or signs of the species observed.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
			populations in the Central Valley, coastal plains, and parts of the Mojave Desert.	
<i>Bombus crotchii</i>	Crotch's Bumble Bee	Federal: None State: CCE MHCP: No NE: No	Found in habitats from coastal to desert edges, excluding mountains, utilizing flowers with short corollas. Historically found from central CA to Baja.	Known to Occur: Individual detected on-site during focused surveys for the species conducted in 2025.
<i>Branchinecta sandiegonensis</i>	San Diego Fairy Shrimp	Federal: FE State: None MHCP: CS NE: Yes	Found in pools, ponds, and depressions.	Not Expected: No naturally occurring seasonal aquatic habitats to support this species such as vernal pools are present on-site; thus, eliminating suitable habitat.
<i>Campylorhynchus brunneicapillus sandiegonensis</i>	Coastal Cactus Wren	Federal: None State: None CDFW: SSC MHCP: CS NE: Yes	Found in coastal sage scrub dominated by cactus species such as prickly pear and cholla, with characteristic shrubs like California sagebrush and buckwheat, primarily in southern California.	Not Expected: Although coastal scrub habitat is present on-site, there is a significant lack of cactus species required for nesting. Species not detected through multiple rounds of avian surveys.
<i>Chaetodipus fallax fallax</i>	Northwestern San Diego Pocket Mouse	Federal: None State: None MHCP: CS NE: No	Found in coastal scrub, chaparral, grasslands, and sagebrush in western San Diego County. This species prefers sandy, herbaceous areas, usually in association with rocks or coarse gravel. Some common plants seen in these habitats include Yucca and desert scrub. The San Diego pocket mouse	Moderate: Sandy soils and low coastal scrub vegetation present on-site. There are no recent records of the species within or near the Study Area.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
			consumes seeds with high moisture content and is capable of surviving without drinking additional water.	
<i>Charadrius alexandrinus nivosus</i>	Western Snowy Plover	Federal: FT State: None CDFW: SSC MHCP: CS NE: No	Inhabits coastal habitats. Foraging and nesting occurs on sandy beaches. Also frequently found within estuarine sands and mud flats.	Not Expected: Suitable coastal/beach habitat not present on-site.
<i>Cicindela hirticollis gravida</i>	Sandy Beach Tiger Beetle	Federal: None State: None MHCP: CS NE: No	Found in riparian areas near aquatic habitats. The species will burrow in moist soils, but far enough from aquatic features to not become inundated.	Not Expected: Riparian and aquatic habitats preferred by the species not present on-site. There are no
<i>Cicindela latesignata obliviosa</i>	Oblivious Tiger Beetle	Federal: None State: None MHCP: CS NE: Yes	Found within mudflats in coastal habitats from Los Angeles County to Baja California.	Not Expected: Coastal habitat no present on-site. High disturbance from anthropogenic activity.
<i>Circus hudsonius</i>	Northern Harrier	Federal: None State: None MHCP: CS NE: No	Inhabits open habitats such as fields, savannas, meadows, marshes, upland prairies, and desert steppe. Frequently found in agricultural fields and riparian zones. Nest on rocky cliffs sides.	Not Expected: Suitable nesting habitat not present on-site. Marginal and limited foraging/hunting habitat on-site.
<i>Coelus globosus</i>	Globose Dune Beetle	Federal: None State: None MHCP: CS NE: No	Found within coastal habitats in sand dunes and sand hummocks.	Not Expected: Suitable coastal dune habitat not present on-site.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	Federal: None State: None CDFW: SSC MHCP: No NE: No	Found in rural settings such as deserts, oak woodland, coastal forests, and conifer forests, strongly correlated with caves or cave-like roosting habitat.	Not Expected: No recent records for the species within or near the Study Area.
<i>Corynorhinus townsendii pallescens</i>	Townsend's Western Big-eared bat	Federal: None State: None MCHP: CS NE: No	Inhabits spacious cavern-like structures for roosting. Forages along habitat edges along streams and with adjacency to wooded habitats.	Not Expected: No suitable roosting sites present on-site.
<i>Danaus plexippus</i>	Monarch Butterfly	Federal: FPT State: None MHCP: No NE: No	Found in milkweed and Eucalyptus trees, particularly during overwintering.	Known to Occur: Eucalyptus and milkweed resources on-site. Individuals detected on nectar sources during surveys for the Project conducted in 2025. While Eucalyptus are present, the site unlikely supports overwintering populations
<i>Dipodomys stephensi</i>	Stephens' Kangaroo Rat	Federal: FT State: CT MHCP: CS NE: No	Found in sparsely vegetated annual grasslands and coastal sage scrub with less than 50% plant cover, primarily in western Riverside and northern San Diego counties, California	Low: Pasture grassland on-site reflects nearly 100% cover. Coastal sage scrub areas with moderately appropriate soil and vegetation cover are present on-site; however, no recent records for the species within or near the Study Area.
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	Federal: FE State: CE MHCP: CS NE: No	Requires dense riparian habitats with cottonwoods, and willows. Aquatic habitats such as standing water or nearby streams, as well as saturated soils are required for nesting habitat.	Not Expected: No aquatic or riparian habitats present on-site.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Eumops perotis californicus</i>	California Mastiff Bat	Federal: None State: None CDFW: SSC MHCP: CS NE: No	Frequently found in habitats where there is significant rocky features, including desert scrub, chaparral, oak woodland, and ponderosa pine woodland. Roost sites are found within slabs of granite and sandstone on cliff faces or in large boulders.	Not Expected: Suitable roosting habitat not present on-site.
<i>Euphydryas editha quino</i>	Quino Checkerspot Butterfly	Federal: FE State: None MHCP: CS NE: No	Found in open grasslands and sunny openings within chaparral and coastal sage scrub habitats, particularly in southwestern California and northwestern Baja California, Mexico	Not Expected: Pasture grassland and coastal sage scrub exist and may provide moderate habitat; however, appropriate host plant sources were not found during biological surveys for the site in 2025. No recent records for the species within or near the Study Area.
<i>Euphyes vestris harbisoni</i>	Harbison's Dune Skipper Butterfly	Federal: None State: None MHCP: CS NE: Yes	Found in San Diego and Orange counties. The species has recorded occurrences in the foothill regions in its range near its preferred nectar resource San Diego sedge (<i>Carex spissa</i>).	Not Expected: Site lacks aquatic and wetland habitat to support the preferred nectar resource.
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	Federal: None State: None MHCP: CS NE: No	Found in a variety of habitats, including wetlands, lakes, rivers, cliffs, banks, dunes, and urban environments, with nesting sites ranging from natural cliff ledges to tall buildings and bridges.	Not Expected: Suitable nesting habitat, in the form of cliffs or tall structures, not present on-site. Lacks sufficient riparian habitat for hunting/foraging.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Icteria virens</i>	Yellow-breasted Chat	Federal: None State: None CDFW: SSC MHCP: CS NE: No	Found in dense, brushy habitats like riparian thickets, overgrown fields, and forest edges, often near streams or wetlands, across North America, including parts of California and Baja California	Not Expected: Suitable riparian and aquatic habitat not present on-site.
<i>Lasiurus xanthinus</i>	Western Yellow Bat	Federal: None State: None CDFW: SSC MHCP: No NE: No	Roosts in the skirts of palm trees in desert habitats with palms, and possibly ornamental palms in landscaping from Southern CA to Baja.	Not Expected: No palm tree roosts present on-site.
<i>Lepus californicus bennettii</i>	San Diego Black-Tailed Jackrabbit	Federal: None State: None MHCP: CS NE: No	Found in open grasslands, agricultural fields, and sparse coastal scrub, typically not in high grass or dense brush. Coastal slope of southern CA mountains.	Moderate: Pasture grassland on-site is not suitable for this species. While, suitable coastal scrub habitat is present on-site, this species was not observed during several biological surveys across the site in 2025. No recent records for the species within or near the Study area.
<i>Lycaena hermes</i>	Hermes Copper Butterfly	Federal: FT State: None MHCP: CS NE: No	Found in coastal sage scrub and chaparral habitats near California buckwheat as a nectar resource. Females lay their eggs exclusively on spiny redberry (<i>Ramnus crocea</i>).	Not Expected: The Project site lacks sufficient breeding conditions to support the species. Specifically the absence of spiny redberry.
<i>Neotoma lepida intermedia</i>	San Diego Desert Woodrat	Federal: None State: None CDFW: SSC MHCP: No NE: No	Found in pinyon-juniper, mixed chaparral, sagebrush, and desert habitats, particularly on rock outcrops and cliffs.	Low: Lack of rocky outcrops and desert-like habitat on-site, no detections, and unsuitable habitat conditions reduce likelihood.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Numenius americanus</i>	Long-billed Curlew	Federal: None State: None CDFW: WL MHCP: CS NE: No	Inhabits coastal areas in alkali lakes, wet pastures, tidal mudflats, and agricultural fields. Forages primarily on aquatic and marine invertebrates.	Not Expected: No suitable coastal habitats are present on-site.
<i>Odocoileus hemionus fuliginata</i>	Southern Mule Deer	Federal: None State: None MHCP: CS NE: No	Found in a variety of habitats including oak woodlands, chaparral, conifer forests, and grasslands, often near water sources such as rivers and streams.	Moderate: Open coastal scrub, and woodland edges are present on-site, however high anthropogenic disturbance as well as historical and current cattle grazing may deter the species. There are no recent records of the species within or near the Study area.
<i>Pandion haliaetus</i>	Osprey	Federal: None State: None CDFW: WL MHCP: CS NE: No	Found near ocean shores, bays, fresh-water lakes, and larger streams. This species builds large nests in treetops within approximately 15 miles of a body of water where fish are abundant.	Not Expected: Absence of large bodies of water and fish resources on-site eliminates suitable foraging and nesting habitat.
<i>Panoquina errans</i>	Salt Marsh Skipper	Federal: None State: None MHCP: CS NE: No	Found in coastal salt marshes and grasslands, particularly in areas with abundant saltgrass along the southern California coast and Baja California.	Not Expected: No salt marsh habitats or abundant saltgrass on-site to support breeding and foraging.
<i>Passerculus sandwichensis beldingi</i>	Belding's Savannah Sparrow	Federal: None State: CE MHCP: CS NE: No	Inhabits marshes of the San Diego Bay and Tijuana Slough National Wildlife Refuge. Nests in pickleweed salt	Not Expected: Marsh habitat not present on-site. Pickleweed marshes not present on-site for nesting.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
			marshes on the outer levees of salt ponds.	
<i>Passerculus sandwichensis rostratus</i>	Large-billed Savannah Sparrow	Federal: None State: None CDFW: SSC MHCP: CS NE: No	Found in saline emergent wetlands at the Salton Sea and southern coast. This species breeds along the Colorado River delta in Mexico, and winters at the Salton Sea. Breeding habitat for this species is limited to open, low salt marsh vegetation, including grasses (<i>Spartina</i> spp., <i>Distichlis</i> spp.), pickleweed, and iodine bush (<i>Allenrolfea</i> spp.).	Not Expected: No saline emergent wetlands or salt marsh vegetation present on-site to support breeding or foraging. In addition.
<i>Pelecanus occidentalis californicus</i>	California Brown Pelican	Federal: None State: None MHCP: CS NE: No	Found in the Pacific Coast, extending from British Columbia, Canada south to Nayarit, Mexico. This species a colonial nester on islands and nests most commonly in Mexico, but also nests on the Anacapa Islands and Santa Barbara Islands in California. This species is found on rocky, sandy, or vegetated islands, beaches, estuaries, harbors, and marine areas near piers and jetties with offshore rocks and islands for nesting. This species	Not Expected: No suitable marine or island nesting habitat on-site, such as offshore rocks or estuaries, and no foraging areas like coastal waters within the site boundaries.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
			forages in estuarine and inshore waters.	
<i>Perognathus longimembris pacificus</i>	Pacific Pocket Mouse	Federal: FE State: None CDFW: SSC MHCP: CS NE: Yes	Found in fine, sandy soils within approximately two to four miles of the Pacific coast in southern California, specifically in coastal sage scrub, coastal dunes, and river alluvium on marine terraces	Not Expected: Site is outside the known geographic range (well inland from typical 2–4 miles from coast) and lacks fine coastal dune or marine terrace substrates.
<i>Phrynosoma blainvillii</i>	Coast Horned Lizard	Federal: None State: None CDFW: SSC MHCP: CS NE: No	Inhabits open sandy areas with low vegetation in valleys, foothills, and semiarid mountains. Grasslands, coniferous forests, woodlands, and chaparral habitats with open patches of loose soils.	Moderate: Suitable scrub habitat with loose soils present on-site. There are no recent records of the species within or near the Project site.
<i>Plegadis chihi</i>	White-faced Ibis	Federal: None State: None CDFW: WL MHCP: CS NE: No	Found in shallow wetlands, including salt, brackish, and freshwater marshes, as well as wet agricultural fields with low vegetation, such as alfalfa, barley, and rice, primarily in the southwestern United States and parts of Mexico	Not Expected: No shallow wetlands or suitable foraging fields present on-site.
<i>Plestiodon skiltonianus interparietalis</i>	Coronado Skink	Federal: None State: None CDFW: WL MHCP: No NE: No	Found in grasslands, woodlands, pine forests, chaparral, and is generally found in open sunny areas	Not Expected: No perennial water or consistent moist microhabitats.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
			such as clearings and at the edges of creeks and rivers. This species prefers rocky areas near streams with lots of vegetation. This species can also be found in areas away from water.	
<i>Polioptila californica californica</i>	Coastal California Gnatcatcher	Federal: FT State: None CDFW: SSCC MHCP: CS NE: No	Found in coastal sage scrub and adjacent chaparral and riparian habitats from southern Ventura to San Diego Counties, primarily below 984 feet elevation.	Known to Occur: Detected on-site during focused surveys conducted for the Project in 2025.
<i>Puma concolor</i>	Mountain Lion	Federal: None State: None CDFW: SSC MHCP: CS NE: No	Found a variety of ecosystems, including redwood and mixed forests, coastal brushlands, and mountainous terrains, with approximately 40% of the state considered suitable habitat for the species.	Low: Although the species ranges widely, the site is small, densely bordered by development, and unsuitable for long-term occupation or movement corridors.
<i>Rallus obsoletus levipes</i>	Light-footed Ridgway's Rail	Federal: FE State: CE CDFW: FP MHCP: CS NE: No	Found exclusively in salt marshes between Santa Barbara, California and San Quintin Bay, Baja California, Mexico. This species nests primarily in dense cordgrass, plant material deposited at the high-water mark of tidally influenced waves deposits, and in hummocks of high	Not Expected: No salt marsh or coastal estuarine habitat on-site necessary for breeding and foraging.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
			marsh within the low marsh zone.	
<i>Rana draytonii</i>	California Red-legged Frog	Federal: FT State: None CDFW: SSC MHCP: CS NE: No	Inhabits areas near aquatic habitats such as streams or stock ponds that are required for breeding. Will seek shelter in nearby upland habitats.	Not Expected: No aquatic habitats present on-site required for breeding.
<i>Sialia mexicana</i>	Western Bluebird	Federal: None State: None MHCP: CS NE: No	Found in open woodlands, forest edges, and semi-open terrains, including coniferous forests, farmlands, and desert regions, primarily in California, the southern Rocky Mountains, Arizona, New Mexico, and parts of Mexico	Known to Occur: Species detected during surveys conducted for the Project in 2025.
<i>Spea hammondi</i>	Western Spadefoot	Federal: FPT State: None CDFW: SSC MHCP: No NE: No	Found in open areas with sandy or gravelly soils, in a variety of habitats such as woodlands, grasslands, scrub, chaparral, and flood plains.	Not Expected: No aquatic or wetland habitats present on-site to support the species.
<i>Sternula antillarum browni</i>	California Least Tern	Federal: FE State: CE CDFW: FP MHCP: CS NE: No	Nests in sparsely vegetated sandy or gravelly ground (typically tidal flats and beaches) near lagoons, estuaries, or bays. The California least tern forages in shallow estuaries, lagoons, and near shore ocean waters.	Not Expected: Absence of tidal flats, sandy beaches, or estuarine habitats necessary for nesting and foraging results in no expected presence.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Streptocephalus woottoni</i>	Riverside Fairy Shrimp	Federal: FE State: None MHCP: CS NE: Yes	Found in seasonal, shallow vernal pools within valley and foothill grasslands, coastal sage scrub, and coastal scrub habitats, primarily in Riverside, Orange, and San Diego counties, California, as well as in Baja California, Mexico.	Not Expected: No vernal pools or suitable seasonal aquatic habitats on-site to support this species.
<i>Taxidea taxus</i>	American Badger	Federal: None State: None CDFW: SSC MHCP: No NE: No	Found in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. This species needs sufficient food, friable soils, and open and uncultivated ground. Ground squirrels are a major prey item, but the American badger would also feed on other burrowing rodents, reptiles, and insects	Low: Although suitable foraging habitat and friable soils exist, no dens or signs of this species were documented. No evidence of this species was observed during biological surveys for the Project in 2025.
<i>Thalasseus elegans</i>	Elegant Tern	Federal: None State: None CDFW: WL MHCP: CS NE: No	Found near coastal waters along the Pacific Coast. This species nests on the ground on undisturbed island beaches.	Not Expected: No suitable coastal island or beach nesting habitats, nor foraging grounds near shorelines.
<i>Thamnophis hammondi</i>	Two-striped Garter Snake	Federal: None State: None CDFW: SSC MHCP: No NE: No	Prefers areas near water sources in oak woodland, sage scrub, and chaparral. Coastal slope from Monterey County to Baja.	Not Expected: No permanent water bodies or riparian habitats on-site necessary for this species, and no detections during surveys.



Scientific Name	Common Name	Status	Habitat Preferences	Potential to Occur On-Site
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	Federal: FE State: CE MHCP: CS NE: No	Willow-dominated woodland or scrub and mesquite thickets with dense cover 1-2 meters above ground, ranging from San Joaquin and Sacramento Valleys to Baja.	Not Expected: Absence of dense riparian vegetation such as willow thickets on-site.

6.5.1 Critical Habitat

There are no designated or proposed USFWS critical habitat areas on the Project site or directly adjacent to it. The closest critical habitats are for thread-leaved brodiaea (*Brodiaea filifolia*), which is approximately two (2) miles to the west of the site, San Diego fairy shrimp (*Branchinecta sandiegonensis*) which is approximately two (2) miles southwest of the site, and the coastal California gnatcatcher which is nearly three (3) miles and further to the northeast of the site, along the Interstate 15 highway (USFWS 2025c).

6.5.2 Sensitive Plant Species Observed or with Potential to Occur

Three (3) special-status plant taxa from desktop analysis are **Known to Occur** in the Project site because of the focused rare plant surveys conducted in 2025. These plants include ashy spike-moss, golden-rayed pentachaeta, and graceful tarplant. **Figure 7** presents the location of these taxa within the Project site (**Appendix A**). No other special-status plant taxa identified from desktop analysis were determined to have a moderate or high potential to occur in the Project site. The remaining 53 special-status plant species evaluated are not expected to occur on-site (**Table 4**).

6.5.3 Sensitive Wildlife Species Observed or with Potential to Occur

Six (6) special-status wildlife taxa from desktop analysis that were **Known to Occur** on the Project site following the field-surveys. These species are Cooper's hawk, southern California rufous-crowned sparrow, Monarch butterfly, Crotch's bumble bee, coastal California gnatcatcher, and Western bluebird (**Appendix A: Figure 7**). No other special-status wildlife taxa identified from desktop analysis were determined to have high potential to occur on the Project Site. Of the remaining 53 special-status animal species evaluated, eight (8) were considered to have moderate potential to occur (i.e., California glossy snake, coast horned lizard, coastal whiptail, northwestern San Diego pocket mouse, orange-throated whiptail, San Diego black-tailed jackrabbit, southern California legless lizard, and southern mule deer), four (4) species were determined to have low potential to occur, and forty-one (41) species are not expected to occur on-site (**Table 5**).

6.6 Habitat Connectivity and Wildlife Corridors

Effects on wildlife movement are a critical consideration when assessing the potential anthropogenic impacts of any project. On a sufficiently small scale, a project or activity can potentially affect wildlife movement, especially if wildlife are present. However, the term "wildlife movement corridor" generally refers to an area of habitat important for the movement of wildlife between larger habitat areas. Wildlife movement corridors are vital for



maintaining population levels, genetic diversity, and ecosystem health. Wildlife require space to roam in search of food, shelter, mates, or for seasonal migration. Fragmentation caused by human development can disrupt the natural flow of essential ecosystem functions, impacting species survival. The extent of habitat movement requirements varies by taxa and is crucial for the survival of many species. Wildlife movement has become increasingly restricted due to man-made barriers such as roads, buildings, structures, fencing, and agricultural fields. It is especially important to maintain habitat and landscape connectivity to allow wildlife movement between regional habitat blocks, particularly for wide-ranging, low-density mammalian carnivores like Bobcat (*Lynx rufus*), Coyote (*Canis latrans*), and Mountain Lion (*Puma concolor*), which require large home ranges for survival.

The Project site falls within an Areas of Conservation Emphasis (ACE) Rank 4: Conservation Planning Linkage as identified by the California Essential Habitat Connectivity (CEHC) framework. These Rank 4 linkages represent areas of significant habitat connectivity that play an important role in supporting wildlife movement between larger habitat blocks. While not classified as irreplaceable or essential corridors, ACE Rank 4 linkages are considered vital for maintaining ecosystem processes and promoting landscape connectivity. They offer flexibility for implementation and represent key areas to prioritize in conservation planning to ensure long-term habitat connectivity and wildlife movement across the region (Biological Observation System [BIOS] CNDDDB, 2025).

Additionally, the Project site is located adjacent to areas designated as high-value habitat and preserve lands under the MHCP. Although the site itself is not within designated hardline preserve boundaries, it is considered a softline preserve, and its proximity and potential contribution to these MHCP preserves underscores the importance of maintaining connectivity and ecological function within this region. This adjacency reinforces the role of portions of the site as potentially part of a broader network of habitat linkages crucial to sustaining wildlife movement and biodiversity in the landscape.

Although the Project site primarily supports localized habitat use, particularly for common bird species, its inclusion in an ACE Rank 4 Conservation Planning Linkage and proximity to high-value MHCP preserve lands indicate that portions of it contribute to regional wildlife movement. While its relatively small size and existing disturbance limit its value as a primary corridor, the site continues to support broader landscape connectivity to MHCP hardline preserve lands to the west of the site. As addressed below in Section 7.2.4, the proposed Project has been specifically designed to avoid and preserve the highest quality habitat on-site that could contribute to local and regional wildlife movement. The Project footprint has been consolidated to concentrate development within areas that are adjacent to existing developments and incorporate open space areas that maximize connectivity with adjacent off-site undeveloped lands. This design strategy is considered under both Option A and Option B fire buffer alternatives being considered with respect to conserving wildlife movement in the local and regional area.

7 Project Impacts, Significance, and Mitigation Measures

7.1 Significance Guidance/Criteria

Appendix G of the CEQA Guidelines is frequently cited by public agencies to determine whether a project may have a significant impact on biological resources. Under Appendix G, a project may have a significant impact on biological resources if it would:



1. *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations by the CDFW or USFWS.*
2. *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.*
3. *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*
4. *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.*
5. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance.
6. *Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.*

Key Metrics for Assessing Project Effects

Prior to assessing the significance of Project effects on biological resources, it is important to understand the factors to be considered in the analysis. Primary among these are direct impacts to vegetation communities and other land cover types, such as open water, which may provide habitat for special-status species or support jurisdictional aquatic resources. Direct impacts to vegetation communities and other land cover types are typically associated with site grading and or construction for development.

Following Appendix G of the CEQA guidelines, proposed Project effects on biological resources are assessed. If substantial adverse effects on biological resources are identified, either within the Project site, the proposed development footprint, or both, these effects are then evaluated for their significance. Determining whether a biological resource would experience substantial adverse effects is generally based upon the potential for occurrence, presence of habitat, and suitability of habitat. Thresholds of significance for special-status species are determined based on state and/or federal listing, or protection under the MHCP. If an effect is deemed significant, certain avoidance, minimization, and mitigation measures appropriate for the Project are recommended. The implementation of these measures are designed to reduce effects on identified biological resources to less than significant. The discussion below addresses the Project effects relevant to CEQA Appendix G Checklist Section IV. Biological Resources.

7.2 Impacts and Significance

7.2.1 Guidelines for the Determination of Significance: Sensitive Species

This section addresses the portion of the CEQA Guidelines requiring an assessment of whether the Project would ***have a substantial adverse effect, either directly or through habitat modifications, on any species identified as***



a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations by the CDFW or USFWS.

Analysis of Impacts

Plants

Three (3) special-status plant species were confirmed (i.e., Known to Occur) on-site as a result of the biological surveys conducted in 2025: graceful tarplant (CNPS CRPR 4.2), ashy spike-moss (CNPS CRPR 4.1), and golden-rayed pentachaeta (CNPS CRPR 4.2). Implementation of the Project would directly impact two of these species, ashy spike-moss and graceful tarplant, as shown in **Figures 8a** and **8b** and discussed below (**Appendix A**). Impacts to golden-rayed pentachaeta are not expected given the species occurrence location within the non-impact areas proposed for biological open space conservation (**Appendix A: Figures 8a** and **8b**).

Given the topography of the site and the grading cuts into the hillsides to prepare for site construction, inadvertent impacts (permanent and temporary) to special-status plants beyond the limits of grading could occur. Such impacts could be significant (Impact BIO-1).

Ashy spike-moss

Direct permanent impacts to ashy spike-moss would occur as a result of site grading for construction. Estimated direct impacts to ashy spike-moss under Option A include approximately 0.06 acres of occupied habitat, consisting of approximately 21 individuals, which translates into an impact on approximately 30% of the population identified on-site (**Table 6a**). Temporary impacts (direct or indirect) to this species are not expected given the locations of extant individuals located approximately 200 feet outside of the proposed fire buffer for the Project. As mentioned, ashy spike-moss is recognized by the CNPS as a CRPR 4.1 sensitive plant. It is not identified as sensitive under the MHCP and is a relatively common species both locally and throughout the region. Per CEQA, impacts to species ranked CRPR 1 or 2 are typically considered potentially significant, whereas impacts on CRPR 3 and 4 species are not. Given that ashy spike-moss is a CRPR 4.1 and that Project impacts would be restricted to no more than 30% of the on-site population, impacts to this species would be considered less than significant. Impacts on this species under Option B are less than Option A from an individual impact standpoint, as summarized in **Table 6b**, and would also be less than significant for the same general reasons as stated for Option A.

Graceful tarplant

Direct permanent impacts to graceful tarplant would occur as a result of construction grading. Impacts to graceful tarplant could also occur during implementation of vegetation selective trimming, removal, and management efforts required for the fire buffer (i.e., zone 2); however, such impacts are expected to be temporary and minimal to none given the relatively few numbers of graceful tarplant individuals in this location at the northern portion of the site and because this area is agriculture-pasture land which does not contain dense scrub or chaparral the would necessitate selective clearing as prescribed by the Fire Protection Plan for the Project (DUDEK 2025). Graceful tarplant is classified as a low-sensitivity species with a CNPS CRPR of 4.2, is not identified as sensitive under the MHCP, and is a relatively common species both locally and throughout the region. Per CEQA, impacts to species ranked CRPR 2 or lower are typically considered potentially significant. Because graceful tarplant is ranked CRPR 4.2 and occurs within the portion of the site proposed as conserved open space, project-related impacts are not expected to compromise the conservation status of the species or its persistence in the region. Accordingly, impacts to graceful tarplant would be less than significant.



Table 8a. Impacts to Special-Status Plant Species (Option A)

Plant Species	Status	Total On-Site (acres/individuals)	Impacts (acres) ¹		Impacts (individuals)	
			Permanent	Temporary ²	Permanent	Temporary ²
Ashy spike-moss	Federal: None State: S3 CRPR: 4.1 MHCP: No NE: No	0.27/70	0.06	0	21	0
Golden-rayed pentachaeta	Federal: None State: S4 CRPR: 4.2 MHCP: No NE: No	0.24/215	0	0	0	0
Graceful tarplant	Federal: None State: S3 CRPR: 4.2 MHCP: No NE: No	0.13/78	0.12	0	67	0

¹Rounding was limited to the hundredths place during calculations.

²Reflects fire buffer Zone 2 selective vegetation thinning outside of project grading.



Table 9b. Impacts to Special-Status Plant Species (Option B)

Plant Species	Status	Total On-Site (acres/individuals)	Impacts (acres) ¹		Impacts (individuals)	
			Permanent	Temporary	Permanent	Temporary
Ashy spike-moss	Federal: None State: S3 CRPR: 4.1 MHCP: No NE: No	0.27/70	0.06	0	8	0
Golden-rayed pentachaeta	Federal: None State: S4 CRPR: 4.2 MHCP: No NE: No	0.24/215	0	0	0	0
Graceful tarplant	Federal: None State: S3 CRPR: 4.2 MHCP: No NE: No	0.13/78	0.12	0	27	0

¹Rounding was limited to the hundredths place during calculations.

Wildlife

Six (6) special-status wildlife taxa were confirmed (i.e., Known to Occur) on the Project site during biological surveys conducted in 2025: Cooper’s hawk (CDFW watch list, MHCP covered species), southern California rufous-crowned sparrow (CDFW watch list, MHCP covered species), monarch butterfly (federal candidate proposed threatened), Crotch’s bumble bee (state candidate endangered), coastal California gnatcatcher (federal listed threatened, state species of special concern, MHCP covered species), and Western bluebird (MHCP covered species) (**Appendix A: Figures 8a and 8b**). These species were observed foraging in on-site habitat during biological surveys conducted in 2025.

Southern California rufous-crowned sparrow and Western bluebird are MHCP covered species; however, the City does not have take coverage for these species under the MHCP. While construction grading is not expected to directly injure or kill individual birds, it would result in the removal of existing habitat that supports nesting, foraging, and sheltering activities. The loss of habitat represents a primary impact on these species. However, given the proposed avoidance and conservation of habitat for these species on-site as well as the Project’ expected compliance with regional conservation strategies of the MHCP, such as habitat mitigation ratios proposed in BIO-7 and BIO-8 below, Project impacts to habitat for these species would be less than significant.

Monarch butterfly was detected on-site and suitable nectar sources found in the urban/developed, agriculture-pasture habitats on-site would be directly impacted with implementation of the Project. However, nectar sources would remain widely available in the non-impacted areas of the site (proposed biological open space) as well as



natural habitats and landscaped areas surrounding the site. Thus, impacts to nectar sources would be less than significant. Further, although multiple stands of eucalyptus woodland were observed on-site these areas are unlikely suitable to support overwintering populations of this species due to the limited number of trees and their density on-site, but primarily due to the proximity to the coast. According to Xerces Society's Western Monarch Count and Western Monarch Overwintering Sites database, monarch overwintering sites are concentrated in coastal or near-coastal groves along the California coast. Specific site locations and boundaries are monitoring and occurrence records are maintained by the Xerces Society, which includes hundreds of sites; these data show a strong association with the immediate coastal zone (i.e., within approximately two [2] miles of the coastline). No overwintering locations are known to occur in the vicinity of the Project; the nearest location is over ten (10) miles west of the site at Hosp Grove Park; the last gathering of overwintering individuals at Hosp Grove Park was nine (9) recorded in 2019 (Xerces Society 2025). Overall, impacts to monarch butterfly as a result of Project implementation would be less than significant.

Coastal California gnatcatcher, although not detected during focused protocol surveys, was incidentally observed on-site on a single occasion on April 13, 2025 during the protocol survey for burrowing owl. This species was not observed or otherwise detected during any of the remaining 18 biological surveys completed at the Project site between April and July 2025, including any of the six coastal California gnatcatcher breeding season protocol surveys. As such and based on the 2025 biology survey results, the Project site is presumed to not support breeding coastal California gnatcatchers. The incidental observation of a single unpaired individual during the burrowing owl surveys suggests that the coastal California gnatcatcher was moving through the Project site and temporarily utilizing the habitat during dispersal activities. As currently planned, the proposed Project would avoid and preserve in perpetuity the majority of suitable habitat for the coastal California gnatcatcher that occurs on-site but would result in impacts on the portion of suitable habitat that this species was temporarily utilizing for dispersal activities. These impacts would be considered significant (Impact BIO-2). Crotch's bumble bee was observed on-site collecting nectar within the agriculture-pastureland during focused surveys conducted in 2025. Given its recent change in sensitivity status, impacts to this species would be significant (Impact BIO-3). As a regulatory requirement, if Crotch's bumble bee is confirmed to be present within Project impact areas prior to construction, an application would be submitted to CDFW for an Incidental Take Permit pursuant to CFG Code Section 2081 and CESA compliance requirements. Similarly, as a regulatory requirement, if coastal California gnatcatcher is confirmed to be present within the Project impact areas prior to construction, consultation with the USFWS would be undertaken by the Project proponent pursuant to FESA Section 7 or Section 10 compliance requirements.

In addition to the six (6) species detected on-site, eight (8) other wildlife taxa were determined to have at least moderate potential for occurrence based on habitat suitability: southern California legless lizard, California glossy snake, coastal whiptail, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, orange-throated whiptail, southern mule deer, and coast horned lizard. Although not detected on-site during the various biological surveys conducted on-site in 2025, these species could occupy nesting, foraging, dispersal, and burrowing habitats within the Project direct impact footprint. Direct permanent impacts to suitable habitat on-site (Diegan coastal sage scrub and agriculture-pasture grassland) for these eight (8) species would occur where such habitat is removed by grading and proposed development. Direct permanent impacts could also occur during implementation of selective vegetation trimming, removal, and management efforts required for the fire buffer (i.e., Zone 2). However, the proposed biological open space as well as contiguous habitats beyond the Project



would continue to provide sufficient habitat for these species. Potential impacts to these eight (8) wildlife species with moderate potential to occur on-site are considered less than significant.

Dust, pollutants, and altered runoff could temporarily reduce habitat quality but would be minimized through implementation of construction best management practices (BMPs), compliance with the State Construction General Permit, and use of project-based erosion and sediment control measures; impacts would be less than significant. Construction noise and human presence could temporarily disturb wildlife, particularly nesting birds during the breeding season (February 15 – August 31), which would be a significant impact to protected birds (Impact BIO-4).

In addition to construction-phase effects, long-term residential development may introduce further indirect impacts, including the spread of invasive plants through landscaping, increased predation by free-ranging domestic pets and urban-adapted wildlife, and edge effects that reduce the functional value of remaining habitat. Further, residential lighting may disrupt nocturnal species behavior, while increased recreation and human activity in adjacent open space may lead to repeated disturbance and displacement of wildlife. The Project considered these potential effects and thus incorporates several design features to avoid and minimize indirect effects on surrounding habitats and wildlife. For example, exterior lighting would be shielded, down-directed, and designed to prevent spillover beyond property lines; continuous back- and side-yard fencing and/or walls would be installed to the extent feasible and appropriate along the development edge to deter trespassing, dumping, and pet intrusion. Further, the Project provides up to a 150-foot buffer between residential lot lines and the adjacent biological open space, planted with native cultivars and non-invasive species to create a soft transition and reduce edge effects. To prevent informal trail creation into the biological open space, clear signage would be installed to educate and directing the public away from sensitive areas. The Homeowner's Association (HOA) rules would address pet management, including leash requirements, and proper pet-waste disposal. Implementation of fire buffer (fuel modification) zone activities would be coordinated with the established habitat manager for the biological open space preserve to avoid unnecessary disturbances. With the incorporation of these Project features, indirect impacts discussed above would be less than significant.

Potential indirect permanent impacts could also occur if habitat fragmentation or edge effects reduce long-term habitat suitability and connectivity, though these impacts are expected to be limited and less than significant due to the avoidance and proposed preservation of suitable habitat areas west of the Project development. While these impacts could be significant, the potential effects would be avoided and minimized through implementation of habitat mitigation (BIO-7) and preserve management (BIO-8), which together would assist ensure that species and their habitat is protected, monitored, and managed in perpetuity.

The Project would need to implement appropriate measures during construction, such as temporary fencing (BIO-1), contractor training (BIO-2), biological monitoring (BIO-3), and avoidance of night lighting to protect the adjacent open space habitats and associated species. Such efforts would avoid adverse effects to special-status species, minimize impacts as much as feasible, and mitigate for potential adverse effects. In addition, the Project would be required to implement any additional avoidance, minimization, and mitigation measures prescribed in any permits and approvals issued by the USFWS and/or CDFW, as applicable.

In addition to the special-status species discussed above, particularly coastal California gnatcatcher and Crotch's bumble bee, Project construction activities, including implementation of fire buffer vegetation requirements, could result in direct and indirect impacts to nesting birds protected by the federal MBTA and California Fish and



Game Code. This represents a significant impact (Impact BIO-4). The Project would be required to comply with the MBTA and California Fish and Game Code to protect nesting bird species. As such, appropriate avoidance, minimization, or mitigation measures would be implemented to avoid impacts to nesting birds, including raptors, at the Project site and within immediately adjacent areas.

Mitigation Measures and Design Considerations

MM-BIO-1: Construction Boundary Controls

To avoid potential inadvertent impacts beyond the authorized Project footprint (Impact BIO-1), prior to any site preparation activities, such as vegetation clearing, brushing, construction machinery or equipment staging, or grading or other related earth-moving operations, the construction drawings shall clearly show the authorized work limits, including the delineation of temporary exclusion zones. To protect adjacent environmentally sensitive areas from unintended disturbance, high-visibility temporary fencing (e.g., orange safety fencing or equivalent), along with erosion control barriers like silt fencing where applicable, shall be erected along the perimeter of the approved construction impact grading footprint. This barrier system shall be in place prior to the start of construction and remain intact until all construction activities are complete. Installation of such work limits fencing shall be carried out in a manner that avoids damage to adjacent sensitive habitats or species. A qualified biologist (i.e., Project's biological monitor) shall conduct a pre-installation assessment to ensure the fence layout adheres to the approved plans and that no special-status plant species would be affected by the installation process. If any such species are present, the fencing route shall be adjusted to avoid direct impacts, as directed by the biologist.

The Project's biological monitor shall be present to monitor the installation of work limits fencing and confirm installed per the approved construction drawings. Verification shall be provided via email or brief memorandum to the City by the Applicant within 24 hours following confirmation. Routine inspections (i.e., at least twice per week) of the construction boundary fencing may be needed at the direction of the Project biological monitor. If any construction activity is found to extend beyond the established boundaries, operations in the affected area shall stop immediately until corrective measures are identified and/or implemented to the satisfaction of the City and the project biologist. All temporary fencing materials must be removed after the completion of construction activities.

MM-BIO-2: Worker Environmental Awareness Program (WEAP)

Prior to any ground disturbance, a qualified biologist shall provide Worker Environmental Awareness Program (WEAP) training to all construction personnel. Training shall cover the purpose of resource protection, role of biological construction monitoring, and identification of sensitive habitats and special-status species known to occur on site. The training shall present at minimum the project mitigation measures for biological resources, the limits of disturbance, environmentally responsible construction practices, spill prevention and site housekeeping, and noise/dust minimization. It shall also summarize biological regulations/permits relevant to the Project and outline stop-work and reporting procedures if sensitive resources are encountered. Attendance shall be documented by the biologist and new workers on-site shall receive the WEAP training prior to starting work. Implementation of this measure shall assist in ensuring the avoidance of potential inadvertent impacts beyond the Project footprint (Impact BIO-1).



MM-BIO-3: Biological Construction Monitoring

To avoid potential inadvertent impacts beyond the Project footprint (Impact BIO-1), a qualified biologist to monitor construction activities and ensure compliance with all biological mitigation measures and regulatory permits issued for the Project. The biologist shall be on-site to oversee installation of temporary construction fencing and verify that work limits are correctly staked and sensitive habitats outside the approved footprint are protected (MM-BIO-1). The biologist shall conduct pre-construction surveys and environmental awareness training for construction personnel, as required by MM-BIO-2. The biologist shall be on-site daily during all vegetation or ground disturbance work associated with initial mass grading of the site. During construction, the biologist shall regularly (i.e., at least twice per week) inspect active work areas, staging zones, and BMP installations to confirm activities remain within approved limits and that erosion, dust, and spill prevention measures are effective. If non-compliance is observed, the biologist shall have stop-work authority in the affected area and coordinate with the construction superintendent to implement corrective actions. The biologist shall prepare weekly monitoring reports summarizing the activities on-site, the observations during the biological monitoring, compliance status (including any corrective actions), and submit the report to the City by the end of each month during implementation of the Project. Any unauthorized impacts to sensitive resources, or substantial (at the discretion of the biologist) issues of non-compliance, shall be documented and reported to the City or regulatory agency (if applicable) within 72 hours, and mitigation consistent with this report shall be implemented to the City's satisfaction, or regulatory agency if applicable. Within 30-days following completion of construction, the biologist shall prepare a final biological monitoring report and submit to the City, which shall document at minimum, monitoring activities, incidents of non-compliance, and confirmation that Project mitigation measures were fully implemented.

MM-BIO-4: Coastal California Gnatcatcher Protection

Prior to the issuance of any land disturbance, clearing, grubbing, or grading permits for Project construction activities that would occur on and/or within 500 feet of suitable habitat for coastal California gnatcatcher (i.e., Diegan coastal sage scrub), the Project proponent shall implement the following:

- I. The Project proponent shall compensate direct impacts to suitable habitat for coastal California gnatcatcher through implementation of MM-BIO-7 and MM-BIO-8, which require compensatory mitigation for impacts to suitable habitat at a minimum 1:1 ratio in addition to preparation and implementation of a Preserve Management Plan, including recordation of a Conservation Easement or similar protective instrument, non-wasting endowment funding, and long-term management for the Project's on-site biological open space preserve in perpetuity.
- II. The Project proponent shall retain a qualified biologist possessing a Section 10(a)(1)(A) Recovery Permit from the USFWS to conduct pre-construction surveys for coastal California gnatcatcher. The surveys shall be conducted in accordance with the most current USFWS survey protocol applicable during the time of the surveys. The survey area shall include all suitable habitat for the coastal California gnatcatcher that occurs on and within 500 feet of the direct Project impact areas, where access is permitted. The final survey shall occur no more than 5 days prior to initial land disturbance, clearing, grubbing, or grading of suitable habitat. If no coastal California gnatcatchers are observed or otherwise detected during the



surveys, then Project activities shall be allowed to commence with no additional requirements pertaining to coastal California gnatcatcher.

- III. If surveys confirm the presence of coastal California gnatcatchers on or within 500 feet of suitable habitat to be directly impacted by the Project, then the Project proponent shall postpone all Project activities with the potential to have adverse direct or indirect impacts on coastal California gnatcatcher and initiate consultation with the USFWS pursuant to FESA Section 7 or Section 10, as applicable. Due to the fact that the species was found to not be breeding at the Project site based on the 2025 protocol surveys, the consultation may be undertaken by either formal or informal means, at the sole discretion of the USFWS. Unless otherwise prescribed by the USFWS as a result of consultation, the Project proponent shall implement the following avoidance and minimization measures if the coastal California gnatcatcher is confirmed to be present on or within 500 feet of suitable habitat to be impacted by Project construction activities:
- a. No land disturbance, clearing, grubbing, or grading activities within suitable habitat shall occur during the coastal California gnatcatcher breeding season, which is defined as February 15 through August 31; Standard dust control measures shall be implemented, including watering during grading, ensuring that exposed surfaces maintain soil moisture, limiting vehicle speeds on unpaved roads, and ensuring that trucks hauling dirt, sand, soil, or other loose materials are covered with a fabric cover and maintain a freeboard to help prevent fugitive dust generated at the Project site;
 - b. Erosion control measures shall be implement, including using erosion control devices such as straw wattles, mulch, mats, and/or geotextiles; using sediment catchment structures such as hay bales, gravel or sandbags, silt fencing, fiber rolls, matting, berms, or similar devices along grading boundaries and drainage courses to prevent off-site sediment transport; backfilling, compaction, and/or covering of excavated trenches to minimize erosion potential; regularly inspecting and maintaining erosion control and sediment catchment facilities to ensure proper function and effectiveness;
 - c. Maintain the Project site free of trash and debris; and,
 - d. The Project's qualified biologist shall perform periodic (i.e., weekly or as needed, as determined by the qualified biologist) monitoring to help ensure Project activities remain in compliance with the avoidance and minimization measures.
- IV. If during Project construction the coastal California gnatcatcher is found to establish breeding territories and produce active nests while construction activities are ongoing without stopping, then it shall be assumed that the activities are having no adverse effects and shall be allowed to continue without stopping. If construction activities stop for more than 7 days during the breeding season for coastal California gnatcatcher, then the Project's qualified biologist shall conduct an updated pre-construction survey to confirm that no new coastal California gnatcatcher nests have been established in areas that could be adversely affected by reinitiating construction activities. If any new nests are confirmed by the qualified biologist within the direct Project impact areas, then the Project proponent shall implement the



avoidance and minimization measures as stated above. If any new nests are confirmed by the qualified biologist within 500 feet of the direct Project impact areas, then the Project proponent shall implement the following avoidance and minimization measures to prevent any adverse indirect construction noise impacts:

- a. If construction must occur while the nest(s) is active, activities shall not be reinitiated until a temporary noise barrier or berm is constructed at the edge of the development footprint and/or around the piece of equipment to ensure that noise levels are reduced to below 60 dBA or ambient. Decibel output will be confirmed by a qualified noise specialist and intermittent monitoring by a qualified biologist will be required to ensure that conditions have not changed. If required, the temporary noise barrier or berm shall be kept in place until the qualified biologist has confirmed that the nest is no longer active.

MM-BIO-5: Crotch's Bumble Bee Protection

Should the Crotch's bumble bee no longer be a potential candidate for listing at the time of Project construction, then MM-BIO-5 shall not be required.

Prior to the issuance of any land disturbance, clearing, grubbing, or grading permits for Project construction activities that would occur on suitable habitat for the Crotch's bumble bee (i.e., Intensive Agriculture-Pasture and Diegan coastal sage scrub), the Project proponent shall implement the following:

- I. The Project proponent shall compensate direct impacts to suitable habitat for Crotch's bumble bee through implementation of MM-BIO-7 and MM-BIO-8, which require compensatory mitigation for impacts to suitable habitat at a minimum 1:1 ratio in addition to preparation and implementation of a Preserve Management Plan, including recordation of a Conservation Easement or similar protective instrument, non-wasting endowment funding, and long-term management for the Project's on-site biological open space preserve in perpetuity. This mitigation includes a minimum 1:1 preservation of on-site habitat that supports Crotch's bumble bee foraging (nectar plants), nesting, and overwintering habitat.
- II. The Project proponent shall retain a qualified biologist that meets the minimum requirements for surveyor qualifications in CDFW's *Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species* to conduct pre-construction surveys for Crotch's bumble bee. The surveys shall follow the most current CDFW survey protocol applicable during the time of the surveys. The final survey shall occur no more than 5 days prior to initial land disturbance, clearing, grubbing, or grading of suitable habitat. If no coastal California gnatcatchers are observed or otherwise detected during the surveys, then Project activities shall be allowed to commence with no additional requirements pertaining to coastal California gnatcatcher.
- III. To avoid impacts on Crotch's bumble bee, removal of habitat in the proposed area of disturbance must occur outside of the Colony Active Period between April 1 through August 31. If removal of habitat in the proposed area of disturbance must occur during the Colony Active Period, the Project proponent shall



retain a qualified biologist to conduct a pre-activity (defined as any habitat disturbance) survey no more than three days prior to the initiation of construction activities to determine the presence or absence of Crotch's bumble bee within the proposed area of disturbance. A qualified biologist must demonstrate the following qualifications: at least 40 hours of experience surveying for bee or other co-occurring aerial invertebrate species (such as Quino checkerspot butterfly) and who have completed a Crotch's bumble bee detection/identification training by an expert Crotch's bumble bee entomologist; or the biologist must have at least 20 hours of experience directly observing Crotch's bumble bee. The pre-activity survey shall consist of photographic surveys following CDFW guidance (i.e., *Survey Considerations for California Endangered Species Act [CESA] Candidate Bumble Bee Species*, dated June 6, 2023). The surveys shall consist of passive methods unless a Memorandum of Understanding is obtained. If additional activities (e.g., capture or handling) are deemed necessary to identify bumble bees of an unknown species that may be Crotch's bumble bee, then the Qualified Biologist shall obtain the required authorization via a Memorandum of Understanding or Scientific Collecting Permit. Survey methods that involve lethal take of species are not authorized.

- IV. If pre-construction surveys identify Crotch's bumble bee individuals on-site, the qualified biologist shall notify and consult with CDFW to establish, monitor, and maintain no-work buffers around the associated floral resources. The size and configuration of the no-work buffer shall be based on the best professional judgment of the qualified biologist in consultation with CDFW. Construction activities shall not occur within the no-work buffers until the bees appear no longer active (i.e., associated floral resources appear desiccated and no bees are seen flying for three consecutive days indicating dispersal from the area).
- V. Survey data shall be submitted by the qualified biologist to the California Natural Diversity Database (CNDDDB) in accordance with the Memorandum of Understanding with CDFW, or Scientific Collecting Permit requirements, as applicable.
- VI. If the qualified biologist determines that Project activities would result in impacts to Crotch's bumble bee that would constitute a take, as defined in the CESA, then the Project proponent shall consult with CDFW and submit an application for Incidental Take Permit (ITP) pursuant to CESA. The Project proponent shall implement all avoidance, minimization, and mitigation measures prescribed by CDFW in the ITP.

MM-BIO-6: Nesting Birds Protection

Prior to the issuance of any land disturbance, clearing, grubbing, or grading permits for Project construction activities that would occur on or within 300 feet of suitable nesting habitat for passerines (i.e., non-raptors) or 500 feet for raptors during the general bird breeding season (January 15 through September 15), the Project proponent shall implement the following:

- I. Retain a qualified biologist to conduct a pre-construction nesting bird survey no more than five (5) days prior to the Project activities. If no active nests or nesting is detected, Project work may commence as scheduled. If work does not begin within five (5) days of the survey date, the survey shall be repeated. If an active nest is discovered, the biologist shall establish an avoidance buffer around the nest until the young have fledged.



- II. If nesting birds are identified during the surveys, the biologist shall determine an appropriate disturbance-free (i.e., no-work-zone) buffer (typically between 100 and 500 feet) depending on the species and Project activities. Buffer zones should be clearly demarcated in the field for avoidance by construction activities. The size of an established buffer may be altered if the biologist conducts behavioral observations and determines the nesting birds would not be affected by the Project activities. If this occurs, the biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting birds. If the buffer is reduced, the biologist shall remain on site to monitor the behavior of the nesting birds during construction in order to ensure that the reduced buffer does not result in take of eggs or nestlings. No construction or earth-moving activity shall occur within the established buffer until it is determined by the biologist that the young have fledged (are no longer dependent on the nest or the adults for feeding) and have attained sufficient flight skills to avoid project construction zones. If a biologist is not hired to monitor the nest, then the full buffer(s) shall be maintained in place from February 15 to August 31. The buffer may be removed, and work may proceed as otherwise planned within the buffer on September 1.

Significance after Mitigation

If not properly protected and monitored, inadvertent impacts beyond the authorized impact footprint could occur during construction. However, potential impacts could be avoided by verification and establishment of work limits demarcation and monitoring described in MM-BIO-1 above. Project impacts on special-status wildlife would be avoided and/or minimized through the implementation of MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, MM-BIO-5, and MM-BIO-6 as well as compliance with the MBTA, CDFW California Fish and Game Code, FESA, and CESA. Thus, Project impacts to sensitive species would be less than significant.

Cumulative Impacts

A reasonable cumulative setting for biological resources can be established by considering regional conservation planning efforts and the geographical boundaries of the MHCP and Multiple Species Conservation Program (MSCP) in San Diego County. The proposed Project was found to have potential significant impacts on the Crotch's bumble bee, coastal California gnatcatcher, and nesting birds protected under the MBTA and CFG Code. The cumulative impacts on these species are also potentially significant considering past, present, and future projects occurring in the region and within habitat that supports these species. The proposed Project's impacts are cumulatively considerable given the sensitivity designations for these species. However, these species are afforded protections under federal and state policy, including the ESA, CESA, MBTA, and CFG Code, which require that actions are taken to avoid impacts or obtain approvals and/or permits in consultation with the USFWS and/or CDFW for unavailable impacts in conjunction with implementing required minimization and conservation measures, including measures that help to ensure no net loss of occupied habitat and that additional lands are conserved for the species. The MHCP and MSCP further incorporate regional conservation planning efforts toward the conservation of the coastal California gnatcatcher and its habitat in the region, with approved and adopted subarea plans within the MHCP and MSCP affording take coverage for the species and establishing a preserve network in the region for the long-term conservation of the species. Therefore, although the cumulative impacts on these species are potentially significant, the impacts are reduced to less than significant levels through the implementation of regional conservation planning efforts under the MHCP and MSCP, and the avoidance, minimization, and



conservation measures that are implemented at the project level through consultations with the USFWS and CDFW. Implementation of the proposed Project's MM-BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, MM-BIO-5, and MM-BIO-6, as well as compliance with the MBTA, CFG Code, FESA, and CESA, would further reduce the level of significance of the cumulative impacts on these species.

7.2.2 Guidelines for the Determination of Significance: Riparian Habitat or Sensitive Natural Community

This section addresses the portion of the CEQA Guidelines requiring an assessment of whether the Project would **have a substantial adverse effect on riparian habitat or other sensitive natural communities identified locally, regionally, or by the CDFW or USFWS.**

Analysis of Impacts

The Project site does not contain riparian habitat. However, it supports Diegan coastal sage scrub, a sensitive natural community recognized by CDFW, CNPS, and the MHCP. As stated above in Section 7.2.1, the Diegan coastal sage scrub on-site was found to not support breeding coastal California gnatcatchers during protocol surveys conducted in 2025. An unpaired coastal California gnatcatcher individual was incidentally observed on a single occasion in April 2025 temporarily utilizing a portion of the Diegan coastal sage scrub on-site for dispersal activities. Therefore, breeding coastal California gnatcatchers are currently presumed to be absent from the on-site Diegan coastal sage scrub, but the habitat provides opportunities for dispersal and other temporary uses, such as foraging. Under Option A, approximately 32.1 acres of Diegan coastal sage scrub would be directly impacted by the Project (**Appendix A: Figures 9a and 9b**). Impacts to Diegan coastal sage scrub under Option B is summarized in **Table 6b**. Irrespective of Option A or Option B, impacts to Diegan coastal sage scrub is considered significant (Impact BIO-5).

Permanent direct impacts would occur where Diegan coastal sage scrub and other vegetation communities are removed for infrastructure or development. In addition and beyond the limits of grading for the Project, fuel modification zone 1 would occur and also contribute to permanent direct impacts. These impacts within the fire buffer, outside/beyond the limits of grading are reflected in **Tables 7a and 7b** below. Temporary impacts to vegetation are not expected. Under Option A, areas treated as impact-neutral consist of existing easements recorded and maintained by SDG&E, VWD, and private access roads, as well as fire buffer zone 2. Zone 2 consists of selective vegetation thinning that targets woody shrubs and trees, with a minimum of 50% of the vegetation cover removed (DUDEK 2025). Option B also considers the existing easements as impact neutral; however, fire buffer zone 2 is treated as a permanent impact.

Indirect impacts under either Option may occur from construction generated dust or inadvertent impacts beyond the authorized work limits. However, the Project would implement appropriate measures during construction, such as temporary fencing (MM-BIO-1), contractor training (MM-BIO-2), biological monitoring (MM-BIO-3), as well as construction BMPs, which would protect and avoid potential indirect impacts beyond the authorized work area footprint. Thus, no indirect impacts are expected.



Table 10a. Impacts to Sensitive Natural Communities (Option A)

Vegetation Community/Land Cover Type	Sensitive Natural Community	Total On-Site (acres) ¹	Impacts (acres) ¹			Total Impacts (acres) ¹
			Temporary	Permanent	Neutral ²	
Upland						
Diegan coastal sage scrub (32500)	Yes	84.7	0	23.5	8.9	32.4
Eucalyptus Woodland (79100)	No	1.0	0	0.9	0.1	1.0
Intensive Agriculture - Pasture (18200)	No	44.7	0	38.2	4.6	42.8
Non-native Woodland (79000)	No	3.2	0	1.9	1.2	3.1
Developed/Disturbed						
Urban/Developed (12000)	No	2.5	0	1.0	1.1	2.1
Total		136.1	0	65.5	15.9	81.4

¹ Rounding was limited to the hundredths place during calculations.

² Reflects existing easements and fire buffer zone 2 outside of project grading.

Table 11b. Impacts to Sensitive Natural Communities (Option B)

Vegetation Community/Land Cover Type	Sensitive Natural Community	Total On-Site (acres) ¹	Impacts (acres) ¹			Total Impacts (acres) ¹
			Temporary	Permanent	Neutral ²	
Upland						
Diegan coastal sage scrub (32500)	Yes	84.7	0	28.9	0.8	29.7
Eucalyptus Woodland (79100)	No	1.0	0	0.9	0.1	1.0
Intensive Agriculture - Pasture (18200)	No	44.7	0	37.8	2.9	40.7
Non-native Woodland (79000)	No	3.2	0	2.1	0.8	2.9
Developed/Disturbed						
Urban/Developed (12000)	No	2.5	0	1.0	1.4	2.4
Total		136.1	0	70.7	6.0	76.7

¹ Rounding was limited to the hundredths place during calculations.

² Reflects existing easements within grading and easements outside grading within fire buffer zones 1 and 2.



Mitigation Measures and Design Considerations

MM-BIO-7: Conservation of Sensitive Communities

To offset project-related impacts (Impact BIO-5) to sensitive upland vegetation (i.e., Diegan coastal sage scrub), habitat loss shall be mitigated through a combination of on-site and/or off-site habitat preservation, restoration, or enhancement, consistent with the guidelines established in the MHCP.

The mitigation ratios shall be applied based on the habitat type impacted, as follows:

- Diegan coastal sage scrub: provide a minimum 1:1 ratio (one [1] acre preserved/restored for every one [1] acre impacted).

Mitigation may occur through:

- On-site preservation of undisturbed habitat within the project boundary that is set aside permanently in a conservation easement;
- Off-site mitigation within a City-approved area or mitigation bank;
- Or a combination of both, as determined appropriate by the City.

On-site preservation shall be protected through a recorded conservation easement prior to grading. The easement shall cover all preserved habitat areas and restrict incompatible land uses. Additionally, a qualified land manager or conservation organization shall be designated to oversee the long-term stewardship and biological integrity of the preserved lands. A Preserve Management Plan shall be provided to the City to ensure successful habitat preservation over time (see MM-BIO-8).

MM-BIO-8: Preserve Management Plan

Prior to the issuance of any land disturbance, clearing, grubbing, or grading permits for the site, a Preserve Management Plan (PMP) shall be prepared and approved by the City and any applicable permit-issuing resource agency (i.e., USFWS, USACE, RWQCB, and/or CDFW) to guide the perpetual protection and stewardship of preserved habitat areas associated with the Project. The PMP shall include a detailed map and description of all preserve lands, identify the qualified land manager or conservation organization responsible for implementation, and establish a permanent funding mechanism (e.g., Property Analysis Record or comparable cost analysis estimate) to ensure long-term management. The plan shall include specific management directives such as invasive species control, vegetation monitoring, fencing and signage maintenance, public awareness measures, adaptive management provisions, and reporting requirements. The PMP shall also consider the need for targeted surveys for special-status species. Surveys for the coastal California gnatcatcher shall be considered during the recognized breeding season (February 15 to August 31) in accordance with USFWS protocol survey guidelines, unless otherwise specified in the approved PMP. Additionally, surveys for Crotch's bumble bee shall be considered during the appropriate blooming season for foraging habitat and use methods consistent with current CDFW guidance, including timed visual surveys (i.e., queen or colony flight seasons) and net capture when feasible as authorized, unless otherwise specified in the approved PMP. If special-status species are detected, the PMP shall include avoidance or minimization measures.

Implementation of the PMP shall be overseen by a City-approved qualified land manager or conservation organization with proven experience managing biological preserves, such as those listed on the CDFW roster of



approved entities. The PMP shall remain in effect in perpetuity to ensure continued protection and maintenance of the conserved habitat areas.

Significance after Mitigation

The Project impacts to sensitive natural communities, Diegan coastal sage scrub, would be fully offset with the implementation of MM-BIO-7 (habitat mitigation) and MM-BIO-8 (preserve management and monitoring), which would ensure long-term conservation, protection, and management. With these measures, impacts would be reduced to less than significant.

Cumulative Impacts

The proposed Project was found to have a potential significant impact on the sensitive natural community, Diegan coastal sage scrub. The cumulative impact on Diegan coastal sage scrub is potentially significant considering past, present, and future projects occurring in the region. The proposed Project's impacts are cumulatively considerable given the sensitivity designation for this natural community and that it serves as an umbrella habitat for multiple sensitive species that occur in the region. As a sensitive natural community in the region, impacts on Diegan coastal sage scrub require compensatory mitigation to help ensure there is no net loss. The MHCP and MSCP further incorporate regional conservation planning efforts, including required compensatory mitigation, which contributes toward the conservation of Diegan coastal sage scrub and establishment of a preserve network in the region. Therefore, although the cumulative impact on Diegan coastal sage scrub is potentially significant, the impact is reduced to less than significant levels through the implementation of regional conservation planning efforts under the MHCP and MSCP, and the compensatory mitigation requirements that are implemented at the project level that help to ensure no net loss of the habitat type in the region. Implementation of the proposed Project's MM-BIO-7 and MM-BIO-8 would further reduce the level of significance of the cumulative impact on Diegan coastal sage scrub.

7.2.3 Guidelines for the Determination of Significance: Jurisdictional Wetlands and Waterways

This section addresses the portion of the CEQA Guidelines requiring an assessment of whether the Project would **have a substantial adverse effect federally protected wetlands defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

Analysis of Impacts

Based on the aquatic resources delineation performed at the Project site in 2025 and according to current regulatory guidelines, no federally protected wetlands or other federal waters of the U.S. regulated by the USACE were identified within the Project site; none would be impacted by the Project. All aquatic features present were determined to be non-wetland, ephemeral drainage features lacking continuous surface water connections to downstream relatively permanent or traditional navigable waterways.

Although no federally protected wetlands or federal waters are present, the Project site supports isolated non-wetland waters of the state potentially regulated by the RWQCB per Porter-Cologne Act and stream channel subject to the jurisdiction of the CDFW per Section 1600 et seq. of the California Fish and Game Code. Project activities, specifically grading activities on-site, would result in permanent direct impacts to these RWQCB and



CDFW aquatic resources and such impacts would be considered significant (Impact BIO-6). A summary of these impacts are provided in below in **Tables 8** and **8b** as well as attached **Figures 10a** and **10b (Appendix A)**.

Table 12a. Impacts to Jurisdictional Aquatic Resources (Option A)

Agency Jurisdiction	Aquatic Resource Type	On-Site (acres) ¹	Impacts (acres) ^{1,3}		Impacts (linear feet) ^{2,3}	
			Temporary	Permanent	Temporary	Permanent
RWQCB	Isolated Waters of the State	0.399	0	0.193	0	1,600
CDFW	Stream	0.524	0	0.277	0	1,600

¹Rounding was limited to the hundredths place during calculations.

²Rounding was to the nearest foot.

³CDFW acreages and linear feet includes RWQCB features. RWQCB and CDFW do not sum.

Table 13b. Impacts to Jurisdictional Aquatic Resources (Option B)

Agency Jurisdiction	Aquatic Resource Type	On-Site (acres) ¹	Impacts (acres) ^{1,3}		Impacts (linear feet) ^{2,3}	
			Temporary	Permanent	Temporary	Permanent
RWQCB	Isolated Waters of the State	0.399	0	0.193	0	1,600
CDFW	Stream	0.524	0	0.277	0	1,600

¹Rounding was limited to the hundredths place during calculations.

²Rounding was to the nearest foot.

³CDFW acreages and linear feet includes RWQCB features. RWQCB and CDFW do not sum.

Project compliance with the Porter-Cologne Act and California Fish and Game Code is required as impacts to jurisdictional aquatic resources would be significant. Thus, coordination with RWQCB and CDFW would occur prior to implementation of Project impacts to these aquatic features, which may require one or more of the following permits and regulatory approvals:

- **RWQCB Waste Discharge Requirements:** An Individual Order for Waste Discharge Permit from the RWQCB would be required for Project activities if waters of the State are impacted, if such features are not subject to USACE jurisdiction (i.e., “isolated waters”).
- **CDFW Section 1602 LSAA:** A Notification of Streambed Alteration Agreement under Section 1600 et seq. of the California Fish and Game Code for impacts to streambed, bank, or associated habitat.

Appropriate compensation expected by RWQCB and CDFW would achieve “no net loss” for impacts to aquatic resources associated with Project implementation. Restoration, enhancement, replacement, and/or conservation shall be at a location and by methods acceptable to the RWQCB and CDFW during appropriate consultation. The RWQCB and/or CDFW may require the purchase of compensatory mitigation credits at an agency-approved mitigation bank or preparation/submittal of a habitat mitigation and monitoring plan for on- or off-site mitigation.



The mitigation plan would demonstrate how impacts to aquatic resources within Project site would be fully mitigated.

While not expected, indirect temporary impacts could also occur to areas downstream from sedimentation discharges off-site beyond the authorized work area during construction. However, such would be avoided and minimized with implementation MM-BIO-1, MM-BIO-2, MM-BIO-3, as well as construction BMPs.

Mitigation Measures and Design Considerations

MM BIO-9: Aquatic Resources Compliance

Prior to construction, the Project Applicant shall demonstrate to the City that all required permits and authorizations for impacts (Impact BIO-6) to aquatic resources and Waters of the State have been obtained. This includes, as applicable, Waste Discharge Requirements Permit from the RWQCB and a California Fish and Game Code Section 1600 Streambed Alteration Agreement (LSAA) from the CDFW. The Applicant shall implement all terms, conditions, and mitigation requirements specified in the permits, including compensatory mitigation. Mitigation shall include, at a minimum, compensation at a minimum 1:1 ratio to include on- and/or off-site establishment/re-establishment, rehabilitation, enhancement, and/or preservation, unless otherwise required by the RWQCB and/or CDFW in the permit(s). Documentation/discussion demonstrating permit compliance shall be included in the final biological monitoring report (MM-BIO-3).

Significance after Mitigation

With the implementation of the Project's proposed avoidance and minimization measures, as well as compliance with State regulations, the Project would not have a substantial adverse effect on state or federally protected wetlands or other regulated waters. Thus, Project impacts would be less than significant.

Cumulative Impacts

The proposed Project was found to have a potential significant impact on RWQCB-jurisdictional waters of the State and CDFW-jurisdictional streambed. The cumulative impact on waters of the State and streambed resources is potentially significant considering past, present, and future projects occurring in the region. The proposed Project's impacts are cumulatively considerable given the protections placed on these resources at a watershed and regional level, and that activities affecting these resources are regulated by the RWQCB and CDFW. As regulated resources, impacts on waters of the State and streambed require approvals and permits from the RWQCB and CDFW, including requirements for compensatory mitigation to help ensure there is no net loss of the resources. Therefore, although the cumulative impact on waters of the State and streambed is potentially significant, the impact is reduced to less than significant levels through the implementation of the compensatory mitigation requirements that are implemented at the project level that help to ensure no net loss of the resources in the region. Implementation of the proposed Project's MM-BIO-9 would further reduce the level of significance of the cumulative impact on RWQCB-jurisdictional waters of the State and CDFW-jurisdictional streambed.



7.2.4 Guidelines for the Determination of Significance: Wildlife Movement and Nursery Sites

This section addresses the portion of the CEQA Guidelines requiring an assessment of whether the Project **would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites.**

Analysis of Impacts

The Project site is located in a partially urbanized portion of the City but lies adjacent to and is surrounded by MHCP softline and hardline preserve lands. Hardline preserve areas represent lands to be permanently conserved and actively managed for the protection of biological resources, whereas softline preserve areas reflect potential target preserve lands that would be evaluated and boundaries finalized following additional biological studies and site-specific analysis. These target preserve lands and existing hardline areas provide habitat, movement opportunities, and refugia for native wildlife and contribute to a broader network of habitat connectivity in this portion of the City. Given the Project site is situated at the interface of MHCP preserve lands located to the north, east, south, and west (i.e., Twin Oaks Golf Course) of the site, the site likely provides localized wildlife use serves as an edge habitat for foraging or dispersal, particularly for urban-adapted or edge-tolerant bird and small-medium mammal species; however, such activity is presumably limited to the western portions of the site along the natural and undisturbed vegetated hillsides due to the existing residences and ongoing cattle operations and practices within the remaining portions of the site. The site is not considered to substantially facilitate wildlife movement. Implementation of the Project would not substantially interfere with connectivity between blocks of existing contiguous reserve land habitats and would not block or substantially interfere with a local or regional wildlife corridor or linkage. Ultimately, the Project would provide additional conserve lands (approximately 53 acres under Option A and approximately 56 acres under Option B) on the west portions of the site to potentially generate a habitat corridor nearly ½-mile (more than 2,640-feet) wide (**Appendix A: Figures 11a and 11b**). Overall, considering the limited but potential use of the site for wildlife, its adjacency to hardline preserve lands, and the proposed establishment of additional hardline preserve lands by the Project, impacts to wildlife movement are considered less than significant.

Aquatic resources occur on-site; however, none are perennial that would support fish species. No impacts to fish are expected as a result of the Project. With respect to nursery sites, the Project site may provide suitable nesting habitat for birds, particularly passerines. A relatively small decrease in potential nesting habitat because of Project development may temporarily change nesting habits of birds at the site, but large expanses of sufficient nesting habitat within the non-impacted areas of the site proposed as biological conserved lands would be available, which are contiguous with similar native habitats that would support nesting. There are several stands of tall eucalyptus trees in the central and eastern portion of the site; however, due to the location/setting and existing uses of the site, as well as the observations from the biological surveys in 2025, it is unlikely these trees provide suitable substrate for large colonial nursery nesters such as great blue heron (*Ardea Herodias*), great egret (*Ardea alba*), or black-crowned night heron (*Nycticorax nycticorax*). No significant impacts to wildlife movement, fish, or nursery sites are expected.

Cumulative Impacts

The proposed Project was found to have a less than significant impact on wildlife movement and nursery sites. The cumulative impact on wildlife movement and nursery sites is potentially significant considering past, present,



and future projects occurring in the region. The proposed Project's contribution of impacts on wildlife movement and nursery sites is not cumulatively considerable given the less-than-significant determination at the project-level and the Project configuration incorporates on-site open space and consolidated development that would not preclude wildlife movement or adversely affect nursery sites in the local or regional area.

7.2.5 Guidelines for the Determination of Significance: Local Policies, Ordinances, and Adopted Plans

This section addresses the portion of the CEQA Guidelines requiring an assessment of whether the Project would ***conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.***

Analysis of Impacts

The City Conservation and Open Space Element of the General Plan establishes goals and policies to protect biological resources, preserve open space, and maintain sensitive habitats, including coastal sage scrub and other sensitive natural communities. This includes goals and policies for the City to pursue strategies for preservation and management of unique biological resources and sensitive habitats, such as identification of areas of significant biological value, as in sensitive habitats and unique ecosystems; execution of specific strategies and programs to ensure the long-term viability of these resources; and implementation of habitat management to preserve open space, particularly in hillside areas where clustered development is encouraged to leave steeper slopes in a natural state. This also includes General Plan Policy COS-2-6, which aims to preserve healthy mature trees where feasible and, where removal is necessary, replacing the trees at a ratio of 1:1. The proposed Project was intentionally designed to avoid and minimize impacts to these resources by limiting disturbance to the smallest practicable footprint while still achieving the Project purpose, by proposing to conserve all remaining portions of existing habitat on-site where feasible, and incorporating relevant biological mitigation measures.

The project site is located within a BCLA and FPA under the MHCP. The City does not have an adopted HCP or NCCP Subarea Plan. Although the draft San Marcos MHCP Subarea Plan has not been approved or adopted, the City references the MHCP planning framework during project reviews and entitlements. The City's Subarea Plan remains in draft form and has not been formally adopted; therefore, its policies are not legally binding on the Project. Nevertheless, the proposed Project has been designed with the MHCP conservation goals in mind and is consistent with the intent of the program. The MHCP provides guidance for conservation within BCAs and FPAs to maintain habitat connectivity, biological diversity, and viable populations of special-status species. Because the Project site is within a BCLA, the MHCP prioritizes this area for conservation and requires that impacts be avoided or minimized to the maximum extent practicable, while maintaining reasonable economic use of the property. The Project was designed to incorporate these MHCP principles by minimizing the development footprint, avoiding high-quality habitat where feasible, and preserving sensitive natural communities on-site. Implementation of MM-BIO-1 (work area confinement), MM-BIO-2 (construction monitoring and reporting), MM-BIO-3 through MM-BIO-6 (special-status species surveys and protection), MM-BIO-7 (habitat preservation and mitigation), MM-BIO-8 (preserve management and long-term monitoring), as well as compliance with State and Federal regulations will ensure that habitat loss is fully mitigated, that preserved habitat areas are managed in perpetuity, and that sensitive species are protected during construction. These measures are consistent with the Conservation and Open Space Element policies regarding habitat preservation, mitigation hierarchy (avoid,



minimize, mitigate), and long-term resource stewardship. With implementation of these measures, the project would be in conformance with applicable local biological resource protection policies, demonstrate consistency with MHCP guidelines for species protection, and would not conflict with the City’s goals to conserve habitat and special-status species.

The Project would be required by the City, as part of its development approvals, to comply with all applicable provisions, policies, and ordinances protecting biological resources. Mitigation measures, as prescribed herein (MM-BIO-1 through MM-BIO-8) to protect special-status species and sensitive habitats be implemented as part of the Project. The Project would not preclude or hinder future adoption of the City’s Subarea Plan or the ability to meet regional conservation objectives of the MHCP. Therefore, the Project would not conflict with local policies, ordinance, or adopted conservation plans protecting biological resources. Project impacts would be less than significant.

Cumulative Impacts

The proposed Project was found to have no conflict with any local policies or ordinances protecting biological resources with the implementation of MM-BIO-1 through MM-BIO-8. If unmitigated, there could be cumulative impacts from local policy and ordinance conflicts, and the proposed Project’s impacts would be cumulatively considerable. However, past, present, and future projects occurring in the City are required to be consistent with applicable local policies and ordinances protecting biological resources and implementing any required mitigation, thereby preventing any local policy and ordinance conflicts. Therefore, there would be no cumulative impact from local policy and ordinance conflicts.

8 Summary of Mitigation Measures

A summary of the mitigation measures proposed for the Project to reduce biological impacts to less than significant are presented below in **Table 9**.

Table 14. Summary of Mitigation Measures

Measure ID	Measure Description
MM-BIO-1: Construction Boundary Controls	To avoid potential inadvertent impacts beyond the authorized Project footprint (Impact BIO-1), prior any site preparation activities, such as vegetation clearing, brushing, construction machinery or equipment staging, or grading or other related earth-moving operations, the construction drawings shall clearly show the authorized work limits, including the delineation of temporary exclusion zones. To protect adjacent environmentally sensitive areas from unintended disturbance, high-visibility temporary fencing (e.g., orange safety fencing or equivalent), along with erosion control barriers like silt fencing where applicable, shall be erected along the perimeter of the approved construction impact grading footprint. This barrier system shall be in place prior to the start of construction and remain intact until all construction activities are complete. Installation of such work limits fencing shall be carried out in a manner that avoids damage to adjacent sensitive habitats or species. A qualified biologist (i.e., Project’s biological monitor) shall conduct a pre-installation assessment to ensure the fence layout adheres to the approved plans and that no special-status plant species would be affected by the installation process. If any such species are present, the fencing route shall be adjusted to avoid direct impacts, as directed by the biologist.



	<p>The Project's biological monitor shall be present to monitor the installation of work limits fencing and confirm installed per the approved construction drawings. Verification shall be provided via email or brief memorandum to the City by the Applicant within 24 hours following confirmation. Routine inspections (i.e., at least twice per week) of the construction boundary fencing may be needed at the direction of the Project biological monitor. If any construction activity is found to extend beyond the established boundaries, operations in the affected area shall stop immediately until corrective measures are identified and/or implemented to the satisfaction of the City and the project biologist. All temporary fencing materials must be removed after the completion of construction activities.</p>
MM-BIO-2: Worker Environmental Awareness Program (WEAP)	<p>Prior to any ground disturbance, a qualified biologist shall provide Worker Environmental Awareness Program (WEAP) training to all construction personnel. Training shall cover the purpose of resource protection, role of biological construction monitoring, and identification of sensitive habitats and special-status species known to occur on site. The training shall present at minimum the project mitigation measures for biological resources, the limits of disturbance, environmentally responsible construction practices, spill prevention and site housekeeping, and noise/dust minimization. It shall also summarize biological regulations/permits relevant to the Project and outline stop-work and reporting procedures if sensitive resources are encountered. Attendance shall be documented by the biologist and new workers on-site shall receive the WEAP training prior to starting work. Implementation of this measure shall assist in ensuring the avoidance of potential inadvertent impacts beyond the Project footprint (Impact BIO-1).</p>
MM-BIO-3: Biological Construction Monitoring	<p>To avoid potential inadvertent impacts beyond the Project footprint (Impact BIO-1), a qualified biologist to monitor construction activities and ensure compliance with all biological mitigation measures and regulatory permits issued for the Project. The biologist shall be on-site to oversee installation of temporary construction fencing and verify that work limits are correctly staked and sensitive habitats outside the approved footprint are protected (MM-BIO-1). The biologist shall conduct pre-construction surveys and environmental awareness training for construction personnel, as required by MM-BIO-2. The biological shall be on-site daily during all vegetation or ground disturbance work associated with initial mass grading of the site. During construction, the biologist shall regularly (i.e., at least twice per week) inspect active work areas, staging zones, and BMP installations to confirm activities remain within approved limits and that erosion, dust, and spill prevention measures are effective. If non-compliance is observed, the biologist shall have stop-work authority in the affected area and coordinate with the construction superintendent to implement corrective actions. The biologist shall prepare weekly monitoring reports summarizing the activities on-site, the observations during the biological monitoring, compliance status (including any corrective actions), and submit the report to the City by the end of each month during implementation of the Project. Any unauthorized impacts to sensitive resources, or substantial (at the discretion of the biologist) issues of non-compliance, shall be documented and reported to the City or regulatory agency (if applicable) within 72 hours, and mitigation consistent with this report shall be implemented to the City's satisfaction, or regulatory agency if applicable. Within 30-days following completion of construction, the biologist shall prepare a final biological monitoring report and submit to the City, which shall document at minimum, monitoring activities, incidents of non-compliance, and confirmation that Project mitigation measures were fully implemented.</p>



MM-BIO-4: Coastal California Gnatcatcher Protection	<p>Prior to the issuance of any land disturbance, clearing, grubbing, or grading permits for Project construction activities that would occur on and/or within 500 feet of suitable habitat for coastal California gnatcatcher (i.e., Diegan coastal sage scrub), the Project proponent shall implement the following:</p> <ol style="list-style-type: none">I. The Project proponent shall compensate direct impacts to suitable habitat for coastal California gnatcatcher through implementation of MM-BIO-7 and MM-BIO-8, which require compensatory mitigation for impacts to suitable habitat at a minimum 1:1 ratio in addition to preparation and implementation of a Preserve Management Plan, including recordation of a Conservation Easement or similar protective instrument, non-wasting endowment funding, and long-term management for the Project's on-site biological open space preserve in perpetuity.II. The Project proponent shall retain a qualified biologist possessing a Section 10(a)(1)(A) Recovery Permit from the USFWS to conduct pre-construction surveys for coastal California gnatcatcher. The surveys shall be conducted in accordance with the most current USFWS survey protocol applicable during the time of the surveys. The survey area shall include all suitable habitat for the coastal California gnatcatcher that occurs on and within 500 feet of the direct Project impact areas, where access is permitted. The final survey shall occur no more than 5 days prior to initial land disturbance, clearing, grubbing, or grading of suitable habitat. If no coastal California gnatcatchers are observed or otherwise detected during the surveys, then Project activities shall be allowed to commence with no additional requirements pertaining to coastal California gnatcatcher.III. If surveys confirm the presence of coastal California gnatcatchers on or within 500 feet of suitable habitat to be directly impacted by the Project, then the Project proponent shall postpone all Project activities with the potential to have adverse direct or indirect impacts on coastal California gnatcatcher and initiate consultation with the USFWS pursuant to FESA Section 7 or Section 10, as applicable. Due to the fact that the species was found to not be breeding at the Project site based on the 2025 protocol surveys, the consultation may be undertaken by either formal or informal means, at the sole discretion of the USFWS. Unless otherwise prescribed by the USFWS as a result of consultation, the Project proponent shall implement the following avoidance and minimization measures if the coastal California gnatcatcher is confirmed to be present on or within 500 feet of suitable habitat to be impacted by Project construction activities:<ol style="list-style-type: none">a. No land disturbance, clearing, grubbing, or grading activities within suitable habitat shall occur during the coastal California gnatcatcher breeding season, which is defined as February 15 through August 31; Standard dust control measures shall be implemented, including watering during grading, ensuring that exposed surfaces maintain soil moisture, limiting vehicle speeds on unpaved roads, and ensuring that trucks hauling dirt, sand, soil, or other loose materials are covered with a fabric cover and maintain a freeboard to help prevent fugitive dust generated at the Project site;b. Erosion control measures shall be implement, including using erosion control devices such as straw wattles, mulch, mats, and/or geotextiles; using sediment catchment structures such as hay bales, gravel or sandbags, silt fencing, fiber
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	<p>rolls, matting, berms, or similar devices along grading boundaries and drainage courses to prevent off-site sediment transport; backfilling, compaction, and/or covering of excavated trenches to minimize erosion potential; regularly inspecting and maintaining erosion control and sediment catchment facilities to ensure proper function and effectiveness;</p> <p>c. Maintain the Project site free of trash and debris; and,</p> <p>d. The Project’s qualified biologist shall perform periodic (i.e., weekly or as needed, as determined by the qualified biologist) monitoring to help ensure Project activities remain in compliance with the avoidance and minimization measures.</p> <p>IV. If during Project construction the coastal California gnatcatcher is found to establish breeding territories and produce active nests while construction activities are ongoing without stopping, then it shall be assumed that the activities are having no adverse effects and shall be allowed to continue without stopping. If construction activities stop for more than 7 days during the breeding season for coastal California gnatcatcher, then the Project’s qualified biologist shall conduct an updated pre-construction survey to confirm that no new coastal California gnatcatcher nests have been established in areas that could be adversely affected by reinitiating construction activities. If any new nests are confirmed by the qualified biologist within the direct Project impact areas, then the Project proponent shall implement the avoidance and minimization measures as stated above. If any new nests are confirmed by the qualified biologist within 500 feet of the direct Project impact areas, then the Project proponent shall implement the following avoidance and minimization measures to prevent any adverse indirect construction noise impacts:</p> <p>If construction must occur while the nest(s) is active, activities shall not be reinitiated until a temporary noise barrier or berm is constructed at the edge of the development footprint and/or around the piece of equipment to ensure that noise levels are reduced to below 60 dBA or ambient. Decibel output will be confirmed by a qualified noise specialist and intermittent monitoring by a qualified biologist will be required to ensure that conditions have not changed. If required, the temporary noise barrier or berm shall be kept in place until the qualified biologist has confirmed that the nest is no longer active.</p>
<p>MM-BIO-5: Crotch’s Bumble Bee Protection</p>	<p>Should the Crotch’s bumble bee no longer be a potential candidate for listing at the time of Project construction, then MM-BIO-5 shall not be required.</p> <p>Prior to the issuance of any land disturbance, clearing, grubbing, or grading permits for Project construction activities that would occur on suitable habitat for the Crotch’s bumble bee (i.e., Intensive Agriculture-Pasture and Diegan coastal sage scrub), the Project proponent shall implement the following:</p> <p>I. The Project proponent shall compensate direct impacts to suitable habitat for Crotch’s bumble bee through implementation of MM-BIO-7 and MM-BIO-8, which require compensatory mitigation for impacts to suitable habitat at a minimum 1:1 ratio in addition to preparation and implementation of a Preserve Management Plan, including recordation of a Conservation Easement or similar protective instrument, non-wasting endowment funding, and long-term management for the Project’s on-site biological open space preserve in perpetuity. This mitigation includes a minimum</p>



	<p>1:1 preservation of on-site habitat that supports Crotch's bumble bee foraging (nectar plants), nesting, and overwintering habitat.</p> <p>II. The Project proponent shall retain a qualified biologist that meets the minimum requirements for surveyor qualifications in CDFW's <i>Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species</i> to conduct pre-construction surveys for Crotch's bumble bee. The surveys shall follow the most current CDFW survey protocol applicable during the time of the surveys. The final survey shall occur no more than 5 days prior to initial land disturbance, clearing, grubbing, or grading of suitable habitat. If no coastal California gnatcatchers are observed or otherwise detected during the surveys, then Project activities shall be allowed to commence with no additional requirements pertaining to coastal California gnatcatcher.</p> <p>III. To avoid impacts on Crotch's bumble bee, removal of habitat in the proposed area of disturbance must occur outside of the Colony Active Period between April 1 through August 31. If removal of habitat in the proposed area of disturbance must occur during the Colony Active Period, the Project proponent shall retain a qualified biologist to conduct a pre-activity (defined as any habitat disturbance) survey no more than three days prior to the initiation of construction activities to determine the presence or absence of Crotch's bumble bee within the proposed area of disturbance. A qualified biologist must demonstrate the following qualifications: at least 40 hours of experience surveying for bee or other co-occurring aerial invertebrate species (such as Quino checkerspot butterfly) and who have completed a Crotch's bumble bee detection/identification training by an expert Crotch's bumble bee entomologist; or the biologist must have at least 20 hours of experience directly observing Crotch's bumble bee. The pre-activity survey shall consist of photographic surveys following CDFW guidance (i.e., <i>Survey Considerations for California Endangered Species Act [CESA] Candidate Bumble Bee Species</i>, dated June 6, 2023). The surveys shall consist of passive methods unless a Memorandum of Understanding is obtained. If additional activities (e.g., capture or handling) are deemed necessary to identify bumble bees of an unknown species that may be Crotch's bumble bee, then the Qualified Biologist shall obtain the required authorization via a Memorandum of Understanding or Scientific Collecting Permit. Survey methods that involve lethal take of species are not authorized.</p> <p>IV. If pre-construction surveys identify Crotch's bumble bee individuals on-site, the qualified biologist shall notify and consult with CDFW to establish, monitor, and maintain no-work buffers around the associated floral resources. The size and configuration of the no-work buffer shall be based on the best professional judgment of the qualified biologist in consultation with CDFW. Construction activities shall not occur within the no-work buffers until the bees appear no longer active (i.e., associated floral resources appear desiccated and no bees are seen flying for three consecutive days indicating dispersal from the area).</p> <p>V. Survey data shall be submitted by the qualified biologist to the California Natural Diversity Database (CNDDDB) in accordance with the Memorandum of Understanding with CDFW, or Scientific Collecting Permit requirements, as applicable.</p>
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	<p>If the qualified biologist determines that Project activities would result in impacts to Crotch’s bumble bee that would constitute a take, as defined in the CESA, then the Project proponent shall consult with CDFW and submit an application for Incidental Take Permit (ITP) pursuant to CESA. The Project proponent shall implement all avoidance, minimization, and mitigation measures prescribed by CDFW in the ITP.</p>
<p>MM-BIO-6: Nesting Birds Protection</p>	<p>Prior to the issuance of any land disturbance, clearing, grubbing, or grading permits for Project construction activities that would occur on or within 300 feet of suitable nesting habitat for passerines (i.e., non-raptors) or 500 feet for raptors during the general bird breeding season (January 15 through September 15), the Project proponent shall implement the following:</p> <ol style="list-style-type: none"> I. Retain a qualified biologist to conduct a pre-construction nesting bird survey no more than five (5) days prior to the Project activities. If no active nests or nesting is detected, Project work may commence as scheduled. If work does not begin within five (5) days of the survey date, the survey shall be repeated. If an active nest is discovered, the biologist shall establish an avoidance buffer around the nest until the young have fledged. II. If nesting birds are identified during the surveys, the biologist shall determine an appropriate disturbance-free (i.e., no-work-zone) buffer (typically between 100 and 500 feet) depending on the species and Project activities. Buffer zones should be clearly demarcated in the field for avoidance by construction activities. The size of an established buffer may be altered if the biologist conducts behavioral observations and determines the nesting birds would not be affected by the Project activities. If this occurs, the biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting birds. If the buffer is reduced, the biologist shall remain on site to monitor the behavior of the nesting birds during construction in order to ensure that the reduced buffer does not result in take of eggs or nestlings. No construction or earth-moving activity shall occur within the established buffer until it is determined by the biologist that the young have fledged (are no longer dependent on the nest or the adults for feeding) and have attained sufficient flight skills to avoid project construction zones. If a biologist is not hired to monitor the nest, then the full buffer(s) shall be maintained in place from February 15 to August 31. The buffer may be removed, and work may proceed as otherwise planned within the buffer on September 1.
<p>MM-BIO-7: Conservation of Sensitive Communities</p>	<p>To offset project-related impacts (Impact BIO-5) to sensitive upland vegetation (i.e., Diegan coastal sage scrub), habitat loss shall be mitigated through a combination of on-site and/or off-site habitat preservation, restoration, or enhancement, consistent with the guidelines established in the MHCP.</p> <p>The mitigation ratios shall be applied based on the habitat type impacted, as follows:</p> <ul style="list-style-type: none"> • Diegan coastal sage scrub: provide a minimum 1:1 ratio (one [1] acre preserved/restored for every one [1] acre impacted). <p>Mitigation may occur through:</p> <ul style="list-style-type: none"> • On-site preservation of undisturbed habitat within the project boundary that is set aside permanently in a conservation easement; • Off-site mitigation within a City-approved area or mitigation bank; • Or a combination of both, as determined appropriate by the City.



	<p>On-site preservation shall be protected through a recorded conservation easement prior to grading. The easement shall cover all preserved habitat areas and restrict incompatible land uses. Additionally, a qualified land manager or conservation organization shall be designated to oversee the long-term stewardship and biological integrity of the preserved lands. A Preserve Management Plan shall be provided to the City to ensure successful habitat preservation over time (see MM-BIO-8).</p>
MM-BIO-8: Preserve Management Plan	<p>Prior to the issuance of any land disturbance, clearing, grubbing, or issuance of grading permits for the site, a Preserve Management Plan (PMP) shall be prepared and approved by the City and any applicable permit-issuing resource agency (i.e., USFWS, USACE, RWQCB, and/or CDFW) to guide the perpetual protection and stewardship of preserved habitat areas associated with the Project. The PMP shall include a detailed map and description of all preserve lands, identify the qualified land manager or conservation organization responsible for implementation, and establish a permanent funding mechanism (e.g., Property Analysis Record or comparable cost analysis estimate) to ensure long-term management. The plan shall include specific management directives such as invasive species control, vegetation monitoring, fencing and signage maintenance, public awareness measures, adaptive management provisions, and annual reporting requirements. The PMP shall also consider the need for targeted surveys for special-status species. Surveys for the coastal California gnatcatcher shall be considered during the recognized breeding season (February 15 to August 31) in accordance with USFWS protocol survey guidelines, unless otherwise specified in the approved PMP. Additionally, surveys for Crotch’s bumble bee shall be considered during the appropriate blooming season for foraging habitat and use methods consistent with current CDFW guidance, including timed visual surveys (i.e., queen or colony flight seasons) and net capture when feasible as authorized, unless otherwise specified in the approved PMP. If special-status species are detected, the PMP shall include avoidance or minimization measures.</p> <p>Implementation of the PMP shall be overseen by a City-approved qualified land manager or conservation organization with proven experience managing biological preserves, such as those listed on the CDFW roster of approved entities. The PMP shall remain in effect in perpetuity to ensure continued protection and maintenance of the conserved habitat areas.</p>
MM-BIO-9: Aquatic Resources Compliance	<p>Prior to construction, the Project Applicant shall demonstrate to the City that all required permits and authorizations for impacts (Impact BIO-6) to aquatic resources and Waters of the State have been obtained. This includes, as applicable, Waste Discharge Requirements Permit from the RWQCB and a California Fish and Game Code Section 1600 Streambed Alteration Agreement (LSAA) from the CDFW. The Applicant shall implement all terms, conditions, and mitigation requirements specified in the permits, including compensatory mitigation. Mitigation shall include, at a minimum, compensation at a minimum 1:1 ratio to include on- and/or off-site establishment/re-establishment, rehabilitation, enhancement, and/or preservation, unless otherwise required by the RWQCB and/or CDFW in the permit(s). Documentation/discussion demonstrating permit compliance shall be included in the final biological monitoring report (MM-BIO-3).</p>



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10 List of Preparers

Preparation of this report was led by qualified individuals but represents the outcome of a team effort. The report was subject to internal review during its development to assist with technical accuracy and compliance with applicable regulations as well as City report format and content recommendations. Contributions from individual preparers may have been revised or supplemented by other specialists and management during the review and approval process. The following biologists were primarily contributors responsible for preparing this report.

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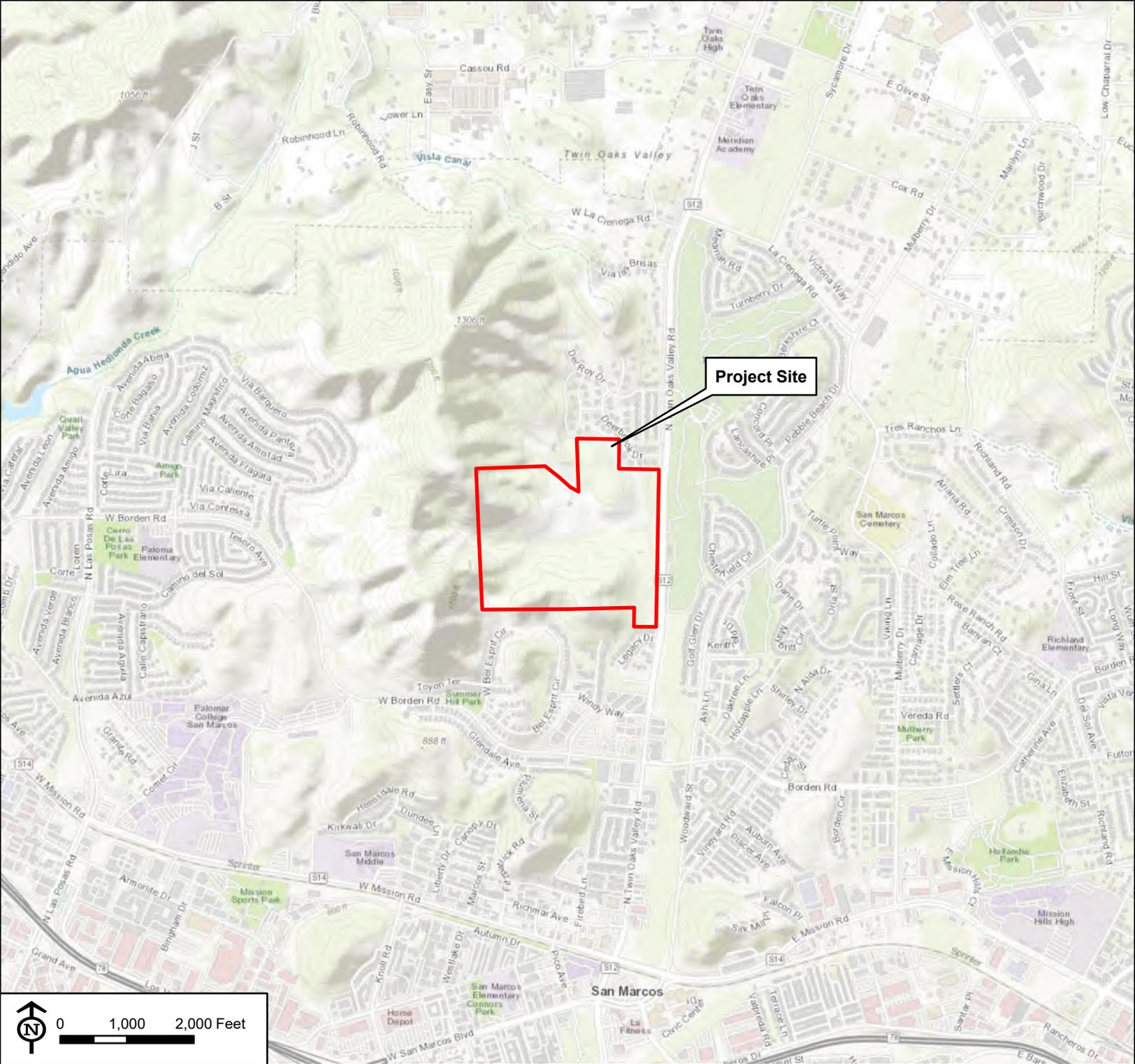
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Appendix A. Figures



Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

BARGAS
Environmental Consulting

Public Land Survey System (PLSS):
San Bernardino Meridian, Township 12S, Range 3W, Section 2

USGS Quad(s): San Marcos (1983)

Watershed: Carlsbad (HU904/HUC18070303)

Project Site Coordinates: 11S 484572 3669048

Figure 1
Project Site and Vicinity

Oakcrest Specific Plan



Highland Oaks Ct

N Twin Oaks Valley Rd

Chesterfield Cir



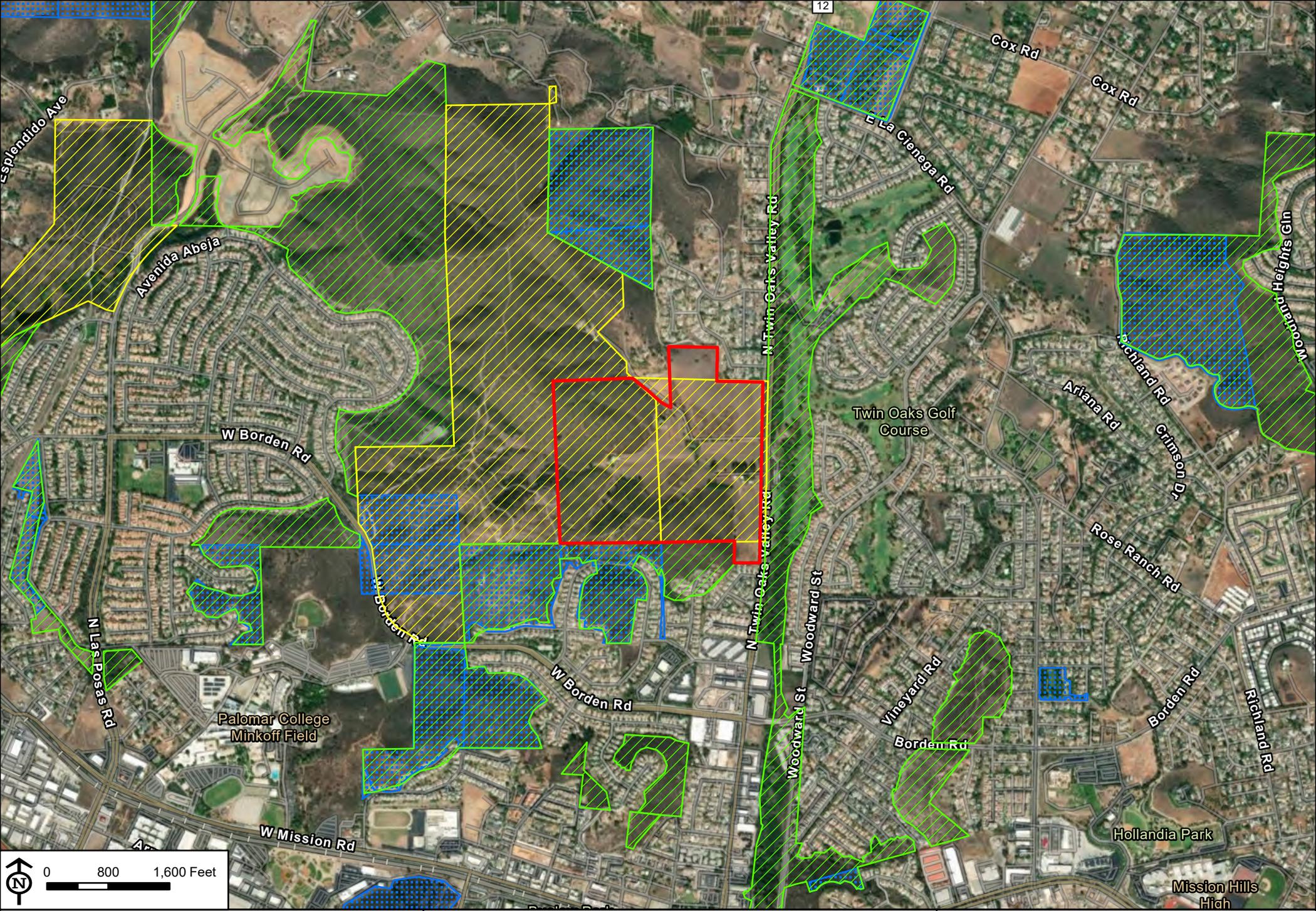
Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)

 Project Site

Figure 2
Study Area

Oakcrest Specific Plan



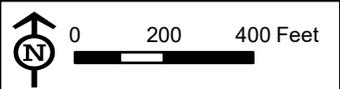
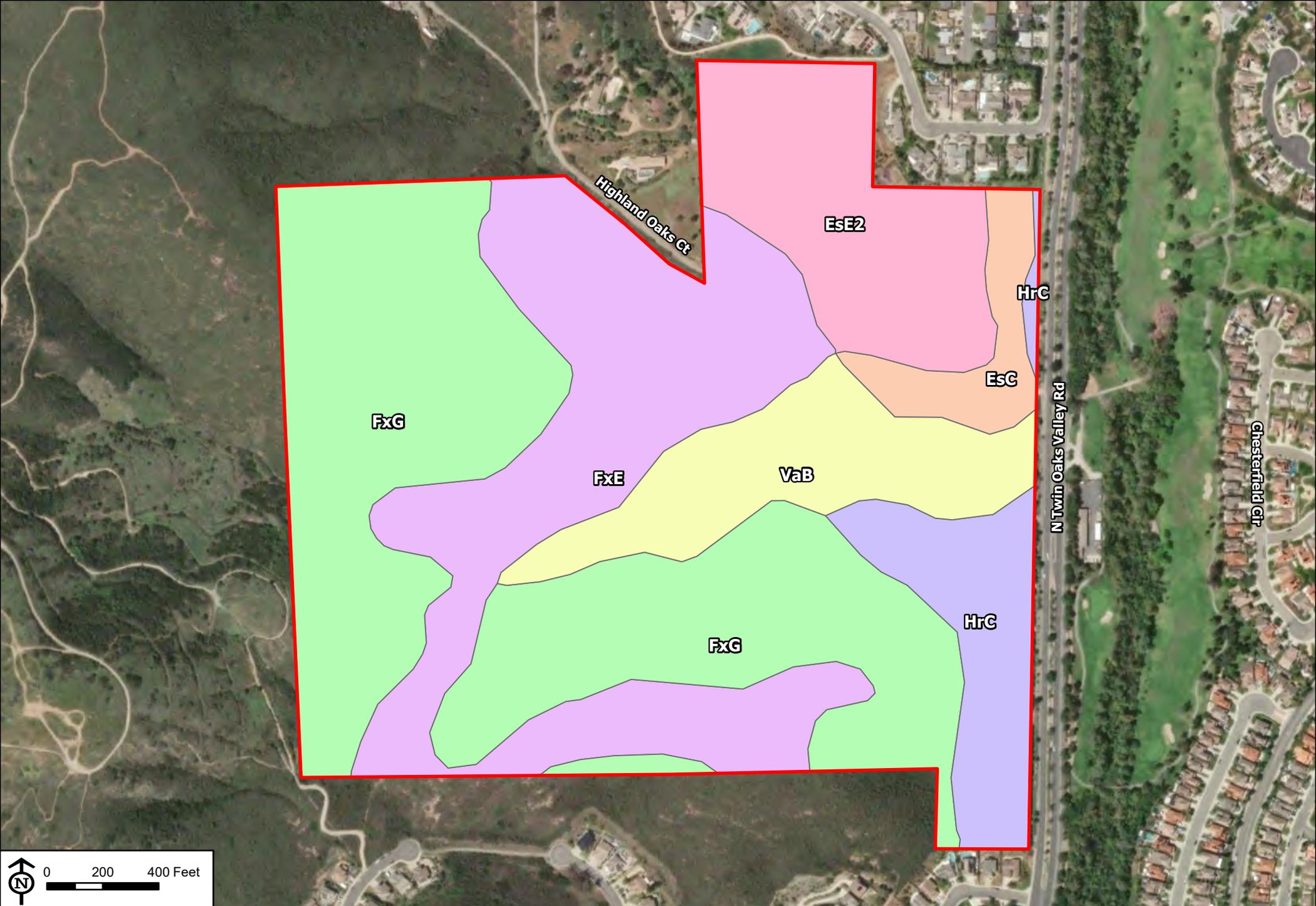


Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



- Project Site
- Conserved Lands
- HARDLINE RESERVE
- SOFTLINE RESERVE

Figure 3
Multiple Habitat Conservation Plan Context
Oakcrest Specific Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)

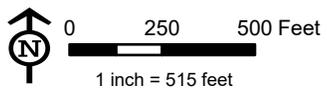
Project Site	FxE - Friant rocky fine sandy loam, 9-30% slopes	VaB - Visalia sandy loam, 2-5% slopes
EsC - Escondido very fine sandy loam, 5-9% slopes	FxG - Friant rocky fine sandy loam, 30-70% slopes	
EsE2 - Escondido very fine sandy loam, 15-30% slopes, eroded	HrC - Huerhuero loam, 2-9% slopes	

**Figure 4
Soils**

Oakcrest Specific Plan



Source: Bing Maps Hybrid



 Project Site

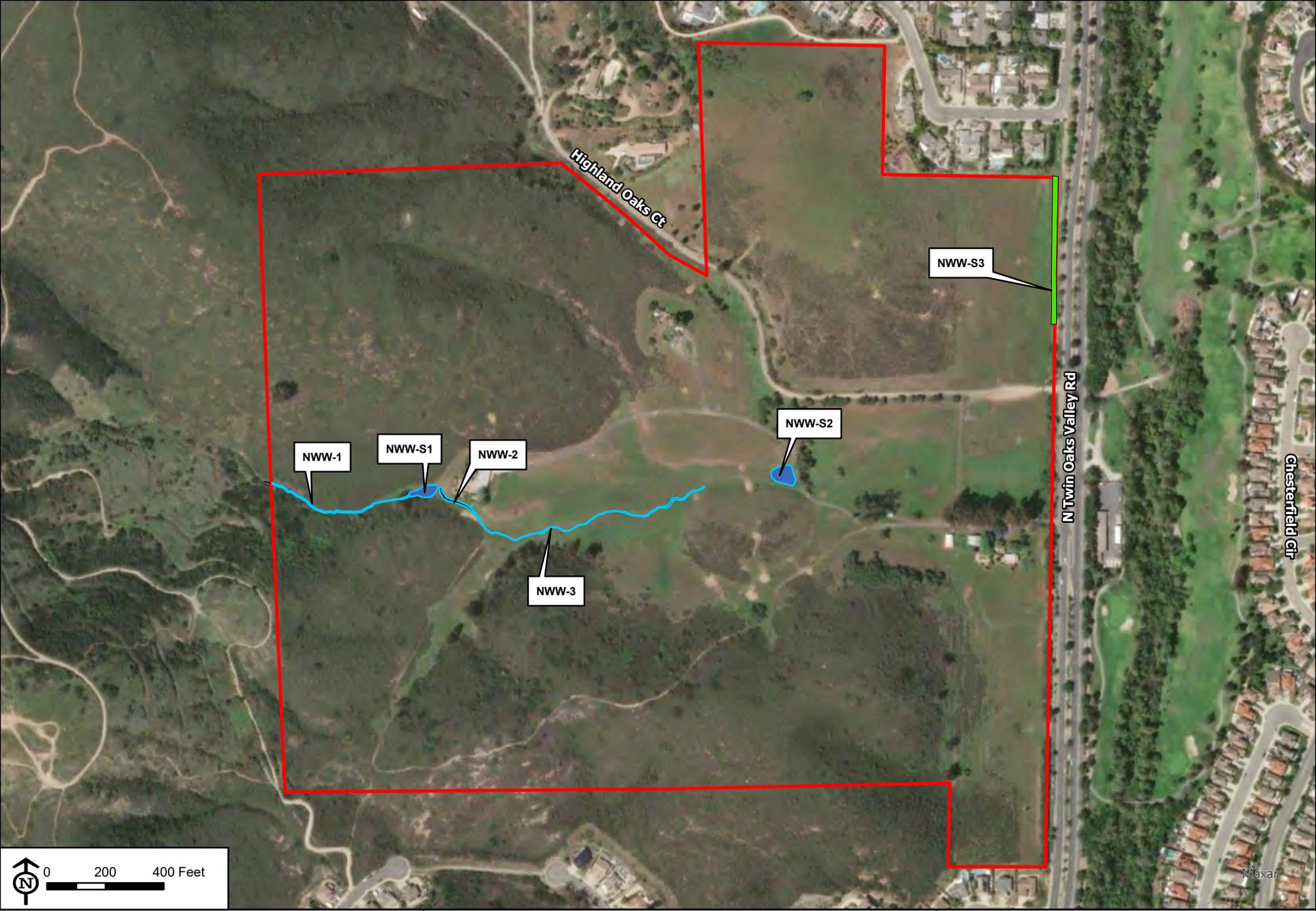
Vegetation Communities

-  Urban/Developed
-  Diegan Coastal Sage Scrub
-  Intensive Agriculture - Pasture

-  Non-Native Woodland
-  Eucalyptus Woodland

Figure 5
Vegetation Communities

Oakcrest Specific Plan

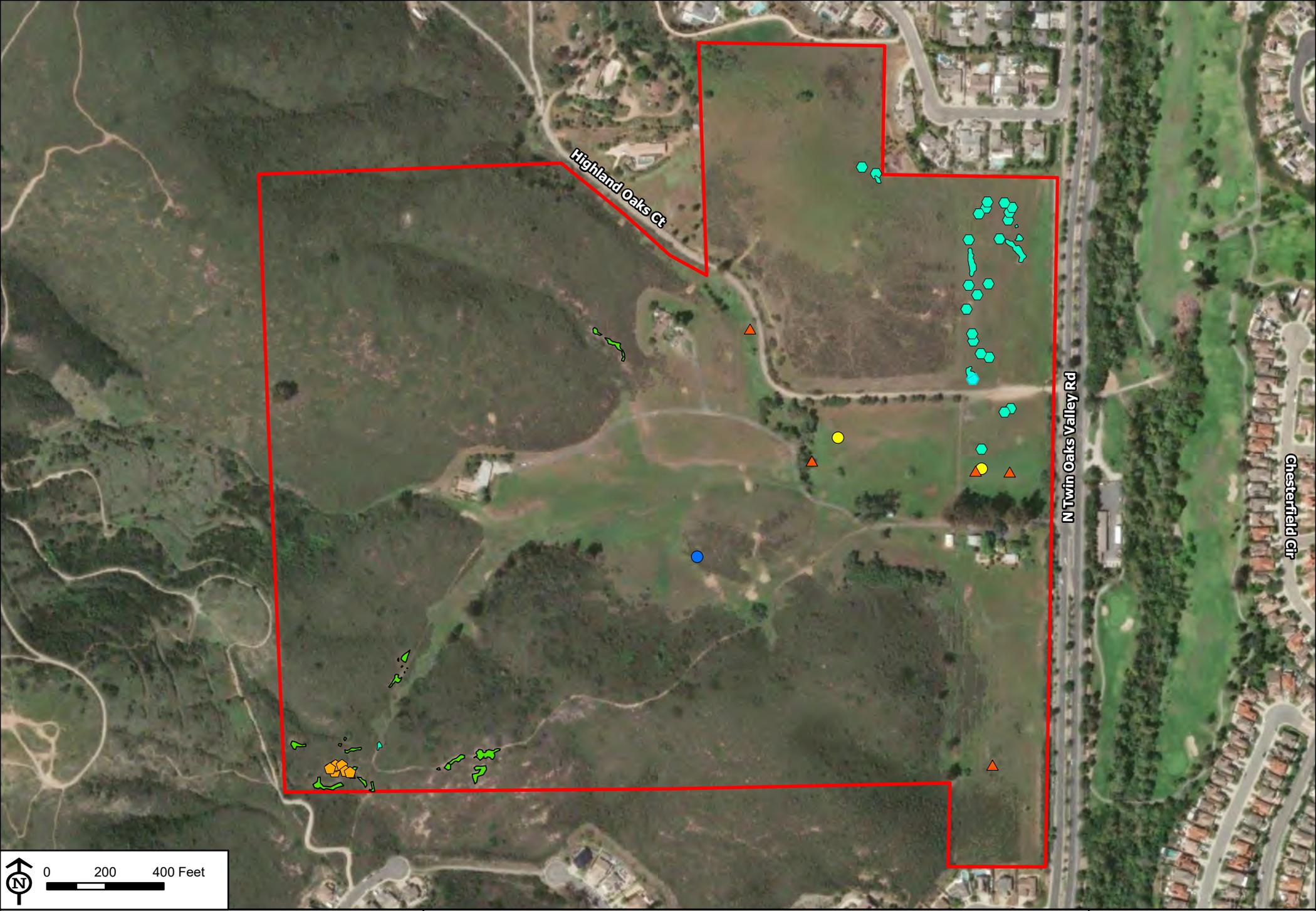


Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



- Project Site
- Ephemeral Drainage
- Concrete Channel
- Ephemeral Drainage and Stock Ponds

Figure 6
Aquatic Resources
Oakcrest Specific Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



Project Site

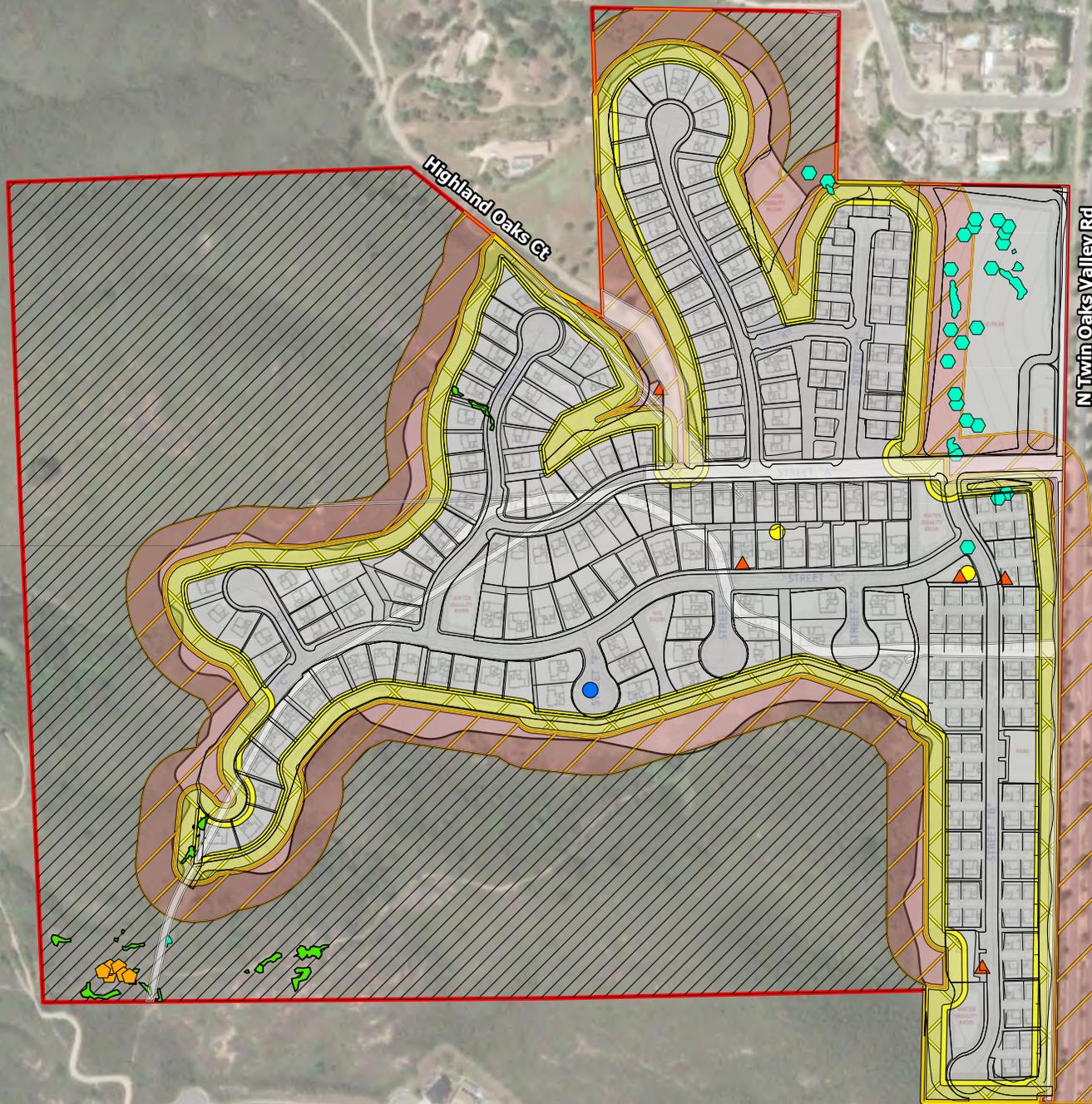
Special-Status Species

- Golden-rayed Pentachaeta (*Pentachaeta* ssp. *aurea*)
- Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)
- Ashy Spike Moss (*Selaginella cinerascens*)
- Monarch (*Danaus plexippus*)
- Crotch's Bumble Bee (*Bombus crotchii*)
- Coastal California Gnatcatcher (*Poliophtia californica californica*)

Figure 7
Special-Status Species
Oakcrest Specific Plan

Development Plan: Option A

-  Fire Zone 1
-  Fire Zone 2
-  No Impacts
-  Project Site
-  Easements
-  Grading
-  Site Development Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



Special-Status Species

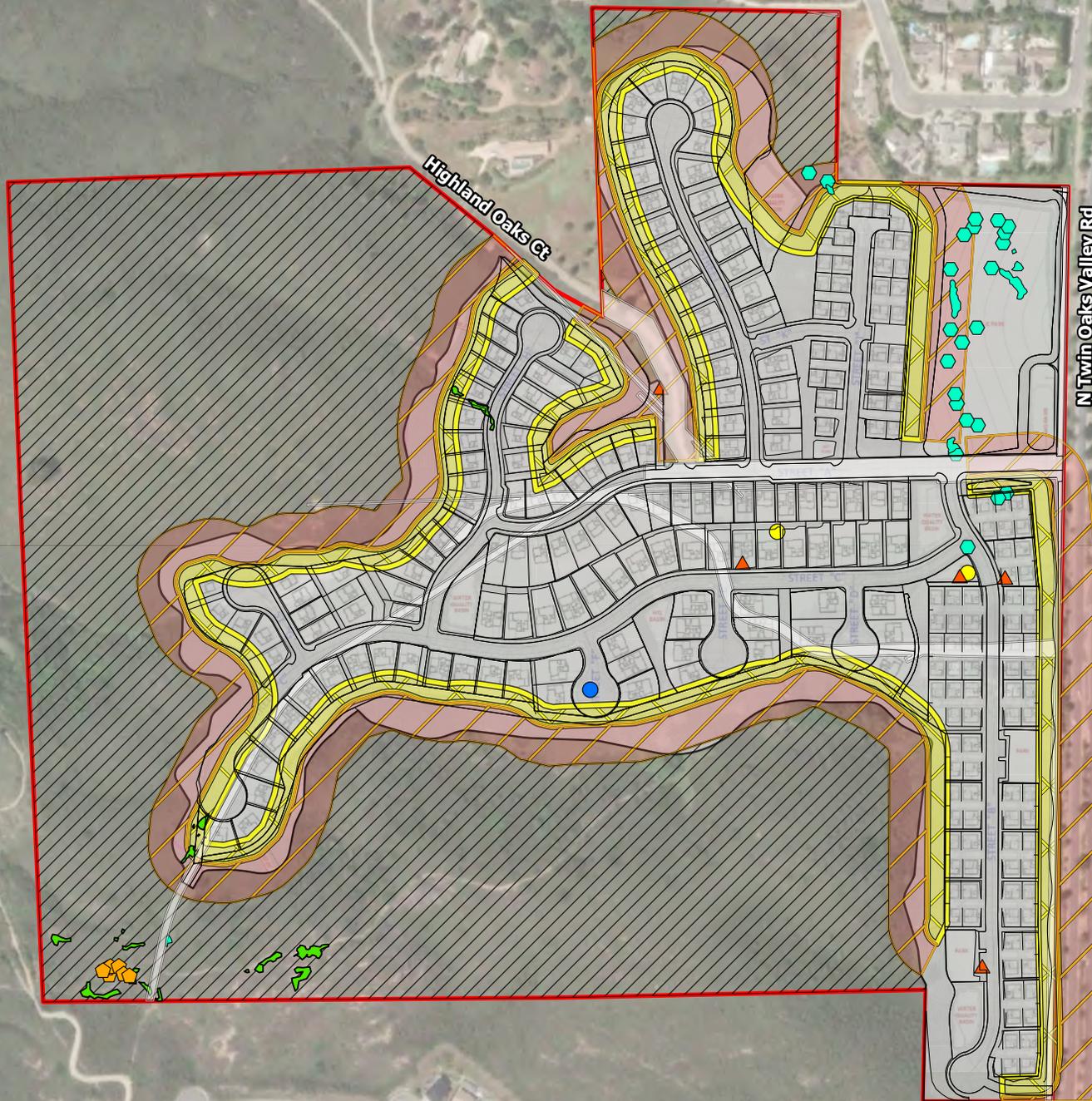
- | | | |
|---|--|--|
|  Golden-rayed Pentachaeta (Pentachaeta ssp. aurea) |  Monarch (Danaus plexippus) |  Graceful Tarplant (Holocarpha virgata ssp. elongata) |
|  Crotch's Bumble Bee (Bombus crotchii) |  Coastal California Gnatcatcher (Poliopitila californica californica) |  Ashy Spike Moss (Selaginella cinerascens) |

Figure 8a (Option A)
Impacts to Special-Status Species

Oakcrest Specific Plan

Development Plan: Option B

-  Fire Zone 1
-  Fire Zone 2
-  No Impacts
-  Project Site
-  Easements
-  Grading
-  Site Development Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



Special-Status Species

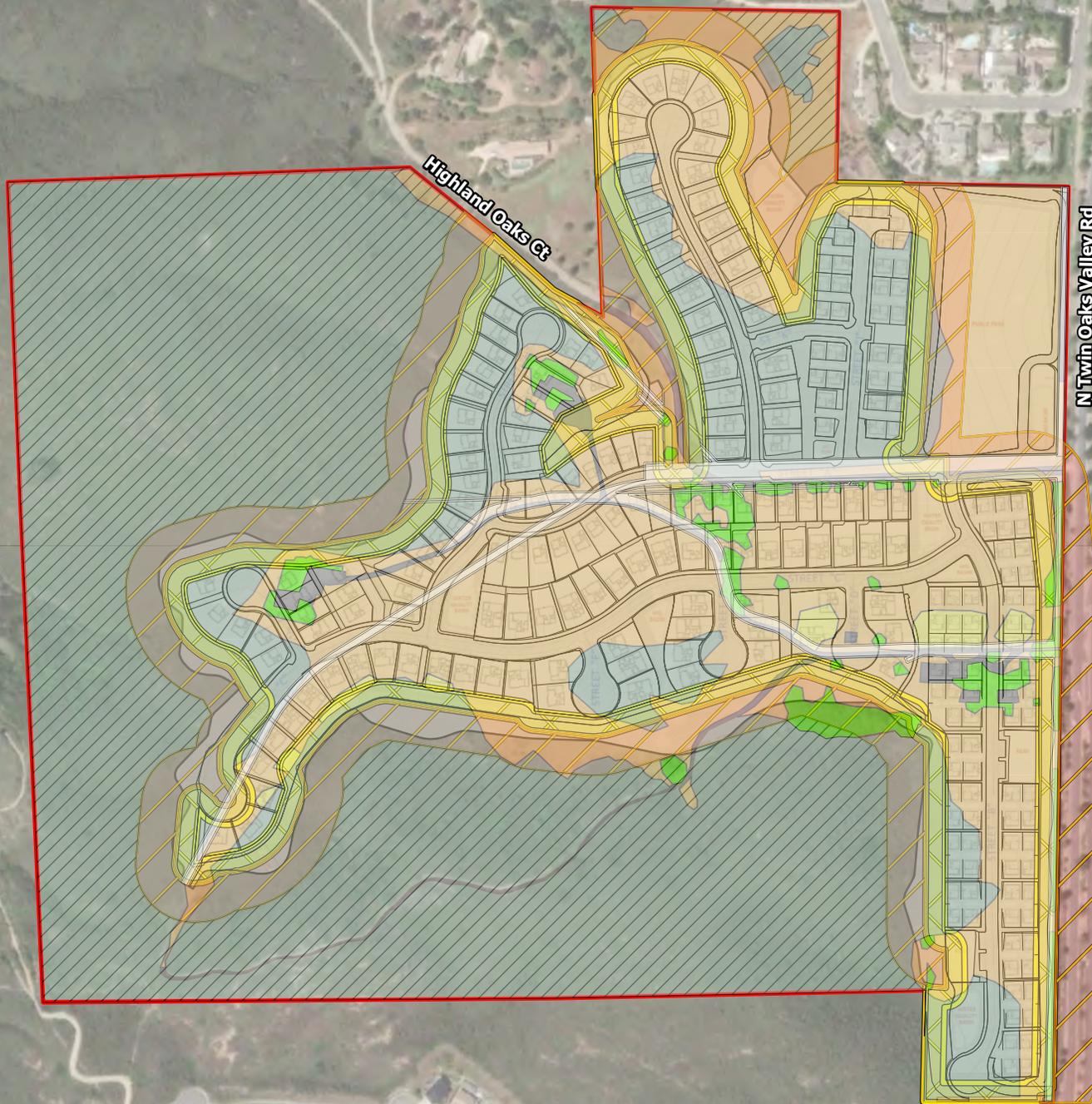
-  Golden-rayed Pentachaeta (*Pentachaeta* ssp. *aurea*)
-  Monarch (*Danaus plexippus*)
-  Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)
-  Crotch's Bumble Bee (*Bombus crotchii*)
-  Coastal California Gnatcatcher (*Poliopitila californica californica*)
-  Ashy Spike Moss (*Selaginella cinerascens*)

Figure 8b (Option B)
Impacts to Special-Status Species

Oakcrest Specific Plan

Development Plan: Option A

-  Fire Zone 1
-  Fire Zone 2
-  No Impacts
-  Project Site
-  Easements
-  Grading
-  Site Development Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



Vegetation Communities

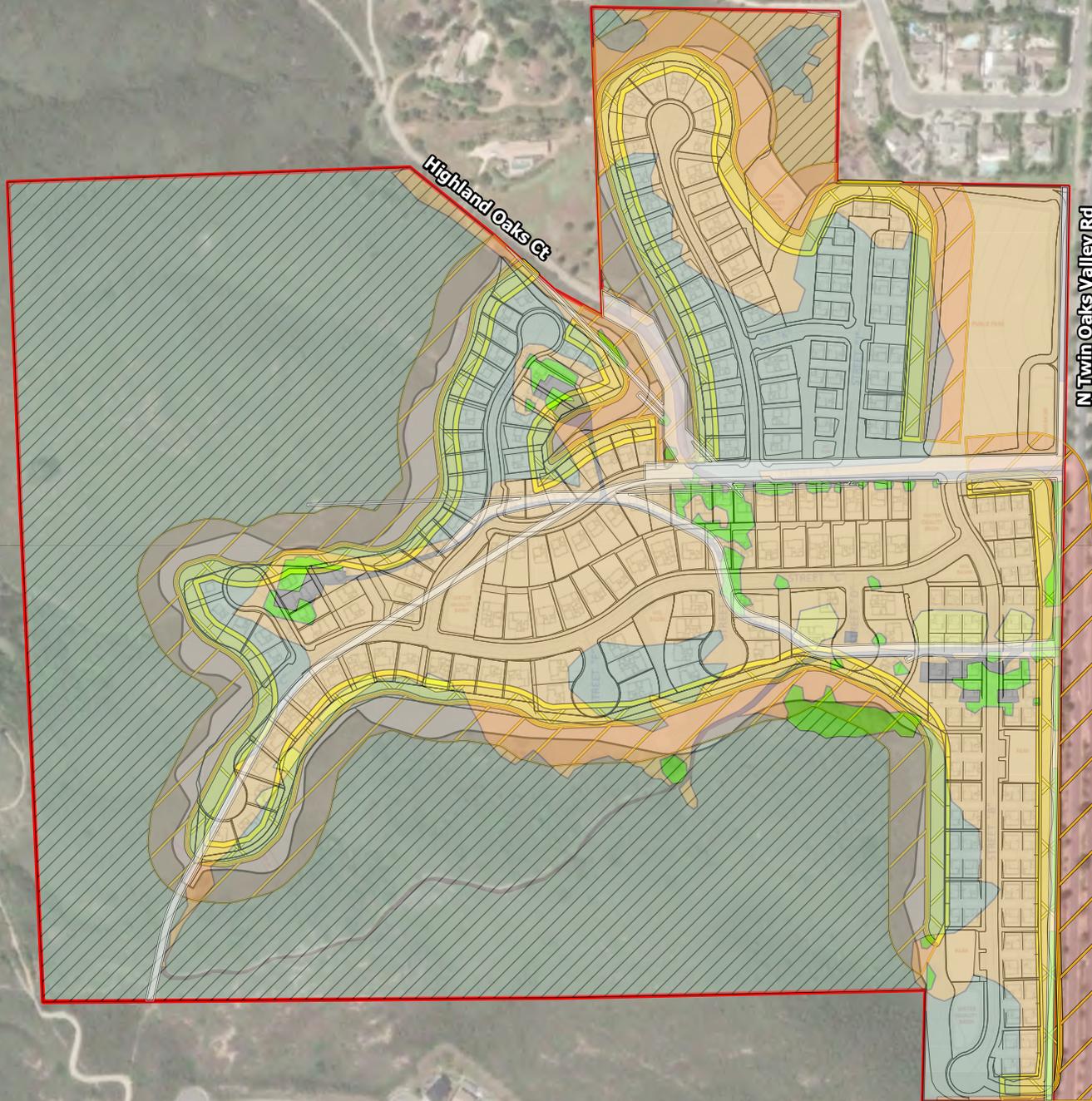
-  Urban/Developed
-  Eucalyptus Woodland
-  Diegan Coastal Sage Scrub
-  Intensive Agriculture - Pasture
-  Non-Native Woodland

Figure 9a (Option A)
Impacts to Vegetation

Oakcrest Specific Plan

Development Plan: Option B

-  Fire Zone 1
-  Fire Zone 2
-  No Impacts
-  Project Site
-  Easements
-  Grading
-  Site Development Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



Vegetation Communities

-  Urban/Developed
-  Eucalyptus Woodland
-  Diegan Coastal Sage Scrub
-  Intensive Agriculture - Pasture
-  Non-Native Woodland

**Figure 9b (Option B)
Impacts to Vegetation**
Oakcrest Specific Plan

Development Plan: Option A

-  Fire Zone 1
-  Fire Zone 2
-  No Impacts
-  Project Site
-  Easements
-  Grading
-  Site Development Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



Aquatic Resources

-  Ephemeral Drainage
-  Ephemeral Drainage and Stock Ponds
-  Concrete Channel

**Figure 10a (Option A)
Impacts to Aquatic Resources**

Oakcrest Specific Plan

Development Plan: Option B

-  Fire Zone 1
-  Fire Zone 2
-  No Impacts
-  Project Site
-  Easements
-  Grading
-  Site Development Plan



Aquatic Resources

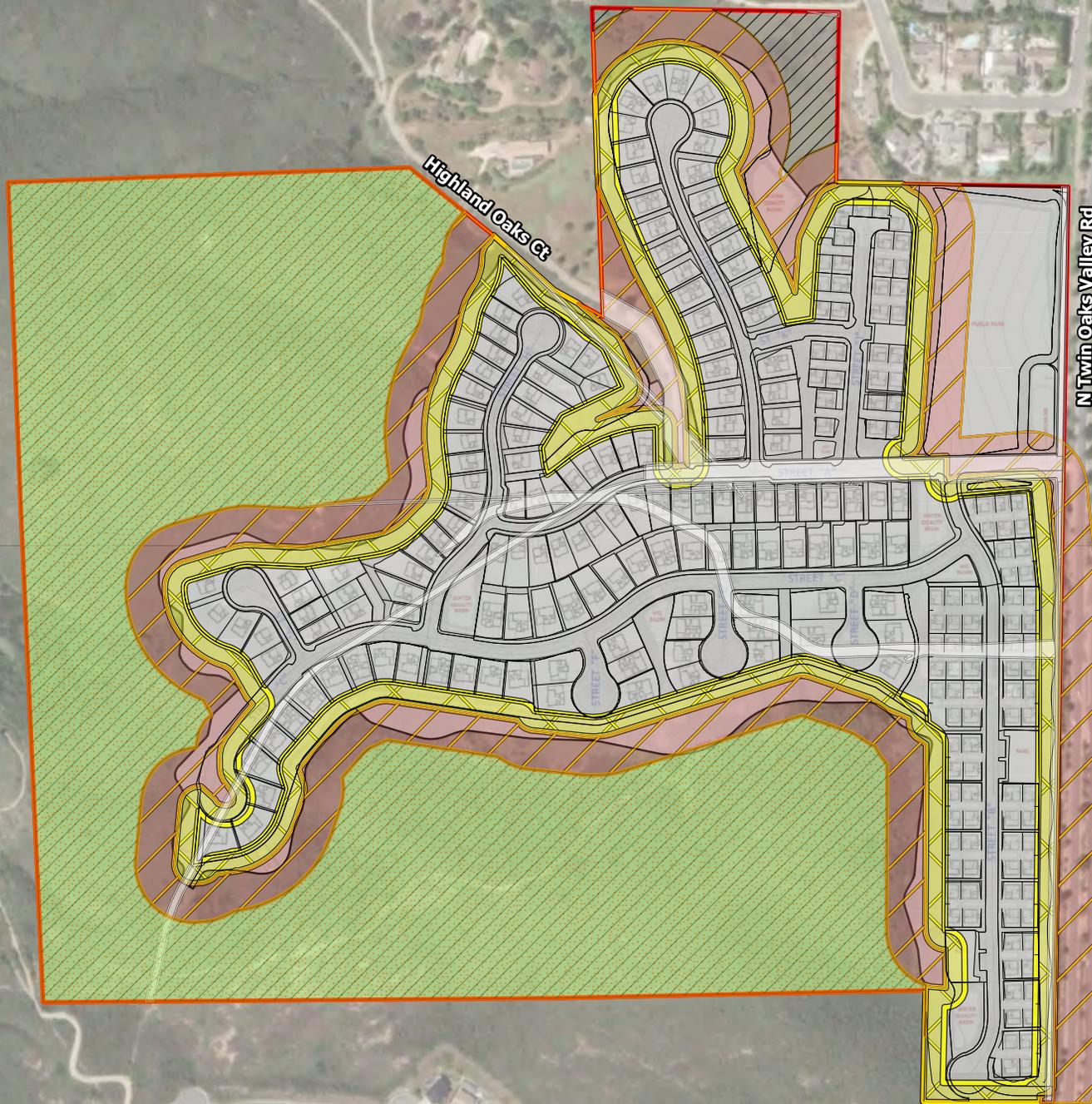
-  Ephemeral Drainage
-  Ephemeral Drainage and Stock Ponds
-  Concrete Channel

**Figure 10b (Option B)
Impacts to Aquatic Resources**

Oakcrest Specific Plan

Development Plan: Option A

-  Fire Zone 1
-  Fire Zone 2
-  No Impacts
-  Project Site
-  Easements
-  Grading
-  Site Development Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



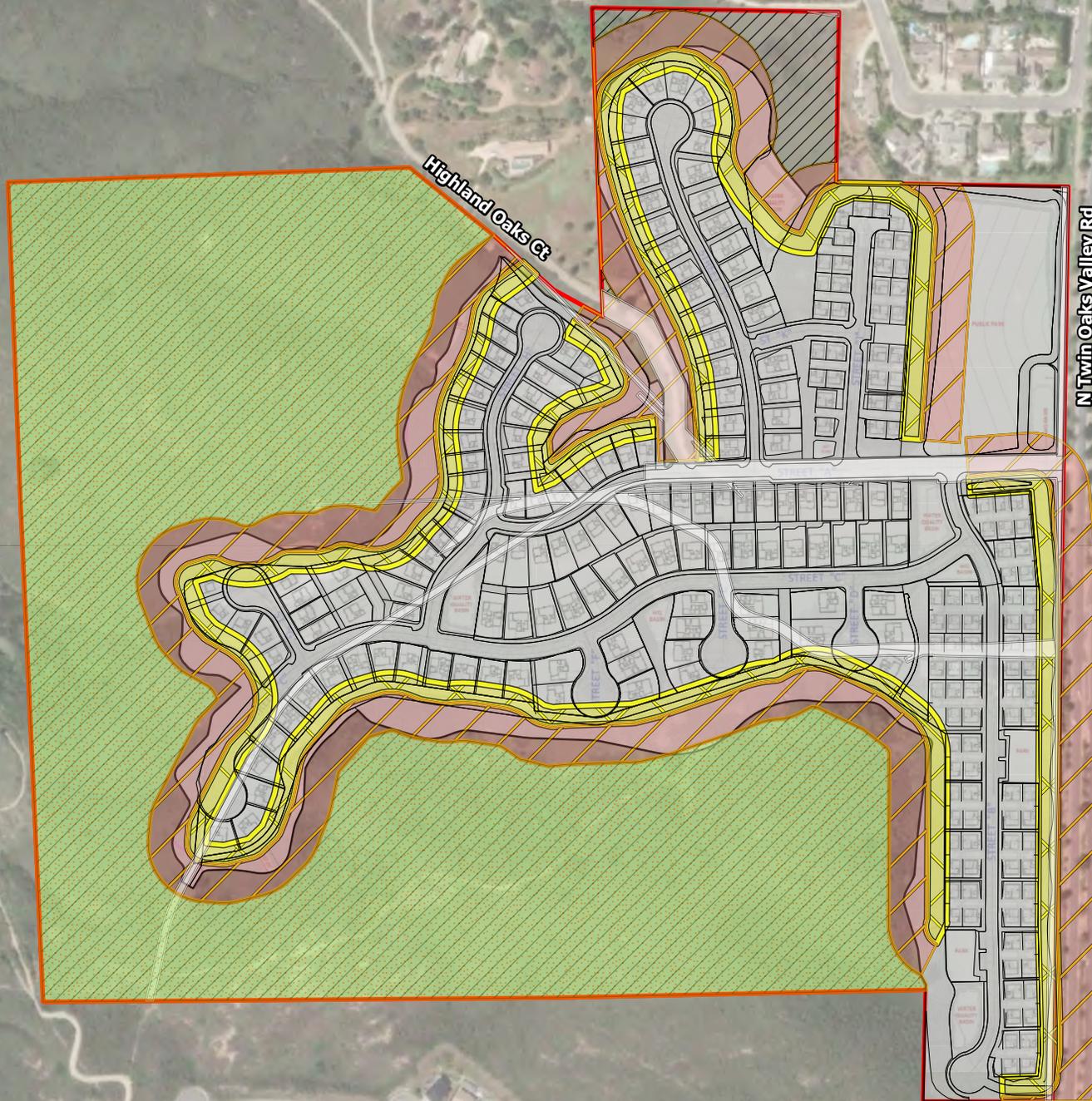
Proposed Biological Preserve

-  Biological Open Space Preserve

Figure 11a (Option A)
Proposed Preserve
Oakcrest Specific Plan

Development Plan: Option B

- Fire Zone 1
- Fire Zone 2
- No Impacts
- Project Site
- Easements
- Grading
- Site Development Plan



Source: ESRI ArcGIS Online Basemap - World Imagery Hybrid (04/2025)



Proposed Biological Preserve
Biological Open Space Preserve

Figure 11b (Option B)
Proposed Preserve
Oakcrest Specific Plan



Appendix B. Observed Species Lists – Plants and Wildlife

Huffman documented the presence of two-hundred eighteen (218) plant taxa and sixty-nine (69) wildlife taxa. Taxa are presented in alphabetical order by common name.

Plants

Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
African Fountain Grass	<i>Cenchrus setaceus</i>	Poaceae	Monocot	Non-Native
Alder	<i>Alnus</i> sp.	Betulaceae	Eudicot	Native
American Agave	<i>Agave americana</i>	Agavaceae	Monocot	Non-Native
Annual Beard Grass	<i>Polypogon monspeliensis</i>	Poaceae	Monocot	Non-Native
Annual Blue Grass	<i>Poa annua</i>	Poaceae	Monocot	Non-Native
Arizona Popcornflower	<i>Plagiobothrys arizonicus</i>	Boraginaceae	Eudicot	Native
Arroyo Willow	<i>Salix lasiolepis</i>	Salicaceae	Eudicot	Native
Artichoke Thistle, Cardoon	<i>Cynara cardunculus</i> ssp. <i>Flavescens</i>	Asteraceae	Eudicot	Non-Native
Asian Beard Grass	<i>Polypogon fugax</i>	Poaceae	Monocot	Non-Native
Barley	<i>Hordeum murinum</i>	Poaceae	Monocot	Non-Native
Bermuda Grass	<i>Cynodon dactylon</i>	Poaceae	Monocot	Non-Native
Bermuda-Buttercup	<i>Oxalis pes-caprae</i>	Oxalidaceae	Eudicot	Non-Native
Bicolor Cudweed	<i>Pseudognaphalium biolettii</i>	Asteraceae	Eudicot	Native
Bishop's/Strigose Lotus	<i>Acmispon strigosus</i>	Fabaceae	Eudicot	Native
Black Locust	<i>Robinia pseudoacacia</i>	Fabaceae	Eudicot	Non-Native
Black Mustard	<i>Brassica nigra</i>	Brassicaceae	Eudicot	Non-Native
Black Nightshade	<i>Solanum nigrum</i>	Solanaceae	Eudicot	Non-Native
Black Sage	<i>Salvia mellifera</i>	Lamiaceae	Eudicot	Native
Blue Dicks, School Bells	<i>Dichelostemma capitatum</i> ssp. <i>Capitatum</i>	Themidaceae	Monocot	Native
Blue Elderberry	<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Adoxaceae	Eudicot	Native
Blue Gum	<i>Eucalyptus globulus</i>	Myrtaceae	Eudicot	Non-Native
Blue-Eyed-Grass	<i>Sisyrinchium bellum</i>	Iridaceae	Monocot	Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Bur Chervil	<i>Anthriscus caucalis</i>	Apiaceae	Eudicot	Non-Native
California Bee Plant/Figwort	<i>Scrophularia californica</i>	Scrophulariaceae	Eudicot	Native
California Black Oak	<i>Quercus kelloggii</i>	Fagaceae	Eudicot	Native
California Burclover	<i>Medicago polymorpha</i>	Fabaceae	Eudicot	Non-Native
California Chicory	<i>Rafinesquia californica</i>	Asteraceae	Eudicot	Native
California Encelia	<i>Encelia californica</i>	Asteraceae	Eudicot	Native
California Everlasting	<i>Pseudognaphalium californicum</i>	Asteraceae	Eudicot	Native
California Goldback Fern	<i>Pentagramma triangularis</i>	Pteridaceae	Ferns	Native
California Goosefoot	<i>Chenopodium californicum</i>	Chenopodiaceae	Eudicot	Native
California Polycarp	<i>Polycarpon depressum</i>	Caryophyllaceae	Eudicot	Native
California Sand-Aster	<i>Corethrogyne filaginifolia</i> var. <i>filaginifolia</i>	Asteraceae	Eudicot	Native
Camphor Tree	<i>Cinnamomum camphora</i>	Lauraceae	Eudicot	Non-Native
Canchalagua	<i>Zeltnera venusta</i>	Gentianaceae	Eudicot	Native
Cape Honeysuckle	<i>Tecoma capensis</i>	Bignoniaceae	Eudicot	Non-Native
Cape Leadwort	<i>Plumbago auriculata</i>	Plumbaginaceae	Eudicot	Non-Native
Castor Bean	<i>Ricinus communis</i>	Euphorbiaceae	Eudicot	Non-Native
Caterpillar Phacelia	<i>Phacelia cicutaria</i> var. <i>hispida</i>	Hydrophyllaceae	Eudicot	Native
Chalk Dudleya	<i>Dudleya pulverulenta</i>	Crassulaceae	Eudicot	Native
Chaparral Broom, Coyote Brush	<i>Baccharis pilularis</i> ssp. <i>consanguinea</i>	Asteraceae	Eudicot	Native
Checker-Bloom	<i>Sidalcea sparsifolia</i>	Malvaceae	Eudicot	Native
Cheeseweed	<i>Malva parviflora</i>	Malvaceae	Eudicot	Non-Native
China Berry, Persian-Lilac	<i>Melia azedarach</i>	Meliaceae	Eudicot	Non-Native
Chinese Flame Tree	<i>Koelreuteria bipinnata</i>	Sapindaceae	Eudicot	Non-Native
Climbing Bush Penstemon	<i>Keckiella cordifolia</i>	Plantaginaceae	Eudicot	Native
Coast Jepsonia	<i>Jepsonia parryi</i>	Saxifragaceae	Eudicot	Native
Coast Live Oak, Encina	<i>Quercus agrifolia</i> var. <i>agrifolia</i>	Fagaceae	Eudicot	Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Coast Monkey Flower	<i>Diplacus puniceus</i>	Phrymaceae	Eudicot	Native
Coast Prickly-Pear	<i>Opuntia littoralis</i>	Cactaceae	Eudicot	Native
Coast Range Melic	<i>Melica imperfecta</i>	Poaceae	Monocot	Native
Coastal Sagebrush	<i>Artemisia californica</i>	Asteraceae	Eudicot	Native
Coastal Wishbone Plant	<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Nyctaginaceae	Eudicot	Native
Coffee Fern	<i>Pellaea andromedifolia</i>	Pteridaceae	Ferns	Native
Common Bedstraw, Goose Grass	<i>Galium aparine</i>	Rubiaceae	Eudicot	Non-Native
Common Catchfly	<i>Silene gallica</i>	Caryophyllaceae	Eudicot	Non-Native
Common Eucrypta	<i>Eucrypta chrysanthemifolia</i> var. <i>chrysanthemifolia</i>	Hydrophyllaceae	Eudicot	Native
Common Groundsel	<i>Senecio vulgaris</i>	Asteraceae	Eudicot	Non-Native
Common Knotweed	<i>Polygonum aviculare</i>	Polygonaceae	Eudicot	Non-Native
Common Pineapple-Weed	<i>Matricaria discoidea</i>	Asteraceae	Eudicot	Native
Common Poison Hemlock	<i>Conium maculatum</i>	Apiaceae	Eudicot	Non-Native
Common Sow-Thistle	<i>Sonchus oleraceus</i>	Asteraceae	Eudicot	Non-Native
Common Vetch	<i>Vicia sativa</i>	Fabaceae	Eudicot	Non-Native
Cotton-Batting Plant	<i>Pseudognaphalium stramineum</i>	Asteraceae	Eudicot	Native
Coulter's Lupine	<i>Lupinus sparsiflorus</i>	Fabaceae	Eudicot	Native
Crete Hedypnois	<i>Hedypnois cretica</i>	Asteraceae	Eudicot	Non-Native
Curly Dock	<i>Rumex crispus</i>	Polygonaceae	Eudicot	Non-Native
Cut-Leaf Geranium	<i>Geranium dissectum</i>	Geraniaceae	Eudicot	Non-Native
Cypress	<i>Hesperocyperus</i> sp.	Cupressaceae	Gymnosperm	Non-Native
Deerweed	<i>Acmispon glaber</i>	Fabaceae	Eudicot	Native
Desert Cudweed	<i>Gamochaeta stagnalis</i>	Asteraceae	Eudicot	Native
Dodder	<i>Cuscuta</i> sp.	Convolvulaceae	Eudicot	Native
Dot-Seed Plantain	<i>Plantago erecta</i>	Plantaginaceae	Eudicot	Native
Douglas's Nightshade	<i>Solanum douglasii</i>	Solanaceae	Eudicot	Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Doveweed	<i>Croton setiger</i>	Euphorbiaceae	Eudicot	Native
Dwarf Nettle	<i>Urtica urens</i>	Urticaceae	Eudicot	Non-Native
English Plantain, Rib-Grass	<i>Plantago lanceolata</i>	Plantaginaceae	Eudicot	Non-Native
Everlasting Nest-Straw	<i>Stylocline gnaphaloides</i>	Asteraceae	Eudicot	Native
Fascicled Tarweed	<i>Deinandra fasciculata</i>	Asteraceae	Eudicot	Native
Field Bindweed	<i>Convolvulus arvensis</i>	Convolvulaceae	Eudicot	Non-Native
Fiesta Flower	<i>Pholistoma auritum var. auritum</i>	Hydrophyllaceae	Eudicot	Native
Florist's-Smilax	<i>Asparagus asparagoides</i>	Asparagaceae	Monocot	Non-Native
Foothill Needle Grass	<i>Stipa lepida</i>	Poaceae	Monocot	Native
Four-Leaf Allseed	<i>Polycarpon tetraphyllum ssp. tetraphyllum</i>	Caryophyllaceae	Eudicot	Non-Native
Four-Spot Clarkia	<i>Clarkia purpurea ssp. quadrivulnera</i>	Onagraceae	Eudicot	Native
Foxtail Chess, Red Brome	<i>Bromus rubens</i>	Poaceae	Monocot	Non-Native
Fragrant Everlasting Cudweed	<i>Pseudognaphalium luteoalbum</i>	Asteraceae	Eudicot	Native
Fuchsia-Flower Gooseberry	<i>Ribes speciosum</i>	Grossulariaceae	Eudicot	Native
Garden Lippia	<i>Phyla nodiflora</i>	Verbenaceae	Eudicot	Native
Garden Nasturtium	<i>Tropaeolum majus</i>	Tropaeolaceae	Eudicot	Non-Native
Golden Angel's Trumpet	<i>Brugmansia aurea</i>	Solanaceae	Eudicot	Non-Native
Goldenbush	<i>Isocoma menziesii</i>	Asteraceae	Eudicot	Native
Golden-Ray Pentachaeta	<i>Pentachaeta aurea subsp. aurea</i>	Asteraceae	Eudicot	Native
Golden-Top	<i>Lamarckia aurea</i>	Poaceae	Monocot	Non-Native
Grab Lotus	<i>Acmispon micranthus</i>	Fabaceae	Eudicot	Native
Graceful Tarplant	<i>Holocarpha virgata subsp. elongata</i>	Asteraceae	Eudicot	Native
Granny's Hairnet, G. C. P.	<i>Pterostegia drymarioides</i>	Polygonaceae	Eudicot	Native
Grass Poly	<i>Lythrum hyssopifolia</i>	Lythraceae	Eudicot	Non-Native
Grey-leaved Europys	<i>Europys pectinatus</i>	Asteraceae	Eudicot	Non-Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Hare's-Ear Cabbage	<i>Sisymbrium orientale</i>	Brassicaceae	Eudicot	Non-Native
Hollow-Stem Asphodel	<i>Asphodelus fistulosus</i>	Asphodelaceae	Monocot	Non-Native
Horehound	<i>Marrubium vulgare</i>	Lamiaceae	Eudicot	Non-Native
Horseweed	<i>Erigeron canadensis</i>	Asteraceae	Eudicot	Native
Indian Sweetclover	<i>Melilotus indicus</i>	Fabaceae	Eudicot	Non-Native
Inland California Buckwheat	<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	Polygonaceae	Eudicot	Native
Italian Thistle	<i>Carduus pycnocephalus</i> subsp. <i>pycnocephalus</i>	Asteraceae	Eudicot	Non-Native
Johnny Jump-Up	<i>Viola pedunculata</i>	Violaceae	Eudicot	Native
Laurel Sumac	<i>Malosma laurina</i>	Anacardiaceae	Eudicot	Native
Lemonadeberry	<i>Rhus integrifolia</i>	Anacardiaceae	Eudicot	Native
Lesser Wart-Cress	<i>Lepidium didymum</i>	Brassicaceae	Eudicot	Non-Native
Little-Seed Canary Grass	<i>Phalaris minor</i>	Poaceae	Monocot	Non-Native
London Rocket	<i>Sisymbrium irio</i>	Brassicaceae	Eudicot	Non-Native
Long-Stem Golden-Yarrow	<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	Asteraceae	Eudicot	Native
Loquat	<i>Eriobotrya japonica</i>	Rosaceae	Eudicot	Non-Native
Maiden Clover	<i>Trifolium microcephalum</i>	Fabaceae	Eudicot	Native
Manroot, Wild-Cucumber	<i>Marah macrocarpa</i>	Cucurbitaceae	Eudicot	Native
Mayweed, Stinkweed, Dog-Fennel	<i>Anthemis cotula</i>	Asteraceae	Eudicot	Non-Native
Mesa Spike-Moss	<i>Selaginella cinerascens</i>	Selaginellaceae	Ferns	Native
Mexican Fan Palm	<i>Washingtonia robusta</i>	Arecaceae	Monocot	Non-Native
Milk Thistle	<i>Silybum marianum</i>	Asteraceae	Eudicot	Non-Native
Miner's-Lettuce	<i>Claytonia perfoliata</i>	Montiaceae	Eudicot	Native
Minute-Flower Johnstonea	<i>Johnstonea micromeres</i>	Boraginaceae	Eudicot	Native
Mission Prickly-Pear, Indian-Fig	<i>Opuntia ficus-indica</i>	Cactaceae	Eudicot	Non-Native
Mossy Stonecrop	<i>Crassula tillaea</i>	Crassulaceae	Eudicot	Non-Native
Mouse-Ear Chickweed	<i>Cerastium glomeratum</i>	Caryophyllaceae	Eudicot	Non-Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Mulberry	<i>Morus</i> sp.	Moraceae	Eudicot	Non-Native
Mule-Fat, Seep-Willow	<i>Baccharis salicifolia</i> subsp. <i>salicifolia</i>	Asteraceae	Eudicot	Native
Narrow-Leaf Bedstraw	<i>Galium angustifolium</i> subsp. <i>angustifolium</i>	Rubiaceae	Eudicot	Native
Narrow-Leaf Cottonrose	<i>Logfia gallica</i>	Asteraceae	Eudicot	Non-Native
Narrow-Leaf Milkweed	<i>Asclepias fascicularis</i>	Apocynaceae	Eudicot	Native
Nettle-Leaf Goosefoot	<i>Chenopodium murale</i>	Chenopodiaceae	Eudicot	Non-Native
Nievitans Cryptantha	<i>Cryptantha intermedia</i>	Boraginaceae	Eudicot	Native
Northern California Black Walnut	<i>Juglans hindsii</i>	Juglandaceae	Eudicot	Native
Nuttall's Snapdragon	<i>Antirrhinum nuttallianum</i>	Plantaginaceae	Eudicot	Native
Olive	<i>Olea europaea</i>	Oleaceae	Eudicot	Non-Native
Orchard Grass	<i>Dactylis glomerata</i>	Poaceae	Monocot	Non-Native
Pacific Sanicle	<i>Sanicula crassicaulis</i>	Apiaceae	Eudicot	Native
Pale Starwort	<i>Stellaria pallida</i>	Caryophyllaceae	Eudicot	Non-Native
Parish's Nightshade	<i>Solanum parishii</i>	Solanaceae	Eudicot	Native
Parish's Owl's-Clover	<i>Castilleja densiflora</i> subsp. <i>gracilis</i>	Orobanchaceae	Eudicot	Native
Pellitory	<i>Parietaria hespera</i>	Urticaceae	Eudicot	Native
Perennial Rye Grass	<i>Festuca perennis</i>	Poaceae	Monocot	Non-Native
Perez's Sea Lavender	<i>Limonium perezii</i>	Plumbaginaceae	Eudicot	Non-Native
Peruvian Pepper Tree	<i>Schinus molle</i>	Anacardiaceae	Eudicot	Non-Native
Pine Tree	<i>Pinus</i> spp.	Pinaceae	Gymnosperm	Non-Native
Prickly Lettuce	<i>Lactuca serriola</i>	Asteraceae	Eudicot	Non-Native
Prickly Russian-Thistle, Tumbleweed	<i>Salsola tragus</i>	Chenopodiaceae	Eudicot	Non-Native
Prickly Sow-Thistle	<i>Sonchus asper</i> subsp. <i>asper</i>	Asteraceae	Eudicot	Non-Native
Purple False Brome	<i>Brachypodium distachyon</i>	Poaceae	Monocot	Non-Native
Purple Needle Grass	<i>Stipa pulchra</i>	Poaceae	Monocot	Native
Purple Sanicle	<i>Sanicula bipinnatifida</i>	Apiaceae	Eudicot	Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Pygmyweed	<i>Crassula connata</i>	Crassulaceae	Eudicot	Native
Rancher's Fiddleneck	<i>Amsinckia intermedia</i>	Boraginaceae	Eudicot	Native
Rat-Tail Fescue	<i>Festuca myuros</i>	Poaceae	Monocot	Non-Native
Rattlesnake Weed	<i>Daucus pusillus</i>	Apiaceae	Eudicot	Native
Red Maids	<i>Calandrinia menziesii</i>	Montiaceae	Eudicot	Native
Red-Stem Filaree/Storksbill	<i>Erodium cicutarium</i>	Geraniaceae	Eudicot	Non-Native
Rigid Fiddleneck	<i>Amsinckia menziesii</i>	Boraginaceae	Eudicot	Native
Ripgut Grass	<i>Bromus diandrus</i>	Poaceae	Monocot	Non-Native
Rose Clover	<i>Trifolium hirtum</i>	Fabaceae	Eudicot	Non-Native
Rosemary	<i>Rosmarinus officinalis</i>	Lamiaceae	Eudicot	Non-Native
Ruby Sand-Spurrey	<i>Spergularia rubra</i>	Caryophyllaceae	Eudicot	Non-Native
Sacapellote	<i>Acourtia microcephala</i>	Asteraceae	Eudicot	Native
San Diego Bedstraw	<i>Galium nuttallii</i> subsp. <i>nuttallii</i>	Rubiaceae	Eudicot	Native
San Diego Sweet Pea	<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	Fabaceae	Eudicot	Native
Scarlet Pimpernel	<i>Lysimachia arvensis</i>	Myrsinaceae	Eudicot	Non-Native
Shamel Ash	<i>Fraxinus uhdei</i>	Oleaceae	Eudicot	Non-Native
Sharp-Tooth Sanicle	<i>Sanicula arguta</i>	Apiaceae	Eudicot	Native
Shepherd's Purse	<i>Capsella bursa-pastoris</i>	Brassicaceae	Eudicot	Non-Native
Short-Beak Filaree/Storksbill	<i>Erodium brachycarpum</i>	Geraniaceae	Eudicot	Non-Native
Short-Pod Mustard	<i>Hirschfeldia incana</i>	Brassicaceae	Eudicot	Non-Native
Silk-Oak	<i>Grevillea robusta</i>	Proteaceae	Eudicot	Non-Native
Silver Puffs	<i>Uropappus lindleyi</i>	Asteraceae	Eudicot	Native
Skunkweed	<i>Navarretia hamata</i>	Polemoniaceae	Eudicot	Native
Slender Combseed	<i>Pectocarya linearis</i> subsp. <i>ferocula</i>	Boraginaceae	Eudicot	Native
Slender Myoporum	<i>Myoporum parvifolium</i>	Scrophulariaceae	Eudicot	Non-Native
Slender Wild Oat	<i>Avena barbata</i>	Poaceae	Monocot	Non-Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Slender Woolly-Marbles	<i>Psilocarphus tenellus</i>	Asteraceae	Eudicot	Native
Small Venus Looking-Glass	<i>Triodanis biflora</i>	Campanulaceae	Eudicot	Native
Small-Flower Soap-Plant/Amole	<i>Hooveria parviflorum</i>	Agavaceae	Monocot	Native
Small-Seed Sandmat	<i>Euphorbia polycarpa</i>	Euphorbiaceae	Eudicot	Native
Smilo Grass	<i>Stipa miliacea</i> var. <i>miliacea</i>	Poaceae	Monocot	Non-Native
Smooth Cat's Ear	<i>Hypochaeris glabra</i>	Asteraceae	Eudicot	Non-Native
Soft Chess	<i>Bromus hordeaceus</i>	Poaceae	Monocot	Non-Native
Southern California Morning-Glory	<i>Calystegia macrostegia</i> subsp. <i>arida</i>	Convolvulaceae	Eudicot	Native
Southern Sawtooth Goldenbush	<i>Hazardia squarrosa</i> var. <i>grindeloides</i>	Asteraceae	Eudicot	Native
Spiny Redberry	<i>Rhamnus crocea</i>	Rhamnaceae	Eudicot	Native
Splendid Mariposa Lily	<i>Calochortus splendens</i>	Liliaceae	Monocot	Native
Stickwort, Starwort	<i>Spergula arvensis</i>	Caryophyllaceae	Eudicot	Non-Native
Sticky Silverback Fern	<i>Pentagramma viscosa</i>	Pteridaceae	Ferns	Native
Stinging Lupine	<i>Lupinus hirsutissimus</i>	Fabaceae	Eudicot	Native
Stinkwort	<i>Dittrichia graveolens</i>	Asteraceae	Eudicot	Non-Native
Sugar Gum	<i>Eucalyptus cladocalyx</i>	Myrtaceae	Eudicot	Non-Native
Sweet Alyssum	<i>Lobularia maritima</i>	Brassicaceae	Eudicot	Non-Native
Sweet Fennel	<i>Foeniculum vulgare</i>	Apiaceae	Eudicot	Non-Native
Thyme-Leaf Spurge	<i>Euphorbia serpyllifolia</i>	Euphorbiaceae	Eudicot	Native
Tocalote	<i>Centaurea melitensis</i>	Asteraceae	Eudicot	Non-Native
Toyon, Christmas Berry	<i>Heteromeles arbutifolia</i>	Rosaceae	Eudicot	Native
Tree Tobacco	<i>Nicotiana glauca</i>	Solanaceae	Eudicot	Non-Native
Tufted Fescue	<i>Festuca octoflora</i>	Poaceae	Monocot	Native
Turnip, Field Mustard	<i>Brassica rapa</i>	Brassicaceae	Eudicot	Non-Native
Upright African Daisy	<i>Dimorphotheca ecklonis</i>	Asteraceae	Eudicot	Non-Native
Valley Clover	<i>Trifolium willdenovii</i>	Fabaceae	Eudicot	Native



Common Name	Scientific Name	Family	Major Clade	Native/Non-Native
Villous Sand-Spurrey	<i>Spergularia villosa</i>	Caryophyllaceae	Eudicot	Non-Native
Vinegar Weed	<i>Trichostema lanceolatum</i>	Lamiaceae	Eudicot	Native
Wall Bedstraw	<i>Galium parisiense</i>	Rubiaceae	Eudicot	Non-Native
Western Jimson Weed	<i>Datura wrightii</i>	Solanaceae	Eudicot	Native
Western Lady's Mantle	<i>Aphanes occidentalis</i>	Rosaceae	Eudicot	Native
Western Nettle	<i>Hesperocnide tenella</i>	Urticaceae	Eudicot	Native
Western Poison-Oak	<i>Toxicodendron diversilobum</i>	Anacardiaceae	Eudicot	Native
Western Ragweed	<i>Ambrosia psilostachya</i>	Asteraceae	Eudicot	Native
Western Vervain	<i>Verbena lasiostachys</i> var. <i>lasiostachys</i>	Verbenaceae	Eudicot	Native
White Sage	<i>Salvia apiana</i>	Lamiaceae	Eudicot	Native
White-Flower Currant	<i>Ribes indecorum</i>	Grossulariaceae	Eudicot	Native
White-Stem Filaree/Storksbill	<i>Erodium moschatum</i>	Geraniaceae	Eudicot	Non-Native
Wild Oat	<i>Avena fatua</i>	Poaceae	Monocot	Non-Native
Wild Radish	<i>Raphanus sativus</i>	Brassicaceae	Eudicot	Non-Native
Wild-Heliotrope	<i>Phacelia distans</i>	Hydrophyllaceae	Eudicot	Native

Wildlife

Common Name	Scientific Name	Family	Native/Non-Native
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	Picidae	Native
Allen's Hummingbird	<i>Selasphorus sasin</i>	Trochilidae	Native
American Crow	<i>Corvus brachyrhynchos</i>	Corvidae	Native
American Kestrel	<i>Falco sparverius</i>	Falconidae	Native
Anna's Hummingbird	<i>Calypte anna</i>	Trochilidae	Native
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	Tyrannidae	Native
Bernardino Blue	<i>Euphilotes bernardino bernardino</i>	Lycaenidae	Native
Bewick's Wren	<i>Thryomanes bewickii</i>	Troglodytidae	Native



Common Name	Scientific Name	Family	Native/Non-Native
Black Phoebe	<i>Sayornis nigricans</i>	Tyrannidae	Native
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	Cardinalidae	Native
Black-tailed Bumble Bee	<i>Bombus melanopygus</i>	Apidae	Native
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	Poliptilidae	Native
Brown-headed Cowbird	<i>Molothrus ater</i>	Icteridae	Non-Native
Bushtit	<i>Psaltriparus minimus</i>	Aegithalidae	Native
California Bumble Bee	<i>Bombus californicus</i>	Apidae	Native
California Ground Squirrel	<i>Otospermophilus beecheyi</i>	Sciuridae	Native
California Quail	<i>Callipepla californica</i>	Odontophoridae	Native
California Scrub-Jay	<i>Aphelocoma californica</i>	Corvidae	Native
California Thrasher	<i>Toxostoma redivivum</i>	Mimidae	Native
California Towhee	<i>Melospiza crissalis</i>	Passerellidae	Native
Carpenter Bee	<i>Xylocopa spp.</i>	Apidae	Native
Cassin's Kingbird	<i>Tyrannus vociferans</i>	Tyrannidae	Native
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Hirundinidae	Native
Common Raven	<i>Corvus corax</i>	Corvidae	Native
Cooper's Hawk	<i>Accipiter cooperii</i>	Accipitridae	Native
Costa's Hummingbird	<i>Calypte costae</i>	Trochilidae	Native
Crotch's Bumble Bee	<i>Bombus crotchii</i>	Apidae	Native
Dark-eyed Junco	<i>Junco hyemalis</i>	Passerellidae	Native
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	Columbidae	Non-Native
European Starling	<i>Sturnus vulgaris</i>	Sturnidae	Non-Native
Fiery skipper	<i>Hylephila phyleus</i>	Hesperiidae	Non-Native
Funereal Duskywing	<i>Erynnis funeralis</i>	Hesperiidae	Native
Harford's Sulphur	<i>Colias harfordii</i>	Pieridae	Native
Hooded Oriole	<i>Icterus cucullatus</i>	Icteridae	Native



Common Name	Scientific Name	Family	Native/Non-Native
House Finch	<i>Haemorhous mexicanus</i>	Fringillidae	Native
House Wren	<i>Troglodytes aedon</i>	Troglodytidae	Native
Lark Sparrow	<i>Chondestes grammacus</i>	Passerellidae	Native
Lawrence's Goldfinch	<i>Spinus lawrencei</i>	Fringillidae	Native
Lazuli Bunting	<i>Passerina amoena</i>	Cardinalidae	Native
Lesser Goldfinch	<i>Spinus psaltria</i>	Fringillidae	Native
Monarch Butterfly	<i>Danaus plexippus</i>	Nymphalidae	Native
Mormon Metalmark	<i>Apodemia mormo</i>	Riodinidae	Native
Mourning Cloak	<i>Nymphalis antiopa</i>	Nymphalidae	Native
Mourning Dove	<i>Zenaida macroura</i>	Columbidae	Native
Northern Harrier	<i>Circus hudsonius</i>	Accipitridae	Native
Northern Mockingbird	<i>Mimus polyglottos</i>	Mimidae	Native
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Hirundinidae	Native
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>	Picidae	Native
Pale Swallowtail	<i>Papilio eurymedon</i>	Papilionidae	Native
Phainopepla	<i>Phainopepla nitens</i>	Ptilonotidae	Native
Red-shouldered Hawk	<i>Buteo lineatus</i>	Accipitridae	Native
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Accipitridae	Native
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>	Passerellidae	Native
San Diego Bronze Tarantula	<i>Aphonopelma steindachneri</i>	Theraphosidae	Native
Say's Phoebe	<i>Sayornis saya</i>	Tyrannidae	Native
Scaly-breasted Munia	<i>Lonchura punctulata</i>	Estrildidae	Non-Native
Song Sparrow	<i>Melospiza melodia</i>	Passerellidae	Native
Southern Pacific Rattlesnake	<i>Crotalus oreganus helleri</i>	Viperidae	Native
Spotted Towhee	<i>Pipilo maculatus</i>	Passerellidae	Native
Striped Skunk	<i>Mephitis mephitis</i>	Mephitidae	Non-Native



Common Name	Scientific Name	Family	Native/Non-Native
Swainson's Thrush	<i>Catharus ustulatus</i>	Turdidae	Non-Native
Turkey Vulture	<i>Cathartes aura</i>	Cathartidae	Native
Western Bluebird	<i>Sialia mexicana</i>	Turdidae	Native
Western Honey Bee	<i>Apis mellifera</i>	Apidae	Non-Native
White-throated Swift	<i>Aeronautes saxatalis</i>	Apodidae	Native
Wrentit	<i>Chamaea fasciata</i>	Paradoxornithidae	Native
Yellow Warbler	<i>Setophaga petechia</i>	Parulidae	Native
Yellow-faced Bumble Bee	<i>Bombus vosnesenskii</i>	Apidae	Native
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Parulidae	Native



Appendix C. Supplemental Survey Reports

June 18, 2025

Ms. Heather Schmalbach
Senior Environmental Scientist
California Department of Fish and Wildlife
3883 Ruffin Road
San Diego, CA 92123



RE: 2025 Proposed San Marcos Twin Oaks Project Crotch's Bumble Bee Summary Report, San Diego County, California

Dear Ms. Schmalbach:

This letter report summarizes the results from presence/absence surveys conducted on the San Marcos Twin Oaks Project (herein Project; Figure 1) for the Crotch's bumble bee (*Bombus crotchii*, CBB), a candidate for listing as Endangered under the California Department of Fish and Wildlife (CDFW). The Project CBB surveys were conducted by Huffman Environmental on behalf of Bargas Consulting in accordance with the Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species (CDFW, 2023). The CESA guidance document recommends the following qualifications for CBB surveyors:

- A minimum of 40 hours' experience performing protocol-level surveys for CBB on previous projects
- Completion of a CBB identification workshop; and
- Successful completion of an aerial invertebrate identification exam approved by CDFW and designed by entomologist Kendall Osborne.

Mr. Osborne, with assistance from entomologists Rick Rogers and David Faulkner, developed the workshop. Mr. Osborne led the workshop, discussing *Bombus* biology and ecology through the use of photographs, videos, and specimens. Surveyors were taught to identify *Bombus* species that potentially occur within coastal southern California. The workshop also taught identification techniques through field photography and taught trainees how to distinguish other insect species that might be misidentified as *Bombus*. The practical exam focused on identifying females of the five local species most likely to be encountered: CBB, Sonoran bumble bee (*B. sonorus*), yellow-faced bumble bee (*B. vosnesenskii*), black-tailed bumble bee (*B. melanopygus*), and California bumble bee (*B. californicus*). The exam included photographic, video, and specimen identification sections. To be approved, the surveyors could not misidentify CBB on any portion of the exam.

Project Location and Description

The proposed Project is located within the City of San Marcos in northwestern San Diego County, California (Figure 1). The site encompasses approximately 140 acres and is situated south of State Route 78 and west of Twin Oaks Valley Road, within Section 31, Township 11 South, Range 3 West of the San Bernardino Base and Meridian. The property is shown on the United States Geological Survey (USGS) 7.5-

minute San Marcos Topographic Quadrangle (Figure 2). Regional access is provided by State Route 78 and Twin Oaks Valley Road, with local access from nearby city streets.

The Project area lies within the Upper San Marcos Creek sub-watershed and is located in the South Coast Ecoregion. Topography across the site is gently rolling, with elevations ranging from approximately 560 to 590 feet above mean sea level. Hydrologically, the site drains eastward toward San Marcos Creek via ephemeral drainage features.

Background Information

Historically, the CBB has been known to occupy two-thirds of California (Hatfield et al., 2014) extending from northern California near the Oregon border down to Mexico in Baja California and Baja California Sur. Observations have also been documented in southwestern Nevada near the California border (Williams et al., 2014) An analysis conducted by Hatfield reported CBB range and occurrences over a 10-year period (2002-2012) concluded that CBB range had decreased by approximately 25 percent between the study period and historically (pre-2002), while current relative abundance has decreased by approximately 98 percent relative to historical data (Xerces et al., 2018) In 2018, the Xerces Society for Invertebrate Conservation (Xerces) filed a petition with the California Fish and Game Commission to list CBB, along with four other native bumble bee species as endangered under the California Endangered Species Act (CESA).

Despite its relatively narrow natural range CBB, is a generalist pollinator that is known to occupy a wide variety of natural and disturbed habitat types. CBB have historically been observed foraging on plants from a wide array of plant families but show preference for Fabaceae, Apocynaceae, Asteraceae, Boraginaceae, Ericaceae, Hydrophyllaceae, Lamiaceae, Plumbaginaceae, and Polygonaceae species (Thorp et al., 1983; Richardson, 2017; Osborne, 2020). Observations have been recorded in native and nonnative grasslands, disturbed habitat, coastal sage scrub, Great Basin sage scrub, pinon-juniper woodlands, and chaparral. CBB nectar on a wide range of flowering species including perennial shrubs and annual herbaceous species regardless of habitat type. The probability of encountering a CBB within an area is directly dependent on the abundance of desirable nectar sources. Due to their short tongue length, CBB favor flowers with short corollas (Xerces et al., 2018) CBB nest within abandoned rodent burrows within open scrub or grassland habitat dominated by annual grasses and forbs (Williams et al., 2014)

The annual bumble bee life-cycle begins between February or March when a foundress queen emerges from hibernation and leaves her overwintering location (CDFW, 2023). Over the next few weeks the foundress queen will search for a suitable nest location to establish a new colony. Once she identifies a nesting site she will spend the next month building waxen pots filling them with collected pollen and nectar and laying the first brood of female worker eggs (Xerces, 2023a). After another 4 to 5 weeks the female workers will metamorphose and take over pollen foraging and nest maintenance responsibilities from the foundress queen. The foundress queen continues to produce additional female workers allowing the colony to grow until a

substantial worker caste is established and the foundress queen no longer needs to leave the nest to forage (Xerces, 2023a). Each worker has a life span of 1 to 2 months.

The foundress queen switches to laying two sets of eggs: gynes, fertilized eggs that will become next season's foundress queens, and unfertilized male eggs (Britannica, 2023). Once matured, the gynes leave the colony to mate but will return to the nest for protection and to contribute pollen (Xerces, 2023a). The colony will continue to grow through late spring, at which point the female workers may begin to lay unfertilized eggs that will become males. Males do not collect pollen and do not return to their natal colony once they leave to mate; they rest on vegetation through the end of summer and die a few weeks after leaving the nest. The newly mated queens, formerly known as gynes, continue to nectar on any remaining blooms to build up fat reserves for the winter. These future foundress queens identify sites to overwinter and retreat into abandoned rodent burrows or burrow into suitable soil where they enter a hibernation-like state until the following spring (Xerces, 2023b; CDFW, 2023a). Like most bumble bee species, CBB displays strong sexual dimorphism relative to coloration and body size. Queens are 22 to 25 millimeters (mm) in length and characterized by their black face and yellow vertex (top of the head). The dorsal thorax is usually black between and posterior to the wings. The dorsal abdominal is divided into five segments known as tergites. Tergite 2 (T2) has a broad, yellow stripe distinct to the species. Tergite 3 through 5 (T3, T4, and T5) are typically black, while some variations can occur with T3 being lightly red and T4/T5 being light to fully red. Workers have the same coloration as queens but are smaller and range from 12 to 20 mm in length. Males are 14 to 19 mm and display different coloration. The head and face are yellow which extends to both the anterior and posterior dorsal thorax with a black band straddling between the wings. Male T1 and T2 are yellow, which may extend posterior to T3 and taper off on the sides of the body. T4 through T7 may be either black or red (Xerces et al., 2018).

The 2018 Xerces Society for Invertebrate Conservation Petition considered multiple factors that have likely contributed to the rangewide decline of CBB. Considered to be among the primary drivers of CBB population decline is habitat loss. Rapid urban development, widespread agriculture, and the use of herbicides have led to habitat destruction and fragmentation that has narrowed the range of suitable habitat for CBB to forage and nest. Furthermore, the use of glyphosate herbicides may have led to declines in fitness of bees (Motta et al., 2018) and increasing use on systemic neonicotinoid insecticides (Whitehorn et al., 2012; Muth and Leonard, 2019) has also likely impacted bumble bee colony growth and ability for collecting pollen and nectar in the agricultural settings. As suitable habitat with pollen and nectar sources becomes scarce the highly abundant nonnative European honeybee (*Apis mellifera*) continues to compete with CBB and other *Bombus* species within their native range. Additionally, European honeybees may pass on pathogens to native CBB populations (Parveen et al., 2022). Beyond habitat loss, pesticide use poses a direct threat to CBB and may amplify the impacts of disease and pathogens spread among bumble bee populations. Anthropogenic climate change has the potential to impact CBB populations in a multitude of ways by influencing temperature precipitation and seasonal cycles among other natural processes intrinsically linked to the life cycles of CBB and their nectar sources. Generally, there is no one identifiable cause for the decline of CBB, but many synergistic factors that have gradually impacted this once abundant species.

Habitat Assessment and Nectar Source Mapping

A habitat assessment was conducted by approved CBB biologists Garrett Huffman and Blanca Martinez on April 13, 2025. *Bombus* species are cavity nesters and have been documented to nest in existing burrows established by mammals, like ground squirrels; thus, burrows suitable for use by CBB were mapped during the initial assessment. The assessment also focused on identifying optimal nectar resources where surveyors would have the greatest chance of encountering CBB, including areas with high concentrations of CBB-preferred nectar plant species that were either blooming at that time or would be in bloom during a later survey (Figure 2).

Habitats within the Project site that were excluded from CBB surveys include areas that would not support CBB foraging or presented low detection opportunities such as riparian communities with low nectar availability, intensive agriculture-pasture with invasive species that have already senesced, and developed areas such as access roads.

Survey areas were mapped by recording a global positioning system (GPS) polygon using Fields Map by ArcGIS. Dominant nectar species were recorded on digital data sheets through the Fulcrum mobile app. Nectar resources were reevaluated during each survey round to determine where to focus survey efforts. Once potential nectar resources in a patch had senesced, the nectar resources were not revisited in subsequent rounds.

Survey Methodology

Three surveys rounds of CBB surveys were conducted on the Project site between April 29 and May 30, 2025, with a minimum of two weeks between each survey. Surveys were conducted in accordance with Protocol survey weather recommendations: temperatures between 60 to 90 degrees Fahrenheit (°F), wind speeds less than eight mph, and an absence of fog or precipitation (CDFW, 2023)(Table 1).

Efforts were made to conduct surveys during the most active CBB flight period and within the peak blooming periods of potential nectar and pollen resources. Biologists focused their survey efforts within areas with high-quality nectar resources commonly associated with CBB. Survey areas were covered at a minimum rate of three acres per hour, with deviations from that rate based on nectar resource density, overall vegetation density and topography, and level of invertebrate activity. Surveys consisted of a combination of meandering pedestrian transects and passive surveying with the aid of binoculars. Upon encountering a *Bombus* individual, the surveyor identified the species by using a combination of binoculars and photography. CBB individuals were only identified visually and were not captured. CBB individuals were photographed to the extent feasible to confirm identification.

Results

Habitat Assessment

During the April 13 habitat assessment, abundant potential CBB nesting habitat was identified within the intense agriculture-pasture community in the east portion of the Project site. Surveyors mapped 169 burrows suitable for use by CBB (Figure 2). One CBB queen was observed nectaring on a patch of wild radish (*Raphanus sativus*). The CBB nectared for approximately 10 minutes and abruptly flew out of view. Weather conditions during this observation included a temperature of 68 degrees Fahrenheit, wind speeds between 2 and 4 mph, and 10 percent cloud cover. Surveyors were unable to obtain a photograph of the CBB.

Focused CBB Surveys

CBB-approved surveyors Garrett Huffman and Blanca Martinez conducted focused CBB surveys on April 29, May 14, and May 30, 2025, based on nectar resource phenology (timing of the bloom) and CBB's peak Colony Active Period (CDFW, 2023). Table 2 shows the number and dates of *Bombus* observations during each survey. Two total CBB (including the queen observed during the habitat assessment) were observed on the Project site.

Surveyors focused primarily on wild radish patches, as radish was the exclusive flowering nectar resource during the first two CBB surveys. The *Bombus* observations during the first survey consisted primarily of queens, while the second survey resulted in a balanced ratio of queens and workers. During the second survey on May 14, 2025, Garrett Huffman and trainee Gregory Garcia documented one CBB queen nectaring on wild radish. It is unclear whether the CBB queen is the same as the one documented on April 14. The CBB was observed nectaring on wild radish within a 100-foot radius for approximately 30 minutes before flying out of view. A photograph of the CBB can be found in Appendix A. Environmental conditions at the time of the observation were 72 degrees Fahrenheit, wind speeds between 2 and 5 mph, and 10 percent cloud cover.

The third survey visit yielded a sharp decline in general *Bombus* observations, with only workers observed. Black sage became the preferred nectar resource during the third site visit in areas where wild radish was absent or past bloom. Other nectar sources were present on-site, including monkeyflower (*Diplacus* sp.) and California buckwheat (*Eriogonum fasciculatum*); however, these species have been shown to be poor sources for attracting *Bombus*, specifically, CBB. These nectar resources were still surveyed for *Bombus* activity but ultimately were not included in the nectar map based on the absence of *Bombus* observations.

Table 1. Survey Schedule and Weather Conditions

Survey Number	Date	Surveyor	Time (Start-End)	Temp (Start-End)(F)	Cloud Cover (Start-End)	Wind Range in mph (Start-End)
#1	4/29/25	Blanca Martinez, Garrett Huffman	1100-1500	66-72	10-10	3-5- 3-5
#2	5/14/25	Blanca Martinez, Garrett Huffman	0927-1400	65-73	10-10	1-3; 2-5
#3	5/30/25	Blanca Martinez, Garrett Huffman	0907-1507	72-77	0-0	0-4; 1-6

Table 2. *Bombus* Species Observed During Each Survey

Date	Survey Round	<i>Bombus crotchii</i>	<i>Bombus melanopygus</i>	<i>Bombus vosnesenskii</i>	<i>Bombus sonorus</i>	<i>Bombus californicus</i>
4/13/25	Habitat Assessment	1	N/A	N/A	N/A	N/A
4/29/25	1	0	0	0	0	10+
5/14/25	2	1	1	10+	0	5
5/30/25	3	0	0	7	0	2

Certification

All biologists working under Huffman Environmental for the 2025 San Marcos Twin Oaks Project CBB Surveys were approved to survey for this species under the California Department of Fish and Wildlife.

We certify that the information in this survey report and attached exhibits fully and accurately represents our work.

Please feel free to contact me at garrett@huffmanenvironmental.com if you have any questions regarding the contents of this report.

Cordially,

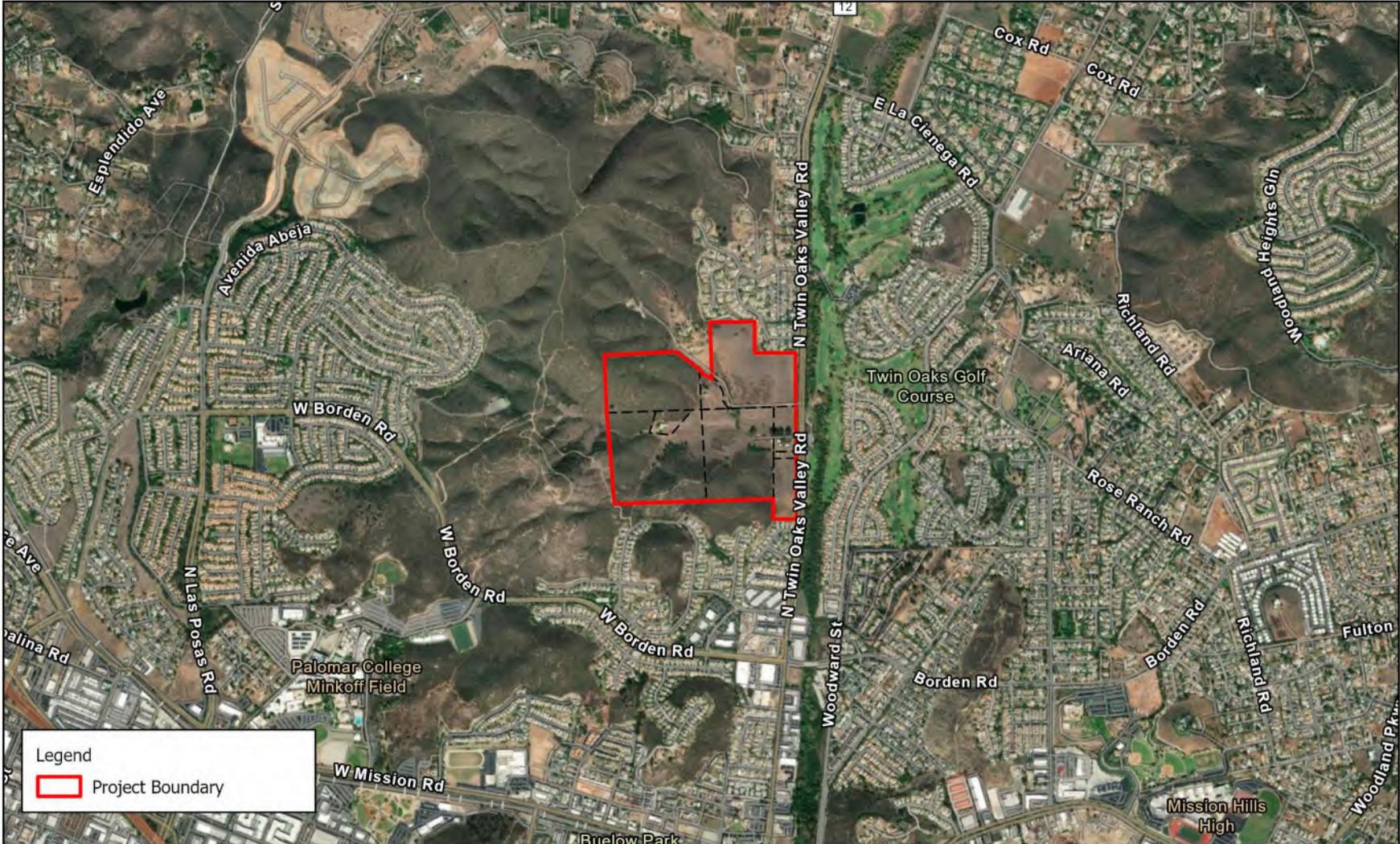
A handwritten signature in black ink that reads "Garrett Huffman". The signature is written in a cursive style with a large, prominent 'G' and 'H'.

Garrett Huffman

Principal Biologist
Huffman Environmental, LLC
(623) 238-1545
garrett@huffmanenvironmental.com

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Legend

Project Boundary

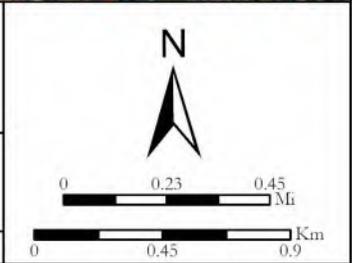


Figure 1: Project Location

**Project San Marcos Twin Oaks: Crotch's Bumblebee
Presence/Absence Surveys**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet





Legend

- Project Boundary
- Bombus Species**
- B. californicus
- B. crotchii
- B. melanopygus
- B. sonorus
- B. vosnesenskii
- Suitable Bombus burrows
- Bombus Nectar Patch



Figure 2: Survey Results

Project San Marcos Twin Oaks: Crotch's Bumblebee Presence/Absence Surveys

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

N

0 0.07 0.15
Mi

0 0.13 0.25
Km

APPENDIX A
SITE PHOTOGRAPHS



Photo 1: Aerial view of intensive agriculture-pasture habitat and CBB survey area.



Photo 2: CBB survey area with flowering wild radish.



Photo 3: Survey area where a CBB queen was observed on April 13, 2025.



Photo 4: *Bombus crotchii* nectaring on wild radish on May 14, 2025.

APPENDIX B
DATA SHEETS

It is recommended that at least 3 on-site surveys take place prior to project implementation. Each survey should ideally be spaced 2-4 weeks apart during the Colony Active Period to ensure that they cover a range of dates and account for variability in resource use by the candidate species and floral resource phenology within the site. Separate surveys should not be conducted on sequential days or in the same week as the species may not be using the site during those days. Surveys should occur during the day (at least an hour after sunrise and at least two hours before sunset, though ideally between 9am-1pm) on warm, but not hot, sunny days (65-90 degrees F), with low wind (less than 8 mph).

Survey Data

Project	San Marcos
Surveyor	Blanca Martinez, Garrett Huffman
Trainee	
Date	April 29, 2025
Survey Round	1
Survey Type	Crotch's Bumble Bee

Environmental Conditions

Survey Start Time	11:00
Temperature	66
Wind	3-5
Cloud	10
End Start Time	15:00
Temperature	72
Wind	3-5
Cloud	10

Vegetation Communities Surveyed

Dominant Flowering Species

Crotch's Bumble Bee

Crotch's Bumble Bee

Bombus Observed

B. melanopygus	1
B. vosnesenskii	0
B. sonorus	0
B. californicus	10+

Other Wildlife

Other Wildlife Observations

Notes

Notes

Site Photos

It is recommended that at least 3 on-site surveys take place prior to project implementation. Each survey should ideally be spaced 2-4 weeks apart during the Colony Active Period to ensure that they cover a range of dates and account for variability in resource use by the candidate species and floral resource phenology within the site. Separate surveys should not be conducted on sequential days or in the same week as the species may not be using the site during those days. Surveys should occur during the day (at least an hour after sunrise and at least two hours before sunset, though ideally between 9am-1pm) on warm, but not hot, sunny days (65-90 degrees F), with low wind (less than 8 mph).

Survey Data

Project	San Marcos Twin Oaks
Surveyor	Blanca Martinez Garrett Huffman
Trainee	Gregory Garcia
Date	May 14, 2025
Survey Round	2
Survey Type	Crotch's Bumble Bee

Environmental Conditions

Survey Start Time	09:27
Temperature	65
Wind	1-3
Cloud	10
End Start Time	1430
Temperature	73
Wind	2-5
Cloud	10
Vegetation Communities Surveyed	CSS; Intense agriculture pasture
Dominant Flowering Species	Raphanus raphanistrum; Acmispon glaber

Crotch's Bumble Bee

Crotch's Bumble Bee (1 Item)

Crotch's Bumble Bee - 1. 12:26, 1

Type	Queen
Time	12:26
Quantity Observed	1
Behavior	Nectaring; Flying
If Nectaring, Which Species?	Raphanus raphanistrum

Notes

Photos

Bombus Observed

B. melanopygus	1
B. vosnesenskii	10+
B. sonorus	0
B. californicus	5

Other Wildlife

Other Wildlife Observations

Notes

Notes Observed one CBB Queen nectaring on wild radish for approximately 30 minutes with trainee Gregory Garcia.. GH & GG joined BM to survey for CBB after the CAGN survey was completed.

Site Photos

It is recommended that at least 3 on-site surveys take place prior to project implementation. Each survey should ideally be spaced 2-4 weeks apart during the Colony Active Period to ensure that they cover a range of dates and account for variability in resource use by the candidate species and floral resource phenology within the site. Separate surveys should not be conducted on sequential days or in the same week as the species may not be using the site during those days. Surveys should occur during the day (at least an hour after sunrise and at least two hours before sunset, though ideally between 9am-1pm) on warm, but not hot, sunny days (65-90 degrees F), with low wind (less than 8 mph).

Survey Data

Project	San Marcos Twin Oaks
Surveyor	Garrett Huffman, Blanca Martinez
Trainee	
Date	May 30, 2025
Survey Round	3
Survey Type	Crotch's Bumble Bee

Environmental Conditions

Survey Start Time	09:07
Temperature	72
Wind	0-4
Cloud	0
End Start Time	15:07
Temperature	77
Wind	1-6
Cloud	0
Vegetation Communities Surveyed	CSS Ornamental Intense agriculture pasture
Dominant Flowering Species	SALMEL, RAPRAP,

Crotch's Bumble Bee

Crotch's Bumble Bee

Bombus Observed

B. melanopygus	0
B. vosnesenskii	7
B. sonorus	0
B. californicus	2

Other Wildlife

Other Wildlife Observations (8 Items)

Other Wildlife Observations - 1. *Erynnis funeralis*

Species Name | *Erynnis funeralis*

Other Wildlife Observations - 2. *Apodemia mormo*

Species Name | *Apodemia mormo*

Other Wildlife Observations - 3. *Euphilotes Bernardino bernardino*

Species Name | *Euphilotes Bernardino bernardino*

Other Wildlife Observations - 4. *Colias harfordi*

Species Name | *Colias harfordi*

Other Wildlife Observations - 5. *Danaus plexipus*

Species Name | *Danaus plexipus*

Other Wildlife Observations - 6. *Nymphalis antiopa*

Species Name | *Nymphalis antiopa*

Other Wildlife Observations - 7. *Hylephila phyleus*

Species Name | *Hylephila phyleus*

Other Wildlife Observations - 8. *Papilio eurymedon*

Species Name | *Papilio eurymedon*

Notes

Notes

Garrett Huffman joined surveyor Blanca Martinez at 1100.

Site Photos

06/24/2025

Mr. Thomas Liddicoat
P.O. Box 19148
Sacramento, California 95819
United States



2025 Proposed San Marcos Oakcrest Project Western Burrowing Owl Summary Report, San Diego County, California

Dear Mr Liddicoat:

This report summarizes surveys conducted by Huffman Environmental for the Western Burrowing Owl (*Athene cunicularia hypugaea*; BUOW) on behalf of Bargas Consulting for the San Marcos Oakcrest Project (herein Project). The California Department of Fish and Wildlife (CDFW) currently lists the BUOW as a Species of Special Concern. In 2024, the BUOW was accepted as a candidate for listing under the California Endangered Species Act (CESA). Surveys were conducted between April 13 and June 18, 2025, within the Project boundaries in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (2012). At total of 169 burrows with potential to support BUOW were mapped within the survey area; however, no BUOW or BUOW sign were observed.

Project Location and Background

The approximately 136.1-acre project site is located on the west side of North Twin Oaks Valley Road, between Legacy Drive and Del Roy Drive, in the City of San Marcos, California. The site lies within Section 31, Township 11 South, Range 3 West of the San Bernardino Base and Meridian, as depicted on the U.S. Geological Survey (USGS) 7.5-minute San Marcos topographic quadrangle. Regional access to the site is provided by State Route 78 and Twin Oaks Valley Road, with local access via adjacent city streets. The majority of the property is undeveloped, though it contains three single-family residences and various accessory structures. The site is identified by Assessor's Parcel Numbers (APNs): 218-330-05, -08, -09, -13, -26, -27, -28 and 218-110-02, -03.

The project applicant is requesting approval of a Specific Plan (SP25-0004), General Plan Amendment (GPA25-0005) to change the site's land use designation from Rural Residential/Agricultural Residential (RR/AG) to Specific Plan Area (SPA), Rezone (R25-0004) to change the site's zoning designation from Residential Estate/Agriculture-1 (R-1-20/A-1) to Specific Plan Area (SPA), Tentative Subdivision Map (TSM25-0006) for 172 lots, a Site Development Plan (SDP25-0002) for 257 detached single-family homes and associated facilities, a Site Development Plan (SDP25-0003) for an approximately six-acre public park, a Conditional Use Permit (CUP25-0001) for use of a temporary rock crusher during project construction, and adoption of an Environmental Impact Report (EIR25-004).

Development is proposed on roughly 50% of the 136-acre site. Approximately 50 acres are proposed to be preserved as biological open space area. 145 one- and two-story single-family homes will be located on individual lots, while 112 two-story single-family homes will be located on common lots as “airspace condominiums” and have exclusive use yard areas.

Burrowing Owl Natural History

The BUOW is a small, ground-dwelling raptor standing approximately 7.5 to 10 inches tall with long legs, short tails, and rounded heads that lack ear tufts. They require open landscapes with short or sparse vegetation, good horizontal visibility, and access to suitable burrow sites, often taking over the burrows excavated by fossorial mammals such as California ground squirrels (*Otospermophilus beecheyi*). In California, they are typically associated with grasslands, agricultural fields, airports, and levees. Unlike most owl species, burrowing owls are diurnal, active both day and night. They are often seen perching on low mounds or fence posts during the day, particularly in the early morning and late afternoon hours.

Burrowing owls are opportunistic predators, feeding on a diet consisting of arthropods (especially beetles, grasshoppers, and crickets), small mammals (e.g., voles, mice), reptiles, amphibians, and occasionally small birds. Seasonal shifts in diet composition often reflect prey availability.

The BUOW breeding season in California typically extends from March through August, with peak nesting activity occurring between April and June (Poulin et al. 2020). BUOW pairs are generally monogamous and show nesting site fidelity, often returning to the same burrow system each breeding season. The female BUOW will typically lay between 6 and 11 eggs, incubating them for approximately 28 to 30 days. The male BUOW provides food to the female during the incubation. Young owls fledge approximately 44 days after hatching, but may be dependent on the parents for several weeks after fledging (Gervais et al. 2003).

Burrowing owls in California may be resident or migratory, depending on local climate and habitat conditions. Resident populations are more common in areas with milder winters, while populations at higher elevations and or at the northern edge of the breeding range may migrate south during the winter.

Methods

Huffman Environmental biologists conducted a habitat assessment, burrow survey, and adult BUOW surveys on the Project survey area between April 13 and June 18 in accordance with CDFW Staff Report on Burrowing Owl Mitigation (2012). The four protocol survey visits were conducted during the morning hours (between 7:00 and 10:00) at least three weeks apart (Table 1). Surveys were conducted within suitable habitat and Huffman Environmental biologists walked transects spaced 7-20 meters (20-60 feet) apart through potential BUOW habitat, using binoculars to scan the survey area for potential burrows, adult BUOW, and BUOW sign, including feathers, pellets, excrement (e.g., scat and whitewash), and prey remains. Burrows are considered active if a BUOW was observed at or near the entrance or if evidence of recent

sign was present. All suitable burrows were documented in the geographic information system (GIS) ArcGIS Collector (Figure 2). Site photos (Appendix B), survey dates and times, weather conditions and additional bird species were recorded digitally on Fulcrum data sheets (Appendix C).

Table 1 BUOW Survey Schedule

Survey Number	Date	Surveyor	Time (Start-End)	Temp (Start-End)(F)	Cloud Cover (Start-End)	Wind Range in mph (Start-End)
Habitat Assessment	4/13/25	Blanca Martinez, Garrett Huffman	1030-1630	62-69	10-10	0-2; 0-7
#1	4/14/25	Blanca Martinez, Garrett Huffman	0700-1000	53-64	10-5	0; 0-4
#2	5/7/25	Blanca Martinez	0700-0900	56-65	100-50	2-5; 2-5
#3	5/30/25	Blanca Martinez	0715-0915	62-70	0-0	0-2; 0-2
#4	6/18/26	Garrett Huffman	0730-0930	65-76	20-10	3-6; 3-6

Results

A burrowing owl (BUOW) habitat assessment was conducted on April 13, 2025. Huffman Environmental biologists mapped 169 burrows that were potentially suitable for use by adult BUOW (Figure 2). The four protocol BUOW survey visits were conducted on April 14, May 7, May 30, and June 18, 2025. A total of 51 avian species were documented within the Project survey area (Appendix A). During the habitat assessment survey and four protocol surveys, Huffman Environmental biologists did not observe any active burrows, BUOW sign, or adult BUOW within the Project site.

Certification

I certify that the information in this report and attached figures completely and accurately represent the survey results from the 2025 Western Burrowing Owl surveys conducted by Huffman Environmental biologists on the San Marcos Oakcrest Project.

Please feel free to contact me at (623) 238-1545 or garrett@huffmanenvironmental.com if you have any questions regarding the contents of this report.

Cordially,



Garrett Huffman
TE-20186A-3.3
Principal Biologist
Huffman Environmental, LLC
(623) 238-1545
garrett@huffmanenvironmental.com

Citations

California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>.

Gervais, J. A., Rosenberg, D. K., & Comrack, L. A. (2003). Burrowing Owl (*Athene cunicularia*). In: Shuford, W. D., & Gardali, T. (Eds.), California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Western Field Ornithologists.

Poulin, R. G., Todd, L. D., Wellicome, T. I., & Brigham, R. M. (2020). Burrowing Owl (*Athene cunicularia*), version 1.0. In Birds of the World (S. M. Billerman, Ed.). Cornell Lab of Ornithology.

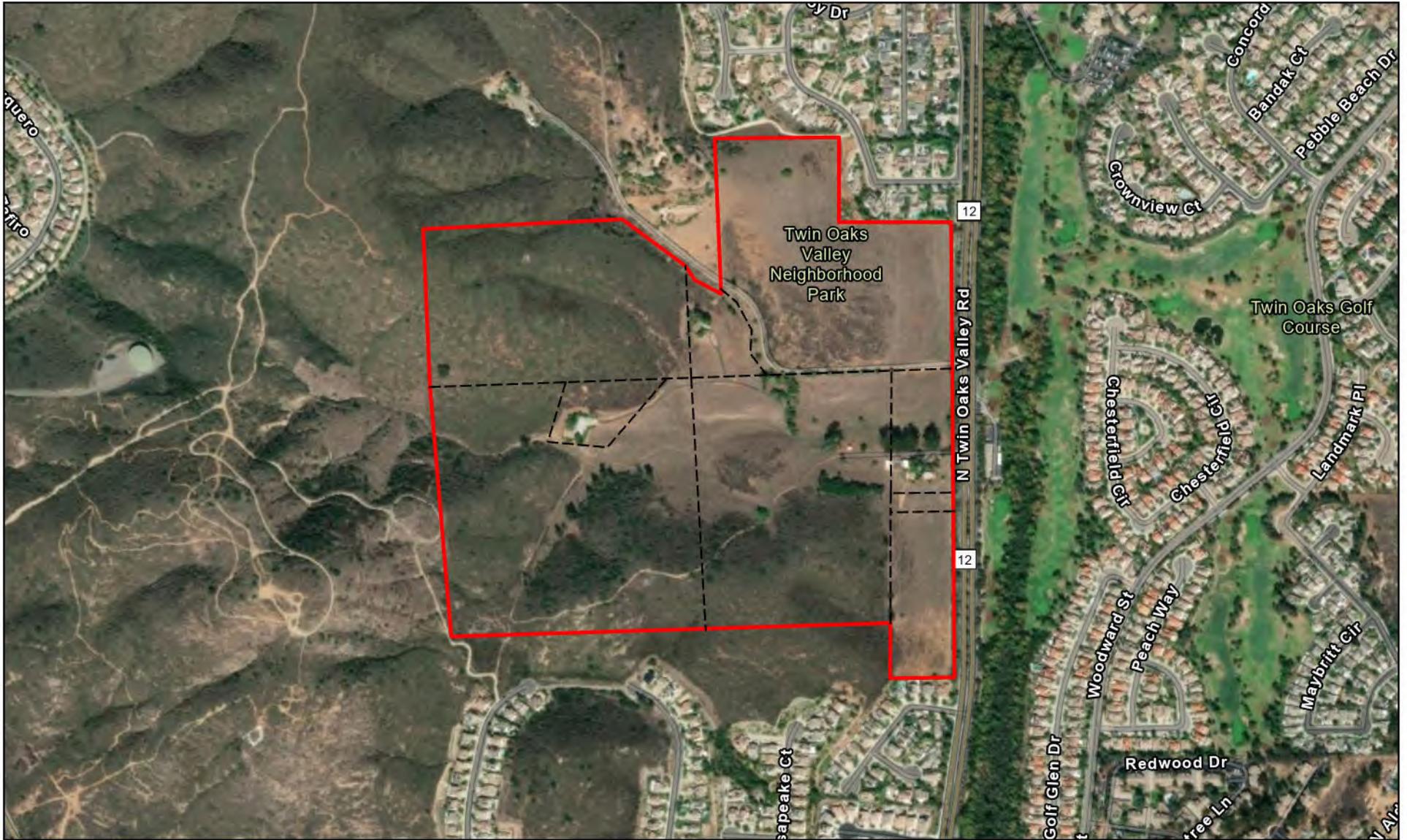


Figure 1: Project Location

**Project San Marcos Twin Oaks:
Burrowing Owl Presence/Absence Surveys**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

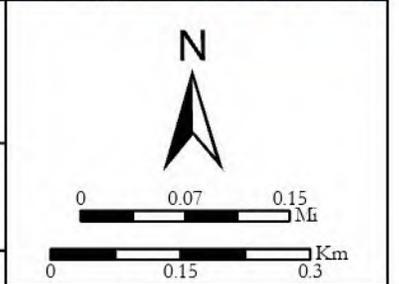
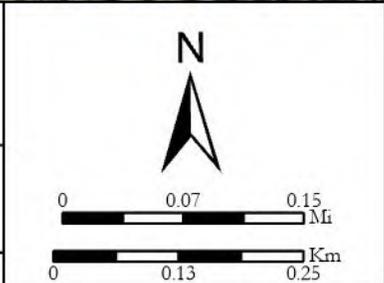




Figure 2: Survey Results

**Project San Marcos Twin Oaks:
Burrowing Owl Presence/Absence Surveys**

2025



Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

APPENDIX A
AVIAN SPECIES OBSERVED

Avian Species Observed

Common Name	Scientific Name
Acorn Woodpecker	<i>Melanerpes formicivorus</i>
Allen's Hummingbird	<i>Selasphorus sasin</i>
American Crow	<i>Corvus brachyrhynchos</i>
American Kestrel	<i>Falco sparverius</i>
Anna's Hummingbird	<i>Calypte anna</i>
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
Black Phoebe	<i>Sayornis nigricans</i>
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Bushtit	<i>Psaltriparus minimus</i>
California Quail	<i>Callipepla californica</i>
California Scrub-Jay	<i>Aphelocoma californica</i>
California Thrasher	<i>Toxostoma redivivum</i>
California Towhee	<i>Melospiza crissalis</i>
Cassin's Kingbird	<i>Tyrannus vociferans</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Coastal California Gnatcatcher	<i>Polioptila californica californica</i>
Common Raven	<i>Corvus corax</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Costa's Hummingbird	<i>Calypte costae</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
European Starling	<i>Sturnus vulgaris</i>
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>
Hooded Oriole	<i>Icterus cucullatus</i>
House Finch	<i>Haemorhous mexicanus</i>
House Wren	<i>Troglodytes aedon</i>
Lark Sparrow	<i>Chondestes grammacus</i>

Lawrence's Goldfinch	<i>Spinus lawrence</i>
Lazuli Bunting	<i>Passerina amoena</i>
Lesser Goldfinch	<i>Spinus psaltria</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Harrier	<i>Circus hudsonius</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>
Phainopepla	<i>Phainopepla nitens</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>
Say's Phoebe	<i>Sayornis saya</i>
Song Sparrow	<i>Melospiza melodia</i>
Spotted Towhee	<i>Pipilo maculatus</i>
Turkey Vulture	<i>Cathartes aura</i>
Western Bluebird	<i>Sialia mexicana</i>
White-throated Swift	<i>Aeronautes saxatalis</i>
Wrentit	<i>Chamaea fasciata</i>
Yellow Warbler	<i>Setophaga petechia</i>
Yellow-rumped Warbler	<i>Setophaga coronata</i>

APPENDIX B
SITE PHOTOS

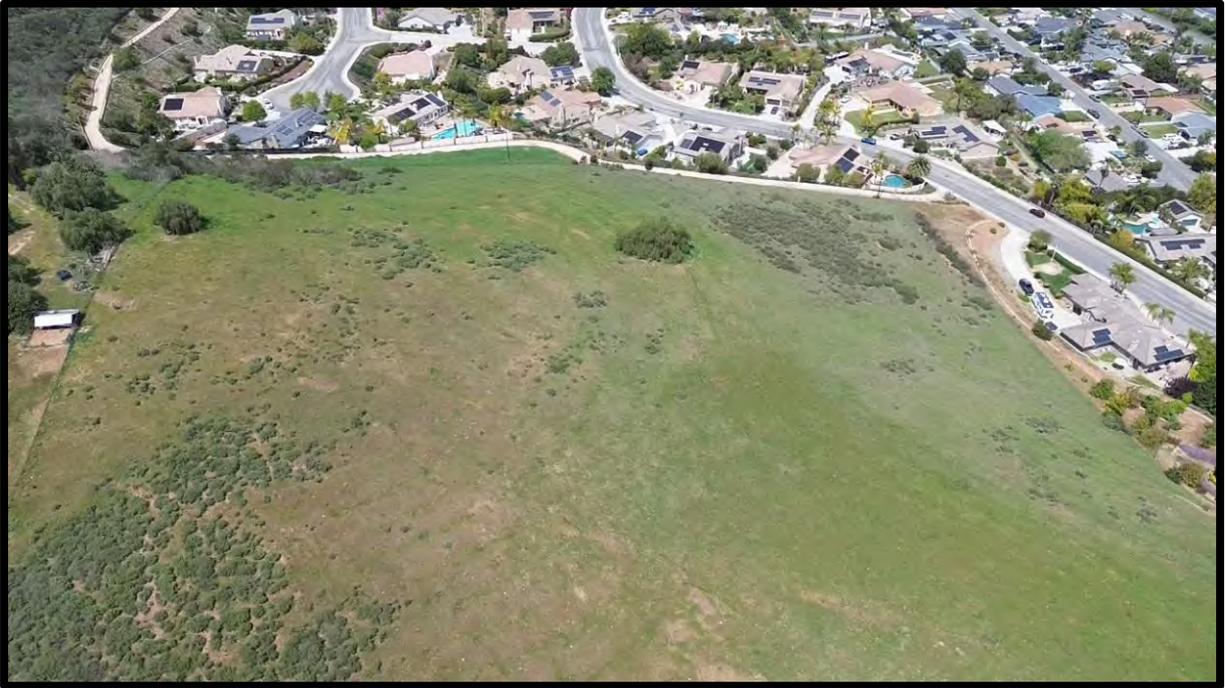


Photo 1. Aerial view of BUOW survey area, facing north.



Photo 2. Eastern view of BUOW survey area.



Photo 3. Northern view of BUOW survey area.



Photo 4. Northern view of intense agriculture pasture with suitable burrows.



Photo 5. Southern view of BUOW survey area.



Photo 6. One of the mapped burrows suitable for use by BUOW.

Survey Data

Survey Type	Burrowing Owl
Project	San Marcos
Date	April 13, 2025
Surveyor	Garrett Huffman, Blanca Martinez
Trainee	

Environmental Data

Start of Survey Data

Survey Round	1
Time	10:30
Temperature	62
Wind	2-5
Cloud	10

End of Survey Data

Time	16:53
Temperature	69
Wind	2-5
Cloud	10

BUOW Observations

BUOW Observation

Burrows

BUOW Observation

Bird Observations

Bird Observations (25 Items)

Bird Observations - 1. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 2. Northern Rough-winged Swallow

Avian Observation | Northern Rough-winged Swallow

Bird Observations - 3. Spotted Towhee

Avian Observation | Spotted Towhee

Bird Observations - 4. House Finch

Avian Observation | House Finch

Bird Observations - 5. Song Sparrow

Avian Observation | Song Sparrow

Bird Observations - 6. Wrenitit

Avian Observation | Wrenitit

Bird Observations - 7. American Crow

Avian Observation | American Crow

Bird Observations - 8. Lesser Goldfinch

Avian Observation | Lesser Goldfinch

Bird Observations - 9. California Towhee

Avian Observation | California Towhee

Bird Observations - 10. Turkey Vulture

Avian Observation

Turkey Vulture

Bird Observations - 11. Black Phoebe

Avian Observation

Black Phoebe

Bird Observations - 12. Yellow Warbler

Avian Observation

Yellow Warbler

Bird Observations - 13. European Starling

Avian Observation

European Starling

Bird Observations - 14. Cassin's Kingbird

Avian Observation

Cassin's Kingbird

Bird Observations - 15. Northern Harrier

Avian Observation

Northern Harrier

Bird Observations - 16. Mourning Dove

Avian Observation

Mourning Dove

Bird Observations - 17. Anna's Hummingbird

Avian Observation

Anna's Hummingbird

Bird Observations - 18. House Wren

Avian Observation

House Wren

Bird Observations - 19. White-throated Swift

Avian Observation

White-throated Swift

Bird Observations - 20. California Towhee

Avian Observation

California Towhee

Bird Observations - 21. Bushtit

Avian Observation

Bushtit

Bird Observations - 22. California Scrub-Jay

Avian Observation

California Scrub-Jay

Bird Observations - 23. Nuttall's Woodpecker

Avian Observation

Nuttall's Woodpecker

Bird Observations - 24. California Quail

Avian Observation

California Quail

Bird Observations - 25. Lark Sparrow

Avian Observation

Lark Sparrow

Photos



General Notes

Notes

Habitat Assessment - observed Monarch, CAGN, and CBB. No BUOW or sign.

Survey Data

Survey Type	Burrowing Owl
Project	San Marcos
Date	April 14, 2025
Surveyor	Garrett Huffman, Blanca Martinez
Trainee	

Environmental Data

Start of Survey Data

Survey Round	1
Time	07:00
Temperature	53
Wind	2-5
Cloud	100

End of Survey Data

Time	10:00
Temperature	64
Wind	2-5
Cloud	40

BUOW Observations

BUOW Observation

Burrows

BUOW Observation

Bird Observations

Bird Observations (20 Items)

Bird Observations - 1. Black Phoebe

Avian Observation | Black Phoebe

Bird Observations - 2. Lesser Goldfinch

Avian Observation | Lesser Goldfinch

Bird Observations - 3. Bushtit

Avian Observation | Bushtit

Bird Observations - 4. Song Sparrow

Avian Observation | Song Sparrow

Bird Observations - 5. Wrentit

Avian Observation | Wrentit

Bird Observations - 6. Yellow Warbler

Avian Observation | Yellow Warbler

Bird Observations - 7. Cassin's Kingbird

Avian Observation | Cassin's Kingbird

Bird Observations - 8. California Towhee

Avian Observation | California Towhee

Bird Observations - 9. Anna's Hummingbird

Avian Observation | Anna's Hummingbird

Bird Observations - 10. California Scrub-Jay

Avian Observation

California Scrub-Jay

Bird Observations - 11. Common Raven

Avian Observation

Common Raven

Bird Observations - 12. Red-shouldered Hawk

Avian Observation

Red-shouldered Hawk

Bird Observations - 13. Red-tailed Hawk

Avian Observation

Red-tailed Hawk

Bird Observations - 14. Spotted Towhee

Avian Observation

Spotted Towhee

Bird Observations - 15. Northern Mockingbird

Avian Observation

Northern Mockingbird

Bird Observations - 16. House Finch

Avian Observation

House Finch

Bird Observations - 17. Nuttall's Woodpecker

Avian Observation

Nuttall's Woodpecker

Bird Observations - 18. Lark Sparrow

Avian Observation

Lark Sparrow

Bird Observations - 19. Mourning Dove

Avian Observation

Mourning Dove

Bird Observations - 20. Cassin's Kingbird

Avian Observation

Cassin's Kingbird

Photos



General Notes

Notes

Survey Data

Survey Type	Burrowing Owl
Project	San Marcos
Date	May 7, 2025
Surveyor	Blanca Martinez
Trainee	

Environmental Data

Start of Survey Data

Survey Round	2
Time	07:00
Temperature	56
Wind	2-5
Cloud	90

End of Survey Data

Time	09:00
Temperature	65
Wind	2-5
Cloud	90

BUOW Observations

BUOW Observation

Burrows

BUOW Observation

Bird Observations

Bird Observations

Photos

General Notes

Notes Avian species list recorded on CAGN survey form for the same day.

Survey Data

Survey Type	Burrowing Owl
Project	San Marcos
Date	May 30, 2025
Surveyor	Blanca Martinez
Trainee	

Environmental Data

Start of Survey Data

Survey Round	3
Time	07:15
Temperature	62
Wind	0-2
Cloud	0

End of Survey Data

Time	09:15
Temperature	75
Wind	0-2
Cloud	0

BUOW Observations

BUOW Observation

Burrows

BUOW Observation

Bird Observations

Bird Observations (32 Items)

Bird Observations - 1. Yellow Warbler

Avian Observation | Yellow Warbler

Bird Observations - 2. Anna's Hummingbird

Avian Observation | Anna's Hummingbird

Bird Observations - 3. Brown-headed Cowbird

Avian Observation | Brown-headed Cowbird

Bird Observations - 4. Dark-eyed Junco

Avian Observation | Dark-eyed Junco

Bird Observations - 5. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 6. European Starling

Avian Observation | European Starling

Bird Observations - 7. Cassin's Kingbird

Avian Observation | Cassin's Kingbird

Bird Observations - 8. California Towhee

Avian Observation | California Towhee

Bird Observations - 9. Mourning Dove

Avian Observation | Mourning Dove

Bird Observations - 10. Bushtit

Avian Observation | Bushtit

Bird Observations - 11. Blue-gray Gnatcatcher

Avian Observation | Blue-gray Gnatcatcher

Bird Observations - 12. Lesser Goldfinch

Avian Observation | Lesser Goldfinch

Bird Observations - 13. Wrentit

Avian Observation | Wrentit

Bird Observations - 14. House Finch

Avian Observation | House Finch

Bird Observations - 15. Costa's Hummingbird

Avian Observation | Costa's Hummingbird

Bird Observations - 16. Lawrence's Goldfinch

Avian Observation | Lawrence's Goldfinch

Bird Observations - 17. Lark Sparrow

Avian Observation | Lark Sparrow

Bird Observations - 18. American Crow

Avian Observation | American Crow

Bird Observations - 19. Red-tailed Hawk

Avian Observation

Red-tailed Hawk

Bird Observations - 20. Northern Rough-winged Swallow

Avian Observation

Northern Rough-winged Swallow

Bird Observations - 21. Spotted Towhee

Avian Observation

Spotted Towhee

Bird Observations - 22. Nuttall's Woodpecker

Avian Observation

Nuttall's Woodpecker

Bird Observations - 23. California Thrasher

Avian Observation

California Thrasher

Bird Observations - 24. Song Sparrow

Avian Observation

Song Sparrow

Bird Observations - 25. Rufous-crowned Sparrow

Avian Observation

Rufous-crowned Sparrow

Bird Observations - 26. Bewick's Wren

Avian Observation

Bewick's Wren

Bird Observations - 27. California Quail

Avian Observation

California Quail

Bird Observations - 28. Turkey Vulture

Avian Observation

Turkey Vulture

Bird Observations - 29. California Scrub-Jay

Avian Observation

California Scrub-Jay

Bird Observations - 30. Hooded Oriole

Avian Observation

Hooded Oriole

Bird Observations - 31. Cliff Swallow

Avian Observation

Cliff Swallow

Bird Observations - 32. Black Phoebe

Avian Observation

Black Phoebe

Photos

General Notes

Notes

Survey Data

Survey Type	Burrowing Owl
Project	San Marcos
Date	June 18, 2025
Surveyor	Blanca Martinez
Trainee	

Environmental Data

Start of Survey Data

Survey Round	4
Time	07:30
Temperature	65
Wind	3-6
Cloud	20

End of Survey Data

Time	09:30
Temperature	76
Wind	3-6
Cloud	10

BUOW Observations

BUOW Observation

Burrows

BUOW Observation

Bird Observations

Bird Observations (29 Items)

Bird Observations - 1. Yellow Warbler

Avian Observation | Yellow Warbler

Bird Observations - 2. Anna's Hummingbird

Avian Observation | Anna's Hummingbird

Bird Observations - 3. Dark-eyed Junco

Avian Observation | Dark-eyed Junco

Bird Observations - 4. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 5. European Starling

Avian Observation | European Starling

Bird Observations - 6. Cassin's Kingbird

Avian Observation | Cassin's Kingbird

Bird Observations - 7. California Towhee

Avian Observation | California Towhee

Bird Observations - 8. Mourning Dove

Avian Observation | Mourning Dove

Bird Observations - 9. Bushtit

Avian Observation | Bushtit

Bird Observations - 10. Lesser Goldfinch

Avian Observation | Lesser Goldfinch

Bird Observations - 11. Wrenit

Avian Observation | Wrenit

Bird Observations - 12. House Finch

Avian Observation | House Finch

Bird Observations - 13. Costa's Hummingbird

Avian Observation | Costa's Hummingbird

Bird Observations - 14. Lark Sparrow

Avian Observation | Lark Sparrow

Bird Observations - 15. American Crow

Avian Observation | American Crow

Bird Observations - 16. Red-tailed Hawk

Avian Observation | Red-tailed Hawk

Bird Observations - 17. Northern Rough-winged Swallow

Avian Observation | Northern Rough-winged Swallow

Bird Observations - 18. Spotted Towhee

Avian Observation | Spotted Towhee

Bird Observations - 19. Nuttall's Woodpecker

Avian Observation

Nuttall's Woodpecker

Bird Observations - 20. California Thrasher

Avian Observation

California Thrasher

Bird Observations - 21. Song Sparrow

Avian Observation

Song Sparrow

Bird Observations - 22. Rufous-crowned Sparrow

Avian Observation

Rufous-crowned Sparrow

Bird Observations - 23. Bewick's Wren

Avian Observation

Bewick's Wren

Bird Observations - 24. California Quail

Avian Observation

California Quail

Bird Observations - 25. Turkey Vulture

Avian Observation

Turkey Vulture

Bird Observations - 26. California Scrub-Jay

Avian Observation

California Scrub-Jay

Bird Observations - 27. Hooded Oriole

Avian Observation

Hooded Oriole

Bird Observations - 28. Cliff Swallow

Avian Observation

Cliff Swallow

Bird Observations - 29. Black Phoebe

Avian Observation

Black Phoebe

Photos

General Notes

Notes



06/20/2025

San Marcos Oakcrest Project

Coastal California Gnatcatcher
Surveys

PREPARED FOR
BARGAS
2215 21ST STREET
SACRAMENTO, CA 95818

PREPARED BY
HUFFMAN
ENVIRONMENTAL
PO BOX 2024
JULIAN, CA 92036

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1. Summary

This report summarizes surveys conducted by Huffman Environmental for the federally-listed coastal California gnatcatcher (*Polioptila californica californica*; CAGN) on behalf of Bargas Consulting for the San Marcos Oakcrest Project (herein Project). Surveys were conducted in accordance with the U.S. Fish and Wildlife Service (USFWS) Coastal California Gnatcatcher Presence/Absence Survey Guidelines document (USFWS, 1997) for locations not covered under the Natural Community Conservation Planning (NCCP) jurisdiction. One CAGN was documented during Burrowing Owl surveys on the Project site on April 13, 2025. Huffman Environmental conducted six Protocol Presence/Absence Surveys CAGN surveys between April 20 and May 30, 2025. No CAGN were detected during any of the six surveys.

2. Introduction

2.1 Project Location

The approximately 136.1-acre project site is located on the west side of North Twin Oaks Valley Road, between Legacy Drive and Del Roy Drive, in the City of San Marcos, California. The site lies within Section 31, Township 11 South, Range 3 West of the San Bernardino Base and Meridian, as depicted on the U.S. Geological Survey (USGS) 7.5-minute San Marcos topographic quadrangle. Regional access to the site is provided by State Route 78 and Twin Oaks Valley Road, with local access via adjacent city streets. The majority of the property is undeveloped, though it contains three single-family residences and various accessory structures. The site is identified by Assessor's Parcel Numbers (APNs): 218-330-05, -08, -09, -13, -26, -27, -28 and 218-110-02, -03.

2.2 Project Background

The project applicant is requesting approval of a Specific Plan (SP25-0004), General Plan Amendment (GPA25-0005) to change the site's land use designation from Rural Residential/Agricultural Residential (RR/AG) to Specific Plan Area (SPA), Rezone (R25-0004) to change the site's zoning designation from Residential Estate/Agriculture-1 (R-1-20/A-1) to Specific Plan Area (SPA), Tentative Subdivision Map (TSM25-0006) for 172 lots, a Site Development Plan (SDP25-0002) for 257 detached single-family homes and associated facilities, a Site Development Plan (SDP25-0003) for an approximately six-acre public park, a Conditional Use Permit (CUP25-0001) for use of a temporary rock crusher during project construction, and adoption of an Environmental Impact Report (EIR25-004).

Development is proposed on roughly 50% of the 136-acre site. Approximately 50 acres are proposed to be preserved as biological open space area. 145 one- and two-story single-family homes will be located on individual lots, while 112 two-story single-family homes will be located on common lots as "airspace condominiums" and have exclusive use yard areas.

2.3. Coastal California Gnatcatcher Natural History

The CAGN is a year-round resident of southern California found in the six southernmost California counties (San Bernardino, Ventura, Los Angeles, Orange, San Diego, Riverside) located within the coastal plain. CAGN typically occur in coastal sage scrub (CSS) vegetation communities of southern California, especially in locations dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). Other shrubs in occupied CSS include black sage (*Salvia mellifera*), California bush sunflower (*Encelia californica*), white sage (*Salvia apiana*), lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and brittlebush (*Encelia farinosa*).

CAGN suitable habitat is described as low-growing, drought deciduous sage scrub (USFWS, 1997). The CAGN also use chaparral, grassland, and riparian communities when they occur adjacent to sage scrub (USFWS, 1997). CAGN are typically found in stands of CSS that have moderate shrub canopy cover, generally greater than 50 percent (Beyers and Wirtz, 1997). CAGN will use sparsely vegetated CSS as long as perennial shrubs are available, although there appears to be a minimum cover threshold below which the habitat becomes unsuitable (USFWS, 2007). The relative density of shrub cover influences CAGN territory sizes, with territory sizes increasing as shrub cover decreases, likely due to limited resource availability (Beyers and Wirtz, 1997). The CAGN preys upon arthropods, including insects such as leafhoppers and planthoppers, and spiders commonly found in CSS plant communities (Burger et al., 1999). Beyers and Wirtz (1997) speculate that the non-native grasses and forbs that typically occupy the gaps between shrub species do not support a sufficient insect fauna and that there are probably differences in insect availability among shrub species as well, which may explain the CAGN's shrub preference.

The breeding season of the CAGN extends from approximately February 15 through August 30, with peak nesting activity typically occurring from mid-March through mid-May. Egg incubation takes approximately 14 days and the young fledge at 8 to 13 days of age and are dependent upon their parents for as little as three to four weeks or may associate with their parents for up to several months (USFWS, 1997).

3. Methods

A habitat assessment was conducted on April 13, 2025 to identify and map suitable CAGN habitat within the Project site. Huffman Environmental biologists mapped 86.45 acres of survey area as suitable for CAGN (Figure 3). CAGN surveys were conducted in accordance with the USFWS Coastal California Gnatcatcher Presence/Absence Survey Guidelines (USFWS, 1997). The Project does not occur within an NCCP-enrolled area, therefore, six surveys at seven day intervals were scheduled during the CAGN breeding season (March 15 through June 30) (Table 1). Huffman Environmental biologists, Garrett Huffman (TE-20186A-3.3), Melissa Tu (PER0008918-0), and Jon Walker (TE-08087D-0) conducted the six survey visits between April 20 and May 30, 2025. CAGN surveyors conducted pedestrian transects throughout the survey areas utilizing a combination of passive and active

methodologies. Taped vocalizations were used sparingly to elicit a CAGN response. All avian species were identified vocally or visually with the aid of binoculars.

Table 1 Survey Schedule

Survey Number	Date	Surveyor	Time (Start-End)	Temp (Start-End)(F)	Cloud Cover (Start-End)	Wind Range in mph (Start-End)
#1	04/20/25	Jon Walker	0630-1200	51-72	0-0	0-2; 0-7
#2	04/29/25	Melissa Tu	0731-1240	56-72	10-5	0; 0-4
#3	05/07/25	Garrett Huffman	0618-1156	55-75	100-50	2-5; 2-5
#4	05/14/25	Garrett Huffman	0700-1122	51-65	10-10	0-2; 2-5
#5	05/22/25	Melissa Tu	0715-1304	59-80	20-10	0-1; 2-3
#6	05/30/25	Garrett Huffman	0720-1119	62-75	0-0	0-3; 0-4

4. Results

A total of 52 avian species were documented on the San Marcos Oakcrest Project (Appendix A). On April 13, 2025, one CAGN was observed incidentally during Burrowing Owl surveys. During the six subsequent CAGN survey visits between April 20 and May 30, 2025, no CAGN were detected on the Project site.

5. Certification

All biologists working under Huffman Environmental for the 2025 Coastal California gnatcatcher (*Polioptila californica californica*) San Marcos Oakcrest Project were permitted to survey for this species under Section 10(a)(1)(A) of the ESA.

I certify that the information in this report and attached figures completely and accurately represent the work of the individual permittee.

Please feel free to contact me at (623) 238-1545 or garrett@huffmanenvironmental.com if you have any questions regarding the contents of this report.

Cordially,



Garrett Huffman
TE-20186A-3.3
Principal Biologist
Huffman Environmental, LLC
(623) 238-1545
garrett@huffmanenvironmental.com

Melissa Tu
PER0008918-0

Jon Walker
TE-08087D-0

6. Citations

- Beyers, J. L., & Wirtz, W. O. (1997). Vegetative characteristics of coastal sage scrub sites used by California gnatcatchers: Implications for management in a fire-prone ecosystem. In *Proceedings—Fire Effects on Rare and Endangered Species and Habitats Conference* (Nov. 13–16, 1995, Coeur d’Alene, Idaho).
- Burger, J. C., Patten, M. A., Rotenberry, J. T., & Redak, R. A. (1999). Foraging ecology of the California gnatcatcher deduced from fecal samples. *Oecologia*, *120*(2), 304–310. <https://doi.org/10.1007/s004420050865>
- Environmental and Energy Service Company. (1990). *Phase I report: Amber Ridge California gnatcatcher study*. Report prepared for the County of San Diego Department of Planning and Land Use, Environmental Quality Division. San Diego, CA.
- U.S. Fish and Wildlife Service. (1997). *Coastal California gnatcatcher (Polioptila californica californica) presence/absence survey protocol* (5 pp.).
- U.S. Fish and Wildlife Service. (2007, December 19). *Revised designation of critical habitat for the coastal California gnatcatcher (Polioptila californica californica)*. *Federal Register*, *72*(243). <https://www.federalregister.gov>

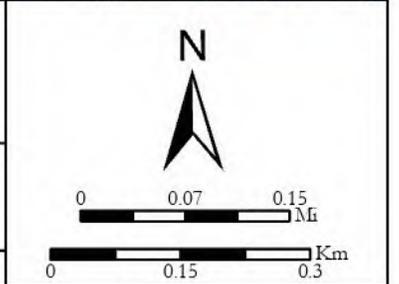


Figure 1: Project Location

**Project San Marcos Twin Oaks:
Coastal California Gnatcatcher Presence/Absence Surveys**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



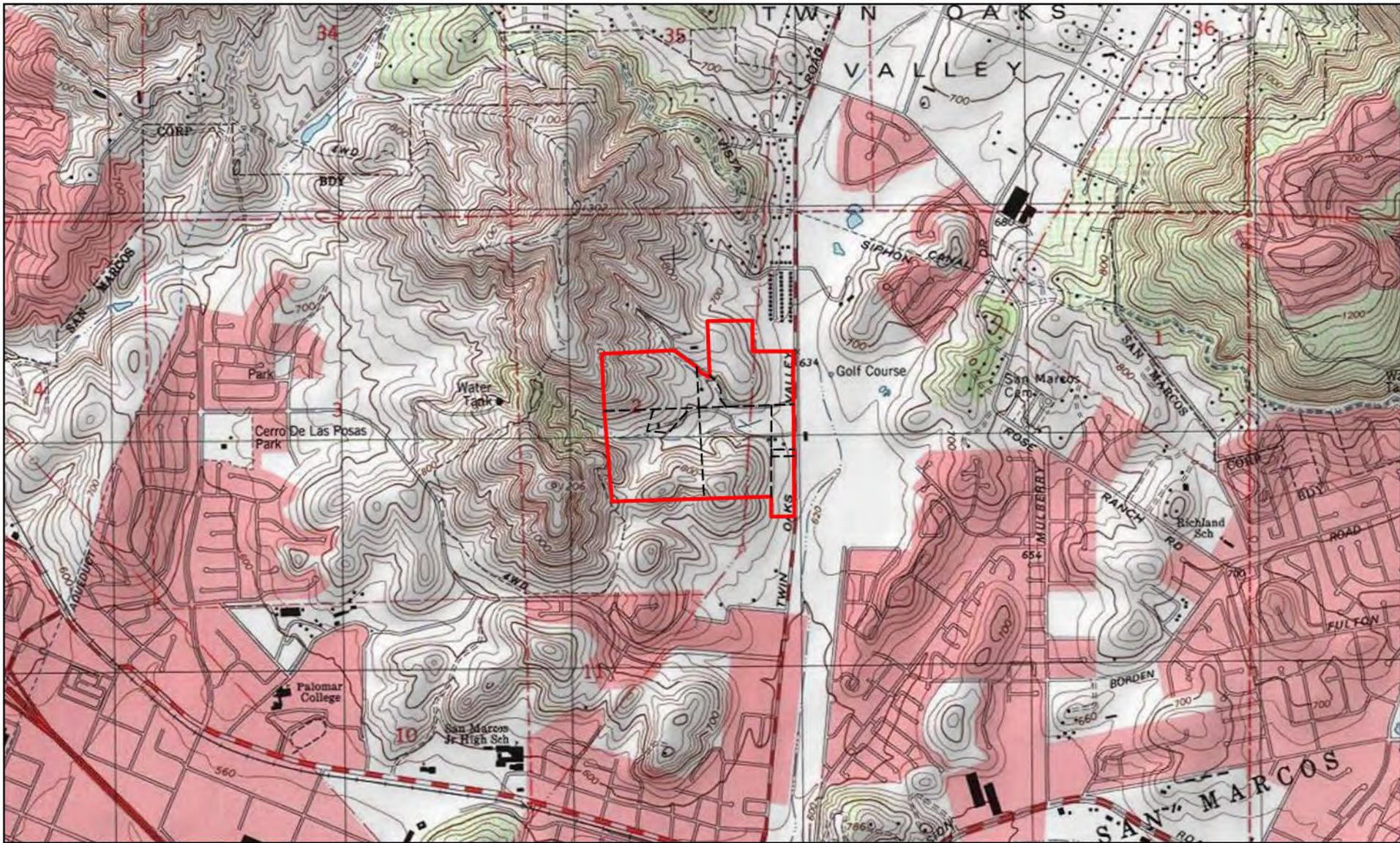
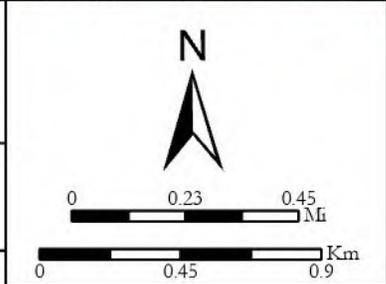


Figure 2: USGS Map Location

**Project San Marcos Twin Oaks:
Coastal California Gnatcatcher Presence/Absence Surveys**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet





Legend

-  Coastal California gnatcatcher
- Vegetation Community**
-  32500 Diegan Coastal Sage Scrub (86.45 acres)
-  Project Boundary

Observed April 13, 2025 during BUOW survey

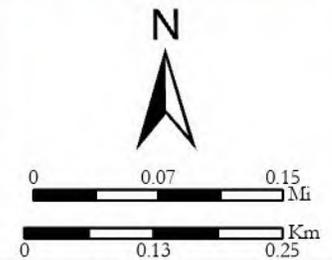


Figure 3: Survey Results

Project San Marcos Twin Oaks: Coastal California Gnatcatcher Presence/Absence Surveys

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



APPENDIX A
AVIAN SPECIES OBSERVED

Avian Species Observed

Common Name	Scientific Name
Acorn Woodpecker	<i>Melanerpes formicivorus</i>
Allen's Hummingbird	<i>Selasphorus sasin</i>
American Crow	<i>Corvus brachyrhynchos</i>
American Kestrel	<i>Falco sparverius</i>
Anna's Hummingbird	<i>Calypte anna</i>
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
Black Phoebe	<i>Sayornis nigricans</i>
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Bushtit	<i>Psaltriparus minimus</i>
California Quail	<i>Callipepla californica</i>
California Scrub-Jay	<i>Aphelocoma californica</i>
California Thrasher	<i>Toxostoma redivivum</i>
California Towhee	<i>Melospiza crissalis</i>
Cassin's Kingbird	<i>Tyrannus vociferans</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Coastal California Gnatcatcher	<i>Polioptila californica californica</i>
Common Raven	<i>Corvus corax</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Costa's Hummingbird	<i>Calypte costae</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
European Starling	<i>Sturnus vulgaris</i>
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>
Hooded Oriole	<i>Icterus cucullatus</i>
House Finch	<i>Haemorhous mexicanus</i>

House Wren	<i>Troglodytes aedon</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Lawrence's Goldfinch	<i>Spinus lawrence</i>
Lazuli Bunting	<i>Passerina amoena</i>
Lesser Goldfinch	<i>Spinus psaltria</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Harrier	<i>Circus hudsonius</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Nuttall's Woodpecker	<i>Dryobates nuttallii</i>
Phainopepla	<i>Phainopepla nitens</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>
Say's Phoebe	<i>Sayornis saya</i>
Scaly-breasted Munia	<i>Lonchura punctulata</i>
Song Sparrow	<i>Melospiza melodia</i>
Spotted Towhee	<i>Pipilo maculatus</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Turkey Vulture	<i>Cathartes aura</i>
Western Bluebird	<i>Sialia mexicana</i>
White-throated Swift	<i>Aeronautes saxatalis</i>
Wrentit	<i>Chamaea fasciata</i>
Yellow Warbler	<i>Setophaga petechia</i>
Yellow-rumped Warbler	<i>Setophaga coronata</i>

APPENDIX B
SITE PHOTOS



Photo 1. Northern view of CSS habitat patch.



Photo 2. Northwest view of CSS habitat.



Photo 3. View of the CSS habitat patch, facing northwest.



Photo 4. View southwest of CSS survey area.

APPENDIX C
DATA SHEETS

Survey Data

Survey Type	Coastal California Gnatcatcher
Project	San Marcos
Date	April 20, 2025
Surveyor	Jon Walker
Trainee	

Bonsall - 3 Rounds Via Las Rosas Oceanside - 6 Rounds weeks of 3/17, 3/24, 3/31, 4/7, 4/11, 4/18 Simi Valley - 6 Rounds March 15: CAGN April 1 : CAGN then CBB April 15: CAGN then CBB May 1: CAGN then CBB (CBB completed) May 15: CAGN May 30: CAGN #6 (CAGN completed) Snowdrop Rancho Cucamonga - 6 Rounds Jurupa BUOW - 4 Rounds Jurupa LBVI - 8 Rounds San Marcos - CAGN 3 Rounds San Marcos BUOW 4 Rounds

Environmental Data

Start of Survey Data

Survey Round	1
Time	06:30
Temperature	51
Wind	0-2
Cloud	0

End of Survey Data

Time	12:00
Temperature	72
Wind	0-7
Cloud	0

CAGN Observations

CAGN Observation

Bird Observations

Bird Observations (34 Items)

Bird Observations - 1. House Wren

Avian Observation | House Wren

Bird Observations - 2. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 3. Spotted Towhee

Avian Observation | Spotted Towhee

Bird Observations - 4. House Finch

Avian Observation | House Finch

Bird Observations - 5. House Finch

Avian Observation | House Finch

Bird Observations - 6. Song Sparrow

Avian Observation | Song Sparrow

Bird Observations - 7. California Towhee

Avian Observation | California Towhee

Bird Observations - 8. Wrentit

Avian Observation | Wrentit

Bird Observations - 9. Lesser Goldfinch

Avian Observation | Lesser Goldfinch

Bird Observations - 10. Cassin's Kingbird

Avian Observation | Cassin's Kingbird

Bird Observations - 11. Black-headed Grosbeak

Avian Observation

Black-headed Grosbeak

Bird Observations - 12. Brown-headed Cowbird

Avian Observation

Brown-headed Cowbird

Bird Observations - 13. Yellow Warbler

Avian Observation

Yellow Warbler

Bird Observations - 14. Lark Sparrow

Avian Observation

Lark Sparrow

Bird Observations - 15. Black Phoebe

Avian Observation

Black Phoebe

Bird Observations - 16. Red-tailed Hawk

Avian Observation

Red-tailed Hawk

Bird Observations - 17. Mourning Dove

Avian Observation

Mourning Dove

Bird Observations - 18. Anna's Hummingbird

Avian Observation

Anna's Hummingbird

Bird Observations - 19. Western Bluebird

Avian Observation

Western Bluebird

Bird Observations - 20. European Starling

Avian Observation

European Starling

Bird Observations - 21. Bushtit

Avian Observation

Bushtit

Bird Observations - 22. California Scrub-Jay

Avian Observation

California Scrub-Jay

Bird Observations - 23. Allen's Hummingbird

Avian Observation

Allen's Hummingbird

Bird Observations - 24. Eurasian Collared-Dove

Avian Observation

Eurasian Collared-Dove

Bird Observations - 25. California Quail

Avian Observation

California Quail

Bird Observations - 26. Bewick's Wren

Avian Observation

Bewick's Wren

Bird Observations - 27. California Thrasher

Avian Observation

California Thrasher

Bird Observations - 28. Red-shouldered Hawk

Avian Observation

Red-shouldered Hawk

Bird Observations - 29. Turkey Vulture

Avian Observation

Turkey Vulture

Bird Observations - 30. Nuttall's Woodpecker

Avian Observation

Nuttall's Woodpecker

Bird Observations - 31. Say's Phoebe

Avian Observation

Say's Phoebe

Bird Observations - 32. Northern Harrier

Avian Observation

Northern Harrier

Bird Observations - 33. American Crow

Avian Observation

American Crow

Bird Observations - 34. Common Raven

Avian Observation

Common Raven

Photos

General Notes

Notes

Survey Data

Survey Type	Coastal California Gnatcatcher
Project	San Marcos
Date	April 29, 2025
Surveyor	Melissa Tu
Trainee	

Bonsall - 3 Rounds Via Las Rosas Oceanside - 6 Rounds weeks of 3/17, 3/24, 3/31, 4/7, 4/11, 4/18 Simi Valley - 6 Rounds March 15: CAGN April 1 : CAGN then CBB April 15: CAGN then CBB May 1: CAGN then CBB (CBB completed) May 15: CAGN May 30: CAGN #6 (CAGN completed) Snowdrop Rancho Cucamonga - 6 Rounds Jurupa BUOW - 4 Rounds Jurupa LBVI - 8 Rounds San Marcos - CAGN 3 Rounds San Marcos BUOW 4 Rounds

Environmental Data

Start of Survey Data

Survey Round	1, 2
Time	07:31
Temperature	56
Wind	0
Cloud	10

End of Survey Data

Time	12:40
Temperature	72
Wind	0-4
Cloud	5

CAGN Observations

CAGN Observation

Bird Observations

Bird Observations (30 Items)

Bird Observations - 1. Acorn Woodpecker

Avian Observation	Acorn Woodpecker
-------------------	------------------

Bird Observations - 2. Allen's Hummingbird

Avian Observation | Allen's Hummingbird

Bird Observations - 3. Anna's Hummingbird

Avian Observation | Anna's Hummingbird

Bird Observations - 4. Blue-gray Gnatcatcher

Avian Observation | Blue-gray Gnatcatcher

Bird Observations - 5. California Scrub-Jay

Avian Observation | California Scrub-Jay

Bird Observations - 6. California Towhee

Avian Observation | California Towhee

Bird Observations - 7. Spotted Towhee

Avian Observation | Spotted Towhee

Bird Observations - 8. House Finch

Avian Observation | House Finch

Bird Observations - 9. House Wren

Avian Observation | House Wren

Bird Observations - 10. Lesser Goldfinch

Avian Observation | Lesser Goldfinch

Bird Observations - 11. Song Sparrow

Avian Observation

Song Sparrow

Bird Observations - 12. Bushtit

Avian Observation

Bushtit

Bird Observations - 13. Wrentit

Avian Observation

Wrentit

Bird Observations - 14. Bewick's Wren

Avian Observation

Bewick's Wren

Bird Observations - 15. Red-tailed Hawk

Avian Observation

Red-tailed Hawk

Bird Observations - 16. American Crow

Avian Observation

American Crow

Bird Observations - 17. Cliff Swallow

Avian Observation

Cliff Swallow

Bird Observations - 18. White-throated Swift

Avian Observation

White-throated Swift

Bird Observations - 19. Hooded Oriole

Avian Observation

Hooded Oriole

Bird Observations - 20. Costa's Hummingbird

Avian Observation

Costa's Hummingbird

Bird Observations - 21. Mourning Dove

Avian Observation | Mourning Dove

Bird Observations - 22. Eurasian Collared-Dove

Avian Observation | Eurasian Collared-Dove

Bird Observations - 23. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 24. California Quail

Avian Observation | California Quail

Bird Observations - 25. Cooper's Hawk

Avian Observation | Cooper's Hawk

Bird Observations - 26. Nuttall's Woodpecker

Avian Observation | Nuttall's Woodpecker

Bird Observations - 27. Swainson's Thrush

Avian Observation | Swainson's Thrush

Bird Observations - 28. Black Phoebe

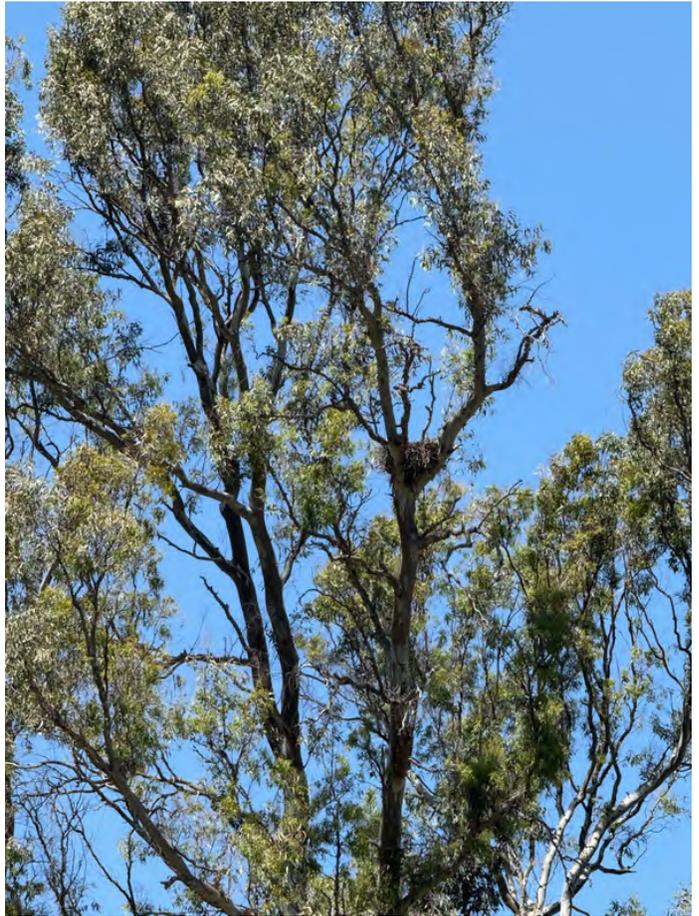
Avian Observation | Black Phoebe

Bird Observations - 29. Say's Phoebe

Avian Observation | Say's Phoebe

Bird Observations - 30. Cassin's Kingbird

Photos



General Notes

Notes

CSS-north of dirt road. Hawk nests. Mourning dove nest

Survey Data

Survey Type	Coastal California Gnatcatcher
Project	San Marcos
Date	May 7, 2025
Surveyor	Garrett Huffman
Trainee	

Bonsall - 3 Rounds Via Las Rosas Oceanside - 6 Rounds weeks of 3/17, 3/24, 3/31, 4/7, 4/11, 4/18 Simi Valley - 6 Rounds March 15: CAGN April 1 : CAGN then CBB April 15: CAGN then CBB May 1: CAGN then CBB (CBB completed) May 15: CAGN May 30: CAGN #6 (CAGN completed) Snowdrop Rancho Cucamonga - 6 Rounds Jurupa BUOW - 4 Rounds Jurupa LBVI - 8 Rounds San Marcos - CAGN 3 Rounds San Marcos BUOW 4 Rounds

Environmental Data

Start of Survey Data

Survey Round	3
Time	06:18
Temperature	55
Wind	2-5
Cloud	100

End of Survey Data

Time	11:56
Temperature	75
Wind	2-5
Cloud	50

CAGN Observations

CAGN Observation

Bird Observations

Bird Observations (33 Items)

Bird Observations - 1. American Kestrel

Avian Observation | American Kestrel

Bird Observations - 2. House Finch

Avian Observation | House Finch

Bird Observations - 3. Lark Sparrow

Avian Observation | Lark Sparrow

Bird Observations - 4. Lawrence's Goldfinch

Avian Observation | Lawrence's Goldfinch

Bird Observations - 5. Cassin's Kingbird

Avian Observation | Cassin's Kingbird

Bird Observations - 6. Spotted Towhee

Avian Observation | Spotted Towhee

Bird Observations - 7. Lesser Goldfinch

Avian Observation | Lesser Goldfinch

Bird Observations - 8. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 9. Mourning Dove

Avian Observation | Mourning Dove

Bird Observations - 10. Red-tailed Hawk

Avian Observation | Red-tailed Hawk

Bird Observations - 11. California Quail

Avian Observation

California Quail

Bird Observations - 12. House Wren

Avian Observation

House Wren

Bird Observations - 13. Wrentit

Avian Observation

Wrentit

Bird Observations - 14. California Towhee

Avian Observation

California Towhee

Bird Observations - 15. Song Sparrow

Avian Observation

Song Sparrow

Bird Observations - 16. Ash-throated Flycatcher

Avian Observation

Ash-throated Flycatcher

Bird Observations - 17. Common Raven

Avian Observation

Common Raven

Bird Observations - 18. Costa's Hummingbird

Avian Observation

Costa's Hummingbird

Bird Observations - 19. Cliff Swallow

Avian Observation

Cliff Swallow

Bird Observations - 20. Bushtit

Avian Observation

Bushtit

Bird Observations - 21. Blue-gray Gnatcatcher

Avian Observation | Blue-gray Gnatcatcher

Bird Observations - 22. California Thrasher

Avian Observation | California Thrasher

Bird Observations - 23. Yellow-rumped Warbler

Avian Observation | Yellow-rumped Warbler

Bird Observations - 24. Nuttall's Woodpecker

Avian Observation | Nuttall's Woodpecker

Bird Observations - 25. White-throated Swift

Avian Observation | White-throated Swift

Bird Observations - 26. Yellow Warbler

Avian Observation | Yellow Warbler

Bird Observations - 27. Bewick's Wren

Avian Observation | Bewick's Wren

Bird Observations - 28. Phainopepla

Avian Observation | Phainopepla

Bird Observations - 29. Lazuli Bunting

Avian Observation | Lazuli Bunting

Bird Observations - 30. Hooded Oriole

Avian Observation

Hooded Oriole

Bird Observations - 31. Black Phoebe

Avian Observation

Black Phoebe

Bird Observations - 32. Brown-headed Cowbird

Avian Observation

Brown-headed Cowbird

Bird Observations - 33. Northern Harrier

Avian Observation

Northern Harrier

Photos



General Notes

Notes

Survey Data

Survey Type	Coastal California Gnatcatcher
Project	San Marcos
Date	May 14, 2025
Surveyor	Garrett Huffman
Trainee	Gregory Garcia

Bonsall - 3 Rounds Via Las Rosas Oceanside - 6 Rounds weeks of 3/17, 3/24, 3/31, 4/7, 4/11, 4/18 Simi Valley - 6 Rounds March 15: CAGN April 1 : CAGN then CBB April 15: CAGN then CBB May 1: CAGN then CBB (CBB completed) May 15: CAGN May 30: CAGN #6 (CAGN completed) Snowdrop Rancho Cucamonga - 6 Rounds Jurupa BUOW - 4 Rounds Jurupa LBVI - 8 Rounds San Marcos - CAGN 3 Rounds San Marcos BUOW 4 Rounds

Environmental Data

Start of Survey Data

Survey Round	1
Time	07:00
Temperature	51
Wind	2-5
Cloud	10

End of Survey Data

Time	11:22
Temperature	65
Wind	2-5
Cloud	10

CAGN Observations

CAGN Observation

Bird Observations

Bird Observations (31 Items)

Bird Observations - 1. Bushtit

Avian Observation | Bushtit

Bird Observations - 2. Spotted Towhee

Avian Observation | Spotted Towhee

Bird Observations - 3. House Finch

Avian Observation | House Finch

Bird Observations - 4. Brown-headed Cowbird

Avian Observation | Brown-headed Cowbird

Bird Observations - 5. Mourning Dove

Avian Observation | Mourning Dove

Bird Observations - 6. Song Sparrow

Avian Observation | Song Sparrow

Bird Observations - 7. American Crow

Avian Observation | American Crow

Bird Observations - 8. Nuttall's Woodpecker

Avian Observation | Nuttall's Woodpecker

Bird Observations - 9. House Wren

Avian Observation | House Wren

Bird Observations - 10. Mourning Dove

Avian Observation | Mourning Dove

Bird Observations - 11. Lesser Goldfinch

Avian Observation

| Lesser Goldfinch

Bird Observations - 12. Phainopepla

Avian Observation

| Phainopepla

Bird Observations - 13. Bewick's Wren

Avian Observation

| Bewick's Wren

Bird Observations - 14. Northern Mockingbird

Avian Observation

| Northern Mockingbird

Bird Observations - 15. Say's Phoebe

Avian Observation

| Say's Phoebe

Bird Observations - 16. Red-shouldered Hawk

Avian Observation

| Red-shouldered Hawk

Bird Observations - 17. California Towhee

Avian Observation

| California Towhee

Bird Observations - 18. Black Phoebe

Avian Observation

| Black Phoebe

Bird Observations - 19. Yellow Warbler

Avian Observation

| Yellow Warbler

Bird Observations - 20. Costa's Hummingbird

Avian Observation

| Costa's Hummingbird

Bird Observations - 21. Blue-gray Gnatcatcher

Avian Observation | Blue-gray Gnatcatcher

Bird Observations - 22. Turkey Vulture

Avian Observation | Turkey Vulture

Bird Observations - 23. White-throated Swift

Avian Observation | White-throated Swift

Bird Observations - 24. California Quail

Avian Observation | California Quail

Bird Observations - 25. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 26. Cassin's Kingbird

Avian Observation | Cassin's Kingbird

Bird Observations - 27. Common Raven

Avian Observation | Common Raven

Bird Observations - 28. Western Bluebird

Avian Observation | Western Bluebird

Bird Observations - 29.

Avian Observation |

Bird Observations - 30. Rufous-crowned Sparrow

Bird Observations - 31. European Starling

Photos



General Notes

Survey Data

Survey Type	Coastal California Gnatcatcher
Project	San Marcos
Date	May 30, 2025
Surveyor	Garrett Huffman
Trainee	

Bonsall - 3 Rounds Via Las Rosas Oceanside - 6 Rounds weeks of 3/17, 3/24, 3/31, 4/7, 4/11, 4/18 Simi Valley - 6 Rounds March 15: CAGN April 1 : CAGN then CBB April 15: CAGN then CBB May 1: CAGN then CBB (CBB completed) May 15: CAGN May 30: CAGN #6 (CAGN completed) Snowdrop Rancho Cucamonga - 6 Rounds Jurupa BUOW - 4 Rounds Jurupa LBVI - 8 Rounds San Marcos - CAGN 3 Rounds San Marcos BUOW 4 Rounds

Environmental Data

Start of Survey Data

Survey Round	6
Time	07:20
Temperature	62
Wind	0-3
Cloud	0

End of Survey Data

Time	11:19
Temperature	75
Wind	0-4
Cloud	0

CAGN Observations

CAGN Observation

Bird Observations

Bird Observations (32 Items)

Bird Observations - 1. Yellow Warbler

Avian Observation | Yellow Warbler

Bird Observations - 2. Anna's Hummingbird

Avian Observation | Anna's Hummingbird

Bird Observations - 3. Brown-headed Cowbird

Avian Observation | Brown-headed Cowbird

Bird Observations - 4. Dark-eyed Junco

Avian Observation | Dark-eyed Junco

Bird Observations - 5. Northern Mockingbird

Avian Observation | Northern Mockingbird

Bird Observations - 6. European Starling

Avian Observation | European Starling

Bird Observations - 7. Cassin's Kingbird

Avian Observation | Cassin's Kingbird

Bird Observations - 8. California Towhee

Avian Observation | California Towhee

Bird Observations - 9. Mourning Dove

Avian Observation | Mourning Dove

Bird Observations - 10. Bushtit

Avian Observation | Bushtit

Bird Observations - 11. Blue-gray Gnatcatcher

Avian Observation

Blue-gray Gnatcatcher

Bird Observations - 12. Lesser Goldfinch

Avian Observation

Lesser Goldfinch

Bird Observations - 13. Wrenit

Avian Observation

Wrenit

Bird Observations - 14. House Finch

Avian Observation

House Finch

Bird Observations - 15. Costa's Hummingbird

Avian Observation

Costa's Hummingbird

Bird Observations - 16. Lawrence's Goldfinch

Avian Observation

Lawrence's Goldfinch

Bird Observations - 17. Lark Sparrow

Avian Observation

Lark Sparrow

Bird Observations - 18. American Crow

Avian Observation

American Crow

Bird Observations - 19. Red-tailed Hawk

Avian Observation

Red-tailed Hawk

Bird Observations - 20. Northern Rough-winged Swallow

Avian Observation

Northern Rough-winged Swallow

Bird Observations - 21. Spotted Towhee

Avian Observation | Spotted Towhee

Bird Observations - 22. Nuttall's Woodpecker

Avian Observation | Nuttall's Woodpecker

Bird Observations - 23. California Thrasher

Avian Observation | California Thrasher

Bird Observations - 24. Song Sparrow

Avian Observation | Song Sparrow

Bird Observations - 25. Rufous-crowned Sparrow

Avian Observation | Rufous-crowned Sparrow

Bird Observations - 26. Bewick's Wren

Avian Observation | Bewick's Wren

Bird Observations - 27. California Quail

Avian Observation | California Quail

Bird Observations - 28. Turkey Vulture

Avian Observation | Turkey Vulture

Bird Observations - 29. California Scrub-Jay

Avian Observation | California Scrub-Jay

Bird Observations - 30. Hooded Oriole

Avian Observation

Hooded Oriole

Bird Observations - 31. Cliff Swallow

Avian Observation

Cliff Swallow

Bird Observations - 32. Black Phoebe

Avian Observation

Black Phoebe

Photos

General Notes

Notes

APPENDIX D
USFWS NOTIFICATION

April 4th, 2025

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250^{SEP}
Carlsbad, California 92008

RE: NOTIFICATION TO CONDUCT FOCUSED, PROTOCOL-LEVEL COASTAL CALIFORNIA GNATCATCHER AT THE SAN MARCOS TWIN OAKS PROJECT IN SAN DIEGO COUNTY, CALIFORNIA

Ms. Love,

Huffman Environmental will be conducting focused, protocol-level presence/absence surveys for the Coastal California gnatcatcher (*Polioptila californica californica*)(CAGN) on behalf of Bargas Consulting for the San Marcos Twin Oaks Project. Survey area will cover suitable CAGN habitat within the Project's approximately 138 acres.

The Project is in the U.S. Geological Survey San Marcos Quadrangle, in San Diego County, in San Marcos, California. Project eastern boundaries are located along N Twin Oaks Valley Road and north of west Borden Road, and west of the Twin Oaks Golf Course (Figure 1 & 2).

Surveys will conform to the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS) CAGN Presence/Absence Survey Protocol (USFWS 1997). The survey area does not occur within a Natural Communities Conservation Plan (NCCP) enrolled area; therefore, six visits will be conducted during the breeding season (March 15 through June 30), at a minimum interval of 7 days between visits.

Surveys will be conducted by biologists holding current Recovery Permits listed here:

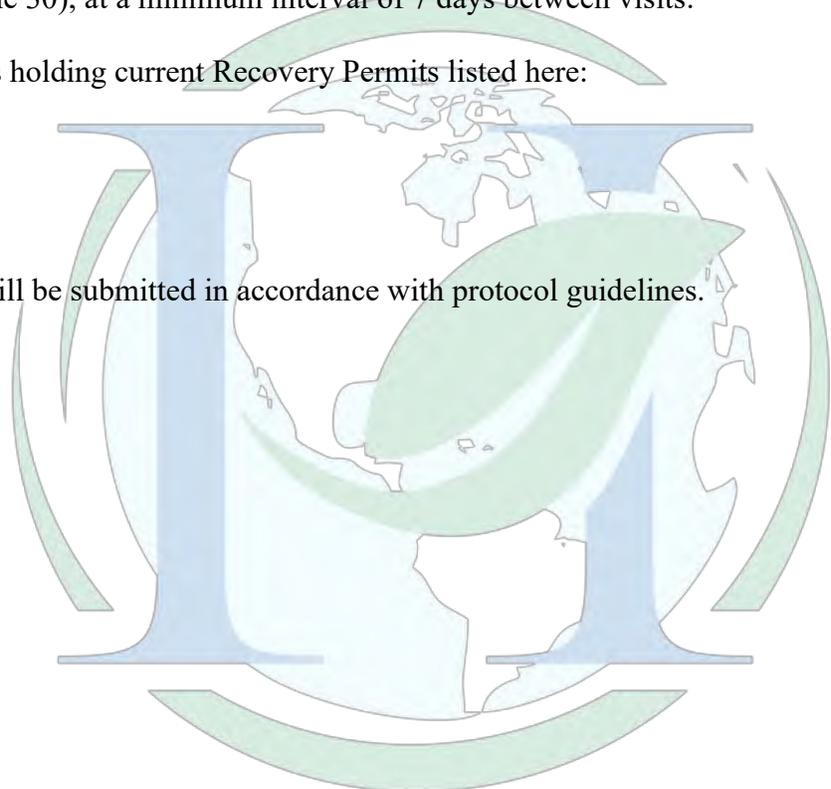
Garrett Huffman TE-20186A-3.3
Jon Walker TE-08087D-1
Antonette Gutierrez TE-50992B-1
Melissa Tu PER0008918-0

A 45-day technical report of findings will be submitted in accordance with protocol guidelines.

Cordially,



Garrett Huffman
Principal Biologist



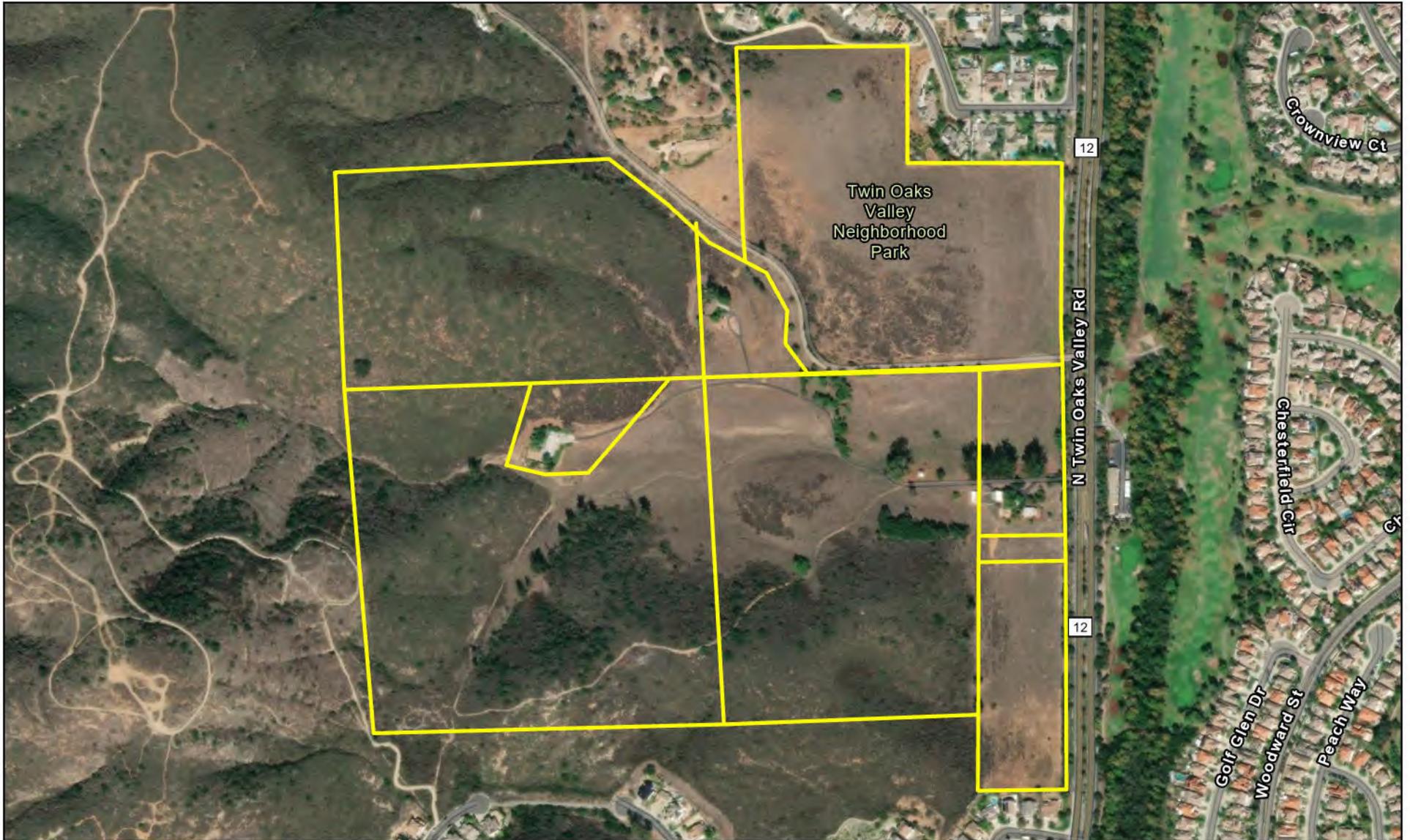
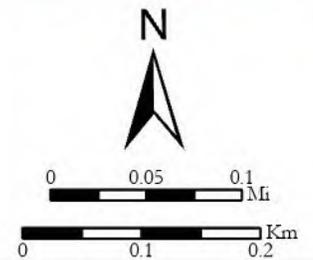


Figure 1: Project Location

**Project San Marcos Twin Oaks: Coastal California
Gnatcatcher Presence/Absence Surveys**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



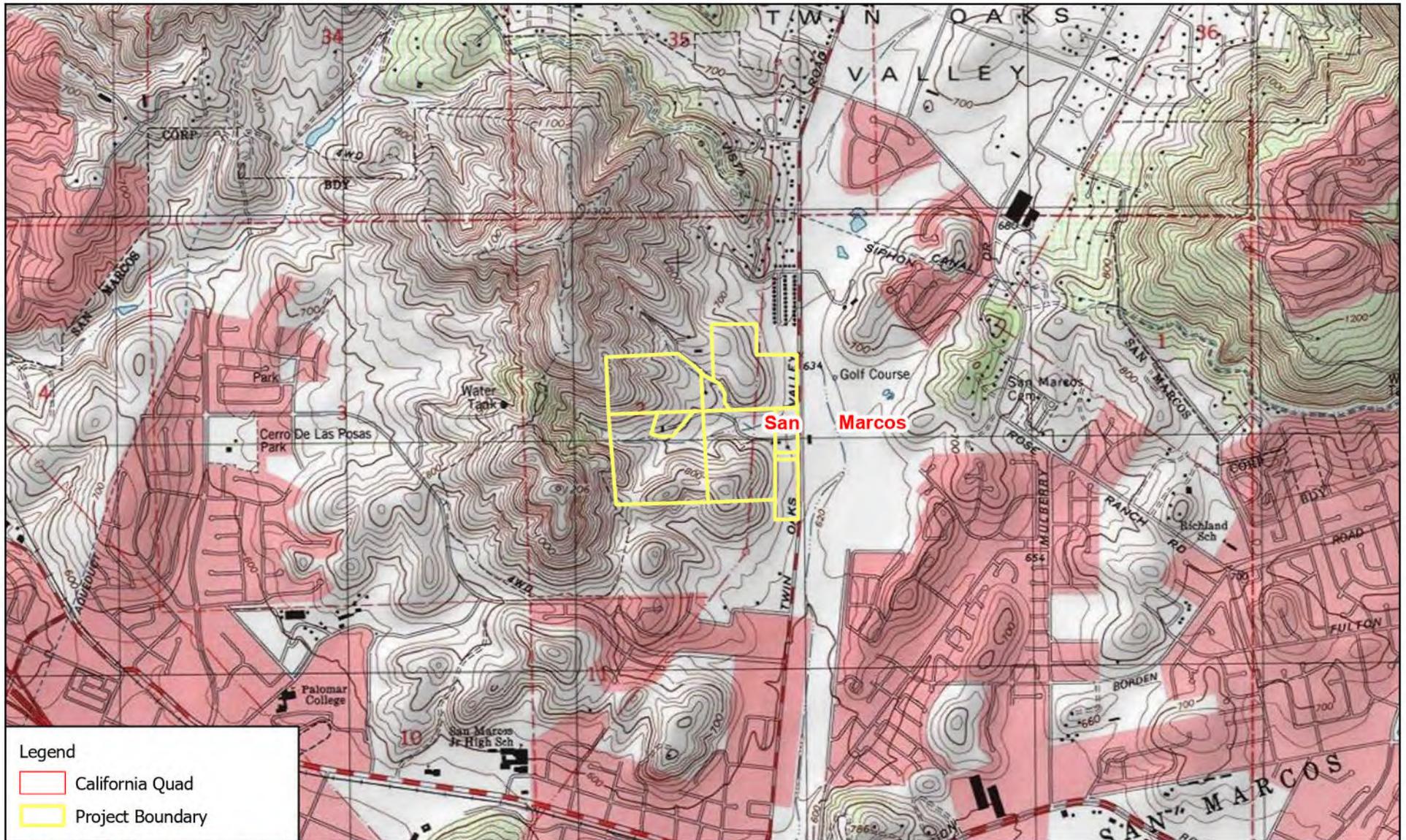
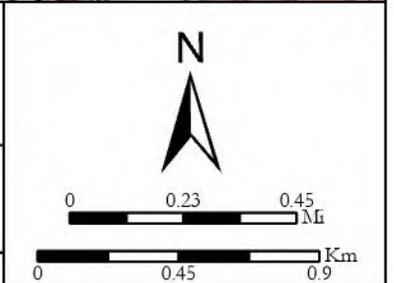


Figure 2: USGS Map - San Marcos

Project San Marcos Twin Oaks: Coastal California Gnatcatcher Presence/Absence Surveys

2025



Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



2025

**SAN MARCOS
OAKCREST
PROJECT**

AQUATIC RESOURCES
DELINEATION REPORT

Prepared By :
Huffman Environmental
PO Box 2024
Julian CA 92036

Prepared By :
Bargas Environmental
2215 21st Street
Sacramento, CA 95818

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ACRONYMS AND ABBREVIATIONS

° Degrees
ARDR - Aquatic Resources Delineation Report
AWRS- Arid West Regional Supplement
AMSL - Above Mean Sea Level
BLM - Bureau of Land Management
BO – Biological Opinion
CNDDDB – California Natural Diversity Database
CNPS – California Native Plant Society
CDFG – California Department of Fish and Game (now CDFW)
CDFW – CDFW
CEQA – California Environmental Quality Act
CUP – Conditional Use Permit
CSS – Coastal Sage Scrub
EPA – Environmental Protection Agency
EIR – Environmental Impact Report
FAC – Facultative
FACU – Facultative Upland
FACW – Facultative Wetland
GIS – Geographic Information System
GPS – Global Positioning System
HUC8/HUC12 – Hydrologic Unit Code (8-digit/12-digit)
LSAA – Lake or Streambed Alteration Agreement
MSCP – Multiple Species Conservation Program
NHD – National Hydrography Dataset
NI – Not Indicated (wetland indicator status)
NOAA – National Oceanic and Atmospheric Administration
NWI – National Wetlands Inventory
OHWM – Ordinary High Water Mark
PDSI – Palmer Drought Severity Index
RPW – Relatively Permanent Water
RWQCB – Regional Water Quality Control Board
SDP – Site Development Plan
SP – Specific Plan
SPA – Specific Plan Area
SWANCC – Solid Waste Agency of Northern Cook County
SWRCB – State Water Resources Control Board
TNW – Traditionally Navigable Water
USDA – United States Department of Agriculture
USACE – United States Army Corps of Engineers
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey
U.S. – United States
USC – United States Code
UPL – Upland
WoUS – WoUS
WoS - Waters of the State
WDR – Waste Discharge Requirement

EXECUTIVE SUMMARY

Huffman Environmental was subcontracted by Bargas Environmental Consulting (Bargas) to conduct a jurisdictional delineation in support of the proposed San Marcos Oakcrest Specific Plan Project (Project), located in San Diego County, California. The Project, proposed by the owner/applicant, plans to develop approximately 50% of the site for single-family residential use. The objective of the aquatic resources delineation survey was to identify and characterize potentially jurisdictional aquatic features within the Project site and assess associated hydrological inputs and outputs.

This Aquatic Resources Delineation Report (ARDR) summarizes the environmental conditions observed within the Survey Area, the pre-field and field methodologies employed, and the results of the delineation effort, including mapped locations, extents, and classifications of aquatic features. It is important to note that the jurisdictional boundaries presented herein are preliminary and remain subject to verification by the appropriate regulatory agencies.

The delineation identified five connected, predominantly unvegetated ephemeral drainage segments (NWW-1 through NWW-3, NWW-S1, and NWW-S2) and one constructed concrete channel (NWW-S3), collectively referred to as the NWW Features. These features form a primary drainage network connected by shallow swales, with the exception of NWW-S3, which is located along the northeastern boundary and was constructed to convey off-site drainage. Based on site characteristics, these features are anticipated to be regulated by the Regional Water Quality Control Board (RWQCB) under the Porter-Cologne Water Quality Control Act and by California Department of Fish and Wildlife (CDFW) pursuant to Section 1600 et seq. of the CDFW Fish and Game Code. However, these features are not expected to fall under federal jurisdiction of the USACE pursuant to Section 404 or Section 401 of the Clean Water Act (CWA).

Within the Project site, the NWW Features total approximately 2,451 linear feet and approximately 0.353 acres of non-wetland Waters of the State. Additionally, approximately 0.535 acres of overlapping bank-to-bank channel features are likely subject to CDFW jurisdiction as stream.

Table 1. Summary of Potential Aquatic Resources within the Survey Area

Potential Aquatic Resource Type (Agency ¹ Jurisdiction)	Amount ²	
	Acres	Linear feet
<i>Waters of the U.S. (includes RWQCB and CDFW Jurisdiction)</i>		
Wetland Waters	0.0	--
Non-wetland Waters	0.0	0.0
Total Aquatic Resources	0.0	0.0
<i>RWQCB Waters of the State</i>		
Non-wetland Waters (RWQCB-exclusive)	0.353	2,451
Total RWQCB Aquatic Resources (and RWQCB)	0.353	2,451
<i>CDFW Waters of the State</i>		

Potential Aquatic Resource Type (Agency ¹ Jurisdiction)	Amount ²	
	Acres	Linear feet
Riparian Habitat/Wetlands	0.00	--
Streambed/Lake/Bank	0.535	2,451
Total CDFW Aquatic Resources	0.535	2,451

¹ RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.

² All acreages are rounded to the nearest thousandth (which may account for minor rounding error).

The aquatic resources delineation survey concluded that waters of the U.S (WoUS), as regulated by the U.S Army Corps of Engineers (USACE), are not expected to occur within or immediately adjacent to the Project site. All delineated features exhibited ephemeral, non-relatively permanent flow regimes, lacked surface connectivity to Traditional Navigable Waters (TNWs), and were devoid of wetland indicators, thereby failing to meet current criteria for USACE jurisdiction. However, a formal determination of regulatory jurisdiction can only be made by the agency itself. Potential impacts to Waters of the State may require a Waste Discharge Requirement (WDR) if not also regulated as WoUS. If regulated by USACE as WoUS, a Section 401 Water Quality Certification from the RWQCB would be required. Similarly, impacts to stream or associated riparian areas under the jurisdiction of the CDFW may require authorization through a Section 1602 Streambed Alteration Agreement.

1.0 INTRODUCTION

Huffman Environmental was retained by Bargas Environmental Consulting (Bargas) to perform a desktop review and field-based formal aquatic resources delineation for the proposed Project. The Project proposes the development of residential lots and detached single-family homes with associated facilities. The purpose of this delineation was to document existing site conditions and identify aquatic features potentially subject to jurisdiction by the USACE, the RWQCB, and/or the CDFW (collectively referred to herein as the Regulatory Agencies). This assessment also provides foundational information for the Regulatory Agencies and the Project proponent to support future determinations regarding permitting requirements and/or compensatory mitigation for impacts to jurisdictional waters. The contents of this ARDR are prepared in accordance with the USACE Los Angeles District’s Minimum Standards for Acceptance of ARDRs (USACE 2017). A completed compliance checklist is provided in Attachment E.

A formal aquatic resources delineation survey was conducted by Huffman Environmental on July 3, 2025, to identify and map potentially jurisdictional features within the defined Survey Area. The field survey documented existing physical site conditions, vegetation communities, and aquatic resource features (e.g., drainage channels, wetlands, and other water bodies). Methodologies adhered to the USACE Wetlands Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: AWR (USACE 2008), the National OHWM Field Delineation Manual for Rivers and Streams (David et al. 2022), and the Minimum Standards for Delineation Reports (USACE 2017). Additionally, procedures were consistent with current guidelines from the RWQCB and the CDFW (CDFG 2010), where applicable. Figures depicting the Survey Area and delineation results are provided in Attachment A, and a photographic log is included as Attachment B.

1.1 Project Location

The approximately 136.1-acre project site is located on the west side of North Twin Oaks Valley Road, between Legacy Drive and Del Roy Drive, within the City of San Marcos, California. The site is situated in Section 02, Township 12 South, Range 3 West of the San Bernardino Principal Meridian, as shown on the U.S. Geological Survey (USGS) 7.5-minute San Marcos topographic quadrangle. Regional access is provided via State Route 78 and North Twin Oaks Valley Road, with local access from adjacent city streets. The majority of the property is undeveloped, but it contains three single-family residences and various accessory structures. The site includes the following Assessor's Parcel Numbers (APNs): 218-330-05, -08, -09, -13, -26, -27, -28 and 218-110-02, -03. The approximate centroid of the Project is 117.1654812°W, 33.1601586°N.

1.2 Contact Information

Contact information for the property owner/project applicant is listed below. Access to the site is restricted given active ranching and livestock activities. An access waiver would need to be completed and signed prior to entry on the property. Further, the project applicant or agent would like to accompany the regulatory staff to the site if a site visit is requested.

- Name:
- Address:
- Phone:
- Email:

2.0 REGULATORY SETTING

Three primary regulatory agencies oversee activities within water bodies, streams, creeks, rivers, drainage features, wetlands, vernal pools, riparian areas, and other aquatic or hydrologic features in this portion of San Diego County. The USACE regulates activities under Section 404 of the CWA. The State Water Resource Control Board (SWRCB), through the San Diego RWQCB, administers regulations under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act of 1969. The CDFW regulates activities affecting streambeds, banks, lakes, and wetlands pursuant to Section 1600 et seq. of the CDFW Fish and Game Code.

2.1 USACE Waters of the United States

WoUS are categorized into two primary types: wetlands and non-wetland waters. The USACE may assert jurisdiction over both categories based on a multi-tiered scientific evaluation of soil, vegetation, and hydrological parameters.

According to the Wetlands Delineation Manual (USACE 1987), wetlands are defined as:

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

Under normal circumstances, a wetland is delineated when:

1. The upper soil substrate exhibits continuous or recurrent saturation caused by groundwater or shallow surface water;
2. The saturation is sufficient to cause anaerobic conditions in the upper substrate; and
3. The area's vegetation is dominated by hydrophytes or is unvegetated.

Wetlands must exhibit all three parameters to be considered jurisdictional: hydrophytic vegetation, hydric soils, and wetland hydrology.

Non-wetland waters are delineated primarily based on strong hydrology indicators, such as seasonal flow and the presence of an OHWM. These features may lack wetland vegetation or hydric soils due to frequent scouring or topographic constraints. Non-wetland waters are typically delineated by identifying the lateral and longitudinal extent of the OHWM along a drainage or depression.

In accordance with Section 404 of the CWA, USACE regulates the discharge of dredged or fill material into WoUS. The current definition of WoUS includes:

- Waters used currently, historically, or potentially for interstate or foreign commerce, including tidal waters;
- All interstate waters and wetlands;
- Territorial seas;
- Impoundments of waters otherwise defined as WoUS;
- Tributaries to the above waters that:
 - Are relatively permanent, standing, or continuously flowing, or
 - Significantly affect the chemical, physical, or biological integrity of those waters;
- Wetlands with a continuous surface connection to:
 - WoUS, or
 - Relatively permanent tributaries of WoUS;
- Intrastate lakes, ponds, streams, or wetlands that:
 - Are relatively permanent with continuous surface connection to WoUS, or
 - Significantly affect the integrity of downstream WoUS.

2.1.1 Recent Regulatory Definition History

Under Section 404 of the CWA, the USACE regulates the discharge of dredged or fill material into WoUS. However, the legal definition of WoUS has evolved significantly over time due to shifting federal rulemaking and judicial interpretation, particularly by the U.S. Supreme Court. Prior to 2017, non-navigable tributaries that did not meet the standard of relatively permanent waters (RPWs) (i.e., exhibiting at least seasonal flow for typically three months or more) could still qualify as jurisdictional under the significant nexus test. This test evaluated whether such tributaries, either individually or in combination with similarly situated waters in the region, significantly affected the chemical, physical, or biological integrity of downstream TNWs.

In 2017, the Trump Administration implemented the Navigable Waters Protection Rule (NWPR) in response to prior Supreme Court decisions including *United States v. Riverside Bayview*

Homes, Solid Waste Agency of Northern Cook County (SWANCC) v. United States, and Rapanos v. United States. This rule, consistent with Executive Order 13778 (“Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the ‘WoUS’ Rule”), significantly narrowed the definition of WoUS. The NWPR specifically excluded the following from federal jurisdiction:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features (e.g., streams, swales, gullies, rills, and pools) that flow only in direct response to precipitation;
- Diffuse stormwater runoff and directional sheet flow over uplands;
- Non-navigable ditches not constructed in adjacent wetlands or lacking a continuous surface connection to jurisdictional waters;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if irrigation ceased;
- Upland-constructed or excavated lakes, ponds, and water-filled depressions;
- Features incidental to mining or construction activity (e.g., borrow pits);
- Stormwater control features;
- Groundwater recharge and water reuse infrastructure; and
- Waste treatment systems.

Post-2021, the NWPR was rescinded, and the significant nexus test was reinstated, re-extending federal jurisdiction to include many ephemeral and intermittent streams previously excluded.

On September 8, 2023, the U.S. Supreme Court issued a landmark ruling in *Sackett v. EPA*, which significantly narrowed the federal definition of WoUS. In a 5–4 decision, the Court concluded:

- A wetland must have a clear and continuous surface connection to a navigable water (such as a stream, lake, river, or ocean) to be considered jurisdictional;
- The water body must be relatively permanent, meaning it flows continuously or holds water for the majority of the year;
- The term “adjacent” is interpreted strictly, requiring direct hydrological connectivity to a jurisdictional water.

As a result, many ephemeral and intermittent streams, isolated wetlands, and other features lacking a continuous surface connection to relatively permanent waters are now excluded from jurisdiction under the CWA.

2.1.2 Wetland Parameters

Wetlands are delineated using three key parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. According to the USACE, all three indicators must typically be present under normal circumstances for an area to qualify as a jurisdictional wetland.

Hydrophytic Vegetation

Hydrophytic vegetation is defined as:

“The sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen due to excessive water content” (USACE 1987).

To assess potential wetland areas, surveyors walked the Survey Area to observe sites exhibiting wetland characteristics. Vegetation units in these areas were evaluated, and data were recorded for each vegetation stratum (i.e., tree, shrub, herb, and vine) using the datasheet provided in the AWRS (USACE 2008). The percent absolute cover of each species was visually estimated and documented.

Wetland indicator status for each species was determined using the National Wetland Plant List (Lichvar et al. 2016), which classifies plants as follows:

- OBL (Obligate Wetland): Almost always found in wetlands.
- FACW (Facultative Wetland): Usually occur in wetlands, but occasionally found in uplands.
- FAC (Facultative): Equally likely to occur in wetlands or uplands.
- FACU (Facultative Upland): Usually found in uplands but occasionally in wetlands.
- UPL (Upland): Almost always found in uplands.
- NI (Not Indicated): Insufficient regional data available to assign a status.

Plant nomenclature follows the Jepson Online Interchange (Jepson Flora Project, 2023). For dominant species with an NI status or those not listed in the 2018 plant list, local professional judgment was applied to infer indicator status based on regional habitat associations in southern California.

Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions conducive to the growth and regeneration of hydrophytic vegetation (USACE 1987). These soils typically show chemical signatures due to the reduction and mobilization of iron, manganese, sulfur, or carbon compounds (USACE 2008). The hydric soil criterion is considered satisfied when evidence of a high groundwater table, prolonged soil saturation, or other indicators of anaerobic (reducing) conditions are present within the upper 18 inches of the soil profile. Mapped hydric soils, as identified by the USDA Natural Resources Conservation Service (NRCS), were reviewed in advance of field investigations.

Sampling points were placed at locations inferred to represent the wetland-upland boundary, based on vegetation changes and topographic position. Soil pits were excavated to a minimum depth of 10 inches (or deeper, as necessary) to assess soil color, moisture, groundwater depth, and signs of reduction such as mottling, gleying, oxidation, or sulfidic odor.

Wetland Hydrology

Wetland hydrology indicators confirm that saturation or inundation has occurred, although they may not always convey information about timing or frequency. Of the three wetland parameters, hydrology is often the most ephemeral (USACE 2008).

Hydrologic indicators were assessed through both desktop analysis and field observation. Resources reviewed included USGS topographic maps, NWI and NHD layers, as well as current and historical aerial imagery. In the field, indicators such as water marks, drift lines, sediment deposits, drainage patterns, and presence of aquatic organisms were noted.

The hydrology criterion is considered met if one primary or two secondary hydrology indicators are observed at a sampling point. This suggests a high likelihood that the area is periodically inundated or saturated to the surface during the growing season, leading to anaerobic conditions in the root zone (USACE 1987).

2.1.3 Atypical Situations

Because one or more wetland parameters, vegetation, soils, or hydrology may be altered or removed by recent natural events or human activities, the federal definition of a wetland includes the qualifier “under normal circumstances” (USACE 1987). To address such deviations, the USACE defines two distinct categories: atypical situations and problem areas.

Atypical situations refer to areas where one or more wetland parameters have been significantly modified by recent human activity or natural events, thereby preventing the expression of wetland indicators (USACE 1987).

Problem areas refer to wetland types where indicators of one or more parameters may be naturally absent due to normal seasonal or annual environmental variability, not related to human disturbance or extreme natural events. Representative examples include seasonal wetlands, prairie potholes, drumlins, and vegetated flats (USACE 1987).

Despite lacking one or more of the standard delineation criteria, areas classified as atypical or problem wetlands may still qualify as jurisdictional wetlands. In such cases, delineators rely on a combination of:

- Background information (e.g., historical aerial imagery or land use records),
- Field observations, and
- Comparisons with undisturbed reference sites nearby.

If site conditions are determined to be atypical or not reflective of normal circumstances, supplemental delineation methods, as outlined in the Wetland Delineation Manual and regional supplements, are applied to support a defensible jurisdictional determination.

2.1.4 Vernal Pools

Vernal pools are classified as “problem areas” because they may lack clear indicators of hydrophytic vegetation or hydric soils due to their unique seasonal inundation and drying cycles. According to the Arid West Regional Supplement (USACE 2008):

“The species composition of some wetland plant communities in the Arid West can change in response to seasonal weather patterns and long-term climatic fluctuations. Wetland types influenced by these shifts include vernal pools, playa edges, seeps, and springs. Lack of hydrophytic vegetation during dry periods should not immediately eliminate a site from further consideration as a wetland.”

Since vernal pools often exhibit seasonally ponded soils, soil investigations conducted during dry conditions may not reveal definitive hydric soil indicators. These wetlands commonly occur in depressional basins and are typically perched systems, where water ponds above a restrictive layer (e.g., hardpan or claypan), which limits saturation depth.

The USACE describes these “problem soils” as:

“Seasonally ponded, depressional wetlands occurring in basins and valleys throughout the Arid West. Most are perched systems with water ponding above a restrictive soil layer, such as a hardpan or clay layer, that is at or near the surface (e.g., in vertisols). Some of these wetlands lack hydric soil indicators due to limited saturation depth, saline conditions, or other factors.”

Because of these characteristics, the absence of typical wetland indicators, particularly during dry seasons, does not preclude vernal pools from jurisdictional consideration. Instead, professional judgment, site history, and supplementary data are often required to evaluate their status as WoUS.

2.2 Non-Wetland Waters of United States

The USACE also requires the delineation of non-wetland jurisdictional WoUS. These waters must have strong hydrology indicators, such as the presence of relatively permanent seasonal flows and an ordinary high water mark (OHWM). An OHWM is defined as:

. . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation and/or hydric soil characteristics. Hydric soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils or water flows may be too infrequent to facilitate anaerobic conditions in the soil. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are

delineated by the lateral and upstream/downstream extent of the OHWM of the particular drainage or depression.

Effective June 22, 2020, ephemeral drainages became excluded from USACE jurisdiction under the NWPR. However, with the reintroduction of the significant nexus analysis in 2021, ephemeral drainages were again considered jurisdictional if the significant nexus analysis determined connectivity with a RPW or TNW. The Sackett vs. EPA court case then reversed that decision and now excludes ephemeral drainages as well as many intermittent drainages, as determined in a case-by-case basis based on the premise of “relatively permanent water”.

2.3 RWQCB Jurisdictional Waters

The SWRCB, in coordination with the RWQCBs, serves as the principal state agency responsible for the regulation, coordination, and enforcement of water quality standards in California. Within Los Angeles County, these responsibilities fall under the jurisdiction of the Los Angeles RWQCB.

Pursuant to Section 401(a)(1) of the federal CWA and the Porter-Cologne Water Quality Control Act (California Water Code §13260), the RWQCB has authority to regulate any activity that may result in the discharge of pollutants, including dredged or fill material, into navigable waters, or Waters of the State (WoS).

Under Section 401 of the CWA, a Water Quality Certification from the appropriate state agency is required for any applicant seeking a federal license or permit (e.g., a Section 404 permit from the USACE) for an activity that may result in a discharge into navigable waters. The certification must be issued by the state in which the discharge originates, or by the relevant interstate water pollution control agency, and must confirm that the activity will comply with applicable CWA provisions, specifically Sections 301, 302, 303, 306, and 307.

In April 2019, the SWRCB adopted the “State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State” (referred to as the “Procedures”). These Procedures were subsequently revised in April 2021.

The Procedures establish a regulatory framework to ensure consistent protection of State waters and include four core elements:

- A formal definition of wetlands under State jurisdiction;
- Standardized delineation procedures for identifying State-regulated wetlands;
- A jurisdictional framework for determining whether a wetland qualifies as a WoS; and
- Procedures for submittal, review, and approval of Water Quality Certification and Waste Discharge Requirement (WDR) applications for dredge or fill activities.

In adopting these Procedures, the State Water Board also directed staff to develop implementation guidance to assist applicants in meeting the new regulatory requirements.

2.3.1 2019 New Wetland Definition and Procedures

In 2019, the SWRCB adopted the “State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State” (Procedures). These Procedures were designed to protect California’s waters by standardizing the definition of “wetlands” at the state level and establishing a consistent regulatory framework for dredge and fill activities.

To support implementation, the SWRCB released the “Implementation Guidance for the State Wetland Definition and Procedures” on April 21, 2020, which provides clarification and direction for applying the 2019 Procedures in project assessments and permit applications. On April 6, 2021, the SWRCB issued a revised version of the Procedures, incorporating updates and refinements to improve clarity and implementation effectiveness.

Importantly, the wetland definition and delineation methods outlined in the Procedures apply only to wetlands and do not apply to non-wetland Waters of the State, which are regulated under separate provisions of the Porter-Cologne Water Quality Control Act.

2.3.2 Wetland Waters of the State

Under the SWRCB Procedures, an area is classified as a wetland if it meets the following three criteria:

1. The area has continuous or recurrent saturation of the upper substrate caused by groundwater, shallow surface water, or both;
2. The duration of saturation is sufficient to create anaerobic conditions in the upper substrate; and
3. The vegetation is dominated by hydrophytes, or the area is largely devoid of vegetation.

This modified three-parameter definition closely mirrors the federal approach (which requires hydrophytic vegetation, hydric soils, and wetland hydrology), but with important distinctions that broaden the scope of State-regulated wetlands:

- The SWRCB definition recognizes hydric substrates as a valid criterion;
- It also allows for areas with less than 5% vegetation cover to be considered wetlands, provided hydrologic and soil indicators are present.

As a result, some areas may qualify as wetlands under State jurisdiction even if they do not meet all three parameters, unlike the federal standard which typically requires the presence of all three. This more inclusive approach is intended to ensure comprehensive protection of California’s diverse wetland types, particularly in arid or disturbed environments.

2.3.3 Waters of the State

According to the California Code of Regulations, Title 23, Section 3831(w):

“All WoUS are also ‘Waters of the State.’”

This provision reflects the SWRCB intent to adopt a broad interpretation of jurisdictional waters by incorporating the federal definition of WoUS into the framework for WoS. Features considered WoS include, but are not limited to:

- Those determined to be WoUS by the U.S. EPA or the USACE through an approved jurisdictional determination;
- WoUS identified in an aquatic resource report certified by the USACE and used to support a permitting decision; and
- Features consistent with any current or historical judicial interpretation or federal regulation defining WoUS.

Importantly, a wetland previously regulated as a WoUS continues to be protected as a WoS, even if subsequent changes in federal regulations remove that wetland from federal jurisdiction. This continuity ensures regulatory stability in an area subject to frequent shifts in federal policy.

As with other components of the SWRCB’s jurisdictional framework, the status of a wetland as a WoUS can be used to establish its status as a WoS. In other words, a wetland excluded from federal jurisdiction (e.g., due to revised federal definitions) may still qualify as a WoS under independent state criteria.

2.3.4 Porter-Cologne Act

The Porter-Cologne Water Quality Control Act requires that:

“Any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state shall file a report of discharge” (Water Code § 13260(a)(1)).

This report typically takes the form of an application for WDRs. Discharges of fill material into WoS, including wetlands, streambeds, or other aquatic features, that do not fall under federal jurisdiction pursuant to Section 404 of the CWA may still require authorization from the appropriate RWQCB through one of the following mechanisms:

- Issuance of individual or general WDRs, or
- Approval of a Waiver of WDRs in accordance with State Water Board policies.

In effect, even where federal jurisdiction is absent (e.g., for isolated waters or ephemeral drainages), the State maintains independent authority to regulate discharges to protect water quality under the Porter-Cologne Act.

2.4 CDFW Jurisdictional Waters

Pursuant to Division 2, Chapter 6, Section 1602 of the Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish or wildlife. A notification of a Lake or Streambed Alteration Agreement must be submitted to CDFW for “any activity” that may substantially change the bed, channel, or bank of any river, stream, or lake.” In addition, CDFW has jurisdiction over riparian

habitats (e.g., riparian woodland) associated with watercourses. CDFW jurisdictional waters are delineated by the distances between the outer edges of wetland/riparian vegetation or at the tops of the banks of streams or lakes, whichever is wider. CDFW jurisdiction does not include intertidal areas or most isolated aquatic resources. The CDFW reviews proposed actions, and if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the LSAA.

Although CDFW does not regulate vernal pools under Section 1602 of the Fish and Game Code, CDFW will assert jurisdiction over isolated riparian features (including vernal pools) if California state threatened and/or endangered species are present via the California ESA, or which provide resources directly or indirectly to fish and wildlife of the region. CDFW may also assert jurisdiction over modified or man-made waterways; such jurisdiction is generally based on the value of such features to support riparian or aquatic plant or animal species. Examples of features that may or may not be subject to CDFW jurisdiction include:

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated by CDFW as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

CDFW jurisdictional limits may also include artificial stock ponds and irrigation ditches constructed within uplands, and outer drip line limits of adjacent riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status or its location beyond the defined bed, bank or channel.

3.0 METHODS

3.1 Database and Literature Review

Prior to conducting the aquatic resources delineation survey, Huffman Environmental completed a comprehensive review of available background information related to the Project site. This effort included evaluation of historical aerial imagery, regional geography, and site-specific topography to inform fieldwork planning and identify potentially jurisdictional features.

A desktop analysis was conducted using Google Earth (2025) to examine visible drainage patterns and landscape features. Topographic context was reviewed using the U.S. Geological Survey (USGS) 7.5-minute San Marcos, California quadrangle (USGS 2018).

The following datasets and tools were consulted prior to the field survey:

- USFWS – NWI (2025)
- USDA – Web Soil Survey Mapper (2025)

- USGS – NHD (2025)
- CDFW – CNDDDB and CNPS Inventory (2025), with emphasis on sensitive riverine, riparian, and aquatic species

Using these resources, site maps were generated based on current aerial imagery, and potentially jurisdictional aquatic features were preliminary identified to guide and streamline field verification efforts.

3.2 Field Surveys

An aquatic resources delineation survey was conducted on July 3, 2025, by Huffman Environmental biologists Kris Alberts and Garrett Huffman, in accordance with the methodologies outlined in the (USACE 1987) and the AWRS (USACE 2008). The objective was to identify and delineate potentially jurisdictional WoUS, WoS, and CDFW stream within the Project site.

In accordance with the methodology outlined in Section IV of the 1987 Manual, the steps required for a routine wetland determination were applied throughout the entire Project area (Figure 1). This landscape-scale approach provided additional context for identifying and evaluating sensitive aquatic resources. Potential wetlands and non-wetland waters were assessed for the presence of wetland parameters and/or drainage features, and delineation was conducted using aerial maps and submeter-accurate GPS equipment (<1-foot accuracy). Measurements of length and width were collected for features exhibiting characteristics of episodic surface flow. Soil pits were excavated at representative locations throughout the Project area in accordance with the USACE Manual. Pits were placed within each distinct vegetation community, in low-lying and transitional areas where wetland conditions were most likely to occur, and along wetland–upland boundaries.

Field evaluations followed protocols established by:

- The Wetland Delineation Manual (USACE 1987)
- The AWRS (USACE 2008)
- The National OHWM Field Delineation Manual for Rivers and Streams (David et al. 2022)

The wetland hydrology indicators that were surveyed for include the following:

- Inundation or saturation
- Watermarks
- Drainage patterns
- Soil cracks and sediment deposits
- Drift lines
- Presence of aquatic invertebrates

Vegetation was analyzed using dominant species’ wetland indicator statuses per the USDA National Wetland Plant List (2018). For non-wetland waters, the team evaluated channel morphology, presence of OHWM, and potential connectivity to TNWs or RPWs.

For regulatory context:

- RWQCB jurisdiction was evaluated consistent with Section 401 of the CWA and typically mirrors current and historical jurisdictional interpretations.
- CDFW jurisdiction was assessed based on the presence of a defined bed and bank and/or riparian or wetland vegetation. Jurisdictional limits were mapped to the greater of either the top-of-bank or the outer edge of associated riparian vegetation, in accordance with standard CDFW practices.

After the field survey, GIS analysts and field biologists processed and analyzed all data to delineate potentially jurisdictional features. Feature geometry (e.g., linear feet and acreage) was calculated using GIS software by overlaying GPS-collected field data on current aerial imagery. The NWW Features were digitized as polylines and then converted into polygons using measured widths to allow for submeter-accurate acreage calculations.

4.0 ENVIRONMENTAL SETTING

This section describes the topography, land use, hydrology, vegetation characteristics, and soils associated with the Project.

4.1 Topography

The approximately 136.1-acre Project site ranges in elevation from 635 to 935 feet amsl. The northwestern boundary is the highest point on site at approximately 935 feet amsl, while the southwestern boundary descends to about 815 feet amsl. The northeastern and southeastern boundaries reach the site's lowest elevations, each at approximately 635 feet amsl.

The site is situated along a series of east- and north-facing slopes, with the primary drainage feature (NWW-1) conveying surface flow eastward across gently sloping terrain. The lowest topographic point within the Survey Area occurs along the eastern boundary, where the site intersects North Twin Oaks Valley Road.

4.2 Land Use

The site is largely undeveloped, with the exception of three single-family residences and associated outbuildings concentrated in the northern portion. Historically, the land has been used for rural residential and extensive, agricultural purposes (orchards and livestock [cattle] ranching). Evidence of previous land disturbance such as access roads, utility easements, and irrigation remnants is visible throughout the site. Portions of the property have also been subject to periodic vegetation clearance for fire prevention.

Current land cover is dominated by:

- Intensive Agriculture - Pasture
- Disturbed ruderal vegetation

- Remnant patches of coastal sage scrub and chaparral, particularly along slopes and drainage features

The terrain includes north- and east-facing slopes, which transition into gently sloping lowlands near the eastern site boundary, adjacent to Twin Oaks Valley Road. The agriculture-pasture within the Survey Area is currently utilized for active cattle grazing, indicative of ongoing agricultural land use.

Surrounding land uses are primarily urban and suburban, including:

- Residential subdivisions to the east and south
- Institutional and recreational facilities to the north (e.g., schools, parks)
- Vacant or partially developed parcels to the west

Given its position within the San Marcos Sphere of Influence and proximity to the urban-wildland interface, the site is subject to several regulatory considerations, including compliance with the CEQA and potential alignment with the Multiple Habitat Conservation Plan.

4.3 Hydrology

The delineation identified five connected, predominantly unvegetated ephemeral drainage segments (NWW-1 through NWW-3, NWW-S1, and NWW-S2) and one constructed concrete channel (NWW-S3), collectively referred to as the NWW Features. These features form a primary drainage network connected by shallow swales, with the exception of NWW-S3, which is located along the northeastern boundary and was constructed to convey off-site drainage.XX

Additional hydrologic infrastructure lies outside the eastern Project boundary, including spillway inlets, seepage outlets, and concrete culverts that direct surface flow beneath North Twin Oaks Valley Road. These man-made features facilitate downstream conveyance to San Marcos Creek, which ultimately drains into Lake San Marcos, approximately five miles southwest of the Project site.

According to the NWI, two blue-line streams traverse the site and encompass the entire NWW Feature network. However, the NHD does not identify these ephemeral streams (Figure 2a & 2b). The mapped blue-line feature generally flows from west to east (primary ephemeral drainage) and from northwest to southeast (associated swale), merging near the center of the Survey Area. The NWW Features are summarized as follows:

- NWW-1 enters the site at the western boundary (~750 feet amsl) and is the 2nd longest mapped segment that meets both RWQCB and CDFW jurisdictional criteria by possessing an OHWM and bed and bank characteristics. It is an ephemeral channel that is natural and capable of conveying surface water with top of bank boundaries, but has received heavy disturbance from cattle that has impacted the OHWM intermittently. After 597 linear feet, NWW-1 terminates in an excavated pond designated as NWW-S1.
- NWW-S1 (~2,701 sq. ft.): This pond is anthropomorphic in origin and has been expanded to create ponding likely for agricultural purposes, such as cattle watering. It is lined by an

earthen berm, with a OHWM and top of bank boundaries, that serves as a dam for ponding water. (Figure 5a & 5b)

- An approximately 10-foot overflow swale at the eastern edge of NWW-S1 connects to NWW-2, which also receives graywater runoff from an adjacent residence. It has a variable bed and bank boundary with the top of bank boundary being the widest among the entire stretch of the ephemeral drainage. NWW-2 continues southeast for approximately 207 linear feet before narrowing and becoming NWW-3 (Figure 5a & 5c).
- NWW-3 drains eastward and consists of variable OHWM and top of bank boundaries due to heavy impacts from cattle also utilizing it as a frequently traversed path. It drains eastward for 924 linear feet before becoming a swale. This portion is mapped as a non-jurisdictional swale for 250 linear feet further east until it leads into a second excavated pond, designated NWW-S2 (Figure 5a, 5c & 5d).
- NWW-S2 (~4,720 sq. ft.) appears to be designed to capture any remaining flow that runs eastward across the site for agricultural purposes, similar to NWW-S1 function. The pond is also anthropogenic, having been excavated and expanded to increase water storage capacity, likely to support agricultural uses such as cattle watering. The feature is bordered by a constructed berm that serves as a dam to retain surface water. A clearly identifiable OHWM is present along the interior perimeter of the basin, along with a distinct top of bank, delineating the lateral extent of hydrologic influence and the physical limits of the berm. All shrub species in the basin are less than 10 inches in height. This vegetation structure suggests that the basin receives periodic inundation and prevents taller growth (Figure 5a & 5d).
- The eastern OHWM of NWW-S2 is connected to a rock-lined culvert inlet, which would convey overflow beneath a residential access road toward the open field in the event that there would be heavy precipitation in a relatively short duration. (Figure 5a, 5d & 5e).
- NWW-S3 (~6,552 sq. ft): A concrete-lined channel that is approximately 504 linear feet and 13 feet wide is located along the northeastern boundary of the Project area. This channel collects off-site surface runoff, conveying flows from north to south into a spillway inlet, which then redirects the water beneath Twin Oaks Valley Road via an underground culvert system. Any sheet flow originating within the Project boundaries along this edge is captured and conveyed within this concrete channel. Additionally, a second spillway inlet is present off-site, south of Highland Oaks Court, along the eastern Project boundary. This structure collects both Project-generated sheet flow and off-site drainage, similarly routing it under Twin Oaks Valley Road. An additional spillway inlet is located approximately 400 feet south of the NWW-S3 spillway inlet and about 130 feet south of Highland Oaks Court. This structure is designed to capture and convey sheetflow eastward beneath Twin Oaks Valley Road. (Figure 5a & 5e).

All NWW Features (except NWW-S3) have been substantially affected by free-range cattle, which have used the drainages as travel corridors. This has resulted in compacted and disturbed soils, suppressed vegetation establishment, and altered OHWM and bed-to-bank characteristics. These impacts may continue due to ongoing agricultural use, and they complicate interpretation of hydrologic and biological indicators.

The entire drainage network is best characterized as ephemeral, with flow occurring only during or shortly after precipitation events in a typical year. Other than the concrete-lined storm channel

(NWW-S3) in the northeast portion of the site, the drainage network system on-site does not appear to reach the eastern boundary of the Project site as a defined feature, instead transitioning to non-jurisdictional sheetflow that drains into an off-site system consisting of underground spillway inlets that channel flow eastward under North Twin Oaks Valley Road.

Although the NWI mapped the drainage as Cowardin Classification Code R4 (intermittent riverine), field evidence and NHD data support a more accurate classification as R6 (ephemeral riverine) (Cowardin et al. 1979). Portions of the blue-line feature that did not meet jurisdictional criteria for RWQCB or CDFW were classified as swales. The evaluated drainage features lacked a discernible OHWM and did not exhibit defined bed and bank morphology, indicating that they function more as upland drainage swales rather than jurisdictional streams. Vegetation within these features consisted entirely of upland species, with no riparian vegetation present, suggesting insufficient hydrologic influence to support riparian habitat. Additionally, no hydric indicators were visible, confirming the absence of prolonged saturation or inundation.

4.3.1 Man-made Features

All NWW Features have been directly or indirectly modified due to historical and ongoing agricultural practices. Notably, NWW-S1 and NWW-S2 are excavated ponds constructed within the primary ephemeral drainage corridor. These features impede or significantly reduce downstream flow, particularly beyond NWW-S2. NWW-S3 is a concrete lined channel constructed parallel to the northeast Project boundary, which collects, and directs off-site flow from the north to south for 500 feet before turning eastward under Twin Oaks Valley Road.

Two culverts are present on-site, both located beneath a residential access road, one at the eastern edge of NWW-S2 and another connecting a downstream swale. Overall, jurisdictional features and swales within the Survey Area show significant disturbance due to cattle movement, which has altered natural drainage morphology and disrupted hydrologic and vegetative indicators.

4.3.2 Hydrologic Unit

The Project site is located within the Carlsbad Watershed Hydrologic Unit (HUC8: 18070303) and more specifically within the San Marcos Creek Subwatershed (HUC12: 180703030503) (RWQCB 2021).

4.4 Soils

The Project site consists of well-drained, non-hydric soils, as classified by the Natural Resources Conservation Service (NRCS, 2021). The mapped soil types and their respective acreages within the Survey Area are summarized in Table 2 (Figure 3).

Table 2. Soils Occurring Within the Survey Area

Soil Series	Acre(s)
Escondido very fine sandy loam, 15 to 30 percent slopes , eroded (EsE2)	17.1
Escondido very fine sandy loam, 5 to 9 percent slopes(EsC)	4.8
Friant rocky fine sandy loam, 30 to 70 percent slopes (FxG)	54.9
Friant rocky fine sandy loam, 9 to 30 percent slopes (FxE)	35.1
Huerhuero loam, 2 to 9 percent slopes (HrC)	10.3
Visalia sandy loam, 2 to 5 percent slopes (VaB)	13.9
Total	136.1

4.4.1 Hydric Soils

To assess the presence of hydric soils, six sampling points were selected within areas suspected of wetland influence. Sampling locations were chosen based on visible changes in vegetation composition and topography suggesting possible wetland/upland transitions.

Each pit was excavated to a depth of approximately 18 inches, and soil horizons were examined for:

- Color
- Saturation
- Depth to groundwater
- Indicators of reducing conditions (e.g., mottling, gleying, oxidation, sulfidic odor)

No hydric soil indicators were identified at any of the six sample locations. Therefore, hydric soils are presumed absent throughout the Survey Area.

4.4.2 Problematic and Disturbed Hydric Soils

No problematic or disturbed hydric soils were identified within the Survey Area. All soils were consistent with non-hydric classifications.

4.4.3 Non-Hydric Soils

Given the absence of hydric soils at all sampling points, the entire Survey Area is comprised of non-hydric soils.

4.5 Vegetation

The Project site contains an ephemeral drainage system characterized by a disturbed, unvegetated channel bottom, bordered by two dominant vegetation communities: coastal sage

scrub (CSS) and intensive agriculture-pasture. Coastal sage scrub occurs primarily along NWW-1, NWW-2, and NWW-S1, while agriculture-pasture is predominant along NWW-3, NWW-S2, and NWW-S3. These vegetation types also dominate the surrounding upland portions of the Survey Area (Figure 4).

The coastal sage scrub community is primarily composed of California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and black sage (*Salvia mellifera*). Co-dominant species within the CSS habitat include red bush monkeyflower (*Diplacus puniceus*), lemonade berry (*Rhus integrifolia*), and deerweed (*Acmispon glaber*), all characteristic of this southern California plant association.

The intensive agriculture-pasture community is dominated by purple false brome (*Brachypodium distachyon*), slender wild oat (*Avena barbata*), and broadleaf filaree (*Erodium botrys*). Additional co-dominant species observed include western ragweed (*Ambrosia psilostachya*), ripgut brome (*Bromus diandrus*), field bindweed (*Convolvulus arvensis*), blue-eyed grass (*Sisyrinchium bellum*), wild radish (*Raphanus sativus*), purple needlegrass (*Stipa pulchra*), and shortpod mustard (*Hirschfeldia incana*).

Of the species identified, only broadleaf filaree (*Erodium botrys*), classified as facultative upland (FACU), and blue-eyed grass (*Sisyrinchium bellum*), classified as facultative wetland (FACW), appear on the Arid West Regional Wetland Plant List. However, both species were observed outside the OHWM of all delineated NWW Features and therefore do not contribute to wetland classification within jurisdictional boundaries.

5.0 PRECIPITATION DATA AND ANALYSIS

Huffman Environmental utilized precipitation data from the NRCS Agricultural Applied Climate Information System (AgACIS) for the San Marcos 2.5 weather station, selected for its proximity to the Survey Area and the availability of comprehensive historical climate records (NRCS 2025; see Table 3). To complement this data, Huffman Environmental also applied the Antecedent Precipitation Tool (APT) to evaluate whether the delineation survey period occurred under drier-than-normal, average, or wetter-than-normal conditions (USACE 2025a).

The APT provides context for assessing short- and long-term precipitation trends, helping determine whether normal climatic and hydrologic conditions were present during the site visit. This evaluation supports regulatory decision-making and ensures that site conditions align with expected environmental baselines. The APT also aids in completing Wetland Determination Data Forms by providing standardized climatological metrics to inform hydrology assessments for potential aquatic resources.

5.1 Precipitation Summary

Table 3 describes the estimated monthly total precipitation for the Survey Area from January 2022 - June 2025 to provide the pertinent precipitation data from the NRCS database for the San Marcos 2.5 station (NRCS 2025).

Table 3. Precipitation Data for January 2022 – June 2025 (inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2022	0.49	0.59	2.43	0.18	0	T	0	0	0.41	0.42	2.22	1.79	8.53
2023	9.3	3.43	6.39	0.2	0.45	0.03	0	2.43	0.02	0.26	0.88	0.84	24.23
2024	3.46	6.41	3.22	1.07	0.15	0	0	0	0.09	0	0.41	0.03	14.84
2025	0.54	3.03	3.98	0.35	0.32	0.09	M	M	M	M	M	M	M

M = Missing Data, T = Trace

5.2 Antecedent Precipitation Tool Data

The APT provides three key climatological parameters to evaluate site conditions: the Palmer Drought Severity Index (PDSI), season designation (wet or dry), and antecedent precipitation condition (USACE 2024). The PDSI is a standardized index calculated monthly, with values ranging from -10 (extremely dry) to +10 (extremely wet), and is used to assess long-term drought severity (NOAA 2024).

Seasonal classification is determined based on regional guidance from the Arid West Regional Supplement, which defines the typical timing of wet and dry seasons in the project area. The antecedent precipitation condition is evaluated using the Antecedent Runoff Condition (ARC) score, with thresholds defined as follows (USACE 2000):

- Wetter than normal: $ARC > 14$
- Normal: ARC between 10 and 14
- Drier than normal: $ARC < 10$

Table 4 summarizes the results of the APT analysis, comparing the 30-day rolling precipitation totals during the field survey period to the 30-year historical average from weather stations within a 30-mile radius of the Survey Area. This summary includes the PDSI value and classification, season determination, ARC score, and resulting precipitation condition.

Based on the APT output (see Attachment D), the Survey Area was classified as experiencing “Extreme Drought” according to the PDSI. However, the antecedent precipitation condition was “Normal”, based on rolling precipitation totals from the three months preceding the July 3, 2025, field visit. Huffman Environmental wetland scientists evaluated these climatic factors in conjunction with field observations and aerial imagery, both recent and historical, to ensure an accurate representation of on-site aquatic feature extent for this ARDR, particularly in light of preceding years of drought.

Table 4. Antecedent Precipitation Tool Data for the Survey Area

Field Survey Date	PDSI Value	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
1/23/2024	-4.3	Extreme Drought	Dry Season	-.1	Wetter than Normal

¹Repeated attempts to complete APT processing resulted in program errors to compute ARC Score.

6.0 DESCRIPTION OF OBSERVED POTENTIAL AQUATIC RESOURCES

The following descriptions summarize the observed potential aquatic resources within the Survey Area and document the presence or absence of jurisdictional indicators based on the methodologies outlined in Section 3. Field evaluations included identification of hydrological indicators such as drainage patterns, shelving, sediment deposits, changes in vegetation composition or cover, and the presence of algae or other hydrologic features.

Each subsection below corresponds to specific jurisdictional criteria set forth by the respective Regulatory Agencies. These subsections are intended to be interpreted independently, unless otherwise noted, due to variations in regulatory definitions and applicability among agencies.

Figures 5a, 5b, 5c, and 5d illustrate the mapped locations of aquatic features potentially subject to RWQCB and/or CDFW jurisdiction within the Survey Area. Table 5 provides a quantitative summary of the acreages and linear extents of each jurisdictional category.

Table 5. Potential Jurisdictional Waters Within the Survey Area

Jurisdictional Waters	Acres (Linear Feet)
USACE Jurisdiction	
Wetland WoUS	0 (0)
Non-Wetland WoUS	0 (0)
USACE Total Jurisdiction	0 (0)
RWQCB Jurisdiction	
Wetland Waters of the State	0 (0)
Non-Wetland Waters of the State	0.353 (2,451)
RWQCB Total Jurisdiction	0.353 (2,451)
CDFW Jurisdiction	
Riparian Only	0.00
Stream (Bank-to-Bank)	0.535 (2,451)
CDFW Total Jurisdiction	0.535 (2,451)

6.1 USACE Jurisdiction

Under current regulatory thresholds, the USACE does not assert jurisdiction over non-relatively permanent waters. All aquatic features assessed within the Survey Area were determined to be

ephemeral and lacked continuous surface connection to traditionally navigable or relatively permanent waters. As such, no USACE -jurisdictional WoUS are present within the Survey Area.

6.2 RWQCB Jurisdiction

All delineated waters within the Survey Area fall under the jurisdiction of the RWQCB pursuant to Section 13000 et seq. of the California Water Code (CWC; 1969 Porter-Cologne Water Quality Control Act). The delineation identified approximately 0.353 acre (2,451 linear feet) of non-wetland WoS within ephemeral drainage features. No wetland waters were observed within the Survey Area.

These non-wetland features are assumed to be exclusively RWQCB-jurisdictional, as they do not meet current federal criteria for WoUS. Table 6 provides a detailed breakdown of the mapped RWQCB-jurisdictional features, including Cowardin classifications, observed hydrologic indicators, vegetation, and feature dimensions.

Table 6. Aquatic Resource Summary Table: RWQCB

Aquatic Resource Name	Cowardin Code ¹	Active Channel Width Range (Feet)	Observed OHWM Indicators ²	Observed Wetland Parameters ³	Presence of OHWM/ Wetland	Dominant Vegetation ⁴	Location (lat, long)	Total Acre(s) ⁵	Total Linear Feet
NWW-1	R4SBC	0.5 - 2	BBS	None	Yes/No	Non-vegetated Channel/ Coastal Sage Scrub	117.168315 5°W 33.1598967° N	0.013	597
NWW-2	R4SBC	1-2	BBS	None	Yes/No	Non-vegetated Channel/ Agriculture-pasture	117.167528 9°W 33.1596779° N	0.005	207
NWW-3	R4SBC	0.5-3	BBS	None	Yes/No	Non-vegetated Channel/ Agriculture-pasture	117.165015 3°W 33.1600094° N	0.025	924
NWW-S1	R4SBC	20-50	BBS	None	Yes/No	Non-vegetated Channel/ Coastal Sage Scrub	117.167996 2°W 33.1599722° N	0.062	120
NWW-S2	R4SBC	5-80	BBS	None	Yes/No	Non-vegetated Channel/ Agriculture-pasture	117.164003 0°W 33.1600999° N	0.098	98
NWW-S3	R4SBC	13	-	None	No	Concrete Channel	117.161133 6°W 33.1616289° N	0.15	504
Total	-	-	-	-	-	-	-	0.353	2,451

¹ Dominant Cowardin code utilized to represent each feature based on field observations and available data.

² OHWM Indicators: CVS = Change in vegetation species; SH = Shelving; CVC = Change in vegetation cover; BBS = Break in bank slope; WS = Water staining; SD = Soil development; CCS = Change in Character of Soil; WR = Wracking

³ Wetland Indicators: HV = Hydrophytic vegetation; HS = Hydric soil; WH = Wetland hydrology

⁴ See Figure 4 for all vegetation communities present within the Survey Area

⁵ Acreages summed using raw numbers provided during GIS analysis and thus the sum of the total rounded numbers may not directly add up in this table.

6.3 CDFW Jurisdiction

Likely CDFW jurisdictional streams within the Survey Area are consistent with WoS and extend beyond the OHWM to the top of bank. Based on delineation results, CDFW-jurisdictional streams within the Survey Area total approximately 0.535 acres. No areas meeting the criteria for CDFW-regulated riparian vegetation were documented.

Table 7 provides further detail on the CDFW-jurisdictional stream features, including vegetation communities, width ranges, and mapped extents.

Table 7. Aquatic Resource Summary: CDFW

Aquatic Resource Name	Aquatic Resource Type	Vegetation Community	Width Range (Feet)	Location (lat, long)	Total Acre(s) ¹	Total Linear Feet
NWW-1	Un-vegetated Streambed	Non-vegetated Channel/ Coastal Sage Scrub	4-8	117.1683155° W 33.1598967° N	0.076	597
NWW-2	Un-vegetated Streambed	Non-vegetated Channel/ Coastal Sage Scrub	4-8	117.1675289° W 33.1596779° N	0.035	207
NWW-3	Un-vegetated Streambed	Non-vegetated Channel/ Agriculture-pasture	1-10	117.1650153° W 33.1600094° N	0.114	924
NWW-S1	Un-vegetated Streambed	Non-vegetated Channel/ Coastal Sage Scrub	20-50	117.1679962° W 33.1599722° N	0.062	120
NWW-S2	Un-vegetated Streambed	Non-vegetated Channel/ Agriculture-pasture	5-80	117.1640030° W 33.1600999° N	0.098	98
NWW-S3	Concrete Channel	Non-vegetated Channel/ Developed-	13	117.1611336° W 33.1616289° N	0.15	504
Total	-	-	-	-	0.535	2,451

¹ Acreages summed using raw numbers provided during GIS analysis and thus the sum of the total rounded numbers may not directly add up in this table

7.0 SURVEYOR CERTIFICATION

This report was prepared by Huffman Environmental for Bargas. All data, analyses, findings, and attachments accurately reflect the existing site conditions and the Project as described to Huffman Environmental. The contents are based on the best available information and professional judgment at the time of report preparation.

Any use of this report by third parties, or reliance on its contents for decision-making purposes, is at the sole discretion and risk of those parties. Huffman Environmental assumes no responsibility for any damages, losses, or consequences that may arise from third-party use or interpretation of this report.

Cordially,

A handwritten signature in black ink that reads "Garrett Huffman". The signature is written in a cursive, slightly slanted style.

Garrett Huffman
Principal Biologist
Huffman Environmental, LLC
(623) 238-1545
garrett@huffmanenvironmental.com

APPENDIX A
FIGURES

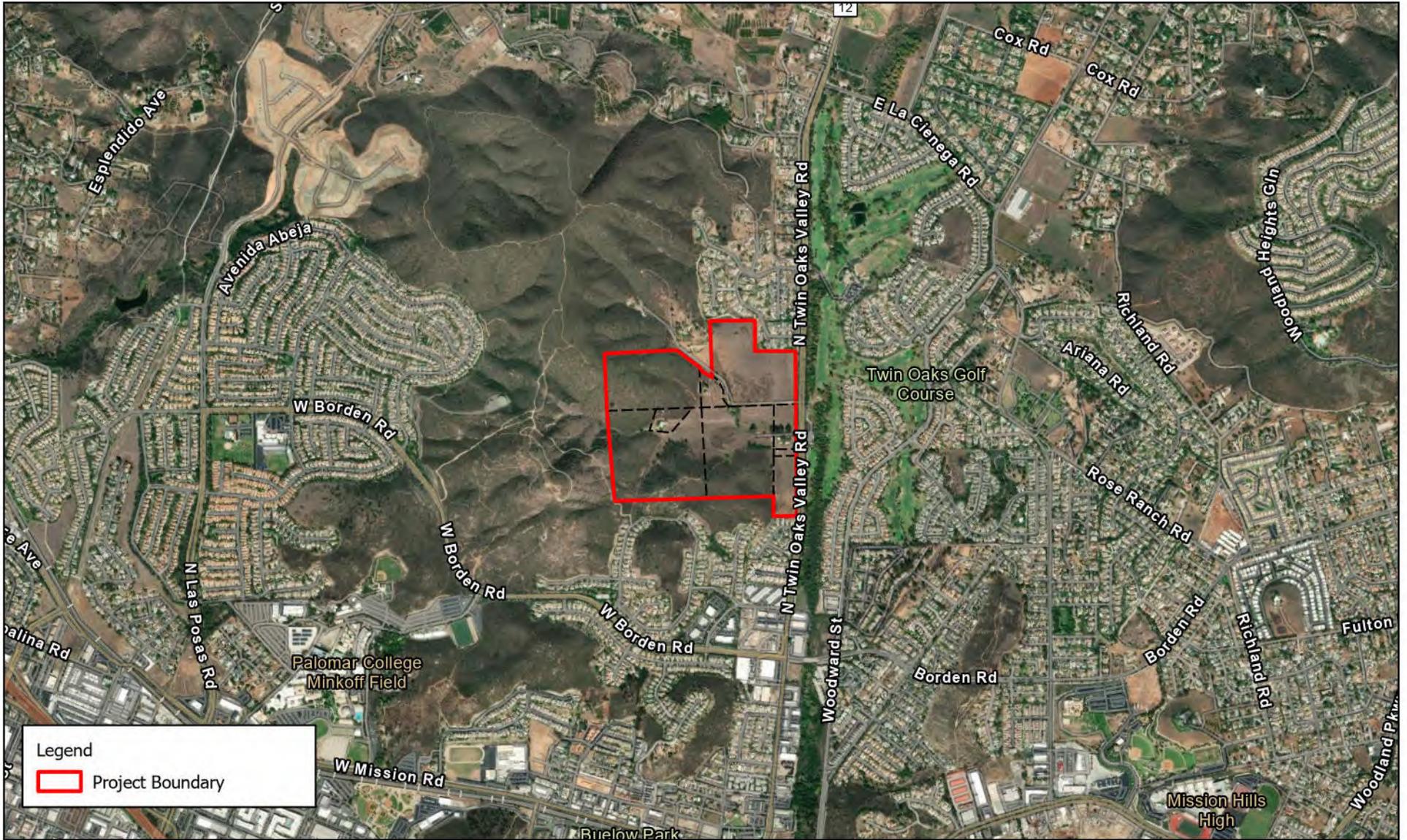
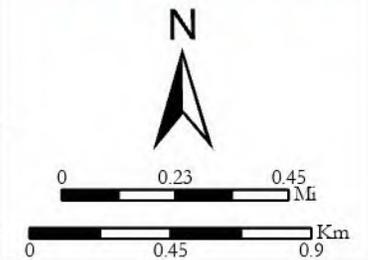


Figure 1: Project Location

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Results**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



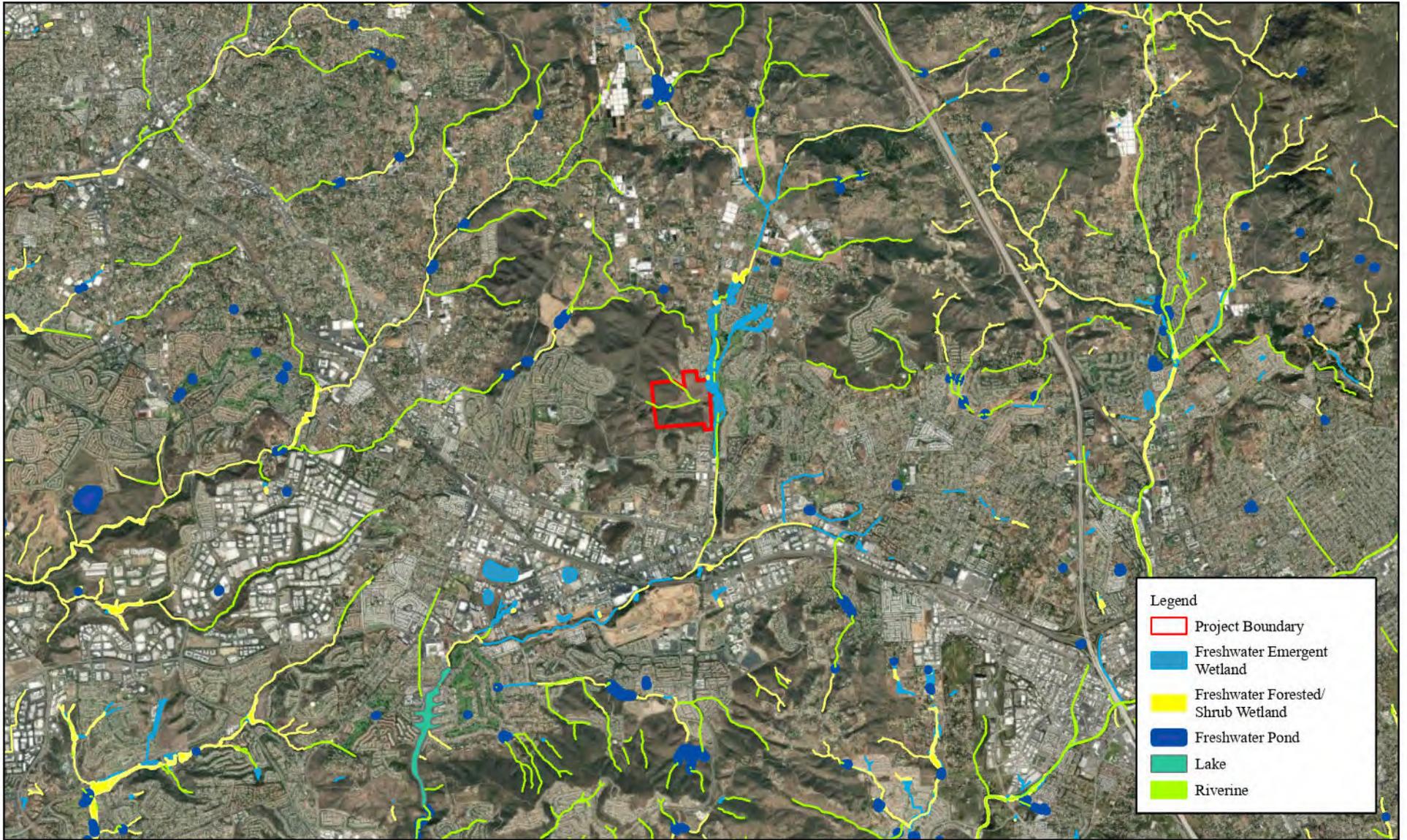
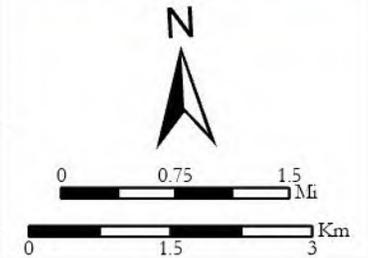


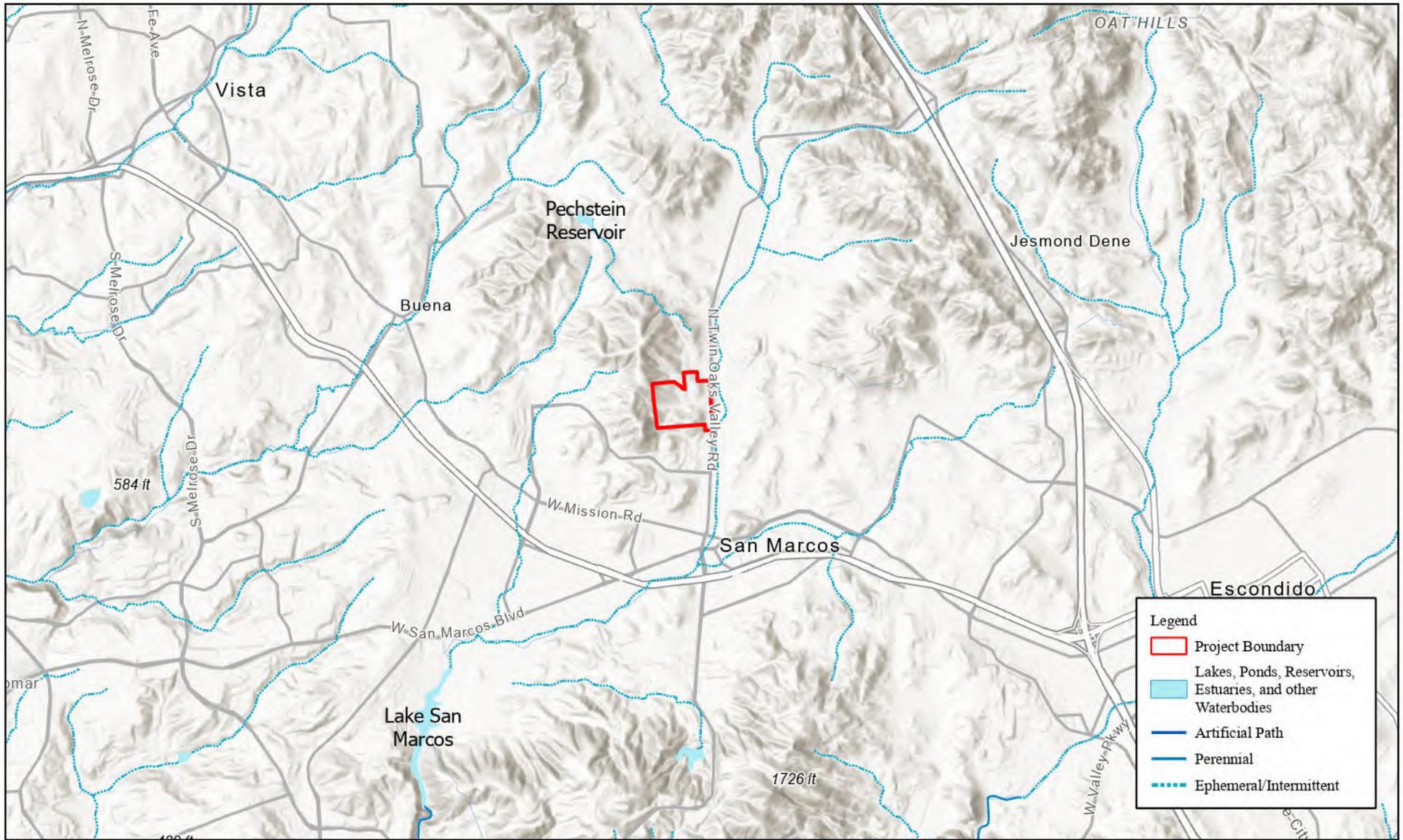
Figure 2a: National Wetlands Inventory

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Survey**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet





Legend

- Project Boundary
- Lakes, Ponds, Reservoirs, Estuaries, and other Waterbodies
- Artificial Path
- Perennial
- Ephemeral/Intermittent

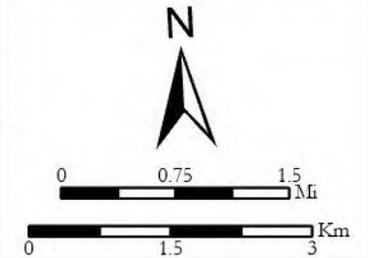


Figure 2b: National Hydrography Dataset

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Survey**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



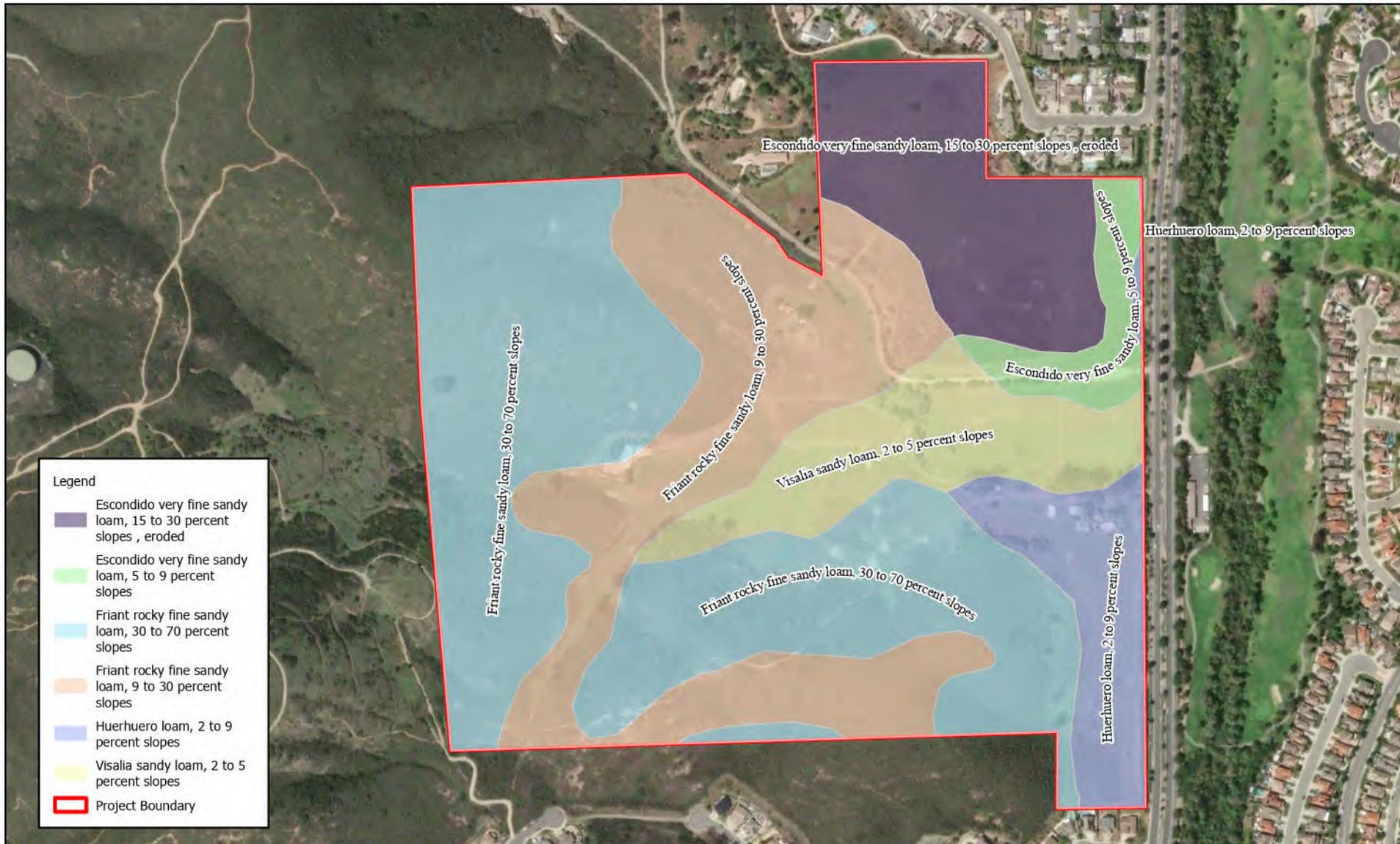
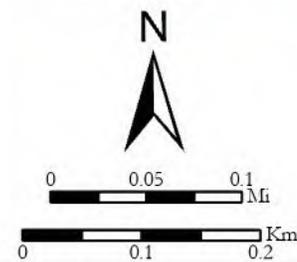


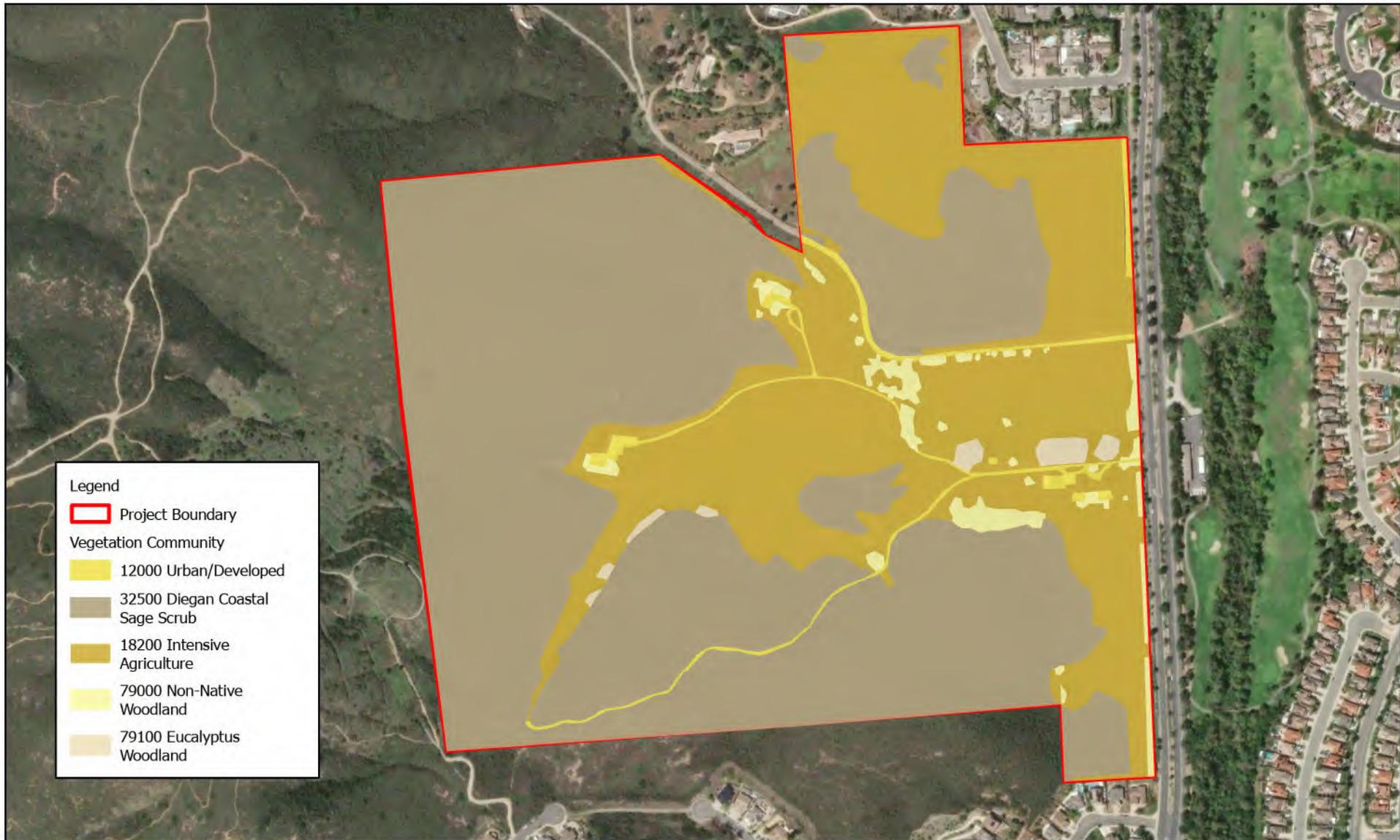
Figure 3: Soils Map

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Survey**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet





Legend

Project Boundary

Vegetation Community

- 12000 Urban/Developed
- 32500 Diegan Coastal Sage Scrub
- 18200 Intensive Agriculture
- 79000 Non-Native Woodland
- 79100 Eucalyptus Woodland

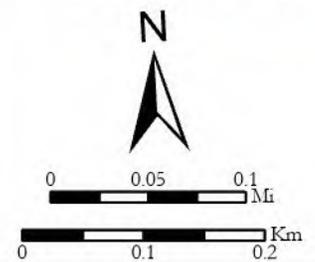


Figure 4: Vegetation Map

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Survey**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



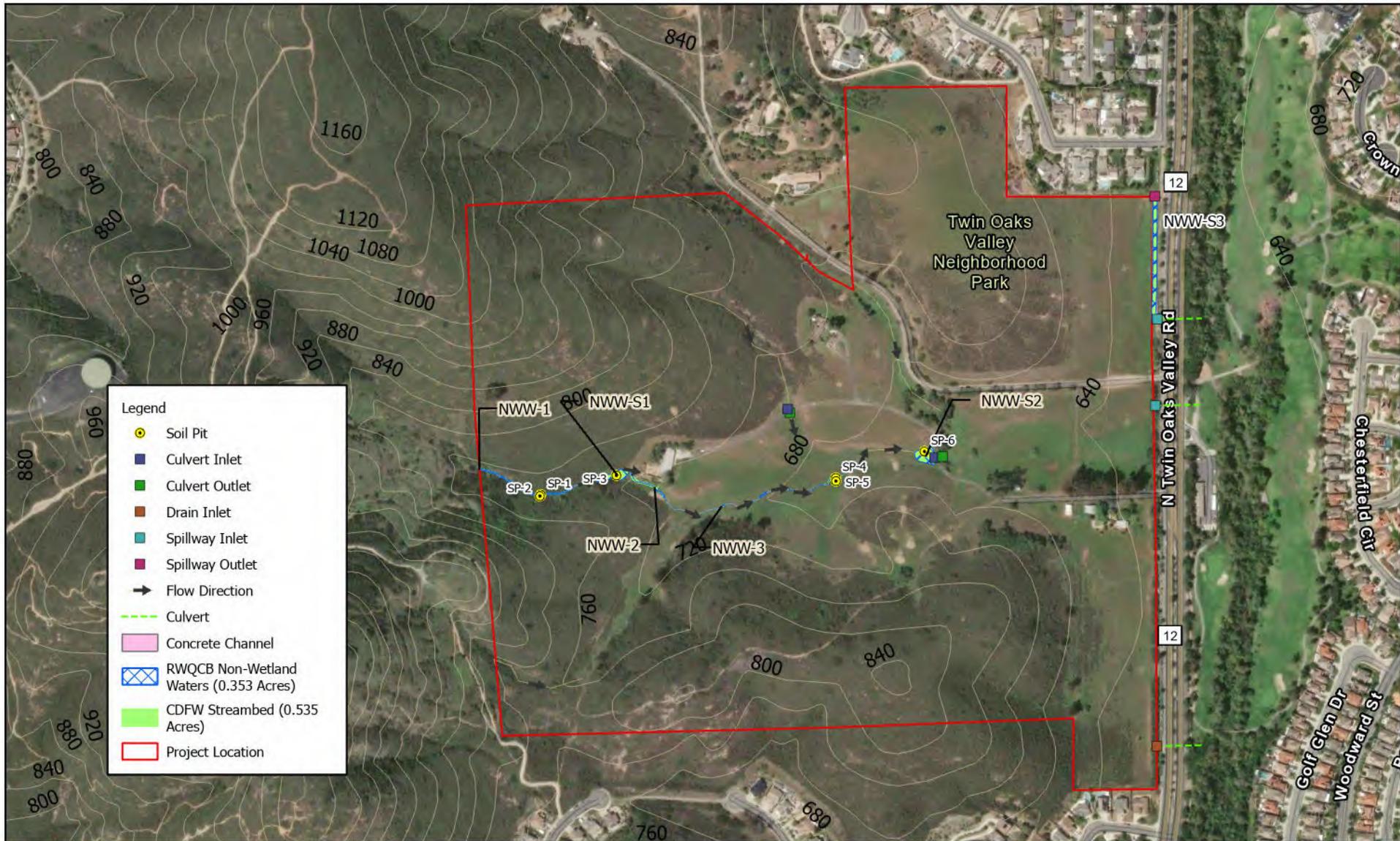
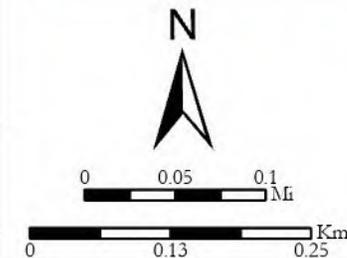


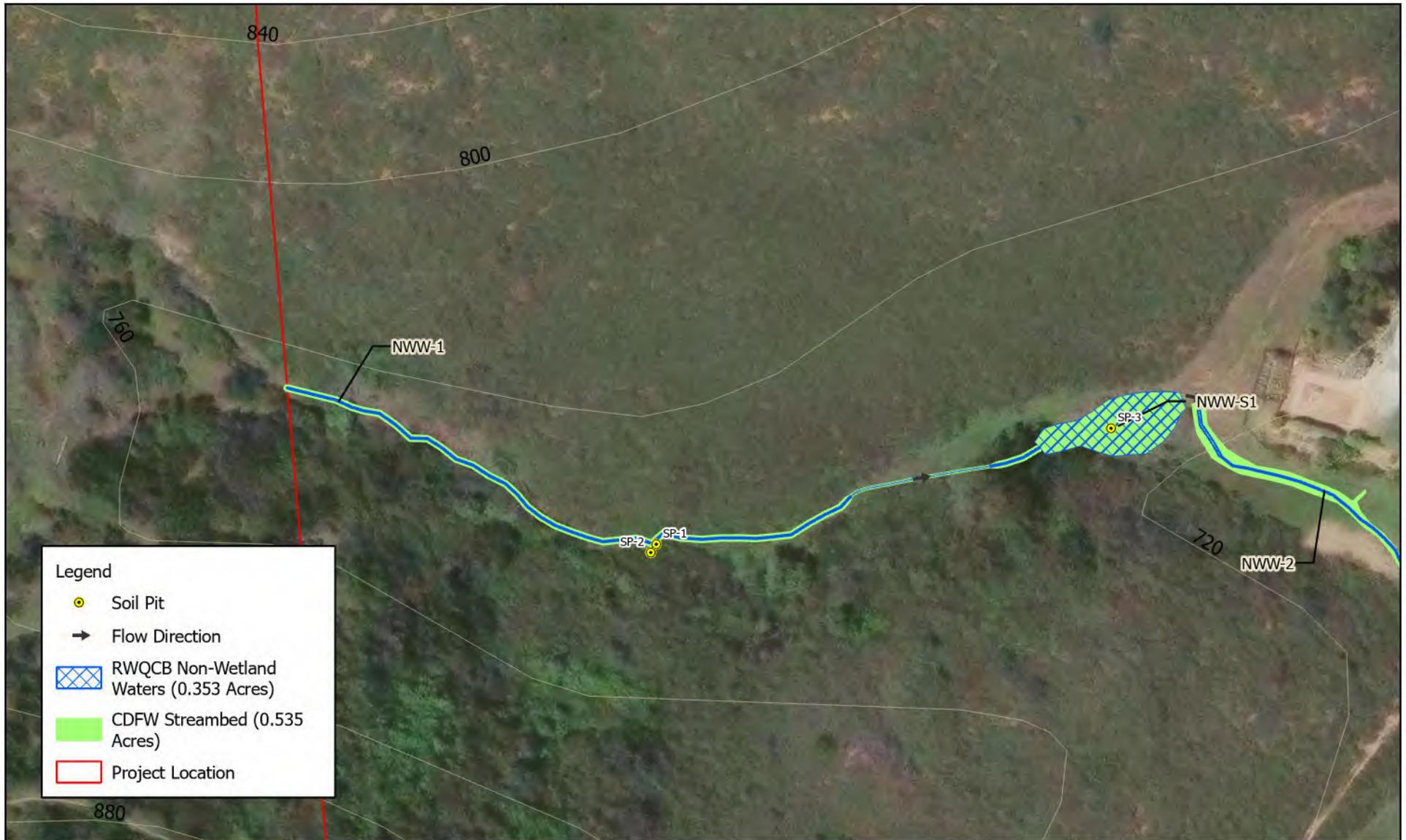
Figure 5a: Survey Results

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Results**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet





Legend

-  Soil Pit
-  Flow Direction
-  RWQCB Non-Wetland Waters (0.353 Acres)
-  CDFW Streambed (0.535 Acres)
-  Project Location

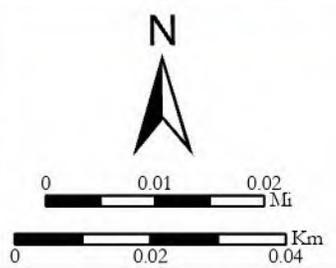


Figure 5b: Survey Results

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Results**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet





Legend

- Soil Pit
- Flow Direction
- RWQCB Non-Wetland Waters (0.353 Acres)
- CDFW Streambed (0.535 Acres)
- Project Location



Figure 5c: Survey Results

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Results**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

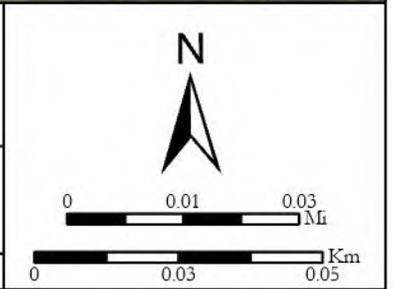


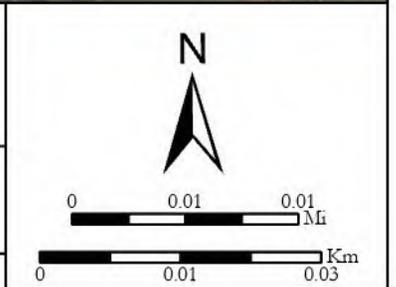


Figure 5d: Survey Results

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Results**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



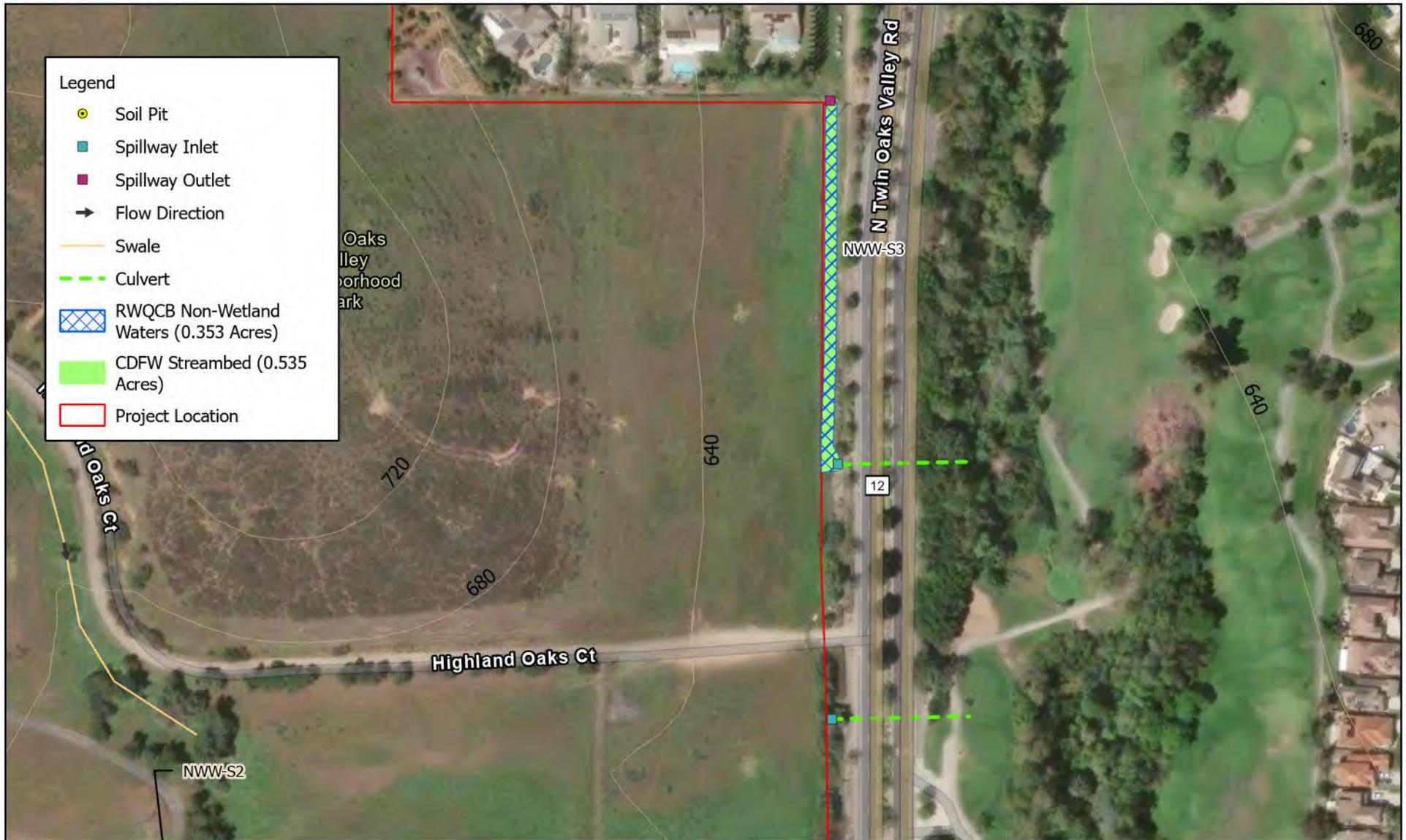
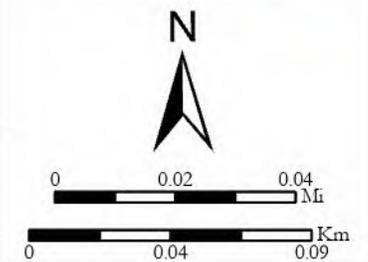


Figure 5e: Survey Results

**Project San Marcos Twin Oaks:
Aquatic Resources Delineation Results**

2025

Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet



APPENDIX B
SITE PHOTOS



Photo 1: The western portion of NWW-1 facing eastward. The majority of NWW-1 is surrounded by dense CSS vegetation beyond the bed and bank. OHWM (green) measured at 2 feet while the bed and bank measured at 6 feet on average.

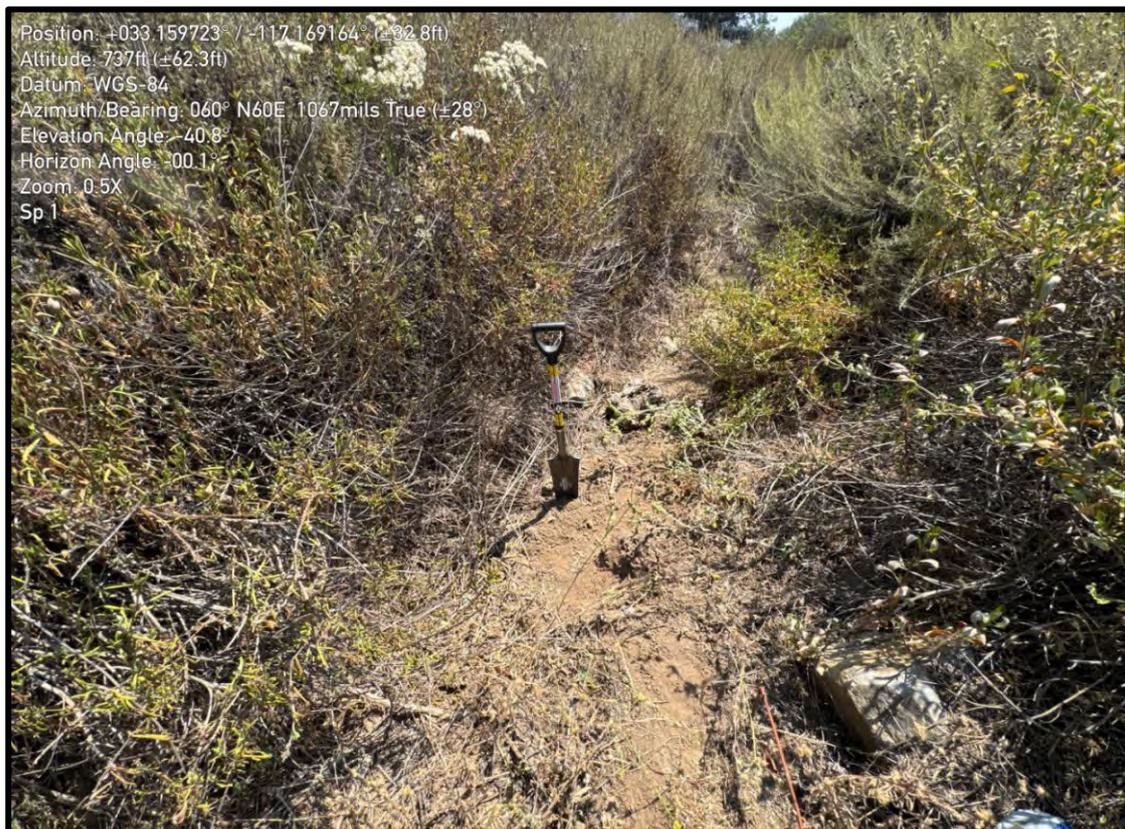


Photo 2: Sample point/pit #1. Hydric soils were not present and did not meet the criteria for a USACE wetland. Pit could only be dug to 11" due to encountering bedrock.



Photo 3: Sample point/pit #2, upland location near Sample point #1. Soil was documented as 7.5 YR 2.5/2 with a clay loam texture.



Photo 4: The western boundary of NWW-S1 (looking westward). NWW-1 drains eastward to channel into an excavated and compacted ponding area that historically was likely used for agricultural purposes. A large berm on the western portion of the feature, NWW-S2 prevents the flow of water. A small swale connects NWW-S2 to the next feature, NWW-S2 in rain events where there is high precipitation and overflow.



Photo 5: Sample point/pit #3 at the bottom of feature NWW-S1. No hydric soils were present and did not meet the criteria to be USACE wetland jurisdiction.

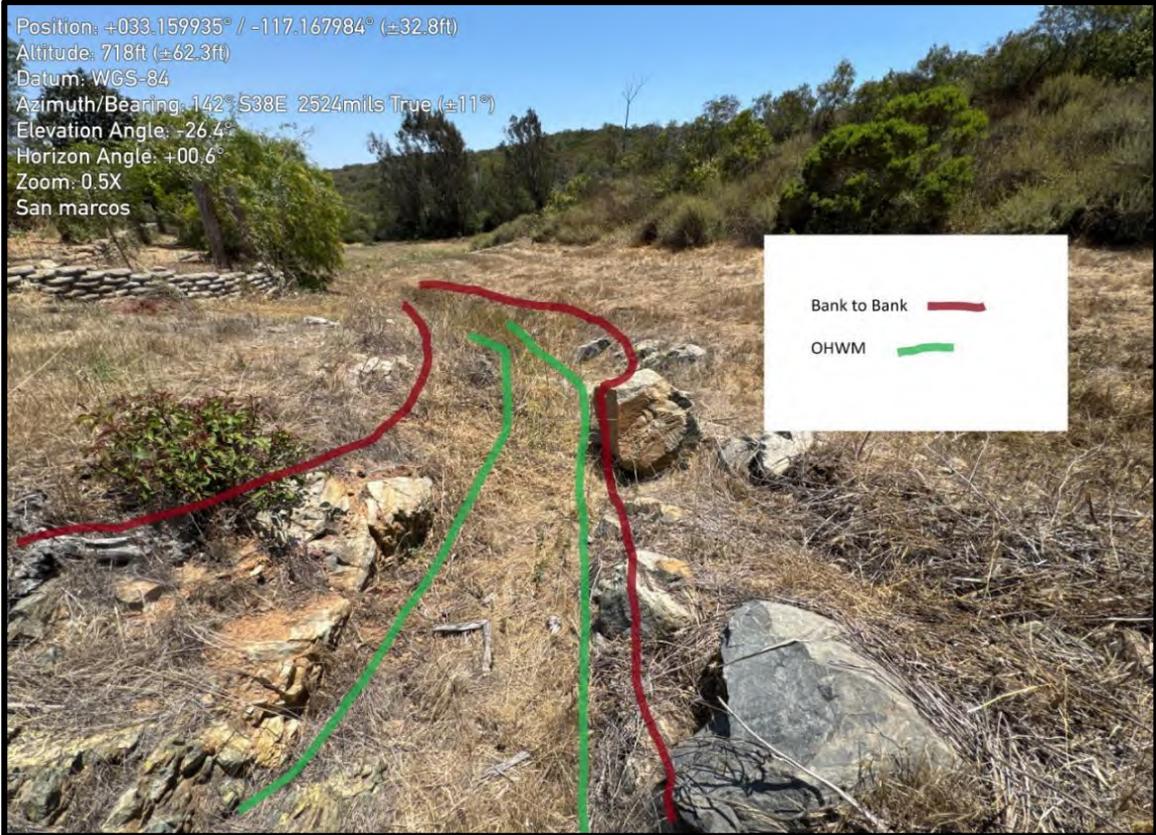


Photo 6: NWW-2 feature mapped just east of ponding feature NWW-S1. The bed to bank boundary was walked with sub-meter as it was highly variable for the initial 50 feet.



Photo 7: NWW-S2 becomes NWW-S3, as shown in this photo. Bed to bank and OHWM defined boundaries becomes less definitive as it is subjected to frequent impacts from active cattle. Bank to bank and OHWM boundaries narrow and average 2 to 4 feet respectively.



Photo 8: Sample point/pit #4 conducted within feature NWW-3 and no hydric soil was documented.



Photo 9: The upland location of Sample point/pit #5. The area is dominated by *Bromus diandrus*.



Photo 10: On an asphalt road with culvert underneath. Mapped by the NHD website as R4SBC, the field delineation shows that no features are present to support jurisdiction by any of the agencies, SACE, RWQCB, or CDFW therefore was labeled as a swale. This swale feeds into NWW-3



Photo 11: Facing opposite way than Photo 10 at the same position. Mapped by the NHD website as R4SBC, the field delineation shows that no features to support jurisdiction by any of the agencies, USACE, RWQCB, or CDFW therefore was labeled as a swale.



Photo 12: A culvert inlet, located on the eastern boundary of the pond (NWW-S2), runs under the road and installed to manage increased water volume and overflow. There are no hydric indicators east of this culvert and any water flow is considered to be “sheet flow.”



Photo 13: Similar to Photo 11, this is mapped by the NHD website as R4SBC, the field delineation shows that no features to support jurisdiction by any of the agencies, USACE, RWQCB, or CDFW therefore was labeled as a swale.



Photo 14: A wide concrete channel is located just northeast outside the project boundary. The channel funnels water from off-site north to south, eventually draining east under Twin Oaks Valley Rd.



Photo 15: Channeled off-site from north to south from Photo 13 and draining eastward under Twin Oaks Valley Rd.



Photo 16: This concrete lined channel forms part of the southeast boundary, just off-site, and drains west to east under Twin Oaks Valley Rd.



Photo 17: A large, rock lined entrance to a concrete inlet is outside the east boundary of the site to collect any sheet flow coming from the site and channels water eastward under Twin Oaks Valley Road.

APPENDIX C
DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: San Marcos Oakcrest City/County: San Marcos/CA Sampling Date: 7-3-25
 Applicant/Owner: _____ State: CA Sampling Point: 1
 Investigator(s): Garrett Huffman, Kris Alberts Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): ephemeral drainage Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): C Lat: 33.159732 Long: 117.169156 Datum: _____
 Soil Map Unit Name: _____ NWI classification: R45BC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil _____, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks: <u>Cattle path in the drainage has obscured the OTHWM in many areas and crushed the vegetation.</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>None</u>				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0%</u> (A/B)
4. _____					
Total Cover: <u>0</u>					
Sapling/Shrub Stratum				Prevalence Index worksheet:	
1. <u>None</u>				Total % Cover of:	Multiply by:
2. _____				OBL species _____	x 1 = _____
3. _____				FACW species _____	x 2 = _____
4. _____				FAC species _____	x 3 = _____
5. _____				FACU species <u>10</u>	x 4 = <u>40</u>
Total Cover: <u>0</u>				UPL species <u>90</u>	x 5 = <u>450</u>
				Column Totals: <u>100</u> (A)	<u>490</u> (B)
				Prevalence Index = B/A = <u>4.9</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <u>Centaurea melitensis</u>	<u>50</u>	<u>yes</u>	<u>NI</u>	___ Dominance Test is >50%	
2. <u>Hirschfeldia incana</u>	<u>10</u>	<u>no</u>	<u>NI</u>	___ Prevalence Index is ≤3.0 ¹	
3. <u>Senecio jacobina</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Bromus diandrus</u>	<u>10</u>	<u>no</u>	<u>NI</u>	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <u>Carduus pycnocephalus</u>	<u>20</u>	<u>yes</u>	<u>NI</u>		
6. _____					
7. _____					
8. _____					
Total Cover: <u>100</u>					
Woody Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.	
1. <u>None</u>				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	
2. _____					
Total Cover: <u>0</u>					
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>			
Remarks: <u>Hydrological zone of vegetation is 2' x 10'</u>					

SOIL

Sampling Point: 1

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 ¹	Loc ²		
0-11	7.5 YR 2.5/2	100	NONE				CLAY LOAM	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<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 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)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
 Type: rock
 Depth (inches): 11

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<u>Primary Indicators (any one indicator is sufficient)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: 2
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 15
 Subregion (LRR): C Lat: 33.159717 Long: 117.169168 Datum: _____
 Soil Map Unit Name: _____ NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
Total Cover: <u>0</u>				
Sapling/Shrub Stratum				
1. <u>Salvia mellifera</u>	<u>25</u>	<u>yes</u>	<u>NI</u>	
2. <u>Diplazus aurantiacus</u>	<u>25</u>	<u>yes</u>	<u>NI</u>	
3. <u>Artemisia californica</u>	<u>10</u>	<u>no</u>	<u>NI</u>	
4. <u>Marubium vulgare</u>	<u>2</u>	<u>no</u>	<u>FACU</u>	
5. _____				
Total Cover: <u>62</u>				
Herb Stratum				
1. <u>Centaurea melitensis</u>	<u>15</u>	<u>yes</u>	<u>NI</u>	
2. <u>Carduus pycnocephalus</u>	<u>20</u>	<u>yes</u>	<u>NI</u>	
3. <u>Hirschfeldia incana</u>	<u>4</u>	<u>no</u>	<u>NI</u>	
4. <u>Bromus diandrus</u>	<u>2</u>	<u>no</u>	<u>NI</u>	
5. <u>Lysmachia arvensis</u>	<u>2</u>	<u>no</u>	<u>NI</u>	
6. _____				
7. _____				
8. _____				
Total Cover: <u>43</u>				
Woody Vine Stratum				
1. <u>None</u>				
2. _____				
Total Cover: <u>0</u>				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</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>0%</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species _____ x 1 = _____	
FACW species _____ x 2 = _____	
FAC species _____ x 3 = _____	
FACU species <u>2</u> x 4 = <u>8</u>	
UPL species <u>103</u> x 5 = <u>515</u>	
Column Totals: <u>105</u> (A)	<u>523</u> (B)
Prevalence Index = B/A = <u>4.98</u>	
Hydrophytic Vegetation Indicators:	
___ Dominance Test is >50%	
___ Prevalence Index is ≤3.0 ¹	
___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
___ Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present.	
Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>

Remarks: <u>Analysis zone 6' x 6'.</u>
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SOIL

Sampling Point: 2

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 ¹	Loc ²		
0-17	7.5YR 2.5/2	100	None				loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<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 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)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
 Type: None
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____

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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: 3
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): dry basin Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C Lat: 33.159936 Long: 117.168169 Datum: _____
 Soil Map Unit Name: _____ NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Historically excavated basin with downgrade embankments. Abundant cattle sign.</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
Total Cover: <u>—</u>				
<u>Sapling/Shrub Stratum</u>				
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: <u>—</u>				
<u>Herb Stratum</u>				
1. <u>Diandra fasciculatum</u>	<u>6</u>	<u>no</u>	<u>NI</u>	
2. <u>Salsola tragus</u>	<u>5</u>	<u>no</u>	<u>NI</u>	
3. <u>Hirschfeldia incana</u>	<u>8</u>	<u>yes</u>	<u>NI</u>	
4. <u>Ditrichia graveolens</u>	<u>2</u>	<u>no</u>	<u>NI</u>	
5. <u>Bromus hordeaceus</u>	<u>10</u>	<u>yes</u>	<u>NI</u>	
6. <u>Artemisia californica</u>	<u>1</u>	<u>no</u>	<u>NI</u>	
7. <u>Erigeron setiger</u>	<u>1</u>	<u>no</u>	<u>NI</u>	
8. <u>Boerhaavia pitulularis</u>	<u>1</u>	<u>no</u>	<u>NI</u>	
Total Cover: <u>34</u>				
<u>Woody Vine Stratum</u>				
1. <u>None</u>				
2. _____				
Total Cover: <u>—</u>				
% Bare Ground in Herb Stratum <u>40</u>		% Cover of Biotic Crust <u>0</u>		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</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>0%</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species _____ x 1 = _____	
FACW species _____ x 2 = _____	
FAC species _____ x 3 = _____	
FACU species _____ x 4 = _____	
UPL species <u>34</u> x 5 = <u>170</u>	
Column Totals: <u>34</u> (A)	<u>170</u> (B)
Prevalence Index = B/A = <u>5.0</u>	
Hydrophytic Vegetation Indicators:	
___ Dominance Test is >50%	
___ Prevalence Index is ≤3.0 ¹	
___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
___ Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present.	
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	

Remarks: Analyzed zone was 10' x 10' in basin bottom. All shrub species in basin were under less than 10 inches tall, indicative of regular inundation periods.

SOIL

Sampling Point: 3

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 ¹	Loc ²		
0-16	7.5YR 3/3	100					CLAY	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, 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 Soils³:

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

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: None
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? 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:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: 6/20/25
 Applicant/Owner: _____ State: _____ Sampling Point: 2
 Investigator(s): Gr. Huffman, V. Novik Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): Concave Slope (%): _____
 Subregion (LRR): LRP-C Lat: 33.160 Long: -117.168 Datum: _____
 Soil Map Unit Name: Friant rocky sandy loam 9-30% NWI classification: R4SBC
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>channel at bottom of canyon only flows in response to rain.</u>	

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>0</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>0</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species <u>30</u> x 4 = <u>120</u>
_____ = Total Cover				UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: <u>30</u> (A) <u>170</u> (B)
_____ = Total Cover				Prevalence Index = B/A = <u>4</u>
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Dicentra casia</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	___ Dominance Test is >50%
2. <u>erodium</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	___ Prevalence Index is ≤3.0 ¹
3. _____	_____	_____	_____	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>30</u> = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>50</u> % Cover of Biotic Crust <u>0</u>				
Remarks: <u>channel in uplands grasses and CSS directly adjacent.</u>				

SOIL

Sampling Point: 2

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 ¹	Loc ²		
0-10	5Y3/2							

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<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)		

³Indicators 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 X

Remarks: *Upland drainage feature / cow path bottom of canyon.*

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 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 checked="" 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)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks: *Upland drainage feature bottom of canyon is also path of animals, likely only flow after rain*

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: San Marcos Sampling Date: 6/20/15
 Applicant/Owner: _____ State: _____ Sampling Point: 1
 Investigator(s): Huffman / Novik Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Concave Slope (%): _____
 Subregion (LRR): LRR-C Lat: 33.160 Long: -117.164 Datum: _____
 Soil Map Unit Name: Friant rocky sandy loam NWI classification: R4SBC
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>stock pond at end of potential ephemeral channel.</u>	

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>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species <u>76</u> x 4 = <u>304</u>
_____ = Total Cover				UPL species <u>1</u> x 5 = <u>5</u>
				Column Totals: <u>77</u> (A) <u>309</u> (B)
				Prevalence Index = B/A = <u>4</u>
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Cynodon dac.</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	___ Dominance Test is >50%
2. <u>Brassica</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	___ Prevalence Index is ≤3.0 ¹
3. <u>Prostrum etc</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Festuca pere</u>	<u>1</u>	<u>N</u>	<u>UPL</u>	___ Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Horzum murin</u>	<u>1</u>	<u>N</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>78</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Footnote:
1. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>35</u> % Cover of Biotic Crust <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

Remarks: Very dry old stock pond at end of channel gophers holes in grounds. Doesn't look like held water recently

SOIL

Sampling Point: 1

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 ¹	Loc ²		
0-10	5 Y 3/2							
	10 YR 3/3							

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <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) | | |

³Indicators 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: Rocks hard pan under 10"

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 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 checked="" 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 type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks: Old stock pond in dry laid at end of ephemeral channel.

**U.S. Army Corps of Engineers (USACE)
RAPID ORDINARY HIGH WATER MARK
(OHWM) FIELD IDENTIFICATION DATA SHEET**
The proponent agency is Headquarters USACE CECW-COR.

**Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30**

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #:	Site Name:	Date and Time:
Location (lat/long):		Investigator(s):

<p>Step 1 Site overview from remote and online resources. Check boxes for online resources used to evaluate site:</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> gage data</td> <td><input type="checkbox"/> LiDAR</td> <td><input type="checkbox"/> geologic maps</td> </tr> <tr> <td><input type="checkbox"/> climatic data</td> <td><input checked="" type="checkbox"/> satellite imagery</td> <td><input type="checkbox"/> land use maps</td> </tr> <tr> <td><input checked="" type="checkbox"/> aerial photos</td> <td><input checked="" type="checkbox"/> topographic maps</td> <td><input type="checkbox"/> Other: _____</td> </tr> </table>	<input type="checkbox"/> gage data	<input type="checkbox"/> LiDAR	<input type="checkbox"/> geologic maps	<input type="checkbox"/> climatic data	<input checked="" type="checkbox"/> satellite imagery	<input type="checkbox"/> land use maps	<input checked="" type="checkbox"/> aerial photos	<input checked="" type="checkbox"/> topographic maps	<input type="checkbox"/> Other: _____	<p>Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?</p>
<input type="checkbox"/> gage data	<input type="checkbox"/> LiDAR	<input type="checkbox"/> geologic maps								
<input type="checkbox"/> climatic data	<input checked="" type="checkbox"/> satellite imagery	<input type="checkbox"/> land use maps								
<input checked="" type="checkbox"/> aerial photos	<input checked="" type="checkbox"/> topographic maps	<input type="checkbox"/> Other: _____								

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

valley channel in field drains uplands old stock pond end of

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

<p>Geomorphic indicators</p> <table style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> <input checked="" type="checkbox"/> Break in slope <input checked="" type="checkbox"/> on the bank <input type="checkbox"/> undercut bank <input type="checkbox"/> valley bottom <input type="checkbox"/> Other: _____ <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> shelf at top of bank <input type="checkbox"/> natural levee <input checked="" type="checkbox"/> human-made berms or levees <input type="checkbox"/> other berms: _____ <input type="checkbox"/> Secondary channels </td> <td style="width:50%; vertical-align: top;"> <input type="checkbox"/> Channel bar <input type="checkbox"/> shelving (berms) on bar <input type="checkbox"/> unvegetated <input type="checkbox"/> vegetation transition (go to veg. indicators) <input type="checkbox"/> sediment transition (go to sed. indicators) <input type="checkbox"/> upper limit of deposition on bar <input type="checkbox"/> Instream bedforms and other bedload transport evidence <input type="checkbox"/> deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.) <input type="checkbox"/> bedforms (e.g., pools, riffles, steps, etc.) <input type="checkbox"/> Weathered clasts or bedrock <input type="checkbox"/> erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.) </td> </tr> </table>	<input checked="" type="checkbox"/> Break in slope <input checked="" type="checkbox"/> on the bank <input type="checkbox"/> undercut bank <input type="checkbox"/> valley bottom <input type="checkbox"/> Other: _____ <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> shelf at top of bank <input type="checkbox"/> natural levee <input checked="" type="checkbox"/> human-made berms or levees <input type="checkbox"/> other berms: _____ <input type="checkbox"/> Secondary channels	<input type="checkbox"/> Channel bar <input type="checkbox"/> shelving (berms) on bar <input type="checkbox"/> unvegetated <input type="checkbox"/> vegetation transition (go to veg. indicators) <input type="checkbox"/> sediment transition (go to sed. indicators) <input type="checkbox"/> upper limit of deposition on bar <input type="checkbox"/> Instream bedforms and other bedload transport evidence <input type="checkbox"/> deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.) <input type="checkbox"/> bedforms (e.g., pools, riffles, steps, etc.) <input type="checkbox"/> Weathered clasts or bedrock <input type="checkbox"/> erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)	<p>Sediment indicators</p> <input type="checkbox"/> Soil development <input type="checkbox"/> Changes in character of soil <input type="checkbox"/> Mudcracks <input type="checkbox"/> Changes in particle-sized distribution <input type="checkbox"/> transition from _____ to _____ <input type="checkbox"/> upper limit of sand-sized particles <input type="checkbox"/> silt deposits
<input checked="" type="checkbox"/> Break in slope <input checked="" type="checkbox"/> on the bank <input type="checkbox"/> undercut bank <input type="checkbox"/> valley bottom <input type="checkbox"/> Other: _____ <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> shelf at top of bank <input type="checkbox"/> natural levee <input checked="" type="checkbox"/> human-made berms or levees <input type="checkbox"/> other berms: _____ <input type="checkbox"/> Secondary channels	<input type="checkbox"/> Channel bar <input type="checkbox"/> shelving (berms) on bar <input type="checkbox"/> unvegetated <input type="checkbox"/> vegetation transition (go to veg. indicators) <input type="checkbox"/> sediment transition (go to sed. indicators) <input type="checkbox"/> upper limit of deposition on bar <input type="checkbox"/> Instream bedforms and other bedload transport evidence <input type="checkbox"/> deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.) <input type="checkbox"/> bedforms (e.g., pools, riffles, steps, etc.) <input type="checkbox"/> Weathered clasts or bedrock <input type="checkbox"/> erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)		

<p>Vegetation indicators (Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain)</p> <input type="checkbox"/> Change in vegetation type from _____ to _____ <input type="checkbox"/> Change in density of vegetation <input type="checkbox"/> Exposed roots below intact soil layer <input type="checkbox"/> Other vegetation observations <input type="checkbox"/> Vegetation matted down and/or bent	<p>Other physical indicators</p> <input type="checkbox"/> Sediment deposited on vegetation or structures <input type="checkbox"/> Wracking/presence of organic litter <input type="checkbox"/> Presence of large wood <input type="checkbox"/> Leaf litter disturbed or washed away <input type="checkbox"/> Water staining
--	--

Other observed indicators? Describe:

Stock pond historic fed from channel through valley that drains uplands, only after rain events

Project: _____ **Date:** 6/20/25 **Time:** 1000 am
Project Number: _____ **Town:** San Marcos **State:** CA
Stream: unnamed trib to San Luis Rey **Photo begin file#** _____ **Photo end file#** _____
Investigator(s): Huffman / Novik

Y / N Do normal circumstances exist on the site?

Location Details: in channel through field

Y / N Is the site significantly disturbed?

Projection: _____ **Datum:** _____
Coordinates: -

Notes: Appears to drain upland areas, likely only briefly after rains, cows walk in portions as it is lowest spot on flatter area.

Brief site description: large valley with grassland for cattle. Hills to east steep.

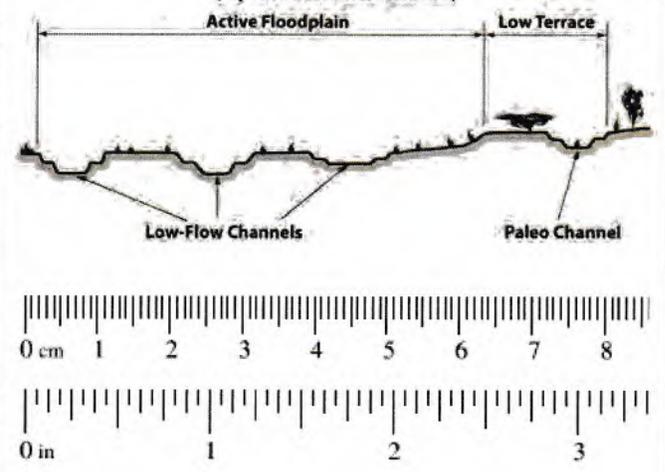
Checklist of resources (if available):

- Aerial photography Stream gage data
- Dates: _____ Gage number: _____
- Topographic maps Period of record: _____
- Scale: _____ Clinometer / level
- Geologic maps History of recent effective discharges
- Vegetation maps Results of flood frequency analysis
- Soils maps Most recent shift-adjusted rating
- Rainfall/precipitation maps Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
- Existing delineation(s) for site
- Global positioning system (GPS)
- Other studies

The dominant Wentworth size class that imparts a characteristic texture to each zone of a channel cross-section is recorded in the average sediment texture field under the characteristics section for the zone of interest.

Millimeters (mm)	Inches (in)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	
0.157	4	Pebble	
		Granule	
0.079	2.00	Very coarse sand	Sand
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625		
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud

Hydrogeomorphic Floodplain Units - Intermittent and Ephemeral Channel Forms (representative cross-section)



Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.

Locate the low-flow channel (lowest part of the channel). Record observations.
Characteristics of the low-flow channel:
Average sediment texture: loam
Total veg cover: 70 % Tree: 0 % Shrub: 0 % Herb: 70 %
Community successional stage:
 NA Mid (herbaceous, shrubs, saplings)
 Early (herbaceous & seedlings) Late (herbaceous, shrubs, mature trees)
Dominant species present: Hordium, Festuca, Brassica,

Other: _____

Walk away from the low-flow channel along cross-section. Record characteristics of the low-flow/active floodplain boundary.
Characteristics used to delineate the low-flow/active floodplain boundary:
 Change in total veg cover Tree Shrub Herb
 Change in overall vegetation maturity
 Change in dominant species present
 Other Presence of bed and bank
 Drift and/or debris
 Other: _____
 Other: _____

Continue walking the channel cross-section. Record observations below.
Characteristics of the low-flow channel:
Average sediment texture: _____
Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %
Community successional stage:
 NA Mid (herbaceous, shrubs, saplings)
 Early (herbaceous & seedlings) Late (herbaceous, shrubs, mature trees)
Dominant species present: _____

Other: _____

<input type="checkbox"/>	<p>Continue walking the channel cross-section. Record indicators of the active floodplain/low terrace boundary.</p> <p><u>Characteristics used to delineate the active floodplain/ low terrace boundary:</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 20%;"><input type="checkbox"/> Change in average sediment texture</td> <td style="width: 20%;"><input type="checkbox"/> Tree</td> <td style="width: 20%;"><input type="checkbox"/> Shrub</td> <td style="width: 20%;"><input type="checkbox"/> Herb</td> </tr> <tr> <td><input type="checkbox"/> Change in total veg cover</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Change in overall vegetation maturity</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Change in dominant species present</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td><input type="checkbox"/> Presence of bed and bank</td> <td></td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> Drift and/or debris</td> <td></td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> Other: _____</td> <td></td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> Other: _____</td> <td></td> <td></td> </tr> </table>	<input type="checkbox"/> Change in average sediment texture	<input type="checkbox"/> Tree	<input type="checkbox"/> Shrub	<input type="checkbox"/> Herb	<input type="checkbox"/> Change in total veg cover				<input type="checkbox"/> Change in overall vegetation maturity				<input type="checkbox"/> Change in dominant species present				<input type="checkbox"/> Other	<input type="checkbox"/> Presence of bed and bank				<input type="checkbox"/> Drift and/or debris				<input type="checkbox"/> Other: _____				<input type="checkbox"/> Other: _____										
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<input type="checkbox"/>	<p>Walk the active floodplain/low terrace boundary both upstream and downstream of the cross-section to verify that the indicators used to identify the transition are consistently associated the transition in both directions.</p> <p><u>Consistency of indicators used to delineate the active floodplain/low terrace boundary:</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Y <input type="checkbox"/> N <input type="checkbox"/></td> <td style="width: 35%;">Change in average sediment texture</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td>Y <input type="checkbox"/> N <input type="checkbox"/></td> <td>Change in total veg cover</td> <td><input type="checkbox"/> Tree</td> <td><input type="checkbox"/> Shrub</td> <td><input type="checkbox"/> Herb</td> </tr> <tr> <td>Y <input type="checkbox"/> N <input type="checkbox"/></td> <td>Change in overall vegetation maturity</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Y <input type="checkbox"/> N <input type="checkbox"/></td> <td>Change in dominant species present</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Y <input type="checkbox"/> N <input type="checkbox"/></td> <td>Other: Y <input type="checkbox"/> N <input type="checkbox"/></td> <td><input type="checkbox"/> Presence of bed and bank</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td><input type="checkbox"/> Drift and/or debris</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td><input type="checkbox"/> Other: _____</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td><input type="checkbox"/> Other: _____</td> <td></td> <td></td> </tr> </table>	Y <input type="checkbox"/> N <input type="checkbox"/>	Change in average sediment texture				Y <input type="checkbox"/> N <input type="checkbox"/>	Change in total veg cover	<input type="checkbox"/> Tree	<input type="checkbox"/> Shrub	<input type="checkbox"/> Herb	Y <input type="checkbox"/> N <input type="checkbox"/>	Change in overall vegetation maturity				Y <input type="checkbox"/> N <input type="checkbox"/>	Change in dominant species present				Y <input type="checkbox"/> N <input type="checkbox"/>	Other: Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/> Presence of bed and bank					<input type="checkbox"/> Drift and/or debris					<input type="checkbox"/> Other: _____					<input type="checkbox"/> Other: _____		
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<input type="checkbox"/>	<p>If the characteristics used to delineate the active floodplain/low terrace boundary were NOT consistently associated with the transition in both the upstream and downstream directions, repeat all steps above.</p>																																								
<input type="checkbox"/>	<p>Continue walking the channel cross-section. Record characteristics of the low terrace.</p> <p><u>Characteristics of the low terrace:</u></p> <p>Average sediment texture: _____</p> <p>Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%</p> <p><u>Community successional stage:</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> NA</td> <td style="width: 50%;"><input type="checkbox"/> Mid (herbaceous, shrubs, saplings)</td> </tr> <tr> <td><input type="checkbox"/> Early (herbaceous & seedlings)</td> <td><input type="checkbox"/> Late (herbaceous, shrubs, mature trees)</td> </tr> </table> <p><u>Dominant species present:</u> _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Other: <input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p>	<input type="checkbox"/> NA	<input type="checkbox"/> Mid (herbaceous, shrubs, saplings)	<input type="checkbox"/> Early (herbaceous & seedlings)	<input type="checkbox"/> Late (herbaceous, shrubs, mature trees)																																				
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<input type="checkbox"/>	<p>If characteristics used to delineate the active floodplain/low terrace boundary were deemed reliable, acquire boundary.</p> <p><u>Active floodplain/low terrace boundary acquired via:</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Mapping on aerial photograph</td> <td style="width: 50%;"><input type="checkbox"/> GPS</td> </tr> <tr> <td><input type="checkbox"/> Digitized on computer</td> <td><input type="checkbox"/> Other: _____</td> </tr> </table>	<input type="checkbox"/> Mapping on aerial photograph	<input type="checkbox"/> GPS	<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other: _____																																				
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<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other: _____																																								

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: _____ 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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No _____
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks: _____ _____ _____				

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: _____ 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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Remarks: _____

U.S. Army Corps of Engineers (USACE)
RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

OMB Control No. 0710-XXXX

Approval Expires:

The proponent agency is Headquarters USACE CECW-CO-R.

Project ID #:

Site Name: San Marcos Oakcrest

Date and Time: July 03, 2027

Location (lat/long):

Investigator(s): Kris Alberts, Garrett Huffman

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- gage data, LiDAR, geologic maps, climatic data, satellite imagery, land use maps, aerial photos, topographic maps, Other: NWI/NHD Maps

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
Current land use for cattle grazing with single family homes. Low precipitation with man altered flow from pond construction.

Step 2 Site conditions during field assessment

First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

This was completed during the field visit.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below 'b', at 'x', or just above 'a' the OHWM.

OHWM. Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- Break in slope: on the bank, undercut bank, valley bottom, Other: Shelving: shelf at top of bank, natural levee, man-made berms or levees, other berms: Channel bar: shelving (berms) on bar, unvegetated, vegetation transition, sediment transition, upper limit of deposition on bar: Instream bedforms and other bedload transport evidence: deposition bedload indicators, bedforms, erosional bedload indicators: Secondary channels:

Sediment indicators

- Soil development: Changes in character of soil: Mudcracks: Changes in particle-sized distribution: transition from to, upper limit of sand-sized particles, silt deposits:

Vegetation Indicators

- Change in vegetation type and/or density: Check the appropriate boxes and select the general vegetation change (e.g., graminoids to woody shrubs). Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain. vegetation absent to: forbs, moss to: forbs to: woody shrubs, graminoids to: woody shrubs to: deciduous trees to: coniferous trees to: Vegetation matted down and/or bent: Exposed roots below intact soil layer:

Ancillary indicators

- Wracking/presence of organic litter: Presence of large wood: Leaf litter disturbed or washed away: Water staining: Weathered clasts or bedrock:

Other observed indicators?

Describe:

Step 4 Is additional information needed to support this determination?

- Yes, No

If yes, describe and attach information to datasheet:

Aquatic Resources Delineator Report, Wetland Determinator Data Forms, Beta SDAM Form and a photographic log of the drainage and its surroundings included.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources

Complete Step 1 prior to site visit.

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

- | | |
|----------------------|--|
| a. gage data | e. topographic maps |
| b. aerial photos | f. geologic maps |
| c. satellite imagery | g. land use maps |
| d. LiDAR | h. climatic data (precipitation and temperature) |

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. Note on the datasheet under Step 1:

- i. Overall land use and change if known
 - ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
- b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
 - ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
 - iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

- a. Identify the assessment area.
- b. Walk up and down the assessment area noting all the potential OHWM indicators.
- c. Note broad trends in channel shape, vegetation, and sediment characteristics.
 - i. Is this a single thread or multi-thread system?
Is this a stream-wetland complex?
 - ii. Are there any secondary and/or floodplain channels?
 - iii. Are there obvious man-made alterations to the system?
 - iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
- d. Look for signs of recurring fluvial action.
 - i. Where does the flow converge on the landscape?
 - ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
- e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
- f. In Step 2 of the datasheet describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
 - i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
 - ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

- a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
- b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators

Where are the breaks in slope?
Are there identifiable banks?
Is there an easily identifiable top of bank?
Are the banks actively eroding?
Are the banks undercut?
Are the banks armored?
Is the channel confined by the surrounding hillslopes?
Are there natural or man-made berms and levees?
Are there fluvial terraces?
Are there channel bars?

Sediment and soil indicators

Where does evidence of soil formation appear?

Are there mudcracks present?

Is there evidence of sediment sorting by grain size?

Vegetation Indicators

Where are the significant transitions in vegetation species, density, and age?

Is there vegetation growing on the channel bed?

If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?

Where are the significant transitions in vegetation?

Is the vegetation tolerant of flowing water?

Has any vegetation been flattened by flowing water?

Ancillary indicators

Is there organic litter present?

Is there any leaf litter disturbed or washed away?

Is there large wood deposition?

Is there evidence of water staining?

Are the following features of fluvial transport present?

*Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

a. Relevance:

- i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed.

What is the current flow level based on season or nearby gages?

Consider the elevation of the indicator relative to the current flow.

If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

- ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form.

Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.

2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.

3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

- i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

- i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

- i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

- ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

- iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

- i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

- a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.
- b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.
- c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

- a. Why do the combination of indicators represent the OHWM?
- b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.
- c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: San Marcos Oakcrest		
Site code or identifier:	Assessor(s): Garrett Huffman; Kris Alberts	
Waterway name: NWW-1-7	Visit date: 7/3/2025	
Current weather conditions (check one) <input type="checkbox"/> Storm/heavy rain <input type="checkbox"/> Steady rain <input type="checkbox"/> Intermittent rain <input type="checkbox"/> Snowing <input type="checkbox"/> Cloudy (___ % cover) <input checked="" type="checkbox"/> Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week):	Coordinates at downstream end (decimal degrees): Lat (N): 33.1601156°N Long (W): 117.1640094°W Datum:
Surrounding land-use within 100 m (check one or two): <input checked="" type="checkbox"/> Urban/industrial/residential <input checked="" type="checkbox"/> Agricultural (farmland, crops, vineyards, pasture) <input checked="" type="checkbox"/> Developed open-space (e.g., golf course) <input type="checkbox"/> Forested <input type="checkbox"/> Other natural <input type="checkbox"/> Other:	Describe reach boundaries: Begins NW to the western boundary at 117.1728144°W 33.1610470°N extending to the above coordinates where it becomes indistinguishable with the surroundings (not jurisdictional).	
Mean channel width (m) 1	Reach length (m): 40x width; min 40 m; max 200 m. 593 m	Enter photo ID, or check if completed Top down: ___x___ Mid down: ___x___ Mid up: ___x___ Bottom up: ___x___
Disturbed or difficult conditions (check all that apply): <input type="checkbox"/> Recent flood or debris flow <input checked="" type="checkbox"/> Stream modifications (e.g., channelization) <input checked="" type="checkbox"/> Diversions <input type="checkbox"/> Discharges <input type="checkbox"/> Drought <input checked="" type="checkbox"/> Vegetation removal/limitations <input type="checkbox"/> Other (explain in notes) <input type="checkbox"/> None	Notes on disturbances or difficult site conditions: Active cattle ranching resulting in substantial impacts to hydro features resulting in alteration of bed and bank, OHWM, and vegetation indicators. Man-made ponds along the drainage have altered the down stream flow of the channel.	
Observed hydrology: 100___ % of reach with surface flow ___100___ % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: Channel vegetation has been trampled resulting in a mostly unvegetated channel (from cattle activity).	

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: No vegetation in assessment area No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

<p>2. How many aquatic invertebrates are quantified in a 15-minute search?</p> <p>Number of individuals quantified: <input checked="" type="checkbox"/> None <input type="checkbox"/> 1 to 19 <input type="checkbox"/> 20 +</p> <p>(Do not count mosquitos)</p> <p>Photo ID: _____</p>	<p>3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?</p> <p style="text-align: center;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Ephemeroptera larva Image credit: Dieter Tracey</p> </div> <div style="text-align: center;">  <p>Plecoptera larva Tracey Saxby</p> </div> <div style="text-align: center;">  <p>Trichoptera larva Tracey Saxby</p> </div> </div>
--	---

Notes on aquatic invertebrates:

4. Algal Cover

<p>Are algae found on the streambed?</p> <p><input type="checkbox"/> Check if <i>all</i> observed algae appear to be deposited from an upstream source.</p>	<p><input checked="" type="checkbox"/> Not detected <input type="checkbox"/> Yes, < 10% cover <input type="checkbox"/> Yes, ≥ 10% (check Yes in single indicator below)</p>	<p>Notes on algae cover:</p>	<p>Photo ID:</p>
--	--	------------------------------	------------------

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, no fish <input type="checkbox"/> No, only non-native mosquitofish		
Algae cover ≥ 10%	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

Supplemental information E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

Ephemeral drainage, per NHD

Photo log

Indicate if any other photos taken during the assessment Refer to Aquatic Resourced Delineation Report

Photo ID	Description

Additional notes about the assessment:

None

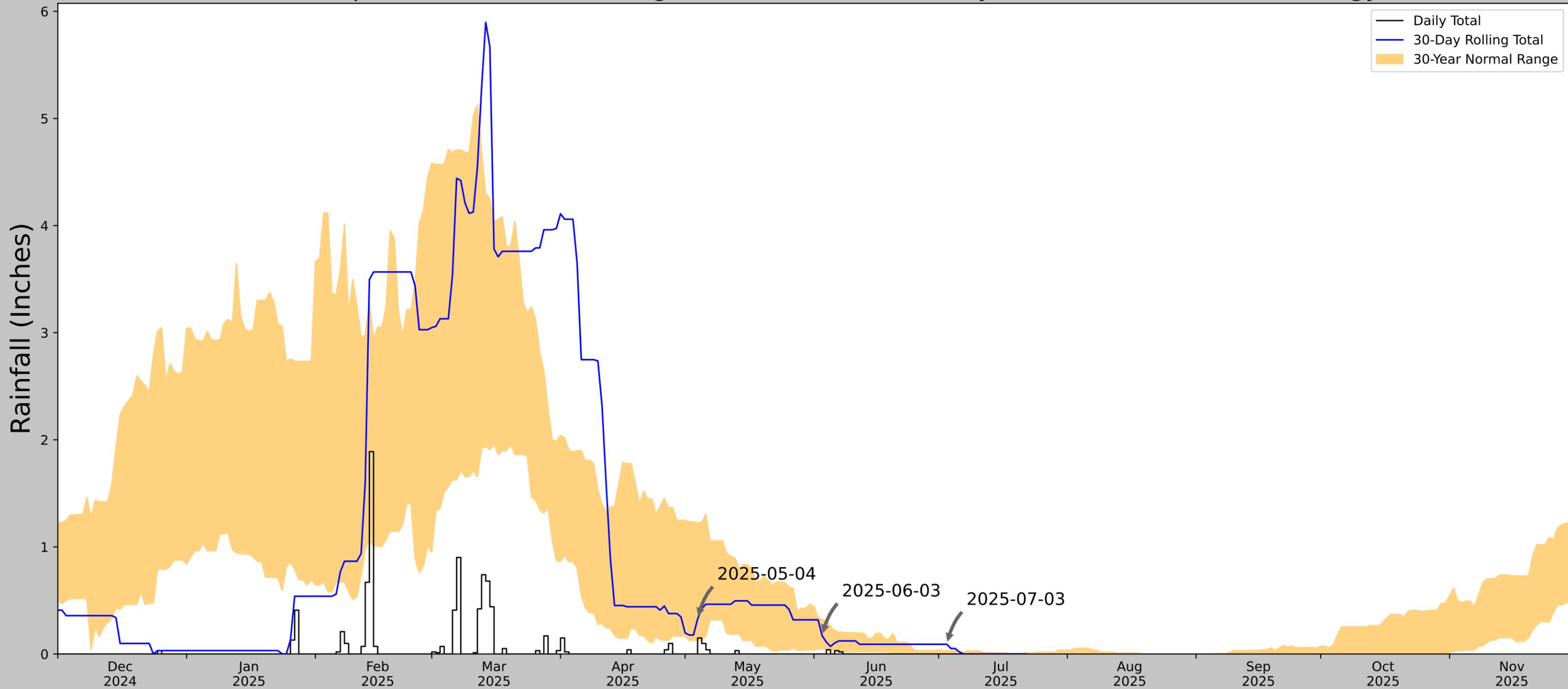
Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover \geq 10%	Classification	
None	None	Absent	Absent	Absent	Ephemeral	
			Present	Present	At least intermittent	
	Few (1-19)	Absent	Absent	Absent	Less than Perennial	
			Present	Present	At least intermittent	
		Present	Absent		Intermittent	
			Present		Perennial	
	Many (20+)	Absent	Absent	Absent	Ephemeral	
			Present	Present	At least intermittent	
		Present	Absent		Ephemeral	
			Present		At least intermittent	
	Few (1-2)	None				Intermittent
		Few (1-19)	Absent			Intermittent
Present			Absent		Intermittent	
Many (20+)		Absent			Perennial	
		Present	Absent		Intermittent	
Many (3+)		Few (1-19)	Absent	Absent		Intermittent
			Present	Present		Perennial
Many (20+)					Perennial	

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

APPENDIX D
ANTECEDENT PRECIPITATION TOOL

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.16005, -117.16528
Observation Date	2025-07-03
Elevation (ft)	677.787
Drought Index (PDSI)	Extreme drought (2025-06)
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-07-03	0.0	0.031496	0.090551	Wet	3	3	9
2025-06-03	0.047638	0.319291	0.169291	Normal	2	2	4
2025-05-04	0.127953	1.224803	0.326772	Normal	2	1	2
Result							Wetter than Normal - 15

Figures and tables made by the
Antecedent Precipitation Tool
Version 2.9



US Army Corps
of Engineers.



Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
SAN MARCOS 2.5 ENE	33.1472, -117.1316	666.011	2.141	11.776	0.989	5844	90
ESCONDIDO #2	33.1211, -117.09	600.066	3.008	65.945	1.552	4951	0
POWAY VALLEY	33.0194, -117.0308	647.966	10.584	18.045	4.954	520	0
VISTA	33.2353, -117.2322	430.118	8.419	235.893	5.775	7	0
CARLSBAD MCCLELLAN PALOMAR AP	33.13, -117.2764	312.992	8.461	353.019	6.794	31	0



Appendix D. Site Photographs



Photograph 1: Non-native woodland view looking north; coastal sage scrub in foreground and agriculture-pasture in background.



Photograph 2: Overview of coastal sage scrub and intensive agriculture-pasture.



Photograph 3: Coastal sage scrub, facing west.



Photograph 4: Overview of woodland and urban/developed, facing east.



Photograph 5: Overview of the coastal sage scrub where the coastal California gnatcatcher was found.



Photograph 6: Overview of residences in the northwest portion of the Project site.