APPENDIX C BIOLOGICAL SURVEY REPORT

The terms "Study Area" and "Project Area" are used interchangeably in this report. In this report alone, both terms should be interpreted to refer to the Study Area that encompasses the Project Area and extends further from the border, at times up to approximately 350 feet.

Biological Survey Report

14 Mile Fence Replacement
U.S. Customs and Border Protection, San Diego Sector
San Diego County, California

Prepared for:
John Petrilla
Environmental Protection Specialist
U.S. Customs and Border Protection

Contract Number: GS10F0070W
Task Order: HSBP1017F00229

Date:
February 2018

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ACRONYMS

BMP	Best Management Practices
BSR	Biological Survey Report
Cal-IPC	California Invasive Plant Council
CBP	U.S. Customs and Border Protection
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DHS	U.S. Department of Homeland Security
ESP	Environmental Stewardship Plan
FAC	Facultative plant species
FACU	Facultative upland plant species
FACW	Facultative wetland plant species
HCP	Habitat Conservation Plan
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
MSCP	Multiple Species Conservation Plan
NL	Not Listed
NVCS	National Vegetation Classification System
OBL	Obligate plant species
OHWM	Ordinary High Water Mark
POE	Port of Entry
USFWS	U.S. Fish and Wildlife Service
USDA	U.S. Department of Agriculture

USGS	U.S. Geological Survey
WRA	WRA, Inc.

1.0 INTRODUCTION

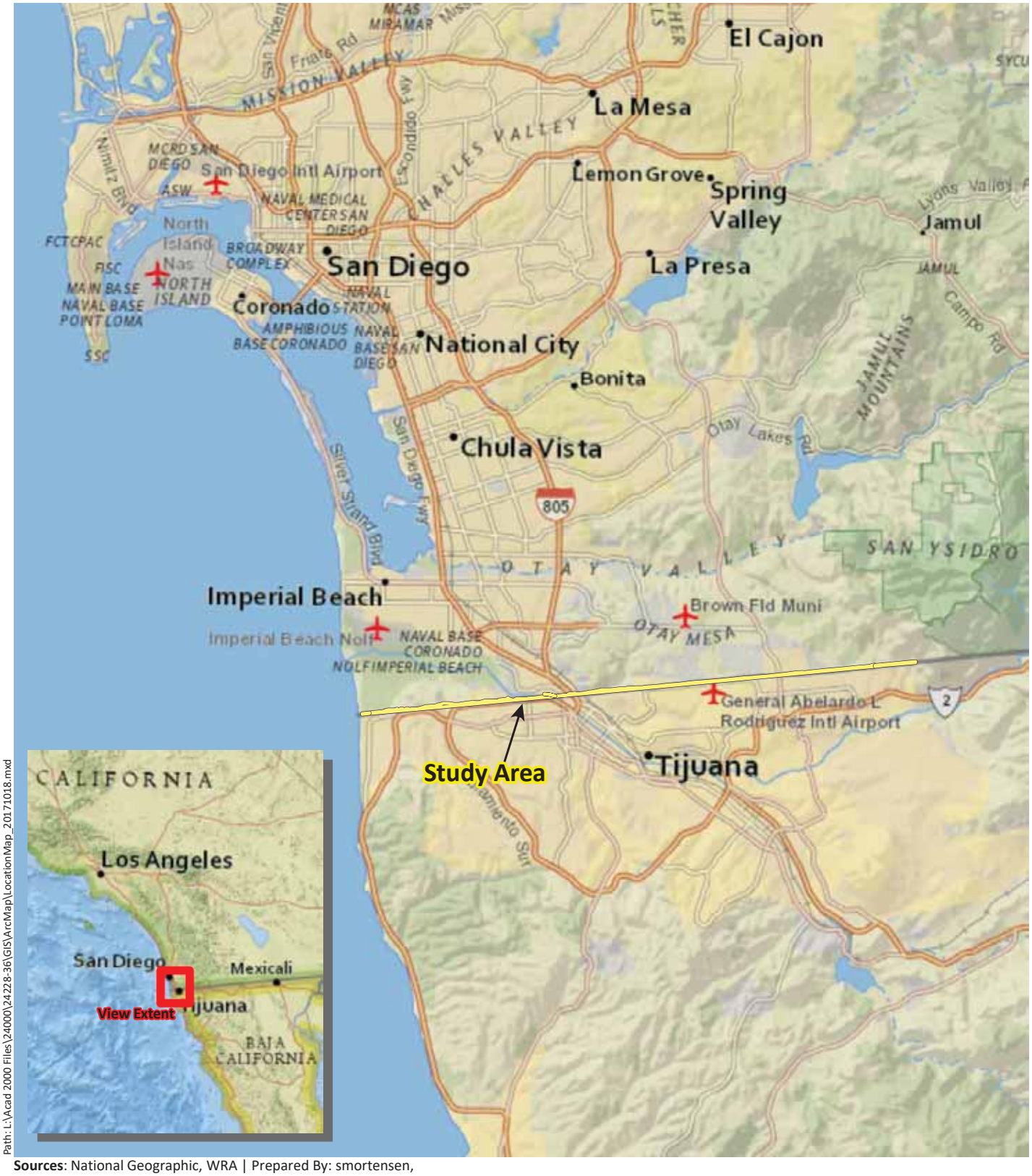
WRA, Inc. (WRA), a subcontractor to Northland Resources, Inc., has prepared this Biological Survey Report (BSR) to provide the U.S. Department of Homeland Security (DHS) and U.S. Customs and Border Protection (CBP) with a summary of information collected from a variety of literature sources and field surveys to describe the biological resources present and potentially present along approximately 14 miles of the U.S./Mexico border immediately north of the existing primary border fence (Project Area) in the San Diego Border Infrastructure System in San Diego County, California. This report provides the necessary current conditions information for an evaluation of the potential impacts of a proposed U.S. Customs and Border Protection fence replacement project (Project) and associated activities on the area's biological resources by the Environmental Stewardship Plan (ESP) and provides recommendations for avoidance or reduction of these impacts, including best management practices.

The Project Area is located in southern San Diego County from the eastern edge of Border Field State Park eastward to the base of Otay Mountain (Figure 1). The Project Area is bordered to the south by Mexico and to the north by a variety of public and private lands. The majority of the Project Area lies between the primary fence proposed for replacement and the secondary fence.

Much of the Project Area has been previously disturbed during previous border activities; these areas are managed either as non-native grassland that is frequently mowed or as CBP access roads and other associated infrastructure. Segments of the Project Area remain in mostly natural condition; much of this is coastal sage scrub habitat toward the western end of the Project Area. Large portions of the Project Area west of the South Bay International Wastewater Treatment Plant have been revegetated with native vegetation. East of the San Ysidro Port of Entry, the majority of land is comprised of disturbed non-native grasslands and access roads. Only small areas of native or restored coastal sage scrub habitat remain in these areas.

The principal mission requirements of the DHS include border security and the detection and prevention of illegal entry into the United States. Congress has provided the Secretary of Homeland Security with a number of authorities necessary to carry out DHS's border security mission. One of these authorities is found at section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA). In section 102(a) of IIRIRA, Congress provided that the Secretary of Homeland Security shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the United States border to deter illegal crossings in areas of high illegal entry into the United States. In section 102(b) of IIRIRA, Congress has called for the installation of additional fencing, barriers, roads, lighting, cameras, and sensors on the southwest border. Finally, in section 102(c) of IIRIRA, Congress granted to the Secretary of Homeland Security (the Secretary) the authority to waive all legal requirements that the Secretary determines necessary to ensure the expeditious construction of barriers and roads authorized by section 102 of IIRIRA.

In August of 2017, the Secretary issued a waiver covering, among other things, the replacement of approximately 14 miles of primary pedestrian barrier in the United States Border Patrol (USBP) San Diego Sector. Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the laws that were included in the waiver, DHS and CBP, as was the case with past projects covered by a waiver, are committed to responsible environmental stewardship of our valuable natural and cultural resources. In order to uphold this commitment to responsible environmental stewardship, CBP has completed environmental resource surveys and prepared associated survey reports, including this Biological Survey Report.



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Sources: National Geographic, WRA | Prepared By: smortensen, 10/18/2017

Figure 1. Study Area Location Map

Northland Research, Inc.
CBP Fence Replacement
San Diego County, California

0 1 2 Miles

N

wra
ENVIRONMENTAL CONSULTANTS

2.0 PROJECT DESCRIPTION

The DHS and CBP plan to remove and replace approximately 14 miles of primary pedestrian fence within the southwestern section of San Diego County, California, construct an all-weather road, and improve lighting along the new bollard wall.

The existing primary fence is a fence constructed from old landing mats spanning nearly the entire length of the border in the Project Area, which was installed in the 1990s and has since deteriorated. This factor, along with the limited visibility afforded by the landing mat style fence, renders the current fence inadequate for the purpose of fulfilling CBP's mission. The new bollard wall design is critical to prevent illegal entries into the United States and to achieve operational control.

The Project Area begins approximately 0.2 miles east of the Pacific Ocean and continues east along the U.S./Mexico international border for 14 miles (Figure 1). The Project Area also includes an approximately 1.97-mile strip of land along the northern levee of the Tijuana River (Figure 2).

The Project Area is located entirely on federal land owned or managed by CBP and contains several border tactical infrastructure elements including primary and secondary fences, patrol roads, and lighting and surveillance systems.

The new bollard wall will closely parallel the existing secondary fence to the north and will be in line similar to the old primary pedestrian fence to the extent feasible. In areas where the fence cannot be replaced in situ, the fence may be offset by approximately 15 feet from the original fence position.

The Project may result in impacts to several resource categories; however, Best Management Practices (BMPs) are recommended to minimize or eliminate impacts to the discussed resources. Specific BMPs, as well as a plant salvaging operation, will be implemented to ensure minimal disturbance to the resources within the Project Area.

The Project will include the: (1) removal of the existing fence; (2) replacement of the existing fence with a bollard wall; and (3) construction of an all-weather road and lighting improvements.

Figure 2. North Levee Improvement Area

N
W E
S

0 500 1,000 2,000
Feet

San Diego Sector Fence Replacement Project
San Diego County, California

Map Prepared Date: 1/9/2018
Map Prepared By: mrochelle
Base Source: Esri Streaming - NAIP 2014
Data Source(s): WRA

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3.0 SURVEY METHODS

3.1 Literature Search

The potential for occurrence of special-status species in the Project Area was evaluated by first determining which special-status species are known to occur near the Project Area through literature and database searches. Special-status species include species that are listed as endangered or threated at the Federal or State level, CDFW species of special concern, and City of San Diego Multiple Species Conservation Plan (MSCP) listed species. Database searches for known occurrences of special-status species focused on the Project's three U.S. Geological Survey (USGS) quadrangles (Imperial Beach, Otay Mesa, and Otay Mountain). The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur near the Project Area:

- California Natural Diversity Database records (CDFW 2017)
- U.S. Fish and Wildlife Service (USFWS) quadrangle species lists (USFWS 2017)
- CNPS Inventory records (CNPS 2017)
- NatureServe (NatureServe 2017)
- U.S. Department of Agriculture Natural Resource Conservation Service Soil Survey Data (USDA 2017)
- USFWS Arnie's Point Linear Vernal Pool Biological Opinion (February 2, 2006)
- USFWS Area II Biological Opinion (January 3, 2009)
- Bunker Hill Biological Resources Report (March 2011)
- San Diego Lighting System Environmental Assessment (August 1993)
- Area Lighting, Fencing, and Roadways at International Border Environmental Assessment (August 1997)
- Construction of Barrier Systems Environmental Assessment (May 1998)

The literature search identified 164 special-status species whose potential occurrence needed to be evaluated within the project area. Site visits were conducted in October and November of 2017 to identify suitable habitats for special-status species. Habitat conditions observed in the Project Area were used to evaluate the potential for occurrence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Project Area was then evaluated according to the following criteria:

> No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements. For wildlife, this is based on a lack of one or more essential habitat elements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime). Species surveys are not considered necessary.
>
> Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site. Species surveys are not considered necessary but may be performed to confirm species absence.
>
> Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site. Species surveys may be necessary to determine presence, extent, density, and details of species distribution.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site. If species surveys are not conducted, then it is recommended the species is assumed present. Species surveys may be necessary to determine extent, density, and details of species distribution.

Present. Species was observed on the site or have been documented recently as being on the site. Focused species surveys may still be needed to determine extent, density, and details of species distribution.

3.2 Site Assessments

Site assessments, including wetland delineations and general biological surveys, were conducted between October 9 through 13, 2017, and November 17, 2017. Vegetation mapping was conducted with the use of a sub-meter GPS and aerial photographs. During all surveys and site visits, biologists documented all plant and wildlife species observed incidentally. On November 17, 2017, biologists surveyed the primary fence along the top of the north levee, which is adjacent to the Tijuana River, as well as an approximately 1-mile stretch from the eastern end of the primary fence to the west. The area near the north levee is located adjacent to an existing paved road on a raised man-made levee. There is minimal suitable habitat available in this area. The area to the east contains an approximately 40 foot wide maintained gravel road, adjacent to the primary fence, starting on the western edge and constricting to about 20 feet just west of the Project Area. If the construction footprint is restricted to the existing roadway, habitat is not anticipated to be impacted.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity, in order to determine its potential to occur in the Project Area. For many of the species, the visits were not done at the ideal time of year to identify the species or potential habitat. WRA used their best professional judgement using the information and condition available to make an assessment. The site visits do not constitute protocol-level surveys and are not intended to determine the actual presence or absence of a species; however, if a special-status species is observed during the site visit, its presence was recorded and discussed.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation is based on the best professional judgment of WRA biologists with experience working with the species and habitats. For some species, a site assessment visit at the level conducted for this report may not be sufficient to determine presence or absence of a species. In these cases, a species may be assumed to be present, or further species surveys may be completed to refine the determination.

4.0 ENVIRONMENTAL SETTING

The Project Area includes the United States/Mexico international border, the Roosevelt Reservation and areas south of the secondary fence associated with the border. The Project Area also includes a narrow strip that runs along the northern levee of the Tijuana River, roughly parallel to Camino De La Plaza. South of the Project Area is within Mexico and almost entirely urban land use, dominated by the city of Tijuana. North of the Project Area is a mix of open space and urban land use. Open areas are in the western portions of the project near the Tijuana River and associated estuary and river valley (Tijuana River County Open Space Preserve and Border Field State Park), and to the east with the base of Otay Mountain and Otay Mesa (Otay County Open Space Preserve), approximately 14 miles from the western edge of the Project Area. In between these two areas of open space is mostly urban land use adjacent to the project: city of San Ysidro, San Ysidro Port of Entry (POE) and Otay POE, and Pacific Gateway Park open space. Within the Project Area, the land use is a combination of disturbed areas, coastal scrublands, disturbed wetlands, revegetated areas, and artificial hardscape (paved and unpaved access roads). Some of these land use types are suitable habitat for special-status species.

The Project Area occurs within the Humid Temperate Domain, Mediterranean Division, California Coastal Chaparral Forest, and Shrub Province described by Bailey (1995). Regional climate is defined by hot, dry summers and rainy, mild winters. Average annual temperatures range from 57 to 71 °F in San Diego. Average low temperatures range from 48 °F in December to 66 °F in August. Average high temperatures range from 65 °F in December to 77 °F in August. The record low and record high temperatures for San Diego are 111 °F and 29 °F, respectively (NOAA 2017). Average precipitation totals 10.34 inches per year. The elevation of the Project Area ranges from 40 feet on the western limit of the Project Area near the Pacific Ocean to 600 feet on the eastern end of the Project Area on Otay Mesa (Google Earth 2017). The 14-mile stretch from west to east incorporates several habitat types in and around the Project Area.

The soils of the province are primarily made up of Alfisols and Mollisols, both of which exhibit high fertility and are found under savanna and grassland vegetation (Bailey 1995). Much of the region has been converted to a combination of urban and agricultural land use. Remaining open areas contain coastal scrub and chaparral habitat within mesas and ephemeral washes. The vegetation in this province contains several endemic species primarily associated with coastal influence and vernal pool communities. A wide variety of wildlife use this province, especially birds, for whom coastal California constitutes a major migration route. Threatened and endangered species also use habitat near the Project Area and are subject to protection plans.

The City of San Diego MSCP has protected areas in and near the Project Area. The MSCP is not intended to limit CBP or other law enforcement activities. The MSCP provides CBP and other enforcement agencies an exemption for the CBP activities, with the preference that CBP to the extent possible, use existing infrastructure in order to minimize impacts to established protected areas. Critical Habitat has also been identified for five species in or near the project area. San Diego fairy shrimp and Riverside fairy shrimp Critical Habitat is located in the Pacific Gateway Park and the eastern end of the Project Area near the Otay County Open Space Preserve. The eastern end of the Project Area also intersects Critical Habitat for coastal California gnatcatcher and the Quino checkerspot butterfly. The patrol roads, access roads, and surrounding areas are maintained by CBP within the Project Area. Roads, brow ditches, and associated vegetation are regularly mowed, disked, or otherwise disturbed as a part of routine maintenance west of the San Ysidro POE. All vegetation areas between the primary and secondary fencing east of the San Ysidro POE are actively managed. These routine disturbances limit the growth of vegetation to

preserve sightlines for CBP and reduce concealment for illegal border crossings. Least Bell's vireo critical habitat intersects the patrol road along the north levee of the Tijuana River.

5.0 BIOLOGICAL RESOURCES

5.1 Vegetation Community Classification

Prior to the site visits, data from the Web Soil Survey (USDA 2017) and aerial photographs of the site (Google Earth 2017) were examined to determine whether any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Project Area. Biological communities observed in the Project Area were classified using the National Vegetation Classification System (NVCS). The vegetation was mapped based on existing NVCS plant community descriptions discussed in *A Manual of California Vegetation* (Sawyer *et al.* 2009) and *A Manual of California Vegetation, Online Edition* (CNPS 2017b), NatureServe's Classification of Ecological Communities (NatureServe 2017), and the *Vegetation Classification Manual for Western San Diego County* (Sproul *et al.* 2011). These references describe communities down to the alliance or association level, which are the two most detailed levels of vegetation community classification. Associations are one step more specific than alliances. Vegetation communities within the Project Area were mapped to the alliance level, where possible. However, in some cases it was necessary to describe a community in the Project Area that was not described in the literature. In the case of non-native grasslands, this community was mapped as a broad category, containing one of several herbaceous alliances described below. Non-native communities or species are ranked according to the California Invasive Plant Council (Cal-IPC) ranks of High, Moderate, or Limited ecological impacts. More information on the Cal-IPC ranking system is available in Section 5.3 of this report.

Sensitive biological communities include habitats that fulfill special functions or that have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, Habitat Conservation Plans (HCPs), MSCPs, or regulations by the California Department of Fish and Wildlife (CDFW). The CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2017). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2017) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3. For the purposes of this report, any vegetation community that would be considered a Tier I or Tier II sensitive community per the San Diego MSCP (City of San Diego 1998) was considered sensitive, regardless of the CDFW ranking. The MSCP uses plant community descriptions described in the *A California Flora and Supplement* (Munz 1968), and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), which are both coarser-scale classification systems that predate alliance- and association-level classifications. A classification conversion crosswalk (CNPS 2017b) was used to convert mapped alliances into the MSCP, which used Munz and Holland classifications in order to determine sensitivity. If a mapped vegetation community within the Project Area did not fit into one of the MSCPs described communities, the CDFW ranking was used to determine sensitivity.

Vegetation communities within the Project Area vary in species composition and levels of anthropogenic disturbance, from relatively undisturbed coastal scrub habitat within the western portion of the Project Area, to man-made restored shrublands, and disturbed, non-native grasslands. Vegetation communities were identified in the field during the October 2017 site visits and mapped to the alliance level where possible, using a combination of a sub-meter GPS unit and aerial photographs. In some cases, it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. The vegetation community descriptions below are based on conditions observed during the October 2017 site visits. A map of the observed vegetation communities is available in Appendix A.

5.1.1 Vegetation Community Descriptions

Isocoma menziesii Shrubland Alliance
Menzies' goldenbush scrub
(Munz: Coastal sage scrub)
(Holland: Coastal sage scrub)
CDFW Ranking: G4?, S4?
MSCP Ranking: Tier II (sensitive)

Photograph 1. *Isocoma menziesii* Shrubland Alliance.

Approximately 1.56 acres of Menzies' goldenbush scrub (*Isocoma menziesii* Shrubland Alliance) was mapped in the Project Area, in the far eastern portion of the Project Area. Menzies' goldenbush typically forms stands on sandy soils, in association with herbs and grasses. Most of these stands are the result of recent or frequent disturbance from fire, flooding, erosion, or human-related clearing. In Southern California, persistent stands composed primarily of low, mat-like plants typically occur on sea bluffs and terraces. They may contain halophytes such as California saltbush (*Atriplex californica*) and spreading alkaliweed (*Cressa truxillensis*). In general, the alliance is characterized by Menzies' goldenbush dominant or codominant in the shrub layer, with subdominant shrubs or subshrubs such as California sagebrush, broom baccharis (*Baccharis sarothroides*), California matchweed (*Gutierrezia californica*), and Virginia glasswort (*Salicornia depressa*). Shrubs are typically less than one meter tall; cover is open to intermittent. The herbaceous layer is variable. This community is a Tier II community per the MSCP and is considered sensitive.

Encelia californica Shrubland Alliance
California brittlebush scrub
(Munz: Coastal sage scrub)
CDFW Ranking: S3, G4
MSCP Ranking: Tier II (sensitive)

Photograph 2. *Encelia californica* Shrubland Alliance.

Approximately 3.41 acres of California brittlebush scrub (*Encelia californica* Shrubland Alliance) was mapped in the Project Area, predominantly in the western portion of the Project Area, where the marine influence (*i.e.* summer fog) is prevalent. California brittlebush scrub is known in California along the Southern California Coast and Southern California Mountains and Valley Regions from Santa Barbara to San Diego County. This vegetation alliance is typically situated on sunny steep slopes near the coast on soils derived from sandstone, shale, or volcanics (CNPS 2017b). Within the Project Area, California brittlebush scrub was

mapped according to membership rules (CNPS 2017b), as containing California brittlebush at least 30 percent relative cover in the shrub canopy.

Areas mapped as California brittlebush scrub are typically dominated by California brittlebush, a summer drought deciduous shrub in the sunflower family (Asteraceae), with other co-dominant shrub species including California [coastal] sage brush (*Artemisia californica*), and California buckwheat (*Eriogonum fasciculatum*), with other shrubs and cacti including fourwing saltbush (*Atriplex canescens* var. *canescens*), slenderleaf saltbush (*Atriplex canescens* var. *linearis*), big saltbush (*Atriplex lentiformis*), coastal cholla (*Cylindropuntia prolifera*) and San Diego County viguiera (*Bahiopsis* [*Viguiera*] *laciniata*) present at lower densities. The herbaceous layer in this community is dominated by non-native, invasive grasses and forbs including foxtail chess (*Bromus madritensis*), and crystalline iceplant (*Mesembryanthemum crystallinum*). This community provides habitat for several rare plant species which were observed during the site visits, including San Diego County viguiera (CNPS Rank 4.3), snake cholla (*Cylindropuntia californica* var. *californica*, CNPS Rank 1B.1), Shaw's agave (*Agave shawii* var. *shawii*, CNPS Rank 2B.1), San Diego barrel cactus (*Ferocactus viridescens*, CNPS Rank 2B.1), and California boxthorn (*Lycium californicum*, CNPS Rank 4.2). This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

<u>*Artemisia californica* Shrubland Alliance</u>
California sagebrush scrub
(Munz: Coastal sage scrub)
CDFW Ranking: S5, G5
MSCP Ranking: Tier II (sensitive)

Photograph 3. *Artemisia californica* Shrubland Alliance.

Approximately 7.65 acres of California sagebrush scrub (*Artemisia californica* Shrubland Alliance) was mapped in the Project Area, predominantly on slopes and mesas in the western portion. California sagebrush scrub is known in California from the Northern California Coast, to the Southern California Coast, and Southern California Mountains and Valley Regions from Marin County to San Diego County. This vegetation alliance is typically situated on slopes that are usually steep and rarely flooded, low-gradient deposits along streams, and on alluvial- or colluvial- derived, shallow soils (CNPS 2017b). Within the Project Area, California sagebrush scrub was mapped according to membership rules (CNPS 2017b), as containing California sagebrush greater than 60 percent relative cover in the shrub canopy.

Areas mapped as California sagebrush scrub are typically dominated by California sagebrush with other shrub species present including California buckwheat, Menzies' goldenbush (*Isocoma menziesii* var. *menziesii*), and saltbush (*Atriplex* spp.). Herbaceous cover varies, becoming sparser when shrub cover is denser. Herbaceous species present are typically non-native, invasive grasses and forbs including foxtail chess, ripgut brome (*Bromus diandrus*), and crown daisy (*Glebionis coronaria*). This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

Eriogonum fasciculatum Shrubland Alliance
California buckwheat scrub
(Munz: Coastal sage scrub)
CDFW Ranking: S5, G5
MSCP Ranking: Tier II (sensitive)

Photograph 4. *Eriogonum fasciculatum* Shrubland Alliance.

Approximately 11.57 acres of California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance) was mapped in the Project Area, predominantly on slopes in the central portion of the Project Area. California buckwheat scrub is known in California from the Central California Coast Ranges, to the Mojave Desert, and Southern California Mountains and Valley Regions from Alameda County to Imperial County. This vegetation alliance is typically situated on upland slopes, intermittently flooded arroyos, channels and washes, and rarely flooded low-gradient deposits on course, well drained, moderately acidic to slightly saline soils (CNPS 2017b). Within the Project Area, California buckwheat scrub was mapped according to membership rules (CNPS 2017b), as containing California buckwheat at greater than 50 percent relative cover in the shrub canopy, with other shrubs less than half of its cover.

Areas mapped as California buckwheat scrub are typically dominated by California buckwheat with other shrub species present including California sagebrush and broom Baccharis (*Baccharis sarothroides*). Occasional coastal cholla is present as well in the western portion of the Project Area. Herbaceous species present are typically non-native, invasive grasses including slim oat (*Avena barbata*), foxtail chess, and ripgut brome. This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

Artemisia californica – Eriogonum fasciculatum Shrubland Alliance
California sagebrush – California buckwheat scrub
(Munz: Coastal sage scrub)
CDFW Ranking: S5, G5
MSCP Ranking: Tier II (sensitive)

Photograph 5. *Artemisia californica - Eriogonum fasciculatum* Shrubland Alliance.

Approximately 3.01 acres of California sagebrush – California buckwheat scrub (*Artemisia californica – Eriogonum fasciculatum* Shrubland Alliance) was mapped in the Project Area, predominantly on slopes in the western portion of the Project Area. California sagebrush – California buckwheat scrub is known in California

from the Central California Coast Ranges, to the Southern California Mountains and Valley Regions from Solano County to San Diego County. This vegetation alliance is typically situated on steep, south-facing slopes on colluvial-derived soils (CNPS 2017b). Within the Project Area, California sagebrush – California buckwheat scrub was mapped according to membership rules (CNPS 2017b), as containing both California sagebrush and California buckwheat at 30 to 60 percent relative cover in the shrub canopy.

Areas mapped as California sagebrush – California buckwheat scrub are typically co-dominated by California buckwheat and California sagebrush, San Diego County viguiera, and saltbush (*Atriplex* spp.). Herbaceous species present are typically non-native, invasive grasses and forbs including slim oat, ripgut brome, and Russian thistle (*Salsola australis*). This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

<u>*Malosma laurina* Shrubland Alliance</u>
Laurel sumac scrub
(Munz: Southern mixed chaparral)
(Holland: Southern mixed chaparral)
CDFW Ranking: G4, S4
MSCP Ranking: Tier III (sensitive)

Photograph 6. *Malosma laurina* Shrubland Alliance.

Approximately 0.38 acres of Laurel sumac scrub (*Malosma laurina* Shrubland Alliance) was mapped in the Project Area, in the far eastern portion of the Project Area. The alliance has become more common in many areas of western San Diego County, as a result of high-frequency fires in the past few decades. Laurel sumac scrub occurs along the coast from Santa Barbara County, south into northwestern Baja California. The shrub is a consummate resprouter and can resprout from its deep rootcrown multiple times in short succession following fires.

Areas mapped as laurel sumac scrub generally include laurel sumac as the dominant or codominant species in the shrub canopy, with California sagebrush, Ceanothus (*Ceanothus* spp.), bush monkey flower (*Mimulus aurantiacus*), California brittlebush (*Encelia californica*), coastal buckwheat (*Eriogonum cinereum*), California buckwheat (*Eriogonum fasciculatum*), toyon (*Heteromeles arbutifolia*), chaparral yucca (*Hesperoyucca whipplei*), snapdragon penstemon (*Keckiella antirrhinoides*), hollyleaf redberry (*Rhamnus ilicifolia*), lemonade berry (*Rhus integrifolia*), sugar sumac (*Rhus ovata*), purple sage (*Salvia leucophylla*), black sage (*Salvia mellifera*), Parry's tetracoccus (*Tetracoccus dioicus*), and poison oak (*Toxicodendron diversilobum*) occurring as subdominants. Emergent trees of southern black walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), or California sycamore (*Platanus racemose*) may be present. Shrubs are usually less than 5 meters in height and the canopy is open to continuous. The herbaceous layer is generally sparse. This community is a Tier III community per the MSCP and is considered sensitive.

Simmondsia chinensis Provisional Shrubland Alliance
Jojoba scrub
(Munz: Not treated)
(Holland: Sonoran mixed woody and succulent scrub)
CDFW Ranking: S3?, G4
MSCP Rank: No Rank

Photograph 7. *Simmondsia chinensis* Provisional Shrubland Alliance.

Approximately 0.67 acres of Jojoba scrub (*Simmondsia chinensis* Provisional Shrubland Alliance) was mapped in the Project Area, solely on the east-facing slope directly west of Smuggler's Gulch. Jojoba is a widespread desert shrub of the Sonoran Desert that ranges into southwestern California in Riverside and San Diego counties (Sproul *et al.* 2011). Jojoba scrub is a provisional alliance and statewide distribution data is not published in the literature. In San Diego County, this alliance is typically dominated by jojoba, in association with San Diego County viguiera, and a number of sub-dominant succulent species including San Diego barrel cactus and cholla (*Cylindropuntia* spp., Sproul *et al.* 2011).

Areas mapped as jojoba scrub within the Project Area are typically dominated by jojoba with other codominant shrubs including bushrue (*Cneoridium dumosum*), deerweed (*Acmispon glaber*), and California buckwheat. Sparse cover of San Diego barrel cactus is also present in this community. Herbaceous species present are typically non-native, invasive grasses including foxtail chess, and goldentop (*Lamarckia aurea*), with some native forb cover including virgate wreath-plant (*Stephanomeria virgata*). This community does not crosswalk to any MSCP-sensitive communities. However, CDFW ranks this community as an S3?, meaning it is apparently vulnerable in California, and thus would be considered sensitive.

Non-native grassland
(Holland: Nonnative grassland)
CDFW Rank: No Rank
MSCP Ranking: Tier III (non-sensitive)

Photograph 8. Non-native Grassland.

The Project Area contains approximately 93.89 acres of non-native grassland, predominantly located in the eastern portion of the Project Area on flat to sloped areas, which have been previously disturbed. This description is based on the group level, which is the hierarchical level above alliance. The group level is a useful classification where distinction cannot be made to the alliance or association level, such as in the case of highly mixed nonnative grass, and non-

native forb species. This vegetation type is widespread and found in variable situations, often in areas where ruderal floras have replaced native types due to repeated soil disturbance and the introduction of nonnative species, as is the case in the Project Area. The shrub and canopy layer must be less than 5 percent absolute cover to meet the requirements of this group (Sproul *et al.* 2011).

In the Project Area, numerous nonnative species occur, and the emergent shrub cover is less than 5 percent. Common grass species in the Project Area include ryegrass (*Festuca perennis*), Bermuda grass (*Cynodon dactylon*), foxtail barley (*Hordeum murinum*), purple fountain grass (*Pennisetum setaceum*), and slim oat. Also included within this community are expansive areas that could classify as non-native forblands where grasses have been continuously mowed, keeping grasses short, and favoring perennial or summer annual, non-native invasive forbs including iceplant (*Carpobrotus edulis*), crystalline iceplant, small flowered iceplant (*Mesembryanthemum nodiflorum*), Russian thistle, and crown daisy.

Revegetated Coastal Sage Scrub
(Munz: Coastal sage scrub)
CDFW Rank: S5, G5
MSCP Ranking: Tier II (sensitive)

Photograph 9. Revegetated Coastal Sage Scrub.

The Project Area contains approximately 40.78 acres of restored coastal sage scrub, predominantly located in the western and central portions of the Project Area on flat to sloped areas, which have been previously disturbed due to previous construction projects, and have been regraded and revegetated. The most expansive restored shrublands are located in the western portion of the Project Area near Smuggler's Gulch. Restored shrublands are predominantly on graded 2 to 1 slopes and flat areas in between slopes. Restored shrublands vary in shrub cover from approximately 5 to 80 percent shrub cover, likely due to varying revegetation treatments.

Common shrub species in this community include California sagebrush, California buckwheat, San Diego County viguiera, fourwing saltbush, slenderleaf saltbush, and big saltbush in the western portions of the Project Area. Within the central portion of the Project Area, the aforementioned species are present, along with brittlebush (*Encelia farinosa*) which is codominant and sparse cover of the rare San Diego bur sage (*Ambrosia chenopodiifolia*, CNPS Rank 2B.1). Non-native grasses and forbs including ripgut brome, foxtail chess, crystalline iceplant, small flowered iceplant, Russian thistle, and crown daisy dominate the herbaceous layer. This is a coastal sage scrub community, which is a Tier II community per the MSCP, and would be considered sensitive.

Urban/Developed
(Holland: Urban/Developed)
CDFW Rank: No Rank
MSCP Ranking: No Rank (non-sensitive)

The Project Area contains approximately 81.75 acres of developed areas, which include public and restricted roads (both concrete and gravel), buildings, and other concrete structures that are largely devoid of vegetation.

Photograph 10. Urban/Developed.

Disturbed
(Holland: Disturbed Habitat)
CDFW Rank: No Rank
MSCP Ranking: Tier IV (non-sensitive)

The Project Area contains approximately 44.64 acres of disturbed areas, which include bare patches of dirt where vegetation is constantly disturbed or removed such that little to no vegetation persist. Disturbed areas are typically along the primary fence in areas where the CBP maintains areas free of vegetation for security purposes, and areas that are constantly disturbed due to vehicle traffic, but are not concrete or gravel roads.

Photograph 11. Disturbed.

5.2 Wetlands and Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "non-wetland waters" and are often characterized by an ordinary high water mark (OHWM). Non-wetland waters generally include lakes, rivers, streams, and other open-water habitats. The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the CWA.

5.2.1 Field Evaluation Summary

Based on the findings of the wetland delineation, the Project Area contains approximately 2.47 acres of potentially jurisdictional non-wetland and 6.81 acres of potentially jurisdictional wetland Waters. The Study Area is composed of four wetland categories, which include detention basin wetland, emergent marsh, seasonal wetland depression, and wetland ditch (Appendix A). The wetlands contained indicators of wetland vegetation, hydrology, and soils (some contained problematic hydric soils). The streams displayed an OHWM and are linked to "navigable waters of the U.S." (Pacific Ocean), and therefore are potentially jurisdictional under Section 404 of the CWA. Non-wetland Waters included ephemeral and perennial steams. Areas that met the criteria for CDFW Section 1602 jurisdiction were identified in the course of field investigations but are not presented in this report.

Table 1. Summary of Potential CWA Section 404 Jurisdictional Areas within the Study Area.

Potentially Jurisdictional Features	Acres (Linear Feet [l.f.])
Wetlands	
Detention basin wetland	3.23
Emergent marsh	2.99
Seasonal wetland depression	0.53
Wetland ditch	0.25
TOTAL	**7.00**
Non-Wetlands	
Ephemeral stream	1.88 (4,112 l.f.)
Perennial stream	0.71 (146 l.f.)
TOTAL	**2.59 (4,258 l.f)**

5.2.2 Wetlands Vegetation Summary

For the purposes of the wetland delineation, a simple division of the wetland and non-wetland types of the Project Area was made below (Appendix A).

Detention Basin Wetland

There were five wetlands located in manmade detention basins in the Study Area. These detention basins are connected by concrete culverts on the east and west ends, and there are periodic inlet culverts on the north banks. These basins were designed to capture stormwater and surface runoff, and, based on aerial imagery (Google Earth 2017) and field observations, the basins are maintained periodically by mowing. The hydrology of the basins appears to be asynchronous with seasonal precipitation. Although seasonal precipitation is a clear influence, the wetland features were inundated or saturated over large areas during the October 2017 site visit, and it is assumed that these features receive urban runoff throughout the year. Much of the vegetation in each of the detention basins had recently been mowed. No outlets were observed in these basins; as such, they do not appear to have a surface hydrologic connection to any other potential Waters of the U.S. located outside of the basins.

Emergent Marsh

Three emergent marsh wetlands were mapped in areas that met the three wetland criteria and were characterized by species typical of areas that experience prolonged inundation, such as pickleweed (*Salicornia pacifica*; OBL) and cattails (*Typha* spp.; OBL).

Seasonal Wetland Depression

Fourteen seasonal wetland depressions were mapped in shallow, closed depressions that are seasonally ponded or saturated for a duration sufficient to allow the formation of wetland characteristics, but insufficient to support marsh vegetation. Seasonal wetland depressions were typically characterized by non-native annual species, though in one seasonal wetland depression, mulefat (*Baccharis salicifolia*; FAC) was a dominant species. Seasonal wetland depressions contained generalist wetland species; no species were observed that are characteristic of vernal pools in the region, such as short woolly marbles (*Psilocarphus brevissimus* FACW) and slender woolly marbles (*P. tenellus*; OBL).

Wetland Ditch

Two wetland ditches were mapped within a concrete drainage channel that is located just to the east of the Tijuana River, and appear to drain to the Tijuana River at the west end of the ditch.

5.2.3 Non-Wetland Waters

The Study Area contains two categories of non-wetland waters, ephemeral and perennial stream. All mapped features are likely to be considered jurisdictional by the Corps. Just like the wetland waters, the majority of these features occur in areas that have been heavily altered by human activity.

Ephemeral Stream

Ephemeral streams are episodic stream channels that appear to convey flows only during and immediately after precipitation events. Many of these features are narrow, deeply incised channels located on steep slopes and have a single low-flow channel with a small or non-existent active floodplain and no terrace. However, the category also includes features that have broader floodplains or concrete channelized portions of larger streams (Smugglers Gulch). Many of these features receive runoff from manmade features such as concrete, culverts that convey urban runoff and v-shaped drainages. The mapped ephemeral streams are a low gradient and discharge channels are located in a highly erodible sedimentary substrate in coastal scrub vegetation.

Perennial Stream

A single perennial stream, the Tijuana River, was mapped within the Study Area. The reach of the Tijuana River within the Study Area is entirely a maintained concrete flood control channel. Although sediment has accumulated on the concrete channel bottom, the sediment is periodically removed as part of regular channel maintenance activities. The Tijuana River has a 1,750-square-mile watershed, which includes both undeveloped and densely urban areas.

The perennial stream consisted of a narrow low-flow channel with a broad active floodplain. At the time of the October 2017 site visit, the low-flow channel was flowing and had a vegetated fringe dominated by watercress (*Nasturtium officinale*; OBL). Portions of the active floodplain had

a thin layer of sparsely vegetated sediment, but much of the sediment and vegetation had been cleared as part of regular channel maintenance activities. The Tijuana River channel was not accessible at the time of the October 2017 survey, and was assessed with binoculars and aerial imagery (Google Earth 2017) analysis. OHWM indicators observed included ripples, drift and/or debris, benches, sediment deposition, and water marks (on the concrete channel banks).

5.2.4 Wetland Soils Summary

Soil mapping resources indicate that there are eleven major soil types mapped within the Study Area (CSRL 2017, USDA 1973). The soils from Imperial Beach to San Ysidro consist primarily of loams, ranging from finer particulate composition of fine sandy loams to large particulate composition of cobbly loams with a range of infiltration rates from low to high. Soil types include:

- Carlsbad gravelly, loamy sand, 2 to 5 percent slopes (CbB);
- Chesterton fine, sandy loam, 2 to 5 percent slopes (CfB);
- Chino fine, sandy loam, saline, with 0 to 2 percent slopes (ChA);
- Chino silt loam, saline, 0 to 2 percent slopes (CkA);
- Huerhuero loam, 5 to 9 percent slopes, eroded (HrC2);
- Marine, loamy, coarse sand with 2 to 9 percent slopes (MIC);
- Olivenhain cobbly loam, 9 to 30 percent slope (OhE);
- Riverwash (Rm);
- Terrace escarpments (TeF);
- Tujunga sand, 0 to 5 percent slopes (TuB); and
- Visalia gravelly sandy loam with 2 to 5 percent slopes (VbB).

The soils from Roberto's Gate to Tin Can Gate consist of nine described soil series, several of which occurred in multiple distinct locations. These soils are moderately to well-drained, with the exception of the Huerhuero series, which has very high runoff. Soil types include:

- Diablo clay, 30 to 50 percent slope (DaF);
- Huerhuero loam, 2 to 9 percent slope (HrC);
- Huerhuero loam, 5 to 9 percent slope, eroded (HrC2);
- Huerhuero loam, 9 to 15 percent slopes (HrD);
- Huerhuero loam, 9 to 15 percent slopes, eroded (HrD2);
- Olivenhain cobbly loam, 9 to 30 percent slope (OhE);
- Olivenhain cobbly loam, 30 to 50 percent slope (OhF);
- Salinas clay, 0 to 2 percent slope (ScA);
- Stockpen gravelly clay loam, 0 to 2 percent slope (SuA);
- Stockpen gravelly clay loam, 2 to 5 percent slope (SuB); and
- Terrace escarpments (TeF).

5.2.5 Manmade or Relict Features Not Mapped as Potentially Jurisdictional Features

The Study Area contains many manmade features that convey water but were not mapped as potentially jurisdictional. Such features include:

- Concrete V-shaped drainages and gravel drainages that convey roadside and other surface runoff from uplands. Although evidence of flow was sometimes observed within these features, such features are manmade structures constructed in uplands that drain only uplands and therefore were not considered jurisdictional;

- Larger, flatter-bottomed concrete features that convey urban runoff—typically, from Mexico—but are not former jurisdictional features that have since been replaced by a manmade structure or are not an altered section of an otherwise natural existing jurisdictional feature. Although evidence of flow was sometimes observed within these features, such features are manmade structures constructed in uplands that drain only uplands and therefore were not considered jurisdictional.
- Earthen swales. Beginning approximately 1.5 miles east of the Otay POE, where the Study Area begins to be characterized by flat to gently rolling terrain, a series of long, narrow, linear swales were constructed that are located within grassland vegetation between the primary and secondary fences and parallel the fences. At the topographic low points in the rolling terrain, these features were drained by culverts. Although these features were apparently designed to drain surface runoff, indicators of flow were not observed. Occasionally, small, closed depressions that met three wetland parameters were located within these swale features, and such features were mapped as seasonal wetland depressions.
- Relict erosional features. On a steep, north-facing slope in California brittlebush scrub approximately 0.5 mile east of Friendship Park are two relict erosional features. Both are deeply incised gullies with small watersheds, and neither receives runoff from the dirt road that parallels the secondary fence because a small roadside mound prevents runoff from leaving the roadbed. No indicators of current flow were observed in either feature during the October 2017 site visit. In addition, the vegetation within and adjacent to the features is characterized by upland species (*e.g.* California brittlebush, California sagebrush, crown daisy [*Glebionis coronaria*; NL], California buckwheat, broom baccharis [*Baccharis sarothroides*; FACU]). As such, it is assumed that these are relict features formed under historic hydrologic conditions, possibly before secondary fence construction and alteration of the local topography by housing development in adjacent Mexico.

5.3 Non-native Species

NatureServe (2015) defines a non-native species as "those present in a specified region only as a direct or indirect result of human activity. Other terms that are often used as synonyms for non-native include alien, exotic, introduced, adventive, non-indigenous, and non-aboriginal." From a conservation perspective, non-native plant species may be very harmful, as many, though not all, non-native species negatively affect native species by outcompeting or hybridizing with them and by modifying the local ecosystem processes they depend on (NatureServe 2017). Cal-IPC ranks non-native plant species as having High, Moderate, or Limited ecological impacts:

> **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
>
> **Moderate** – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
>
> **Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness.

Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

This ranking is based on 13 criteria divided into three main categories: the ecological impacts of a species, the species' ability to invade natural vegetation, and the species' current ecological amplitude and extent of invasion. Large segments of the Project Area contain an exceptionally high proportion of non-native plants. A majority of the vegetation communities described in section 5.1.1 are dominated by non-native species. Non-native species and their Cal-IPC rating are listed in the observed plant list in Appendix F.

5.4 Special-Status Plants

Two-thousand forty-seven species of plants have been documented within San Diego County (Rebman and Simpson 2014). Of these, 1,689 are native to the county and 758 species are non-native and naturalized. A total of 180 species of plants were documented within the Project Area during site visits, including 85 native species, and 95 species of non-native plants. A total of 104 special-status plant species have been documented to occur in the vicinity of the Project Area, defined as the Imperial Beach, Otay Mesa, and Otay Mountain USGS 7.5-minute quadrangles, including 10 species which are Federal-listed endangered or threatened species.

Ten Federal-listed species are documented within the vicinity of the Project Area, though none occur within the Project Area. San Diego thorn-mint (*Acanthomintha ilicifolia*) is restricted to certain gabbro and calcareous clay soils in gentle, southeast to west facing slopes. The Project Area does not contain gabbroic or calcareous clay soils known to support this species. San Diego ambrosia (*Ambrosia pumila*) is found predominantly along upper terraces of rivers and drainages within chaparral, coastal scrub, valley and foothill grassland habitats, as well as vernal pools. In addition, San Diego button-celery (*Eryngium aristulatum* var. *parishii*), California orcutt grass (*Orcuttia californica*), Otay mesa mint (*Pogogyne nudiuscula*), and spreading navarretia (*Navarretia fossalis*) are also dependent on vernal pools, which do not occur within the Project Area. Encinitas baccharis (*Baccharis vanessae*) is found in maritime chaparral and Torrey pine forest understory, which does not occur within the Project Area.

The Project Area contains one small, remnant salt marsh, which contains some of the associated species for Salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*), however, this species is dependent on tidal influx, and the salt marsh with in the Project Area is not tidally influenced. Mexican flannelbush (*Fremontodendron mexicanum*) requires silty loam soils derived from metavolcanic and metabasic bedrock, as well as alluvial benches, which do not occur within the Project Area. Otay Tarplant (*Deinandra conjugens*) is a Federal-listed species found on clay soils in grasslands, open coastal sage scrub, and maritime succulent scrub, underlain by clay soils. The Project Area is located within the heart of the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Project Area. This species has a high potential to occur within the Project Area and critical habitat for this species occurs within the eastern portion of the Project.

Twelve special-status species, as defined in Section 3.0, are present within the Project Area, none of which are Federal-listed species. One tecate cypress (*Hesperocyparis forbesii* [*Cupressus f.*]) is present within the Project Area in California buckwheat scrub in the far eastern section. Typically, this species occurs in closed-cone coniferous forests, as well as chaparral with clay, gabbroic, or metavolcanic soils. Three individuals of San Diego marsh-elder (*Iva hayesiana*) are present in the far eastern section of the Project Area, along an ephemeral stream, and surrounded by Menzies' goldenbush scrub to the west and a non-native grassland to the east. This species typically occurs in marshes, swamps, and playas, but has potential to occur in non-wetlands, as

observed within the Project Area. Hundreds to thousands of individuals of San Diego county viguiera (*Bahiopsis laciniata*) are present in scrub habitats, restored shrublands, and non-native grasslands throughout the Project Area. Brand's star phacelia (*Phacelia stellaris*) is present within the Project Area on the far western section and found in sandy substrates within coastal scrub and grassland habitat.

One individual of Shaw's agave (*Agave shawii* var. *shawii*) is present in California brittlebush scrub on the western edge of the Project Area. This species is typically found on coastal bluffs, mesas, and foothills in coastal bluff scrub, coastal scrub, and maritime succulent scrub habitats. Approximately six individuals (clonal clumps) of snake cholla (*Cylindropuntia californica* var. *californica*) are present in California brittlebush scrub in the western edge of the Project Area. Approximately 38 individuals (clonal clumps) of San Diego barrel cactus (*Ferocactus viridescens*) are present in California brittlebush scrub, California sagebrush scrub, and Jojoba scrub in the western portion of the Project Area.

Several individuals of California boxthorn (*Lycium californicum*) are present in California brittlebush scrub in the western portion of the Project Area. Several individuals of ashy spike-moss (*Selaginella cinerascens*) are present in California brittlebush scrub and California sagebrush scrub, as well as along the exposed banks of ephemeral drainages in the western portion of the Project Area. Rebman observed California screw moss (*Tortula californica*) within the Project Area on the western slope of Bunker Hill in 2012 (CDFW 2017a), which occurs on sandy soil, within chenopod scrub, as well as valley and foothill grassland. The species is presumed present within the Project Area; however, it was not relocated during the site visits, and may in fact be outside of the Project Area. Approximately 13 individuals of San Diego bur sage (*Ambrosia chenopodiifolia*) are present in a restored shrubland in the eastern portion of the Project Area. One individual of decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) is present in disturbed non-native grassland in the eastern edge of the Project Area. Species protected under the MSCP that are present within the Project Area include tecate cypress, Shaw's agave, snake cholla, San Diego barrel cactus, and California boxthorn.

There are three special status species with a high potential to occur within the Project Area. Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) has been documented within the Project Area on top of Bunker Hill, but that population was transplanted during a previous project. Blochman's dudleya has a high potential to occur in the Project Area due to the presence of suitable coastal scrub habitat, associated species, and the previously discovered population of this species within the Project Area. Variegated dudleya (*Dudleya variegata*) and sea dahlia (*Leptosyne maritima*) have a high potential to occur within the Project Area, due to the presence of suitable coastal scrub habitat, and associated species. Species protected under the MSCP with a high potential to occur within the Project Area include Blochman's dudleya and variegated dudleya.

There are fifteen special status species with a moderate potential to occur within the Project Area. Orcutt's brodiaea (*Brodiaea orcuttii*), seaside cistanthe (*Cistanthe maritima*), western dichondra (*Dichondra occidentalis*), Palmer's grapplinghook (*Harpagonella palmeri*), small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*), golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*), and chaparral ragwort (*Senecio aphanactis*) have a moderate potential to occur in the Project Area, due to the presence of suitable coastal scrub and grassland habitat. Lewis' evening-primrose (*Camissoniopsis lewisii*), Orcutt's bird's-beak (*Dicranostegia orcuttiana*), and Robinson's pepper grass (*Lepidium virginicum* var. *robinsonii*) have a moderate potential to occur in the western portion of the Project Area, due to the presence of suitable coastal scrub habitat. Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) has a moderate potential to occur in the

remnant salt marsh within the western edge of the Project Area, due to the presence of suitable habitat and associated species.

California adder's-tongue (*Ophioglossum californicum*) has a moderate potential to occur in the Project Area, due to the presence of chaparral and grassland habitat. The western portion of the Project Area contains potentially suitable coastal scrub habitat and sandy soils, which could support aphanisma (*Aphanisma blitoides*). Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*) and San Diego goldenstar (*Bloomeria clevelandii*), which are associated with decumbent goldenbush and Otay tarplant, have a moderate potential to occur in the Project Area, due to the presence of suitable coastal scrub and grassland habitat, as well as clay soils in the eastern portion of the Project Area. Species protected under the MSCP with a moderate potential to occur within the Project Area include Orcutt's bird's-beak, Palmer's grapplinghook, and aphanisma.

All special-status plant species present within the Project Area, Federal-listed plant species documented to occur near the Project Area, and all special-status plant species with a moderate or high potential to occur in the Project Area are discussed in Appendix B.

5.5 Special-Status Wildlife

Much of the Project Area, including the Tijuana River Valley and Otay Mesa, supports a diverse set of wildlife. The western portion of the Project Area is a relatively undeveloped southern California coastal habitat and is heavily used by both native and migratory birds. Appendix F lists the wildlife observed during field surveys. Appendix C provides a detailed account of special-status wildlife species present or with a moderate or greater potential to occur within the Project Area, and Appendix E provides a table of all special-status wildlife species documented within the three USGS 7.5 minute quadrangles with habitat preferences and brief analysis of likelihood of occurrence within the Project Area.

5.5.1 Birds

Six-hundred and eleven species of bird have been documented in San Diego County (SDNHM 2014), and approximately 104 species are known to breed near the Project Area (Unitt 2004). Many of these are migratory birds that do not nest in the area, but still rely on stop over locations to feed and rest during their migration. A full treatment of all special-status bird species that have been documented within the same USGS 7.5 minute quadrangles is provided in Appendix C. These include the: western snowy plover (*Charadrius alexandrinus nivosus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), California least tern (*Sternula antillarum browni*), coastal California gnatcatcher (*Polioptila californica californica*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), California black rail (*Laterallus jamaicensis coturniculus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*).

The least Bell's vireo, a Federal-listed endangered species, occurs near the Project Area in the Tijuana River. This species is covered under the MSCP. Critical Habitat for this species crosses into the Project Area along the patrol road parallel to Camino De La Plaza. It is not expected that the least Bell's vireo will be affected by project activities because habitat near the north levee is mostly disturbed and does not contain riparian vegetation. One Federal-listed threatened species also covered under the MSCP, the coastal California gnatcatcher, is present in coastal sage scrub habitat in and near the Project Area from Border Field State Park east to just west of the South Bay International Wastewater Treatment Plant as well as from just east of the San Ysidro Port of

Entry east approximately 1.5 miles. There is Critical Habitat for this species located on the eastern portion of the Project Area.

One Species of Special Concern, burrowing owl (*Athene cunicularia*), is present in the Project Area from roughly the Tijuana International Airport east to the east end of the secondary fence. Twenty-two owls were documented during the biological surveys in October 2017. One additional burrowing owl was documented during the November 2017 biological survey. Numerous more burrows were found to have burrowing owl sign (*e.g.*, whitewash, pellets, feathers, and other indicators). One burrowing owl was documented on the North Levee of the Tijuana River in March 2017 (WRA 2017); however, this bird was likely a wintering bird, as no other burrowing owls have been documented in this area since then.

Several other special-status birds have been documented within the Project Area. Peregrine falcons (*Falco peregrinus*), a species that has been delisted from both Federal and California Endangered Species Acts but remains listed as "Fully Protected" by CDFW and covered under the MSCP, was observed on a tower near the western end of the Project Area and is regularly seen foraging in the region. However, given that this species prefers steep cliffs for nesting and this type of feature is not found within the Project Area, peregrine falcons are likely not breeding within the Project Area. Another CDFW Fully Protected species, white-tailed kite (*Elanus leucurus*), has also been observed foraging within the Project Area but is unlikely to use the area for breeding due to the lack of tall trees in which it can build its nest.

Northern harriers (*Circus cyaneus*), a CDFW Species of Special Concern and a covered species under the MSCP, have been documented near the west end of the Project Area as well as the Tijuana River Valley and are known to breed in the area.

Several CDFW Watch List species are present within the Project Area. Cooper's hawks (*Accipiter cooperii*) were observed within the Project Area east of the San Ysidro Port of Entry and are known to breed in the area. However, because these birds prefer to nest in large trees that are lacking from the Project Area, they likely only use the Project Area to forage. Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), a CDFW Watch List species, is also known to be present within the Project Area, having been documented within the coastal sage scrub habitat to in the mesas and valleys toward the western side of the Project Area and are likely present in the restored sage scrub habitat east of San Ysidro. The Cooper's hawk and southern California rufous-crowned sparrow are also covered species under the MSCP.

California horned larks (*Eremophila alpestris actia*) are another CDFW Watch List species that has been observed within the Project Area in the Tijuana River Valley. This species prefers open, mostly barren ground for nesting and foraging and avoid higher vegetation. White-faced ibis (*Plegadis chihi*) are regularly observed within the Tijuana River Valley and likely use the emergent vegetation in the valley for nesting. White-faced ibis are also a covered species under the MSCP.

A detailed description of these species can be found in Appendix C.

5.5.2 Mammals

Seventy-five species of mammals have been documented in San Diego County (SDNHM 2014), three of which are listed as Threatened or Endangered under the Federal Endangered Species Act. However, only one Federal-listed mammal has been documented within the same USGS 7.5 minute quadrangles as the Project Area. However, it has not been documented in the area in over 75 years and is believed to be extirpated from this portion of its range. A full treatment of this species, the Pacific pocket mouse (*Perognathus longimembris pacificus*), is provided in

Appendix B. The pocket mouse is also covered under the MSCP. No Federal-listed mammals are expected to occur within the project area. The San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), CDFW Species of Special Concern, was the only special-status mammal that was observed during the surveys. They have been observed in the mesas and canyons west of the South Bay International Wastewater Treatment Plant and from the San Ysidro POE east through the end of the Project Area in habitats that include restored sage scrub, intact sage scrub, non-native grasslands, and disturbed areas. This species occupies open grasslands, areas with sparse vegetation, and agricultural areas but prefers areas that are arid and have short-grass. Population sizes fluctuate in response to food availability. This species is a generalist herbivore, with seasonal patterns in food preference. Grasses comprise the majority of the diet, with forbs and shrubs increasingly consumed in the fall and winter.

5.5.3 Reptiles and Amphibians

Eighty species of reptiles and amphibians have been documented in San Diego County (SDNHM 2014). However, only two Federal-listed species occur within the same 7.5 minute USGS quadrangles as the Project Area: the green turtle (*Chelonia mydas*), a strictly marine animal with no chance of occurring within the Project Area, and the arroyo toad (*Anaxyrus californicus*).

Arroyo toads, listed as Endangered under the Federal Endangered Species Act, a Species of Special Concern by CDFW, and a covered species under the MSCP, are found in washes, streams, arroyos, rivers with shallow gravelly pools, and are adjacent to upland areas in semi-arid regions. The adjacent upland areas consist have sandy banks or terraces in riparian woodlands, where adults can burrow into the soil for shelter. Eggs are laid in shallow, quiet streams or ponds with little to no emergent vegetation. The level of disturbance throughout the Project Area and the absence of adequate substrate near the wetland features makes the Project Area not suited for the arroyo toad.

The orange-throated whiptail (*Aspidoscelis hyperythra*), an MSCP-covered species also on the CDFW Watch List, occur in highly fragmented habitats that can include washes, streams, terraces, and other sandy areas associated with rocks and patches of brush. Suitable habitat is often includes coastal chaparral, thornscrub, and vegetated stream banks. This species was observed in sandy areas of coastal sage scrub in the western end of the Project Area during surveys.

5.5.4 Invertebrates

One-hundred and forty-nine species of butterfly have been recorded in San Diego County (SDNHM 2014), along with a large diversity of other invertebrate species. Three Federal-listed invertebrates are found in the same 7.5 minute USGS quadrangles, two of which are species of fairy shrimp, the Riverside fairy shrimp (*Streptocephalus woottoni*) and the San Diego fairy shrimp (*Branchinecta sandiegonensis*), that require vernal pools or equivalent for survival. Critical Habitat for these species is located in the eastern end and south of the Pacific Gateway Park in the Project Area. The Project Area falls within the known range of San Diego fairy shrimp, and while there are no vernal pools within the Project Area, there are drainages and ephemeral wetlands which may have ponding long enough for fairy shrimp from nearby pools to have colonized and use. There is no suitable habitat for the Riverside fairy shrimp within the Project Area, as they require larger and deeper pools for colonization. The third species, Quino checkerspot butterfly (*Euphydryas editha quino*), occurs in areas of open sagebrush, chaparral, juniper woodland, and native grasslands. There is suitable habitat for the Quino checkerspot butterfly within the Project Area. Further description of the two fairy shrimp, as well as the Quino checkerspot butterfly are provided in Appendix C.

6.0 BEST MANAGEMENT PRACTICES

Because the surveys were conducted outside of the ideal season for many species, and to reduce the potential for impacts to sensitive communities and special-status species, the following general best management practices (BMPs) are recommended for implementation. Implementation of these general BMPs, in combination with the species- and habitat-specific measures provided in the subsequent sections, will reduce construction-related impacts.

6.1 General BMPs

1. A designated biological monitor will be present during activities that could impact Federal-listed species present on or near the project site, based on species location maps and/or results of surveys to protect individuals from harm. Duties of the designated biological monitor will include ensuring that activities stay within designated project areas, evaluating the response of individuals that come near the project site, and implementing the appropriate BMPs. The designated biological monitor will notify the construction manager of any activities that may harm or harass an individual of a Federal-listed species. Upon such notification, the construction manager shall temporarily suspend all subject activities and notify the Contracting Officer, the Administrative Contracting Officer, and the Contracting Officer's Representative of the suspension so that the key personnel may be notified and the potential conflict resolved.

2. All construction projects in Federal-listed species habitat should have a designated biological monitor on site during work. The biological monitor should document implementation of construction-related BMPs as designed for the project to reduce the potential for adverse effects to the species or their habitats. Reports from the biological monitor should be used for developing the Project Report.

3. If an individual of a Federal-listed species is found in the designated project area, work will cease in that area until either a qualified biological monitor can safely remove the individual, or it moves away on its own, to the extent possible, construction schedule permitting.

4. CBP will develop a training plan regarding sensitive resources for CBP and construction personnel. At a minimum, the program will include the following topics: occurrence of the listed and sensitive species in the area, their general ecology, sensitivity of the species to human activities, project features designed to reduce the impacts to these species and promote continued successful occupation of the project area environments by the species. Included in this program will be color photos of the listed species, which will be shown to the employees. Following the education program, the photos will be posted in the contractor and resident engineer office, where they will remain throughout the duration of the project. The selected construction manager will be responsible for ensuring that employees are aware of the listed species. This BMP does not apply to Border Patrol operations.

5. Project Reports. For fence replacement, within 3 months of project completion, a Project Report will be developed that details the BMPs that were implemented, identifies the success of the BMPs, discusses ways that BMPs could be improved for either protection of species and habitats or implementation efficiency, and reports on any Federal-listed species observed at or near the project site. If site restoration is included as part of the project, the implementation of that restoration and any follow-up monitoring will be included. Annual reports may be required for some longer-term projects. The Project Report and any annual reports will be made available to the USFWS.

6. Roads will be designed and located to avoid or minimize the potential for roadbed erosion into Federal-listed species habitat.

7. Roads will be designed and located to avoid or minimize the potential for entrapment of surface flows within the roadbed due to grading. Depth of any pits created will be minimized so animals do not become trapped.

8. Roads will be designed and located to avoid or minimize the potential for widening of existing or creating new roadbed beyond the design parameters due to improper maintenance and use.

9. The perimeter of all areas to be disturbed during construction or maintenance activities will be clearly demarcated using flagging or temporary construction fence. Disturbance outside of the construction perimeter will not be authorized.

10. Materials such as gravel or topsoil will be obtained from existing developed or previously used sources, not from undisturbed areas adjacent to the project area. Sources will be reviewed and approved as weed free prior to material being brought on site.

11. All access routes into and out of the project disturbance area will be flagged. Construction travel outside these boundaries will not be authorized.

12. Any native habitat that will be disturbed will have grubbed material and the top six inches of soil removed and stockpiled for use in revegetation. Stockpiles will not exceed 3.5 feet in height.

13. When available, areas already disturbed by past activities or those that will be used later in the construction period will be used for staging, parking, and equipment storage.

14. Within the designated disturbance area, grading or topsoil removal will be limited to areas where this activity is needed in order to provide the required ground conditions for construction or maintenance activities. Minimizing disturbance to soils will enhance the ability to restore the disturbed area after the project is complete.

15. Removal of trees and brush in habitats of Federal-listed species will be limited to the smallest amount needed to meet project objectives. This would likely be a permanent impact on habitat.

16. CBP will develop and implement a stormwater management plan for every portion of the project.

17. A CBP-approved spill protection plan will be developed and implemented at construction and maintenance sites to ensure that any toxic substances are properly handled and to prevent discharges. Measures will include drip pans underneath equipment and refueling containment zones.

18. Nonhazardous waste materials and other discarded materials, such as construction waste, will be contained until removed from the construction site. This will assist in keeping the Project Area and surroundings free of litter and reduce the amount of disturbed area needed for waste storage.

19. To eliminate attracting predators of protected animals, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site.

20. Wastewater is contaminated with construction materials or from cleaning equipment and thus carries oils, toxic materials, or other contaminants. Wastewater will be stored in closed containers on site until removed for disposal. Concrete wash water will not be dumped on the ground, but is to be collected and moved offsite for disposal. This wash water is toxic to aquatic life.

21. Waste management may be of special concern at staging areas. Provision will be made for proper waste disposal at these sites, and implementation of waste management protocols will be the responsibility of the appropriate project officers.

22. Construction speed limits will not exceed 35 mph on major unpaved roads (graded with ditches on both sides) and 25 mph on all other unpaved roads. Nighttime travel speeds will not exceed 25 mph, and may be less based on visibility and other safety considerations. Construction at night will be minimized.

23. Noise levels from day and night construction and maintenance activities will be minimized. All generators will be in baffle boxes (a sound-resistant box that is placed over or around a generator), have an attached muffler, or use other noise-abatement methods in accordance with industry standards.

24. Materials used for construction and on-site erosion control will be free of non-native plant seeds and other plant parts to limit potential for infestation. Since natural materials cannot be certified as completely weed-free, if such materials are used, there will be follow-up monitoring to document establishment of non-native plants, and appropriate control measures will be implemented for a period of time to be determined in the site restoration plan.

25. For purposes of construction, infrastructure sites will be accessed using only designated roads. Parking will be in designated areas. This will limit the development of multiple trails to such sites and reduce the effects to Federal-listed habitats.

26. Appropriate techniques to restore the original grade, replace soils, and restore proper drainage will be implemented.

27. During follow-up monitoring and during maintenance activities, invasive plants found on the site will be removed. Removal will performed in ways that eliminate the entire plant and removed plant parts will be moved to a disposal area. All chemical applications will be performed by a licensed applicator. Herbicides will be used according to label directions. The monitoring period will be defined in the site revegetation plan. Training to identify non-native invasive plants will be provided for CBP contractor personnel or contractors, as necessary.

28. To prevent entrapment of wildlife species, all vertical fence posts/bollards that are hollow (*i.e.*, those that will be filled with a reinforcing material such as concrete), shall be covered to prevent wildlife from entrapment. Covers will be deployed from the time the posts or hollow bollards are erected to the time they are filled with reinforcing material.

29. Excavations more than 18 inches deep will be covered when not in use or a means of escape (*i.e.*, earthen ramp) will be provided to prevent animal entrapment.

6.2 BMPs for Temporary Impacts

The following apply as offsetting conservation measures for temporary impacts.

Burrowing Owl

To prevent impacts to burrowing owls, surveys should be conducted 30 days prior to commencement of construction in burrowing owl areas. Any active burrows should be flagged for avoidance with a 250-foot buffer. Active burrows that cannot be avoided will be collapsed. If construction is during the nesting period (February 1 through August 31), the presence of eggs or young will be determined before owls are prevented from re-entering, and collapsing the burrows following established guidelines. If young are present, burrows will not be collapsed until they fledge.

Coastal California Gnatcatcher

To prevent impacts to coastal California gnatcatchers between February 15 and August 15, construction surveys will be conducted to determine if gnatcatchers are nesting within 300 feet of construction activities prior to construction commencing. If a nest is found, an 8-foot plywood sound wall will be established as far from the nest as possible, but no less than 50-foot from nest between construction and the nest.

Areas of coastal sage scrub will be avoided to the extent practicable. Where they cannot be avoided portions of the overstory will be salvaged and the remainder will have 6 inches of topsoil and grubbed vegetation stockpiled to assist in revegetation.

San Diego Fairy Shrimp

San Diego fairy shrimp habitat will be flagged and avoided. If this is not possible, then the top 2 inches of the soil will be salvaged and used for revegetation in appropriate wetlands. The salvaged soil will not be stored with other soils but will be preserved separately.

Quino Checkerspot Butterfly

Spring surveys for Quino checkerspot butterfly host plants may be conducted, and host plants will be mapped. If found within the Project Area, these plants will be avoided if possible.

Federal Migratory Bird Treaty Act

To prevent impacts to avian species covered under the MBTA, clearing and grubbing should take place in fall and winter if possible to avoid impacts to nesting birds. If work cannot be avoided during the breeding season (February 15 to September 15), one week prior to starting work a biologist will survey for nesting birds and identify any nests. An appropriate buffer for avoidance will be established around any nesting birds until the young have fledged or the nest is no longer being used.

Protection of Special-Status Plants

To prevent impacts to special-status plant species, surveys for these species should be conducted during the spring prior to ground-clearing activities preferably at the appropriate time

of year. If special-status plants are found, they will be marked for avoidance; plants that cannot be avoided will be salvaged if possible (either whole plants or soils), depending on factors such as species and phenology. If plants cannot be avoided or salvaged, the extent and location of the population will be documented and provided to CBP.

Snake Cholla

There is one population of this large perennial cactus that grows along the ground within the project area. Avoidance is recommended where possible. Where not possible, collecting the cactus and using them to resprout in the revegetation areas is recommended.

Brand's phacelia

The extent of this population is mapped by USFWS in the conservation agreement with CBP. It is recommended that this area and a 30-foot buffer around the area, if possible, be avoided during construction. This area should also be surveyed in the spring for this species to make sure the mapping is correct prior to construction. If avoidance is not possible then coordinate with the Brand's phacelia conservation working group on removing the soils and transplanting to a suitable location.

Shaw's agave

There is one individual of Shaw's agave in the Project Area; it should be flagged and avoided if possible. If avoidance is not possible, then it should be transplanted into the revegetation areas. Transplant plants should maintain the same orientation towards the sun.

Otay Tarplant

This species likes some disturbance and sometimes comes in thick in disturbed areas. Construction activities may result in the establishment due to disturbance of seed banks. This species cannot be positively identified before it flowers which is typically between July and August. The construction monitor will flag areas where young tarplants are observed east of San Ysidro POE so that they can be avoided to the extent feasible. Avoidance flags will be removed once the common tarplants have been identified to not be Otay Tarplant. Any unavoidable areas will be documented and described as unidentified tarplant unless they can be positively identified as Otay Tarplant prior to impacts.

7.0 LIST OF PREPARERS

WRA, Inc.
9815 Carroll Canyon Rd., Ste. 206
San Diego, CA 92110
858-842-1800

Phil Greer, Principal
M.A., Ecology and Systematic Biology
B.S., Natural Resource Planning
Years of Experience: 23

Rod Dossey, Managing Director
B.S., Ecology, Behavior, and Evolution
Years of Experience: 24

Shawn Carroll, Biologist
B.S., Conservation Biology
Years of Experience: 11

Nicole Tautfest, Biologist
B.S., Wildlife Science
Years of Experience: 11

Scott Yarger
B.S., Conservation and Resource Studies
Years of Experience: 8

Scott Batiuk
B.S., Forest Resources
Years of Experience: 8

Scott Mortensen
M.S., GIS
B.A., History
Years of Experience: 3

Peter Kobylarz
B.A., Geography
B.A., Political Science
Years of Experience: 10

Anna Prowant
B.S., Applied Biological Sciences
Years of Experience: 8

Matthew Schliebe
M.S., Biology
B.S., Biology
Years of Experience: 8

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APPENDIX A:

FIGURES

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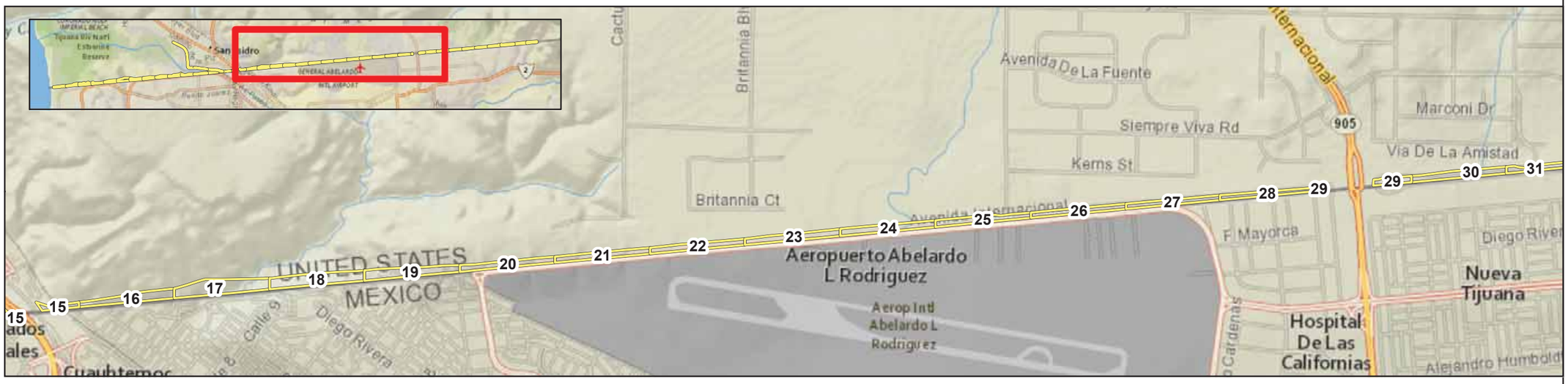
1. Reference Map
2. Critical Habitat Map
3. Potential Suitable Habitat for Federal Listed Species Map
4. Biological Communities Map
5. Wildlife Observations Map
6. Rare Plant Observations Map
7. CNDDB Wildlife Species near Project Area Map
8. CNDDB Plant Species near Project Area Map
9. National Wetland Inventory Map
10. Potential Section 404 Jurisdictional Areas Map
11. Soils Map



San Diego Sector Fence Replacement Project

San Diego County, California

Mapbook Page Reference

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Miles

Map Prepared Date: 10/31/2017
Map Prepared By: pkobylarz
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Data Source(s): WRA

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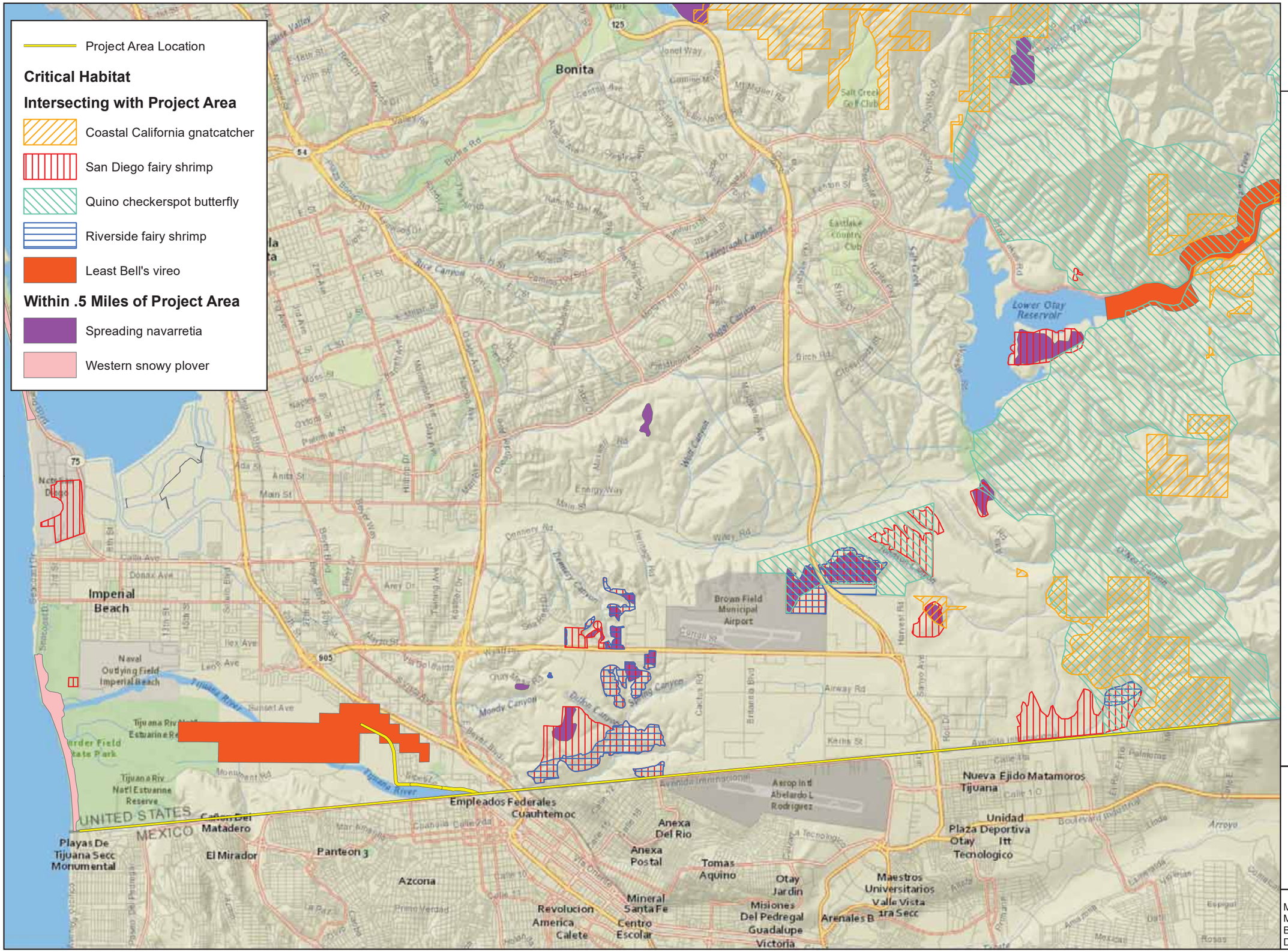

San Diego Sector Fence Replacement Project

San Diego County, California

Critical Habitats Adjacent to Project Area

Map Prepared Date: 10/31/2017
Map Prepared By: pkobylarz
Base Source: Esri Streaming - Nat. Geo.
Data Source(s): WRA

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Suitable Habitat for Federal Listed Species

Legend

Critical Habitat

- Coastal California gnatcatcher
- Least Bell's Vireo
- Quino checkerspot butterfly
- Riverside fairy shrimp
- San Diego fairy shrimp

Potential Habitat

- Coastal California gnatcatcher - High Quality Habitat
- Coastal California gnatcatcher - Low Quality Habitat
- San Diego fairy shrimp
- Quino checkerspot butterfly
- Otay tarplant

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Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: smortensen, 1/2/2018

San Diego Sector Fence Replacement Project

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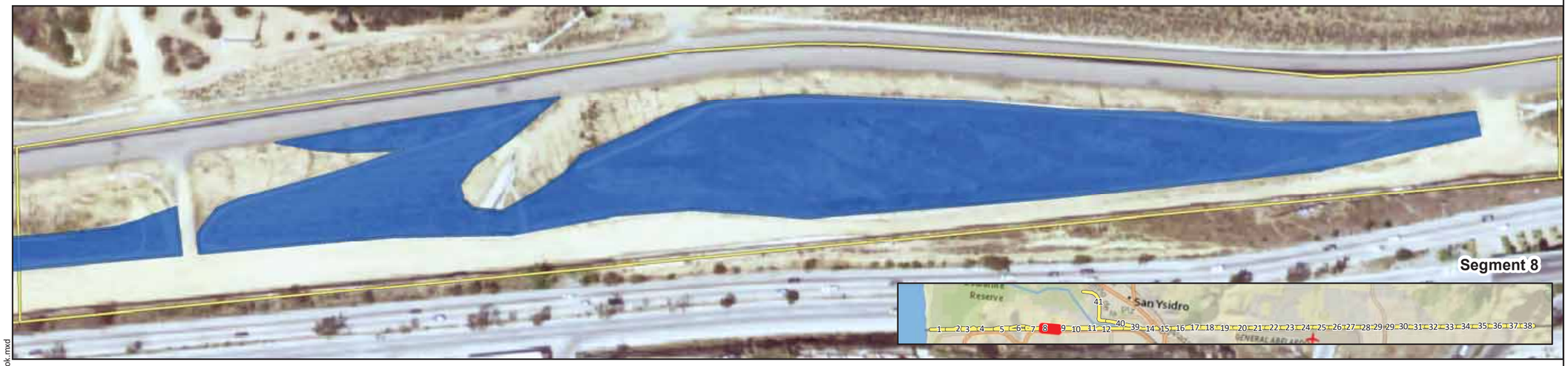

San Diego Sector Fence Replacement Project

San Diego County, California

Potential Suitable Habitat for Federal Listed Species

Page 3

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- Otay tarplant

0 100 200 Feet

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\Report Mapbooks\PotentialHabitatMapbook.mxd

Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: smortensen, 1/2/2018

San Diego Sector Fence Replacement Project

San Diego County, California

Potential Suitable Habitat for Federal Listed Species

Legend

Critical Habitat

- Coastal California gnatcatcher
- Least Bell's Vireo
- Quino checkerspot butterfly
- Riverside fairy shrimp
- San Diego fairy shrimp

Potential Habitat

- Coastal California gnatcatcher - High Quality Habitat
- Coastal California gnatcatcher - Low Quality Habitat
- San Diego fairy shrimp
- Quino checkerspot butterfly
- Otay tarplant

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San Diego Sector Fence Replacement Project

San Diego County, California

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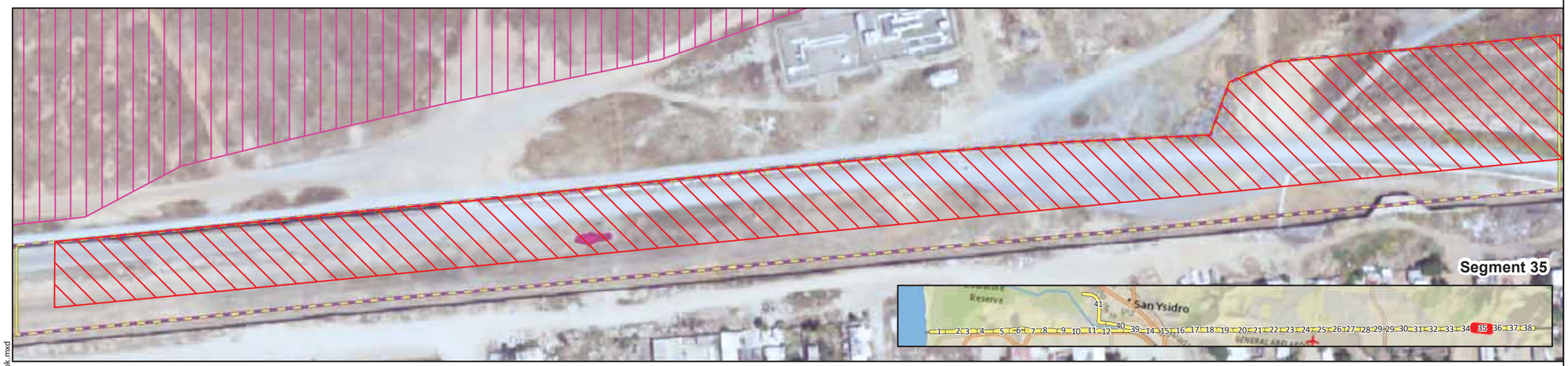
San Diego Sector Fence Replacement Project

San Diego County, California

Potential Suitable Habitat for Federal Listed Species



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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

Page 1

Biological Communities

Sensitive Communities

- Menzies' goldenbush scrub
- Revegetated Coastal Sage Scrub
- California brittle brush scrub
- California buckwheat scrub
- California sagebrush - California buckwheat scrub
- California sagebrush scrub

Non-sensitive Communities

- Non-native grassland
- Laurel sumac scrub
- Jojoba scrub
- Developed
- Disturbed

Sensitive Wetlands and Waters

- Detention Basin Wetland
- Emergent Marsh
- Ephemeral Stream
- Perennial Stream
- Seasonal Wetland Depression
- Wetland Ditch

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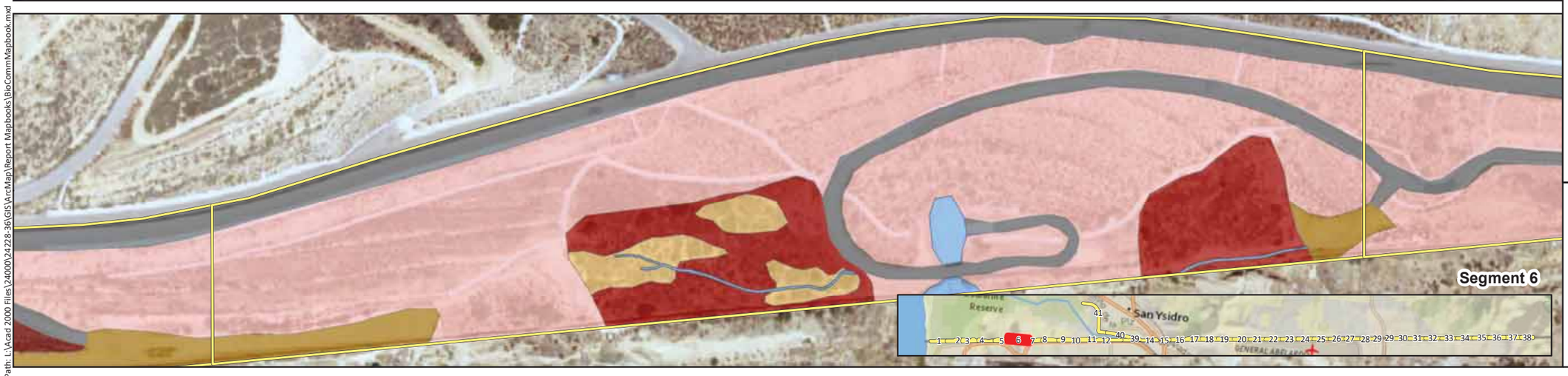
San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

Page 2



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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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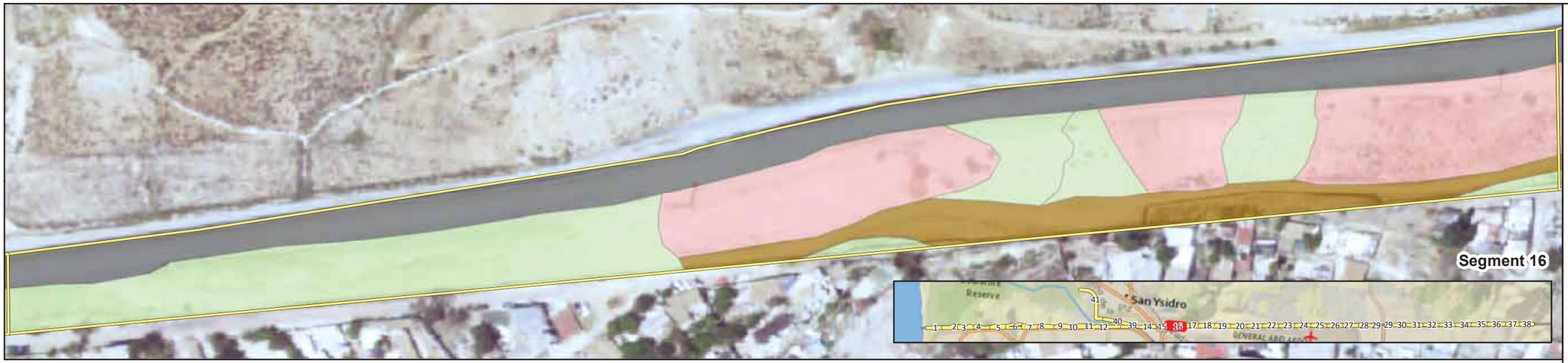
San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

Page 6



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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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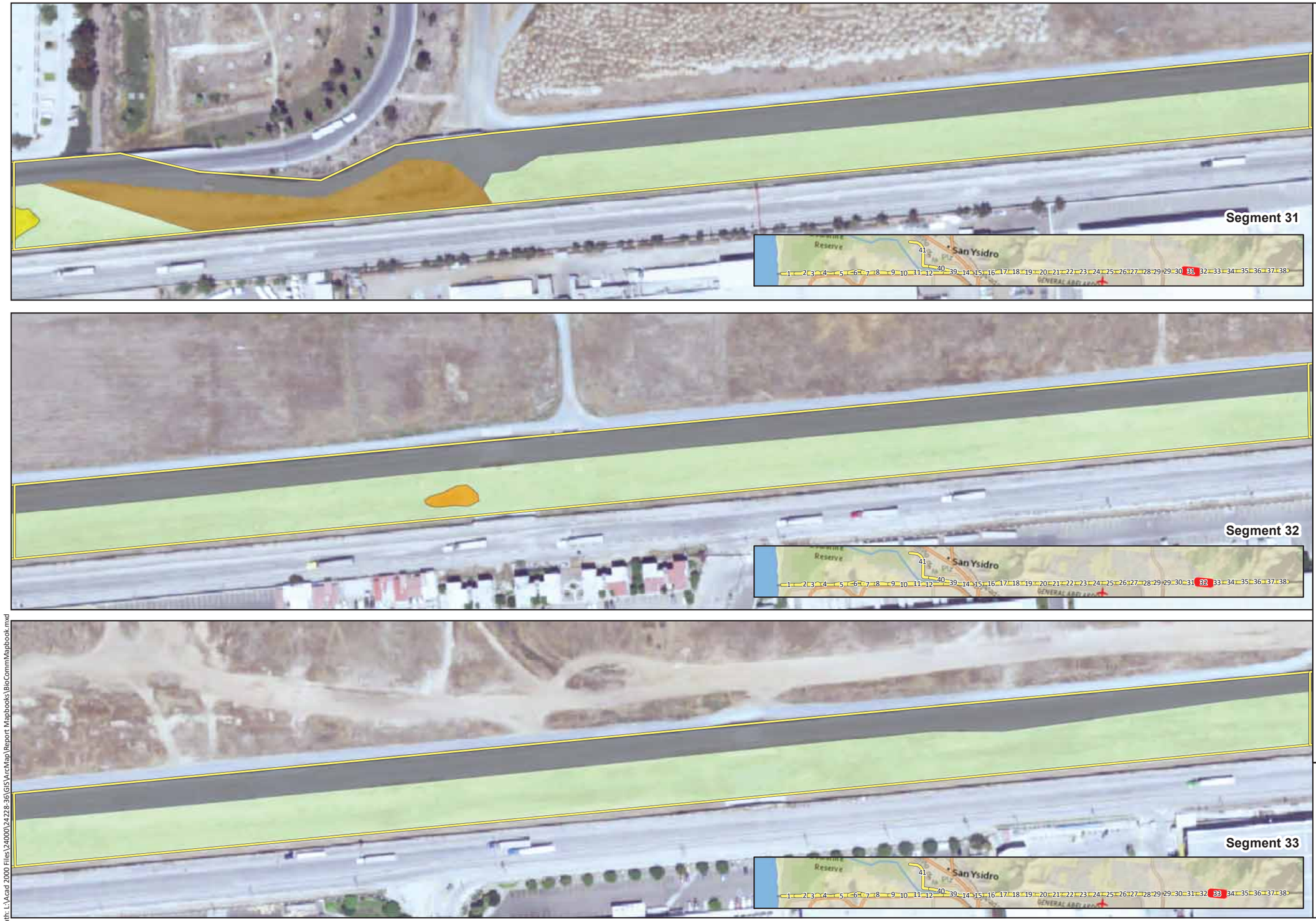

San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

Biological Communities

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San Diego Sector Fence Replacement Project

San Diego County, California

Wildlife Observations

Page 1

New Wildlife Observations

- Burrowing owl
- California gnatcatcher
- Cooper's hawk
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- Red-tailed hawk nest
- San Diego black-tailed jackrabbit

Pre-March 2017 Observations

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San Diego Sector Fence Replacement Project

San Diego County, California

Wildlife Observations

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

Wildlife Observations

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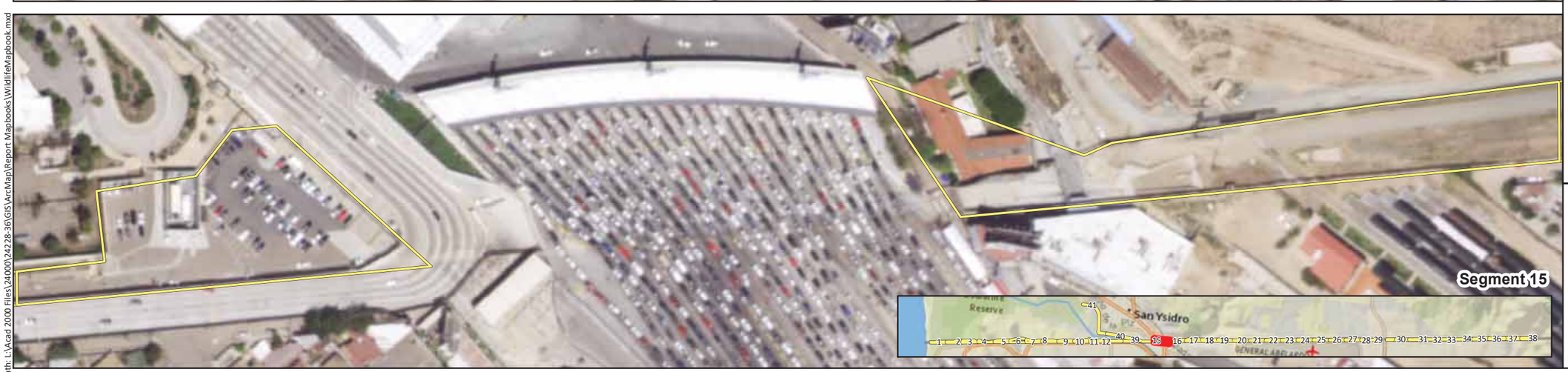
San Diego Sector Fence Replacement Project

San Diego County, California

Wildlife Observations



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San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

Wildlife Observations

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San Diego Sector Fence Replacement Project

San Diego County, California

Wildlife Observations

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 1

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

Note: San Diego County viguiera is scattered throughout entire study area

0 100 200 Feet

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\Report Mapbooks\RarePlantsMapbook.mxd

Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: smortensen, 1/2/2018

San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 2

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

Brand's star phacelia
San Diego barrel cactus
snake cholla

Note: San Diego County viguiera is scattered throughout entire study area

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 3

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

Note: San Diego County viguiera is scattered throughout entire study area

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 4

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

Note: San Diego County viguiera is scattered throughout entire study area

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 5

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

Brand's star phacelia
San Diego barrel cactus
snake cholla

Note: San Diego County viguiera is scattered throughout entire study area

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 6

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress
- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 7

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 8

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress
- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 9

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 10

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress

- Brand's star phacelia
- San Diego barrel cactus
- snake cholla

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 11

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
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- Brand's star phacelia
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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

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Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress
- Brand's star phacelia
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- snake cholla

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San Diego Sector Fence Replacement Project

San Diego County, California

Rare Plant Known Occurrences

Page 13

Rare Plant Known Occurrences

- Brand's star phacelia
- decumbent goldenbush
- San Diego barrel cactus
- San Diego bur-sage
- San Diego marsh-elder
- Shaw's agave
- snake cholla
- Tecate cypress
- Brand's star phacelia
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San Diego Sector Fence Replacement Project

San Diego County, California

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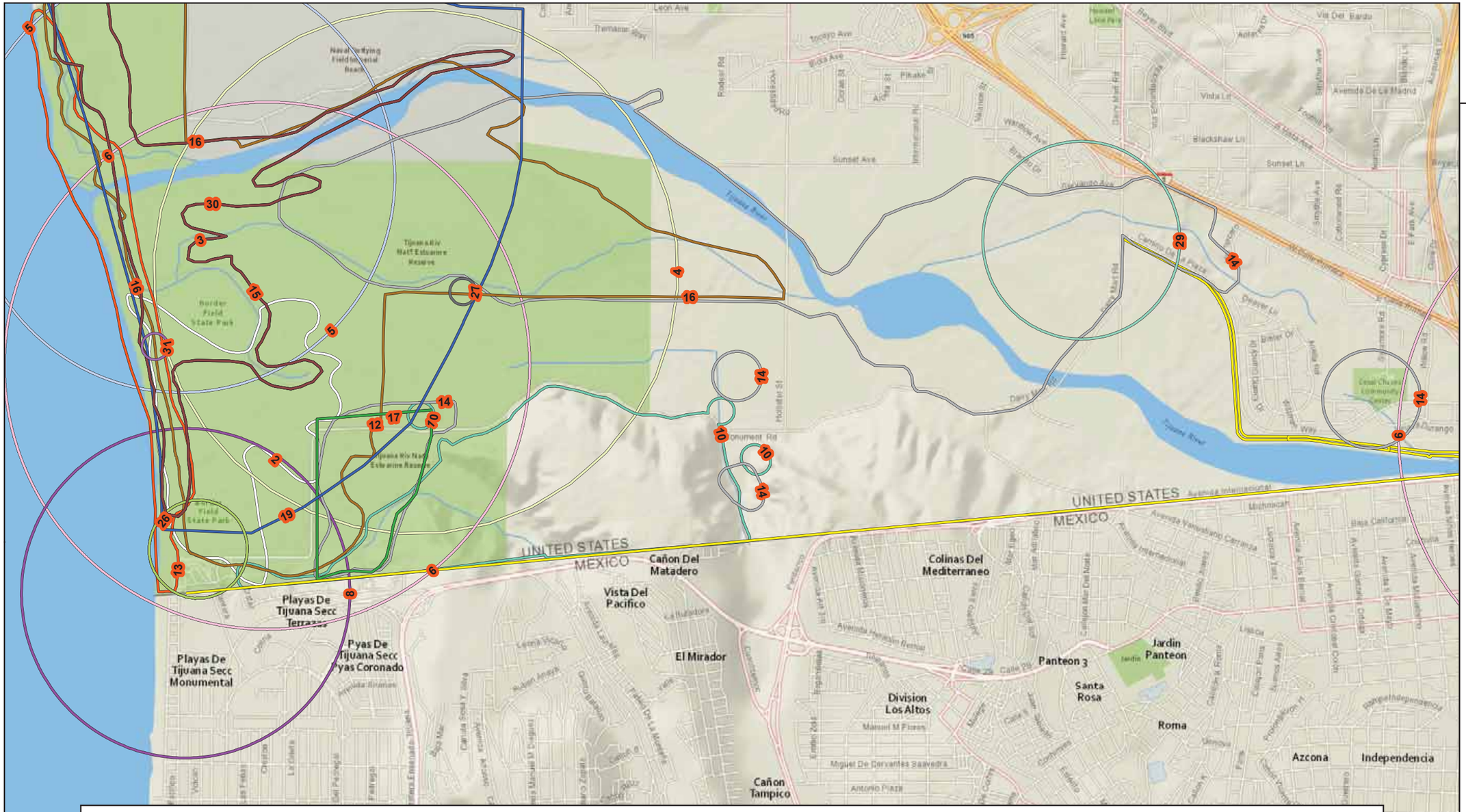

San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Wildlife Species near Project Area

Project Area Location

CNDDB Wildlife Species

1, American badger
2, Baja California coachwhip
3, Belding's savannah sparrow
4, burrowing owl
5, California black rail
6, California glossy snake
8, coast horned lizard
10, coastal California gnatcatcher
12, Cooper's hawk
13, globose dune beetle
14, least Bell's vireo
15, light-footed Ridgway's rail
16, mimic tryonia (=California brackishwater snail)
17, northern harrier
19, Pacific pocket mouse
25, sandy beach tiger beetle
26, senile tiger beetle
27, southern California legless lizard
29, tricolored blackbird
30, wandering (=saltmarsh) skipper
31, western spadefoot

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Miles

Map Prepared Date: 11/2/2017
Map Prepared By: pkobylarz
Base Source: Esri Streaming - Nat. Geo.
Data Source(s): WRA

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\CNDDBPWildlifeMapbook.mxd

San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Wildlife Species near Project Area

Project Area Location

CNDDB Wildlife Species

2, Baja California coachwhip

6, California glossy snake

8, coast horned lizard

9, coastal cactus wren

10, coastal California gnatcatcher

14, least Bell's vireo

18, orange-throated whiptail

21, Riverside fairy shrimp

23, San Diego fairy shrimp

29, tricolored blackbird

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Miles

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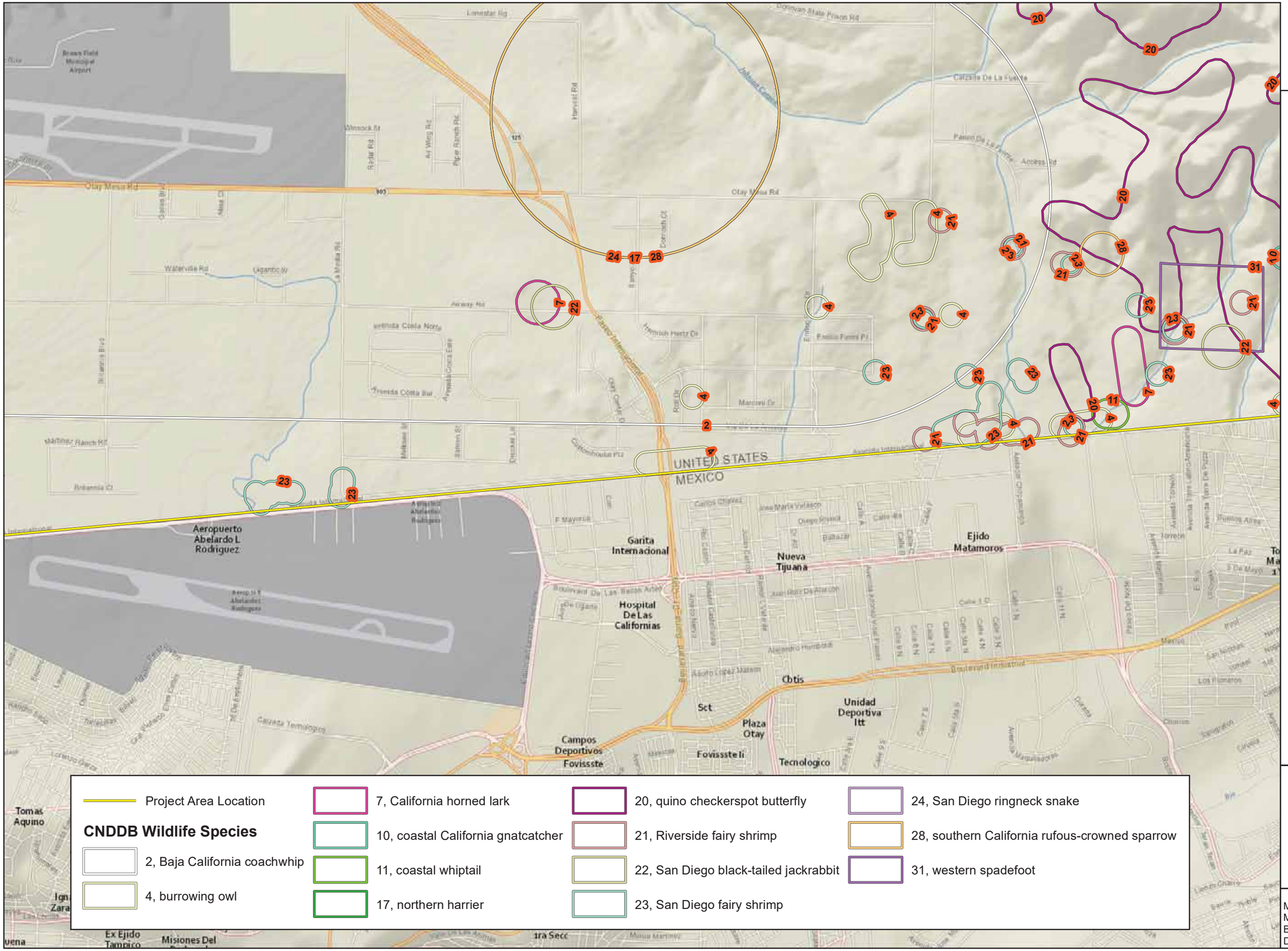
San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Wildlife Species near Project Area



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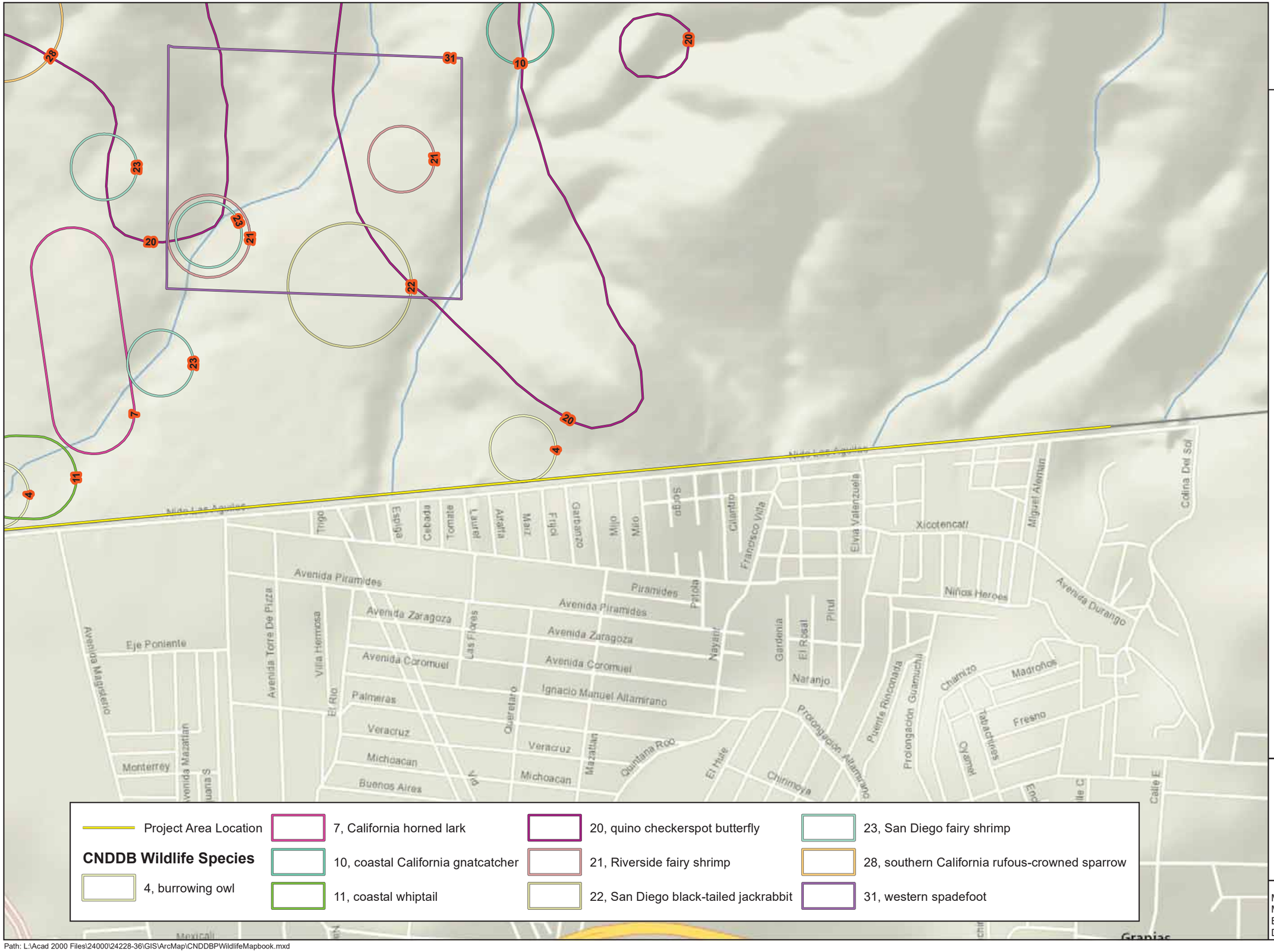
San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Wildlife Species near Project Area



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Data Source(s): WRA

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\CNDDBPWildlifeMapbook.mxd

San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Plant Species near Project Area

Project Area Location

CNDDB Plant Species

1. aphanisma
2. Baja California birdbush
3. beach goldenaster
4. Blochman's dudleya
5. Brand's star phacelia
8. California screw moss
9. chaparral ragwort
10. cliff spurge
11. coast woolly-heads
12. Coulter's goldfields
13. Coulter's saltbush
14. decumbent goldenbush
15. estuary seablite
16. golden-spined cereus
19. Mexican flannelbush
21. Nuttall's acmispon
22. Nuttall's scrub oak
23. Orcutt's bird's-beak
24. Orcutt's dudleya
25. Orcutt's pincushion
28. Palmer's frankenia
30. Robinson's pepper-grass
31. salt marsh bird's-beak
33. San Diego barrel cactus
38. San Diego marsh-elder
39. San Diego sand aster
40. Santa Catalina Island currant
41. sea dahlia
42. Shaw's agave
43. singlewhorl burrobrush
44. slender cottonheads
45. snake cholla
46. south coast saltscale
50. wart-stemmed ceanothus

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Miles

Map Prepared Date: 11/2/2017
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San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Plant Species near Project Area

Project Area Location

CNDDB Plant Species

3. beach goldenaster
6. California adolphia
7. California Orcutt grass
10. cliff spurge
13. Coulter's saltbush
14. decumbent goldenbush
16. golden-spined cereus
17. Laguna Mountains jewelflower
18. little mousetail
20. mud nama
22. Nuttall's scrub oak
23. Orcutt's bird's-beak
26. Otay Mesa mint
27. Otay tarplant
29. Parry's tetracoccus
32. San Diego ambrosia
33. San Diego barrel cactus
34. San Diego bur-sage
35. San Diego button-celery
36. San Diego goldenstar
37. San Diego gumplant
38. San Diego marsh-elder
43. singlewhorl burrobrush
44. slender cottonheads
45. snake cholla
46. south coast saltscale
47. spreading navarretia
49. variegated dudleya

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Miles

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San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Plant Species near Project Area

Project Area Location

CNDDB Plant Species

- 6. California adolphia
- 7. California Orcutt grass
- 14. decumbent goldenbush
- 17. Laguna Mountains jewelflower
- 18. little mousetail
- 26. Otay Mesa mint
- 27. Otay tarplant
- 29. Parry's tetracoccus
- 33. San Diego barrel cactus
- 35. San Diego button-celery
- 36. San Diego goldenstar
- 38. San Diego marsh-elder
- 47. spreading navarretia
- 48. Tecate cypress
- 49. variegated dudleya

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Miles

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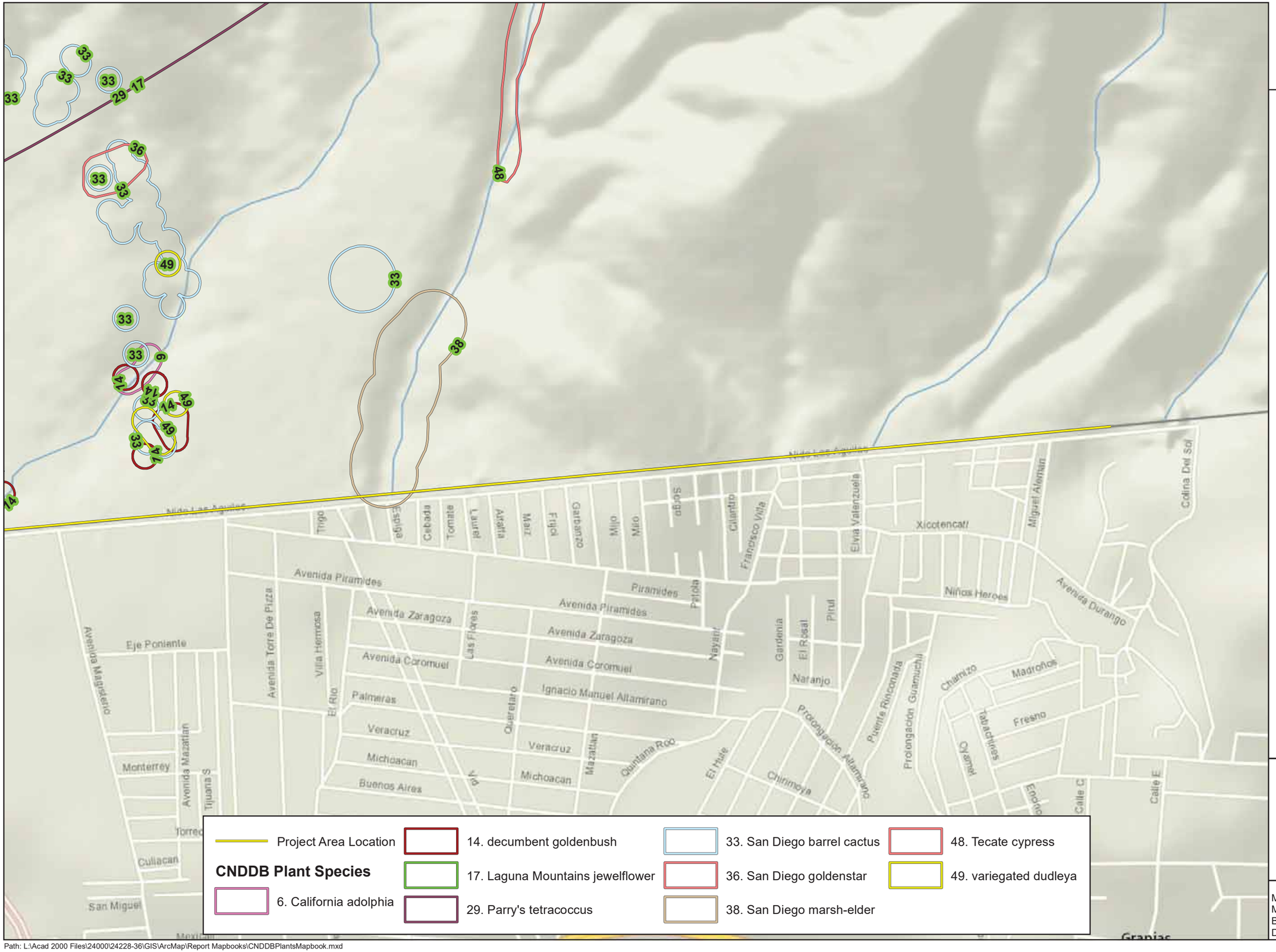
San Diego Sector Fence Replacement Project

San Diego County, California

CNDDB Plant Species near Project Area



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San Diego Sector Fence Replacement Project

San Diego County, California

National Wetland Inventory

Legend

National Wetland Inventory (ID Code, Type):

- PEMA, Freshwater Emergent Wetland
- PSS/EMAh, Freshwater Forested/Shrub Wetland
- PUBHx, Freshwater Pond
- R4SBA, Riverine
- R4SBAx, Riverine
- R4SBC, Riverine
- R4SBCx, Riverine

0 100 200 Feet

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\Report Mapbooks\NWIMapbook.mxd

Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: pkobylarz, 10/31/2017

San Diego Sector Fence Replacement Project

San Diego County, California

National Wetland Inventory

Page 2

Legend

National Wetland Inventory (ID Code, Type):

- PEMA, Freshwater Emergent Wetland
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San Diego Sector Fence Replacement Project

San Diego County, California

National Wetland Inventory

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National Wetland Inventory (ID Code, Type):

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San Diego Sector Fence Replacement Project

San Diego County, California

National Wetland Inventory

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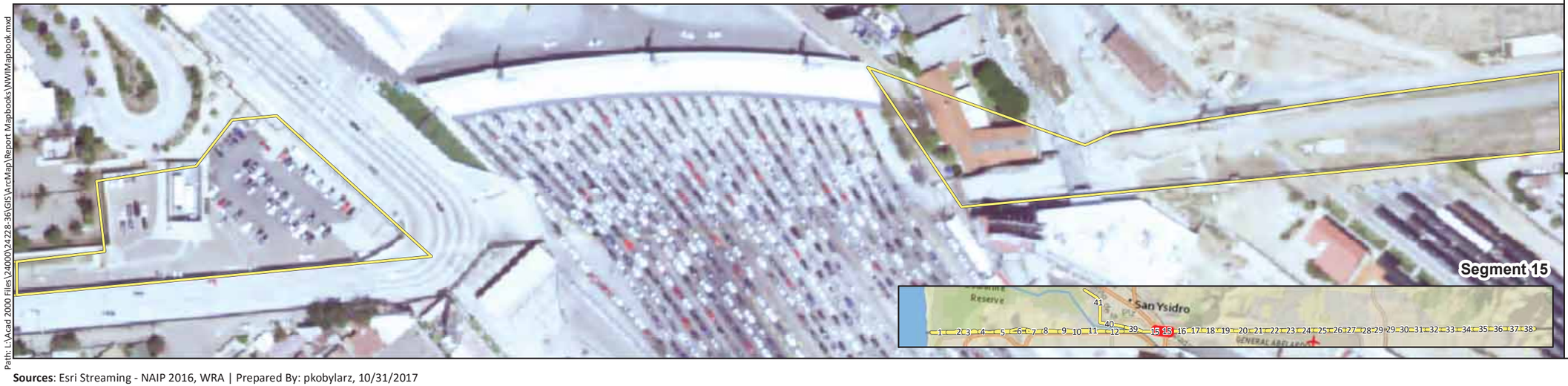

San Diego Sector Fence Replacement Project

San Diego County, California

National Wetland Inventory

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Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: pkobylarz, 10/31/2017

San Diego Sector Fence Replacement Project

San Diego County, California

National Wetland Inventory

Legend

National Wetland Inventory (ID Code, Type):

- PEMA, Freshwater Emergent Wetland
- PSS/EMAh, Freshwater Forested/Shrub Wetland
- PUBHx, Freshwater Pond
- R4SBA, Riverine
- R4SBAx, Riverine
- R4SBC, Riverine
- R4SBCx, Riverine

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

Page 1

Legend

- Sample Points
- Sample Transects

Potential Section 404 Jurisdictional Areas

- Detention Basin Wetland
- Emergent Marsh
- Ephemeral Stream
- Perennial Stream
- Seasonal Wetland Depression
- Wetland Ditch

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Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: smortensen, 1/3/2018

San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

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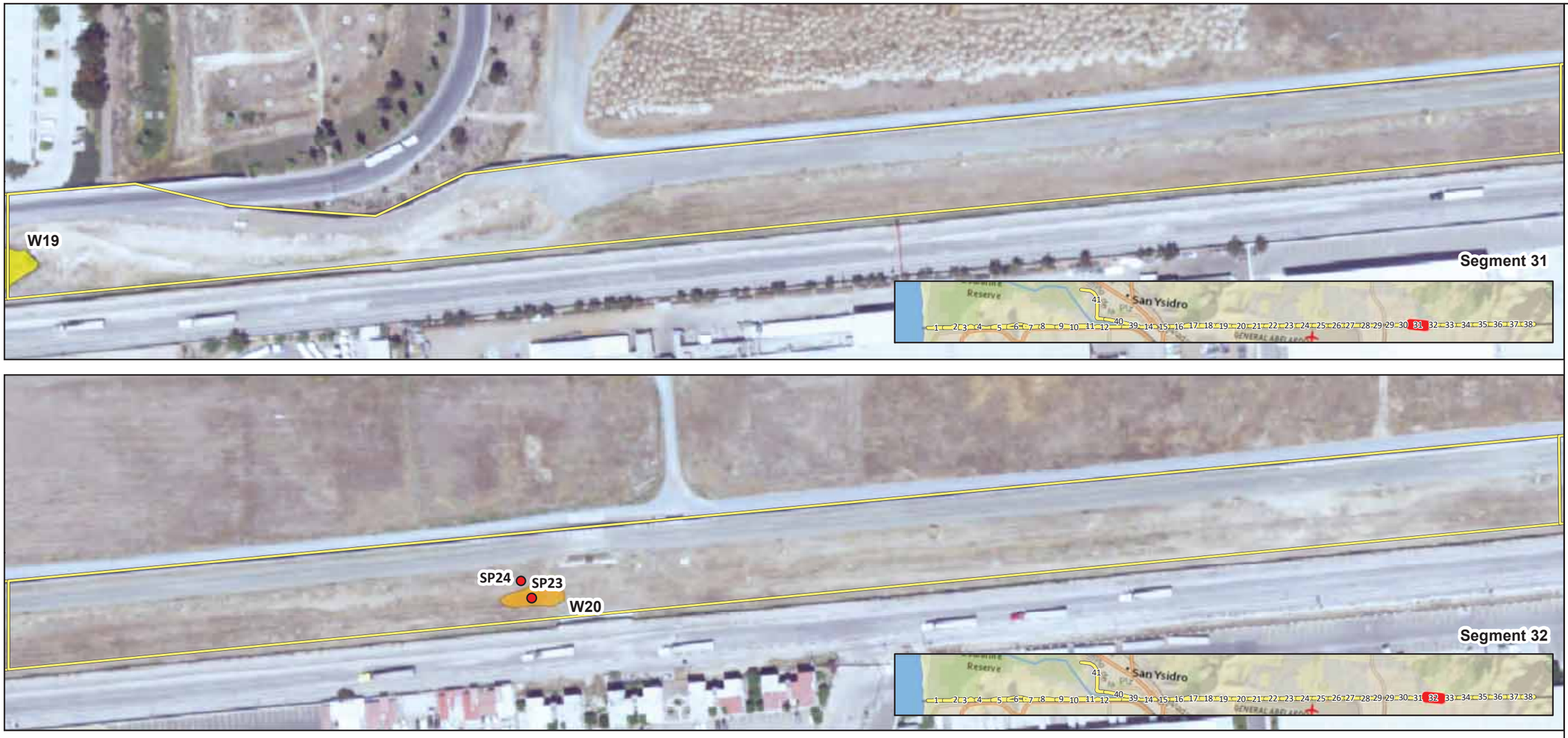

San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

Potential Section 404 Jurisdictional Areas

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San Diego Sector Fence Replacement Project

San Diego County, California

Soils

Page 1

Soils

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- CfB: Chesterton fine sandy loam, 2 to 5 percent slopes
- ChA: Chino fine sandy loam, 0 to 2 percent slopes
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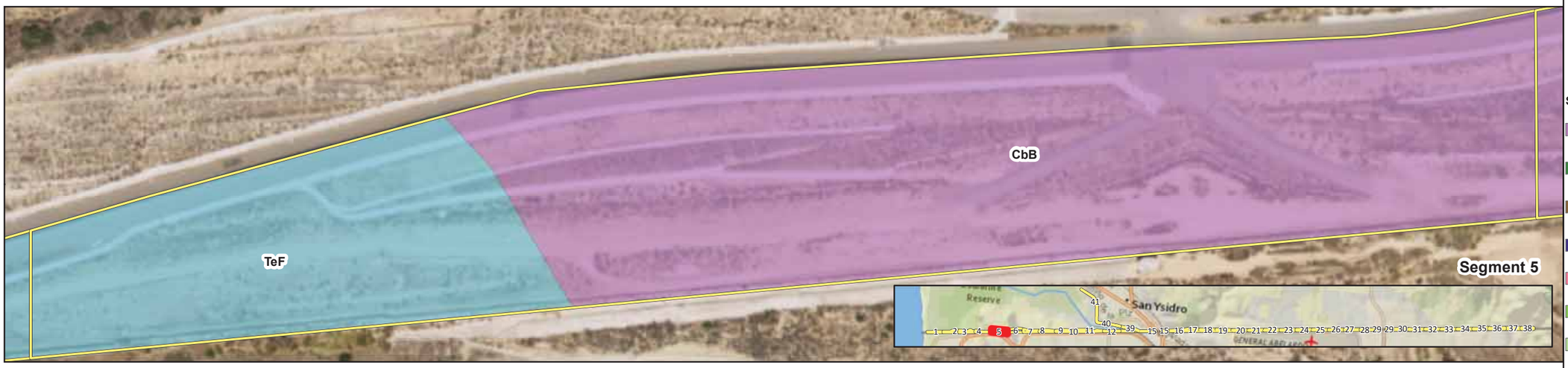
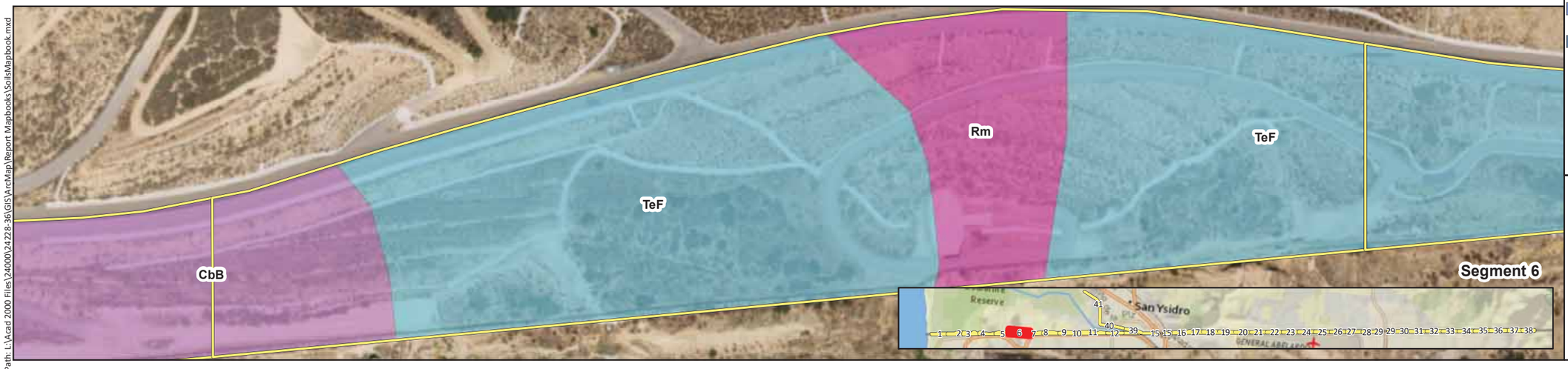
San Diego Sector Fence Replacement Project

San Diego County, California

Soils

Page 2





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San Diego Sector Fence Replacement Project

San Diego County, California

Soils

Page 3

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San Diego Sector Fence Replacement Project

San Diego County, California

Soils

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San Diego Sector Fence Replacement Project

San Diego County, California

Soils

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego Sector Fence Replacement Project

San Diego County, California

Soils

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San Diego Sector Fence Replacement Project

San Diego County, California

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San Diego County, California

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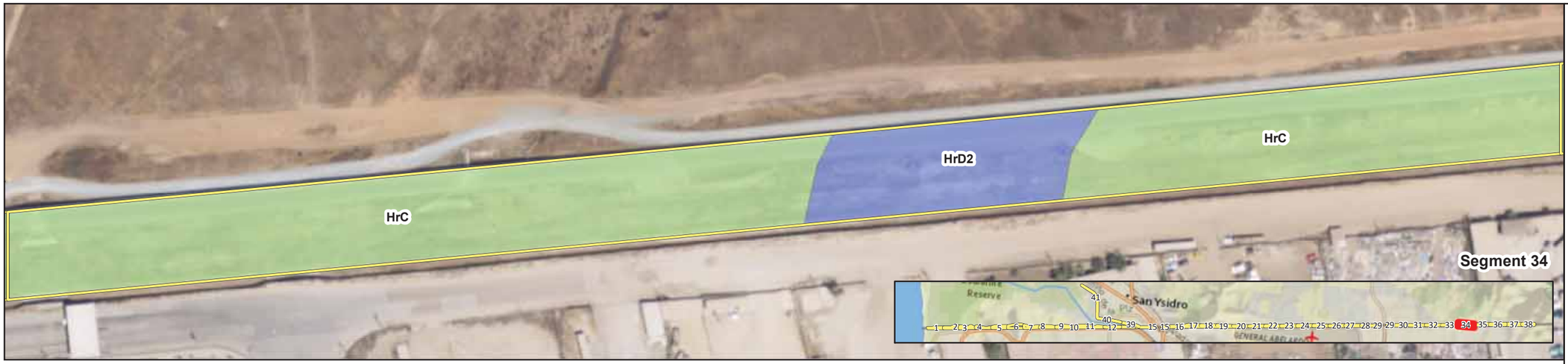
San Diego Sector Fence Replacement Project

San Diego County, California

Soils



Soils

- CbB: Carlsbad gravelly loamy sand, 2 to 5 percent slopes
- CfB: Chesterton fine sandy loam, 2 to 5 percent slopes
- ChA: Chino fine sandy loam, 0 to 2 percent slopes
- CkA: Chino silt loam, saline, 0 to 2 percent slopes
- DaF: Diablo clay, 30 to 50 percent slopes
- HrC2: Huerhuero loam, 5 to 9 percent slopes, eroded
- HrC: Huerhuero loam, 2 to 9 percent slopes
- HrD2: Huerhuero loam, 9 to 15 percent slopes, eroded
- HrD: Huerhuero loam, 9 to 15 percent slopes
- MIC: Marina loamy coarse sand, 2 to 9 percent slopes
- OhE: Olivenhain cobbly loam, 9 to 30 percent slopes
- OhF: Olivenhain cobbly loam, 30 to 50 percent slopes
- Rm: Riverwash
- oils
- SnG: San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes
- SuA: Stockpen gravelly clay loam, 0 to 2 percent slopes
- SuB: Stockpen gravelly clay loam, 2 to 5 percent slopes
- TeF: Terrace escarpments
- TuB: Tujunga sand, 0 to 5 percent slopes
- VbB: Visalia gravelly sandy loam, 2 to 5 percent slopes

0 100 200 Feet

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\Report Mapbooks\SoilsMapbook.mxd

Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: pkobylarz, 10/31/2017

San Diego Sector Fence Replacement Project

San Diego County, California

Soils

Soils

- CbB: Carlsbad gravelly loamy sand, 2 to 5 percent slopes
- CfB: Chesterton fine sandy loam, 2 to 5 percent slopes
- ChA: Chino fine sandy loam, 0 to 2 percent slopes
- CkA: Chino silt loam, saline, 0 to 2 percent slopes
- DaF: Diablo clay, 30 to 50 percent slopes
- HrC2: Huerhuero loam, 5 to 9 percent slopes, eroded
- HrC: Huerhuero loam, 2 to 9 percent slopes
- HrD2: Huerhuero loam, 9 to 15 percent slopes, eroded
- HrD: Huerhuero loam, 9 to 15 percent slopes
- MIC: Marina loamy coarse sand, 2 to 9 percent slopes
- OhE: Olivenhain cobbly loam, 9 to 30 percent slopes
- OhF: Olivenhain cobbly loam, 30 to 50 percent slopes
- Rm: Riverwash
- oils
- SnG: San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes
- SuA: Stockpen gravelly clay loam, 0 to 2 percent slopes
- SuB: Stockpen gravelly clay loam, 2 to 5 percent slopes
- TeF: Terrace escarpments
- TuB: Tujunga sand, 0 to 5 percent slopes
- VbB: Visalia gravelly sandy loam, 2 to 5 percent slopes

0 100 200 Feet

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\Report Mapbook\SoilsMapbook.mxd

Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: pkobylarz, 10/31/2017

San Diego Sector Fence Replacement Project

San Diego County, California

Soils

Soils

- CbB: Carlsbad gravelly loamy sand, 2 to 5 percent slopes
- CfB: Chesterton fine sandy loam, 2 to 5 percent slopes
- ChA: Chino fine sandy loam, 0 to 2 percent slopes
- CkA: Chino silt loam, saline, 0 to 2 percent slopes
- DaF: Diablo clay, 30 to 50 percent slopes
- HrC2: Huerhuero loam, 5 to 9 percent slopes, eroded
- HrC: Huerhuero loam, 2 to 9 percent slopes
- HrD2: Huerhuero loam, 9 to 15 percent slopes, eroded
- HrD: Huerhuero loam, 9 to 15 percent slopes
- MIC: Marina loamy coarse sand, 2 to 9 percent slopes
- OhE: Olivenhain cobbly loam, 9 to 30 percent slopes
- OhF: Olivenhain cobbly loam, 30 to 50 percent slopes
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- SnG: San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes
- SuA: Stockpen gravelly clay loam, 0 to 2 percent slopes
- SuB: Stockpen gravelly clay loam, 2 to 5 percent slopes
- TeF: Terrace escarpments
- TuB: Tujunga sand, 0 to 5 percent slopes
- VbB: Visalia gravelly sandy loam, 2 to 5 percent slopes

0 100 200 Feet

Path: L:\Acad 2000 Files\24000\24228-36\GIS\ArcMap\Report Mapbooks\SoilsMapbook.mxd

Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: pkobylarz, 10/31/2017

APPENDIX B:

DESCRIPTION OF FEDERAL- AND STATE-LISTED AND OTHER SPECIAL-STATUS PLANT SPECIES

FEDERAL-LISTED SPECIES

San Diego thornmint (*Acanthomintha ilicifolia*)
Federal Threatened Species
State Endangered Species
CNPS Rank 1B.1

The San Diego thornmint is an annual herb in the mint family (Lamiacae) native to southwestern San Diego County and northern Baja California, Mexico. It is restricted to certain gabbro and calcareous clay soils in gentle, southeast to west facing slopes. It grows in openings in coastal sage scrub, chaparral, and native grasslands (CDFW 2017b). The Project Area does not contain gabbroic or calcareous clay soils known to support this species. Therefore, this species is unlikely to occur in the Project Area.

San Diego ambrosia (*Ambrosia pumila*)
Federal Endangered Species
CNPS Rank 1B.1

San Diego ambrosia is a perennial rhizomatous herb in the sunflower family (Asteraceae) native to California and Baja California, where it is found predominantly along upper terraces of rivers and drainages within chaparral, coastal scrub, valley and foothill grassland habitats, and also in vernal pools (CNPS 2017, USFWS 2010a). The species is threatened by development, vehicles, road maintenance activities, and foot traffic. Non-native plants are also a primary conservation threat, as many of them outcompete the San Diego ambrosia (USFWS 2010a). The Project Area does not contain typical habitat. It is also densely overgrown with nonnative plants in most areas. Therefore, this species is unlikely to occur in the Project Area.

Encinitas baccharis (*Baccharis vanessae*)
Federal Threatened Species
State Endangered Species
CNPS Rank 1B.1

Encinitas baccharis is a perennial shrub in the sunflower family (Asteraceae) that is endemic to San Diego County, where it is found in maritime chaparral and Torrey pine forest understory (CNPS 2017, Jepson eFlora 2017). Its known range is from northern San Diego County in the Cleveland National Forest south to Encinitas, and east to Alpine (CDFW 2017c). Encinitas baccharis is a pioneering species, often increasing in numbers after disturbance such as fires, or erosional events. Therefore, the species is threatened by succession in fire-suppressed areas, but it is also threatened by development. The Project Area lacks maritime chaparral habitat, and is outside of the known geographic range of the species. Furthermore, this perennial shrub was not observed during the site visits. Therefore, there is no potential for this species to occur within the Project Area.

Salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*)
Federal Endangered Species
State Endangered Species
CNPS Rank 1B.2

Salt marsh bird's beak is an annual herb in the broomrape family (Orobanchaceae) native to coastal salt marshes in central and southern California and northern Baja California, Mexico. The species is hemisparasitic, meaning it draws some of its physiological needs from a host plant. It is able to photosynthesize on its own but relies on a host plant to facilitate uptake of water and nutrients from the ground. Known host plants are saltgrass (*Distichlis spicata*), alkali-heath (*Frankenia salina*), and sturdy bulrush (*Bulboschoenus robustus*), and broadleaf cattail (*Typha latifolia*). The flowers of the salt marsh bird's beak are self-compatible and pollinated by several species of ground-nesting bees. The distribution of seeds and the resulting patchy nature of the species' occurrences are thought to be most influenced by tidal movement and proximity to channels (USFWS 2009a). The Project Area contains one small, remnant salt marsh, which contains some of the associated species, however, this species is dependent on tidal influx, and the salt marsh with in the Project Area is not tidally influenced. Therefore, it is unlikely for salt marsh bird's beak to occur within the site.

Otay tarplant (*Deinandra conjugens*)
Federal Threatened Species
State Endangered Species
CNPS Rank 1B.1

Otay tarplant is an annual herb in the sunflower family (Asteraceae) restricted to southwestern San Diego County and northwestern Baja California. It is typically found on clay soils in grasslands, open coastal sage scrub, and maritime succulent scrub, in elevations of between 80 and 1,000 feet. Habitat loss, degradation, and fragmentation along with nonnative species invasion have been the primary threats to the species' survival. Dependence upon reduced populations of pollinators likely further contributes to the species' decline and loss of genetic variability. Large fluctuations in population size from year to year have been documented (USFWS 2004). The Project Area is located within the heart of the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Project Area. The Project Area contains suitable habitat including coastal scrub and grasslands underlain by clay soils. Therefore, this species has a high potential to occur in the Project Area.

San Diego button-celery (*Eryngium aristulatum* var. *parishii*)
Federal Endangered Species
State Endangered Species
CNPS Rank 1B.1

San Diego button-celery is a biennial or perennial herb in the carrot family (Apiaceae) restricted to the South Coast region of Southern California and Baja California. This species and this variety are closely related to vernal pool habitats on clay soils with a shallow restrictive layer. The majority of vernal pool habitat within the range of this species was lost to development prior to the species listing (USFWS 2010b). The species is almost exclusively found in vernal pools, and typically associated with other obligate vernal pool species such as dwarf wooly-marbles (*Psilocarphus brevissimus*), little mousetail (*Myosurus minimus*), spreading navarretia (*Navarretia fossalis*), and California Orcutt's grass (*Orcuttia californica*) (CFDW 2017a). Like many obligate vernal pool species, San Diego button-celery is specifically adapted to surviving in vernally wet

conditions due to the presence of aerenchyma tissue (air channels in the roots) that facilitates necessary gas exchange in submerged plants. Habitat loss, degradation, and fragmentation along with nonnative species invasion have been the primary threats to the species' survival. Although the Project Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Project Area, the Project Area lacks vernal pool habitat and the associated obligate vernal pool species.

Mexican flannelbush (*Fremontodendron mexicanum*)
Federal Endangered Species
CNPS Rank 1B.1

The Mexican flannelbush is a shrub in the mallow family (Malvaceae) that is native only to San Diego County, California and Baja California. The genus is believed to be a relic from 60 million years ago when California had a more tropical climate (USFWS 2009b). Mexican flannelbush grows up to six feet tall and has large orange to yellow flowers from March to June. It is found in only a few spots in California, in elevations between sea level and 3,000 feet in chaparral, foothill woodland, and closed-cone pine forests (Calflora 2017). The nearest extant documented occurrences are on Otay mountain, approximately 3 miles to the north of the Project Area, and at higher elevation than the Project Area. Associated species include Tecate cypress (*Hesperocyparis forbesii*), western sycamore (*Platanus racemosa*), and bush poppy (*Dendromecon rigida*) (CDFW 2017a). Mexican flannelbush is found in alluvial benches associated with drainages as well as the associated canyon slopes. Soils most often associated with this plant are silty loams derived from metavolcanic and metabasic bedrock, mapped as San Miguel-Exchequer Association soil series (USFWS 2009b). The Project Area does not contain suitable soils, habitat, or the associated species of the documented occurrences. There is no potential for this species to occur within the Project Area.

Spreading navarretia (*Navarretia fossalis*)
Federal Threatened Species
CNPS Rank 1B.1

Spreading navarretia is an annual herb in the phlox family (Polemoniaceae) restricted to the South Coast region of Southern California and Baja California. This species is found in vernal pool and alkali playa habitat but may also occur in man-made ditches and depressions that have a similar hydrological regime (USFWS 2009c). Occurrences of the species in San Diego County are almost exclusively in vernal pools within complexes of pools and mounds often referred to as 'mima-mounds', whereas occurrences in western Riverside County also occur in alkali playa wetlands (USFWS 2009c). Observed associated species include other obligate vernal pool species such as dwarf wooly-marbles, little mousetail, Otay mesa mint (*Pogogyne nudiuscula*), and California Orcutt's grass (CDFW 2017a). Habitat loss, degradation, and fragmentation along with nonnative species invasion have been the primary threats to the species' survival. Although the Project Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Project Area, the Project Area lacks vernal pool habitat and the associated obligate vernal pool species. Spreading navarretia is unlikely to occur in the Project Area.

California orcutt grass (*Orcuttia californica*)
Federal Endangered Species
State Endangered Species
CNPS Rank 1B.1

California Orcutt grass is an annual herb in the grass family (Poaceae) restricted to the South Coast region of Southern California and Baja California. This species is exclusively associated with deep vernal pools underlain by clay soils (USFWS 2011a). Observed associated species include other obligate vernal pool species such as San Diego button celery, dwarf wooly-marbles, little mousetail, Otay mesamint, and San Diego mesamint (*Pogogyne abramsii*) (CDFW 2017a). Habitat loss, degradation, and fragmentation, grazing, off-road vehicle use, along with nonnative species invasion have been the primary threats to the species' survival. Although the Project Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Project Area, the Project Area lacks vernal pool habitat and the associated obligate vernal pool species. California Orcutt grass has no potential to occur in the Project Area.

Otay mesa mint (*Pogogyne nudiuscula*)
Federal Threatened Species
CNPS Rank 1B.1

Otay mesa mint is an annual herb in the mint family (Lamiaceae) restricted to vernal pools on Otay Mesa, in San Diego County. Historically, Otay mesa mint also occurred in Baja California at the eastern edge of the City of Tijuana but is now believed to be extirpated in Mexico (USFWS 2011b). This species is exclusively associated with vernal pools. Observed associated species include other obligate vernal pool species such as San Diego button celery, and California Orcutt grass (CDFW 2017a). Habitat loss, degradation, and fragmentation, grazing, off-road vehicle use, along with nonnative species invasion have been the primary threats to the species' survival. Although the Project Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Project Area, the Project Area lacks vernal pool habitat and the associated obligate vernal pool species. Otay mesa mint has no potential to occur in the Project Area.

PRESENT

Shaw's agave (*Agave shawii* var. *shawii*)
CNPS Rank 2B.1
MSCP Species

Shaw's agave is a perennial shrub-like succulent in the century plant family (Agavaceae), which is restricted to southwestern San Diego County and Baja California. It is typically found on coastal bluffs, mesas, and foothills in coastal bluff scrub, coastal scrub, and maritime succulent scrub habitats. This species may have been introduced at several locations, including Cabrillo National Monument (CNPS 2017). Observed associated species include California brittlebush, lemonade berry (*Rhus integrifolia*), snake cholla, coast cholla, and fourwing saltbush (CDFW 2017a, personal observation 2017). Habitat loss, habitat disturbance, low recruitment, horticultural collecting, and non-native invasive species threaten Shaw's agave. One individual of the species was observed in California brittlebush scrub in the western edge of the Project Area.

San Diego bur sage (*Ambrosia chenopodifolia*)
CNPS Rank 2B.1

San Diego bur sage is a perennial shrub in the sunflower family (Asteraceae), that is restricted to southwestern San Diego County and Baja California, and is known from fewer than 15 occurrences in California (CNPS 2017). It is typically found on mesas and open slopes in coastal scrub habitat (CNPS 2017, Beauchamp 1986). San Diego bur sage has a narrow range, but is noted by Beauchamp (1986) as "common" where it occurs. Observed associated species include fourwing saltbush, brittlebush, arroyo lupine (*Lupinus succulentis*), California sagebrush, California buckwheat, jojoba, and foxtail chess (CDFW 2017a, personal observation 2017). San Diego bur sage is threatened by habitat loss, and development. Approximately 13 individuals of this perennial shrub species were observed in a restored shrubland in the eastern portion of the Project Area, indicating that this species may be fairly well adapted to disturbance, and can reestablish on previously disturbed slopes.

San Diego County viguiera (*Bahiopsis laciniata*)
CNPS Rank 4.3

San Diego County viguiera is a perennial shrub in the sunflower family (Asteraceae) that is restricted to San Diego County, and Baja California (CNPS 2017). It is typically found on open slopes in coastal scrub, coastal bluff scrub, and chaparral habitats (CNPS 2017, Jepson eFlora 2017). Beauchamp (1986) notes San Diego County viguiera as "common" where it occurs. Observed associated species include California brittlebush, Menzies' golden bush, snake cholla, coast cholla, foxtail chess, and California sagebrush (personal observation 2017). San Diego County viguiera is apparently threatened by habitat loss, and development, but CNPS (2017a) notes that it is locally common in southern San Diego County. Hundreds to thousands of individuals of this species were observed in scrub habitats, restored shrublands, and non-native grasslands throughout the Project Area. This species was very common throughout the Project Area and was not mapped during the site visits.

Snake cholla (*Cylindropuntia californica* var. *californica*)
CNPS Rank 1B.1
MSCP Species

Snake cholla is a perennial succulent (cactus) in the cactus family (Cactaceae), which is restricted to San Diego County and Baja California, and is known from 32 occurrences in California (CNPS 2017). It is typically found on dry mesas and open slopes in coastal scrub and chaparral habitat (CNPS 2017, Beauchamp 1986). Beauchamp (1986) notes Snake cholla as "infrequent" where it occurs. Observed associated species include brittlebush, coast cholla, San Diego County viguiera, California sagebrush, California buckwheat, jojoba, crystalline iceplant, and foxtail chess (CDFW 2017a, personal observation 2017). Snake cholla is threatened by habitat loss, off-road vehicle activity, and development. Approximately six individuals (clonal clumps) of this cactus species were observed in California brittlebush scrub in the western edge of the Project Area. Other rare plants nearby include Shaw's agave, California boxthorn, and San Diego County viguiera.

San Diego barrel cactus (*Ferocactus viridescens*)
CNPS Rank 2B.1
MSCP Species

San Diego barrel cactus is a perennial succulent (cactus) in the cactus family (Cactaceae) that is restricted to San Diego County and Baja California, and is known from 246 occurrences in California (CNPS 2017). It is typically found on sandy and rocky substrates in coastal scrub, valley and foothill grassland, maritime succulent scrub, and chaparral habitat (CNPS 2017, Beauchamp 1986). Beauchamp (1986) notes San Diego barrel cactus as "occasional" where it occurs. Observed associated species include brittlebush, coast cholla, California sagebrush, California boxthorn, chalk dudleya (*Dudleya pulverulenta*), and lemonade berry (personal observation 2017). San Diego barrel cactus is threatened by habitat loss, off-road vehicle activity, horticultural collecting, agriculture, and development. Approximately 38 individuals (clonal clumps) of this cactus species were observed in California brittlebush scrub, California sagebrush scrub, and Jojoba scrub in the western portion of the Project Area.

Tecate cypress (*Hesperocyparis forbesii* [*Cupressus f.*])
CNPS Rank 1B.1
MSCP Species

Tecate cypress is a perennial evergreen species native to Southern California and Mexico. The species occurs in closed-cone coniferous forests, as well as chaparral with clay, gabbroic, or metavolcanic soils. Tecate cypress occurs at elevations ranging from 260 to 4920 feet. It is like;y a relict species from a time when Southern California's climate was cooler and wetter. The species survives in a few, isolated locations in Los Angeles, Orange, Riverside and San Diego Counties, as well as northern Baja. Tecate cypress depends on intermittent fire for reproduction, but if fires are too frequent, it will kill seedlings and threaten the survival of the species. Young trees are pyramidal in shape, becoming more rounded or contorted with age. The species is very drought tolerant; excessive supplemental water will make it floppy. One individual of the species was observed in California buckwheat scrub in the eastern edge of the Project Area.

The Thorne's hairstreak butterfly (*Callophrys [Mitoura] thornei*) is a critically imperiled species, with a restricted range of a few hundred hectares in the Otay Mountain area of San Diego County. The butterfly lays its eggs only on tecate cypress, which is the larval host plant. The one tecate cypress present within the Project Area is outside the known range and is not enough to support the host plant requirements of Thorne's hairstreak butterfly by itself.

Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)
CNPS Rank 1B.1

Decumbent goldenbush is a perennial shrub in the sunflower family (Asteraceae) that is restricted to the South Coast, Channel Islands, and Peninsular Ranges of California, and Baja California (CNPS 2017). It is typically found on sandy substrates in coastal scrub, chaparral, and sometimes disturbed areas (CNPS 2017, Beauchamp 1986). Beauchamp (1986) notes decumbent goldenbush as “infrequent” where it occurs. Observed associated species include San Diego County viguiera, California sagebrush, lemonade berry, jojoba, and crown daisy (CDFW 2017a). Decumbent goldenbush is threatened by habitat loss, and development. One individual of this species was observed in disturbed non-native grassland in the eastern edge of the Project Area.

San Diego marsh-elder (*Iva hayesiana*)
CNPS Rank 2B.2

San Diego marsh-elder is a perennial subshrub native to Baja California, and to California only in the vicinity of San Diego. San Diego marsh-elder is a fast spreading, aromatic evergreen plant. The species occurs at elevations ranging from 30 to 1640 feet. San Diego marsh-elder is usually found in wetland flats or moister areas, but is still fairly drought tolerant. The species can also occur on dry slopes, given enough supplemental water, and is likely to retain moisture on flat sites. Generally, the species occurs in marshes, swamps, and playas, with potential to occur in non-wetlands. Three individuals of San Diego marsh-elder are present in the far eastern section of the Project Area, along an ephemeral stream, and surrounded by Menzies' goldenbush scrub to the west and a non-native grassland to the east.

Brand’s star phacelia (*Phacelia stellaris*)
CNPS Rank 1B.1

Brand’s star phacelia is an annual herb in the borage family (Boraginaceae) that blooms from March to June. It is restricted to the South Coast region of California, and Baja California, and is known from approximately 10 occurrences (CNPS 2017). It is typically in sandy areas within coastal dunes, and coastal scrub habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Observed associated species include California brittlebush, beach goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*), desert croton (*Croton californicus*), and California plantain (*Plantago erecta*) (CDFW 2017a). Many historical occurrences of this species have been extirpated by development, and the remaining occurrences are apparently threatened by development. Although this species is not Federal- or State-listed, it was considered a candidate for listing between 2004 and 2013. CBP is a signatory to a conservation agreement with the USFWS concerning this species (USFWS 2013). Suitable sandy substrates within coastal scrub grassland habitats are found within the Project Area, and Brand’s star phacelia has been documented to occur in the Project Area.

California boxthorn (*Lycium californicum*)
CNPS Rank 4.2
MSCP Species

California boxthorn is a perennial shrub in the nightshade family (Solanaceae) that is restricted to the South Coast and Channel Islands regions in southern California, and is also native to Arizona, Baja California, Guadalupe Island, and Sonora (CNPS 2017). It is typically found on bluffs and dry slopes in coastal scrub, and coastal bluff scrub (CNPS 2017, Beauchamp 1986). Beauchamp (1986) notes California boxthorn as “occasional” where it occurs. Observed associated species

include brittlebush, coast cholla, California sagebrush, California boxthorn, and lemonade berry (personal observation 2017). California boxthorn is threatened by habitat loss, development, and possibly foot traffic. Several individuals of this species were observed in California brittlebush scrub in the western portion of the Project Area. This species was abundant where it occurs and was not mapped during the site visits.

Ashy spike-moss (*Selaginella cinerascens*)
CNPS Rank 4.1

Ashy spike-moss is a perennial rhizomatous herb in the spike-moss family (Selaginellaceae) that is restricted to the South Coast region in southern California, and Baja California (CNPS 2017). It is typically found on sunny, exposed soil or under shrubs in chaparral and coastal scrub habitats (CNPS 2017, Jepson eFlora 2017). Beauchamp (1986) notes ashy spike-moss as "frequent" where it occurs. Observed associated species include California brittlebush, Menzies' golden bush, coast cholla, California sagebrush, California boxthorn, and laurel sumac (*Malosma laurina*) (personal observation 2017). Ashy spike-moss is threatened by habitat loss, and development. Several individuals of this species were observed in California brittlebush scrub and California sagebrush scrub and along the exposed banks of ephemeral drainages in the western portion of the Project Area. This species was abundant where it occurs and was not mapped during the site visits.

California screw moss (*Tortula californica*)
CNPS Rank 1B.2

California screw moss is a perennial bryophyte in the family Pottiacae that is restricted to the South Coast region in southern California (CNPS 2017). It is typically found on sandy soil within chenopod scrub and valley and foothill grassland (CNPS 2017). Observed associated species include California brittlebush, California sagebrush, San Diego County viguiera, bladderpod (*Peritoma arborea*), crown daisy, and California buckwheat (CDFW 2017a). California screw moss is threatened by habitat loss, and development. Rebman observed this species within the Project Area on the western slope of Bunker Hill in 2012 (CDFW 2017a). The species is presumed present within the Project Area; however, it was not relocated during the site visits, and may in fact be outside of the Project Area.

HIGH POTENTIAL

Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)
CNPS Rank 1B.1
MSCP Species

Blochman's dudleya is a perennial succulent herb in the stonecrop family (Crassulaceae) that blooms from April to June. Although a perennial species, the species dies back annually and would not have been observable at the time of the site visits. Blochman's dudleya occurs in the Central Coast, South Coast, and Channel Islands regions of California, and Baja California (CNPS 2017). It is typically found on top of coastal and sea bluffs underlain by rocky, often clay or serpentine substrates in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes Blochman's dudleya as "rare" where it occurs. Observed associated species include California sagebrush, deerweed, bladderpod, lemonade berry, California buckwheat, and foothill needle grass (Stipa lepida) (CNPS 2017). The species is threatened by grazing, trampling, development, erosion, and non-native plants.

Blochman's dudleya has been documented within the Project Area on top of Bunker Hill, but that population was transplanted during a previous project. Blochman's dudleya has a high potential to occur in the Project Area due to the presence of suitable coastal scrub habitat, associated species, and the previously discovered population of this species within the Project Area.

Variegated dudleya (*Dudleya variegata*)
CNPS Rank 1B.2
MSCP Species

Variegated dudleya is a perennial succulent herb in the stonecrop family (Crassulaceae) that blooms from April to June. Although a perennial species, the species dies back annually and would not have been observable at the time of the site visits. Variegated dudleya occurs in the South Coast and Peninsular Ranges of California, and Baja California (CNPS 2017). It is typically found on dry hilltops and mesas underlain by clay soils in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Observed associated species include ashy spike-moss, California sagebrush, California barrel cactus, San Diego County viguiera, coast cholla, and slim oat (CNPS 2017). The species is threatened by grazing, development, and non-native plants. Variegated dudleya has a high potential to occur within the Project Area due to the presence of suitable coastal scrub habitat, and associated species.

Sea dahlia (*Leptosyne maritima*)
CNPS Rank 2B.2

Sea dahlia is a perennial herb in the sunflower family (Asteraceae) that blooms from March to May. It occurs in the South Coast region of California and Baja California (CNPS 2017). It is typically found on coastal bluffs in coastal bluff scrub, and coastal scrub habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes sea dahlia as "frequent" where it occurs. Observed associated species include California boxthorn, California brittlebush, California sagebrush, lemonade berry, and bushrue (CDFW 2017a). Erosion, recreational activities, and non-native plants possibly threaten the species. Sea dahlia has a high potential to occur in the Project Area due to the presence of suitable scrub habitat and associated species.

MODERATE POTENTIAL

Orcutt's brodiaea (*Brodiaea orcuttii*)
CNPS Rank 1B.1

Orcutt's brodiaea is a perennial bulbiferous herb in the brodiaea family (Themidiaceae) that blooms from May to July. Orcutt's brodiaea is restricted to the South Coast region of California in Riverside and San Diego counties (CNPS 2017). It is typically found on mesic, clay substrates in grasslands, vernal pools and swales, meadows and seeps, chaparral, closed-cone coniferous forest, and cismontane woodland habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes Orcutt's brodiaea as "infrequent" where it occurs. Associated species include mulefat, spiny rush (Juncus acutus), seep monkeyflower (*Mimulus guttatus*), laurel sumac, deer brush, and Tecate cypress (CDFW 2017a). Orcutt's brodiaea has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub and grassland habitat and clay soils.

Lewis' evening-primrose (*Camissoniopsis lewisii*)
CNPS Rank 3

Lewis' evening-primrose is an annual herb in the evening-primrose family (Onagraceae) that blooms from March to June. Lewis' evening-primrose is restricted to the South Coast and Peninsular Ranges of California, and northern Baja California (CNPS 2017). It is typically found on sandy or clay substrates in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Lewis' evening-primrose is noted by Beauchamp (1986) as "occasional" where it occurs. Observed associated species are not described in the literature. This species has a moderate potential to occur in the western portion of the Project Area due to the presence of suitable coastal scrub habitat.

Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)
CNPS Rank 1B.2

Long-spined spineflower is an annual herb in the buckwheat family (Polygonaceae) that blooms from April to June. Long-spined spineflower is restricted to the Peninsular Ranges and San Jacinto Mountain regions of California, and Baja California (CNPS 2017). It is typically found on mesas and slopes underlain by clay soils in chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes long-spined spineflower as "uncommon" where it occurs. Observed associated species include decumbent goldenbush, Otay tarplant, sandmat (*Cardionema ramosissimum*), California buckwheat, plantain (*Plantago* sp.), and false rosinweed (*Osmadenia tenella*) (CDFW 2017). Habitat loss, off-road vehicle activity, non-native grasses, and development threaten the species. Long-spined spineflower has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub and grassland habitat and clay soils.

Seaside cistanthe (*Cistanthe maritima*)
CNPS Rank 4.2

Seaside cistanthe is an annual fleshy herb in the miner's lettuce family (Montiaceae) that blooms from May to June. Seaside cistanthe is restricted to the South Coast and Channel Islands regions of California, and Baja California (CNPS 2017). It is typically found on sandy soils in coastal bluff scrub, coastal scrub, and valley and foothill grassland habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes Seaside cistanthe as "uncommon" where it occurs. Observed associated species are not reported in the literature. The species is threatened by habitat loss, and development. Seaside cistanthe has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub and grassland habitat.

Western dichondra (*Dichondra occidentalis*)
CNPS Rank 4.2

Western dichondra is a perennial rhizomatous herb in the morning glory family (Convolvulaceae) that blooms from May to July. Western dichondra occurs in the Central Coast, South Coast, Channel Islands, Peninsular Ranges and San Jacinto Mountains regions of California, and Baja California (CNPS 2017). It is typically found on among rocks, shrubs, in coastal scrub, chaparral, oak woodland (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes western dichondra as "uncommon" where it occurs. Observed associated species are not reported in the literature. Western dichondra has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub and grassland habitat.

Orcutt's bird's-beak (*Dicranostegia orcuttiana*)
CNPS Rank 2B.1
MSCP Species

Orcutt's bird's-beak is an annual hemiparasitic herb in the broomrape family (Orobanchaceae) that blooms from April to July. Orcutt's bird's-beak is restricted to the South Coast region of California, and Baja California (CNPS 2017). It is typically found on sunny slopes in coastal scrub habitat (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes Orcutt's bird's-beak as "rare" where it occurs. Observed associated species include broom baccharis, California sagebrush, foxtail chess, toyon (Heteromeles arbutifolia), and Menzies' goldenbush. The species is threatened by habitat loss and urbanization. Orcutt's bird's-beak has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub habitat and associated species.

Palmer's grapplinghook (*Harpagonella palmeri*)
CNPS Rank 4.2
MSCP Species

Palmer's grapplinghook is an annual herb in the borage family (Boraginaceae) that blooms from March to May. Palmer's grapplinghook occurs in the South Coast, Peninsular Ranges, San Jacinto Mountains, and Sonoran Desert regions of California, and also occurs in Arizona, Sonora, and Baja California (CNPS 2017). This inconspicuus plant is typically found on open grassy areas between shrubs underlain by clay in chaparral, coastal scrub, and valley and foothill grassland (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Palmer's grapplinghook is noted by Beauchamp (1986) as "occasional" where it occurs. Observed associated species are not reported in the literature. The species is threatened by development, trampling, non-native plants, and agricultrure. Palmer's grapplinghook has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub habitat and grassy interstitial areas.

Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)
CNPS Rank 1B.1

Coulter's goldfields is an annual herb in the sunflower family (Asteraceae) that blooms from February to June. Coulter's goldfields occurs in numerous regions of California from the northern Sacramento Valley to the South Coast, and inland to the Mojave Desert, and occurs in Baja California (CNPS 2017). It is typically found in saline wetlands including vernal pools, coastal salt marsh, and alkali playas (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes coulter's goldfields as "infrequent" where it occurs. Observed associated species include salt grass (*Distichlis spicata*), alkali heath (Frankenia salina), brass buttons (*Cotula coronopifolia*), and pickleweed (*Salicornia pacifica*) (personal observation 2016). The species is threatened by urbanization and agriculture. Coulter's goldfields has a moderate potential to occur in the remnant salt marsh within the western edge of the Project Area due to the presence of suitable habitat and associated species.

Robinson's pepper grass (*Lepidium virginicum* var. *robinsonii*)
CNPS Rank 4.3

Robinson's pepper grass is an annual herb in the mustard family (Brassicaceae) that blooms from January to July. This species is not considered a valid taxon under current taxonomy (Jepson eFlora 2017), and has since been reassigned to L. virginicum ssp. menziesii (non-rare). Robinson's pepper grass occurs in the South Coast, Channel Islands and Peninsular Ranges, of California, and also occurs in Baja California (CNPS 2017). It is typically in chaparral and coastal scrub habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Observed associated species are not reported in the literature. Development and possibly non-native plants threaten the species. Robinson's pepper grass has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub habitat.

Small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*)
CNPS Rank 4.2

Small-flowered microseris is an annual herb in the sunflower family (Asteraceae) that blooms from March to May. It occurs in the South Coast, Channel Islands, Peninsular Ranges, and San Jacinto Mountains in California, and Baja California (CNPS 2017). It is typically found on grassy flats and slopes, near vernal pools, and serpentine outcrops, in valley and foothill grassland, cismontane woodland, and coastal scrub habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes small-flowered microseris as "frequent" where it occurs. Observed associated species are not reported in the literature. The species is apparently severely declining due to urban development and is threatened by non-native plants. Small-flowered microseris has a moderate potential to occur in the Project Area due to the presence of suitable grassland habitat, scrub habitat and grassy interstitial areas.

California adder's-tongue (*Ophioglossum californicum*)
CNPS Rank 4.2

California adder's-tongue is a perennial rhizomatous herb in the adder's tongue family (Ophioglossaceae) that blooms from January to June. It occurs in numerous regions of California from the Sacramento Valley, north and central Sierra Nevada Foothills, to the South Coast, and Baja California (CNPS 2017). It is typically found on mesic grassy flats and slopes, and near vernal pools, in chaparral, and valley and foothill grassland habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes California adder's-tongue as "infrequent" where it occurs. Observed associated species are not reported in the literature. California

adder's-tongue has a moderate potential to occur in the Project Area due to the presence of suitable habitat.

Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*)
CNPS Rank 4.2

Golden-rayed pentachaeta is an annual herb in the sunflower family (Asteraceae) that blooms from March to July. It occurs in the San Gabriel Mountains, San Bernardino Mountains, San Jacinto Mountains, Peninsular Ranges, and South Coast regions of California, and Baja California (CNPS 2017). It is typically found in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grassland (CNPS 2017, Jepson eFlora 2017). Observed associated species are not reported in the literature. Golden-rayed pentachaeta has a moderate potential to occur in the Project Area due to the presence of suitable coastal scrub and grassland habitat.

Chaparral ragwort (*Senecio aphanactis*)
CNPS Rank 2B.1

Chaparral ragwort is an annual herb in the sunflower family (Asteraceae) that blooms from January to April. It occurs in coastal California from the San Francisco Bay Area to the South Coast, and Baja California (CNPS 2017). It is typically found on open and grassy slopes (sometimes alkaline), in chaparral, cismontane woodland, and coastal scrub habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes chaparral ragwort as "occasional" where it occurs. Observed associated species include California plantain (*Plantago erecta*), filaree (*Erodium* spp.), California sagebrush, California buckwheat, and foxtail chess. The species is apparently threatened by development. Chaparral ragwort has a moderate potential to occur in the Project Area due to the presence of suitable scrub and grassland habitat, and associated species.

Aphanisma (*Aphanisma blitoides*)
CNPS Rank 1B.2
MSCP Species

Aphanisma is an annual herb in the goosefoot family (Chenopodiaceae) that blooms from February to June. Aphanisma occurs in the Central Coast, South Coast, and Channel Islands regions of California, and is also native to Baja California and Guadalupe Island (CNPS 2017). It is typically found on sandy or gravelly substrates (sometimes alkaline) in coastal bluff scrub, coastal dunces, and coastal scrub habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes Aphanisma as "frequent" where it occurs. Observed associated species include California boxthorn, coast cholla, crystalline iceplant, California buckwheat, and lemonade berry (CDFW 2017a). The western portion of the Project Area contains potentially suitable coastal scrub habitat and sandy soils which could support this species.

San Diego goldenstar (*Bloomeria clevelandii*)
CNPS Rank 1B.1

San Diego goldenstar is a perennial herb in the brodiaea family (Themidiaceae) that blooms from April to May. San Diego goldenstar occurs in the South Coast region of California, and is also native to Baja California (CNPS 2017). It is typically found on clay soils in grasslands, near vernal pools and swales, coastal scrub, and chaparral habitats (CNPS 2017, Beauchamp 1986, Jepson eFlora 2017). Beauchamp (1986) notes San Diego goldenstar as "infrequent" where it occurs. Observed associated species include Otay mesamint, Otay tarplant, wild oat (*Avena fatua*),

Australian saltbush (*Atriplex semibaccata*), dodder (*Cuscuta* sp.), foxtail chess, and California sagebrush (CDFW 2017a). The Project Area contains potentially suitable coastal scrub and grassland habitat and clay soils, which could support this species.

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APPENDIX C:

DESCRIPTION OF FEDERAL- AND STATE-LISTED AND OTHER SPECIAL-STATUS WILDLIFE SPECIES

FEDERAL-LISTED SPECIES

Arroyo toad (*Bufo californicus*)
Federal Endangered Species
CDFW Species of Special Concern

Arroyo toads are found in washes, streams, arroyos, rivers with shallow gravelly pools, and their adjacent uplands. Adjacent upland habitats consist of sandy banks or terraces in riparian woodlands, where adults burrow into the soil for shelter. Eggs are laid in shallow, quiet streams or ponds with little to no emergent vegetation. The species breeds from March to early June, with metamorphosis occurring in June or July. Newly metamorphosed young remain near pools for several weeks, usually until the pools dry. Adults may migrate locally but are most often found within approximately 0.3 miles of the streams they breed in, though individuals have been observed as far as approximately 1.2 miles away. Adults aestivate seasonally and are nocturnal, except for during the breeding season. Immature arroyo toads are presumed to eat algae, organic debris, and plant tissue, while adults are insectivores, consuming primarily snails, beetles, and ants.

The arroyo toad historically ranged from San Luis Obispo County, California, to northwestern Baja California, Mexico. Today, it is believed to be extirpated from San Luis Obispo County, but to persist in northwestern Baja California and in Santa Barbara, Ventura, Los Angeles, and San Diego Counties. Within San Diego County, the arroyo toad occurs along the Santa Margarita, Guejito, Sweetwater, Vallecito, San Luis Rey, Santa Ysabel, Witch, Cottonwood, Temescal, Agua Caliente, Santa Maria, Lusardi, Pine Valley, Noble, Kitchen, Long Potrero, Upper San Diego, San Vicente, and Morena drainages; populations in the Temescal, Agua Caliente, Pine Valley, and Cottonwood drainages may be considered viable (USFWS 1994).

Development and alteration of streamside flats may have been the primary cause of the decline of the arroyo toad population. Additional human disturbances include excessive human camping, manipulation of hydrologic regime, urban development, placer mining, off-road vehicle use, introduction of exotic predators, and cattle grazing. Natural disturbances, such as fires and droughts, pose a threat, as well (Jennings and Hayes 1994).

There is no suitable habitat for the arroyo toad within the Project Area or within 1 kilometer of the Project Area, as they require semi-arid regions near washes, intermittent streams, or rivers with sandy banks and the presence of willows, cottonwoods, and sycamores. Due to the lack of suitable habitat within the Project Area, the arroyo toad is presumed absent from the Project Area.

Coastal California gnatcatcher (*Polioptila californica californica*)
Federal Threatened Species
MSCP Species

The coastal California gnatcatcher has a limited range within the United States. This subspecies is restricted to coastal southern California and northwestern Baja California, Mexico, from Ventura and San Bernardino Counties, California, south to approximately El Rosario, Mexico (American Ornithologists' Union 1957, Atwood 1991, Banks and Gardner 1992, Garrett and Dunn 1981). The subspecies exists predominantly in southern California's coastal sage scrub habitat, with a strong preference towards areas dominated by California sagebrush (*Artemisia californica*), chaparral broom (*Baccharis sarothroides*), and flat-top buckwheat (*Eriogonum fasciculatum*). The majority of plant species found in coastal sage scrub habitat are low-growing, drought-deciduous shrubs and sub-shrubs (USFWS 1997).

Densities are highest along sage scrub-grassland borders or in relatively open sage scrub habitat. Nesting occurs in a variety of host shrub species, with a high depredation rate, which results in frequent replacement clutches throughout the breeding season. The coastal California gnatcatcher is non-migratory (Unitt 2004) and generally avoids crossing even small areas of unsuitable habitat (Atwood 1992). Generally, the species is observed on dry coastal slopes, washes, and mesas, in areas with low plant growth of approximately 1 meter in height (NatureServe 2017g). The Project Area contains suitable coastal sage scrub habitat, dominated by California sagebrush (*Artemisia californica*), chaparral broom (*Baccharis sarothroides*), and flat-top buckwheat (*Eriogonum fasciculatum*).

During the October 2017 surveys, WRA biologists detected multiple coastal California gnatcatchers calling within the Project Area, in the coastal sage scrub habitat between Imperial Beach and the water treatment plant and just north of this area. They were also heard just north of the Project Area from the San Ysidro Port of Entry east approximately 1.5 miles. .Previous surveys as well as historic records show this species throughout these areas. There is Critical Habitat for the coastal California gnatcatcher in the eastern portion of the Project Area.

Least Bell's vireo (*Vireo bellii pusillus*)
Federal Endangered Species
State Endangered Species
MSCP Species

This subspecies of Bell's vireo is a neotropical migrant and summer resident in California and northern Baja California, wintering in southern Baja California (Brown 1993). This vireo was once common in lowland riparian habitats throughout California, but declined precipitously during the twentieth century (USFWS 1998). By the time of federal listing in 1986, an estimated 300 pairs were restricted to southern California, primarily San Diego County (USFWS 1998). The population has increased since, with the number of nesting territories in California in 2006 estimated to be approximately ten times greater than in 1986 (USFWS 2006). However, the distribution of the vireo at that time remained almost entirely within southern California (USFWS 2006).

Least Bell's vireo breeding habitat consists of riparian vegetation, usually in an early successional state between five and 10 years old (USFWS 1998). Such habitat is preferred by least Bell's vireo, because it provides dense cover in the lower shrub layer for nest concealment, as well as a stratified canopy structure favorable to insect abundance, and thus vireo foraging (USFWS 1998). Riparian habitat types used for breeding include those dominated by willows (*Salix* sp.), Fremont's cottonwood (*Populus fremontii*), and/or oaks (*Quercus* sp.), with a dense understory of species, such as willows, mulefat (*Baccharis salicifolia*), California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), and mugwort (*Artemisia douglasiana*) (USFWS 1998). Nests are typically placed within three feet of the ground. Least Bell's vireo may attempt multiple broods during the breeding season from mid-March to late September, although one brood is typical (Brown 1993). Habitats such as chaparral and coastal sage scrub adjacent to riparian areas are used for foraging and even nesting, and thus provide another potentially important habitat component (Kus and Miner 1989). Along with habitat destruction, brood parasitism by the brown-headed cowbird (*Molothrus ater*) is widely considered a major contributor to the decline of least Bell's vireo, and a continuing challenge to its recovery.

The Project Area does not contain suitable nesting or foraging riparian habitat for least Bell's vireo and none have been detected immediately within the Project Area during past surveys. Occupied habitat for this species does exist nearby, most notably within the Tijuana River valley and

approximately 500 feet north of the Project Area within the northern portion of Smuggler's Gulch. The Project Area includes a portion of least Bell's vireo Critical Habitat along the patrol road adjacent to Camino de la Plaza. Due to the lack of suitable habitat within the Project Area, the least Bell's vireo is presumed absent.

Light-footed Ridgway's rail (*Rallus obsoletus levipes*)
Federal Endangered Species
State Endangered Species
CDFW Fully Protected Species
MSCP Species

The light-footed Ridgway's rail is resident to coastal wetlands in southern California and northern Baja California, Mexico. Habitat loss and degradation are the primary threats to the species. Suitable nesting habitat was identified as a primary, widespread limiting factor. A number of management efforts, including habitat restoration and predator control, have been implemented since 1980. In addition, annual population surveys of the California population have been tracking their success and populations have been climbing. The Tijuana Slough National Wildlife Refuge, located north of the Project Area, supports a number of breeding pairs, which have crashed and rebounded with the overall California population in the last decade. One hundred and thirteen pairs were observed in 2011, which was the second highest count in 32 years. The 2013 annual survey found 105 pairs. Saltwater marshes are traditionally considered primary habitat. The value of freshwater marshes has been recognized recently, as population crashes in saltwater marshes are typically not mirrored in freshwater marshes (Zembal 2013).

Although salt marsh habitat is present in the Project Area, the habitat is unsuitable for this species. The saltwater marshes on-site do not meet the habitat requirements for the species, as there is no cord grass (*Spartina foliosa*) within the Project Area, which is a dominant species habitat requirement for the light-footed Ridgway's rail, for nesting and escape cover. Therefore, the habitat on-site and adjacent to the Project Area is unsuitable for the species requirements. Due to the lack of suitable habitat within the Project Area, the light-footed Ridgway's rail is presumed absent from the Project Area.

Pacific pocket mouse (*Perognathus longimembris pacificus*)
Federal Endangered Species
CDFW Species of Special Concern
MSCP Species

The Pacific pocket mouse is the smallest subspecies of the little pocket mouse, which is distributed across arid southwestern North America. It is the only species of its genus to occur on the coast, in lieu of inland deserts and grasslands. However, this habitat preference is largely responsible for the species' extirpation, as habitat loss and fragmentation along the coast has been its largest threat to survival. Four populations are known to persist in southern California, one on the Dana Point Headlands and three on Marine Camp Pendleton. It is widely believed to be extirpated from the rest of the coast, including mesas near the Project Area, where it was last documented in the 1930s. Habitat preference for this species appears to be fine, sandy soils and open coastal scrub and grassland habitats with a diversity of annual herbs. It is thought that denser scrub habitats probably cannot support the Pacific pocket mouse (Spencer 2005).

While suitable habitat occurs within the Project Area for the Pacific pocket mouse, the species has not been observed in the vicinity of the Project Area since 1932 and is believed to be extirpated from the area. Therefore, it is unlikely that the Project Area contains the Pacific pocket mouse.

Quino checkerspot (*Euphydryas editha quino*)
Federal Endangered Species
Xerces Society for Invertebrate Conservation Critically Imperiled Species
MSCP Species

The Quino checkerspot butterfly is a small butterfly in the brush-footed butterfly family (Nymphalidae). The species is one of at least 18 California subspecies of the more widespread Edith's checkerspot. Adults fly once per year from late February to mid-April (Black and Vaughan 2005). Threats to the Quino checkerspot include agriculture and urban development, type conversion of native habitats, fire management practices, and grazing.

Historically, the Quino checkerspot butterfly was found from the Santa Monica Mountains south into norther Baja California. The Quino checkerspot butterfly is found in areas with open canopies of coastal sage scrub, open chaparral, juniper woodland, and native grasslands. The species habitat contains open areas and low-growing, sparse vegetation, with a low to moderate amount of non-native species (USFWS 2003). Food plants utilized by Quino checkerspot larva is restricted to dot-seed plantain (*Plantago erecta*), wooly plantain (*P. patagonica*), possibly desert Indianwheat (*P. ovata*), purple owl's clover (*Castilleja exserta*), Coulter's snapdragon (*Antirrhinum coulterianum*), bird's beak (*Cordylanthus rigidus*), and Chinese houses (*Collinsia* spp.; USFWS 2003, Mattoni et al. 1997).

There is suitable habitat for the Quino checkerspot butterfly within the Project Area, as there are coastal sage shrublands present within the Project Area. This species has the potential to occur in cleared areas that are adjacent to suitable habitat within the Project Area. There is Critical Habitat for this species in the eastern end of the Project Area. Therefore, the Quino checkerspot butterfly has a moderate to high potential to occur within the Project Area.

Riverside fairy shrimp (*Streptocephalus woottoni*)
Federal Endangered Species
MSCP Species

Riverside fairy shrimp was described as a species in 1990 (Eng *et al.* 1990) and was listed as federally endangered on August 3, 1993. Critical Habitat for Riverside fairy shrimp was designated on May 30, 2001 (USFWS 2008) and revised on December 4, 2012 (77 FR 72069-72140). Riverside fairy shrimp is currently covered under the Vernal Pools of Southern California Recovery Plan, issued on September 3, 1998.

The Endangered Species Act (ESA) lists a species' Critical Habitat, which refers to the physical or biological features, or primary constituent elements (PCEs), essential for the species' survival, reproduction, and ultimately, recovery. As reported in the USFWS Arnies Point Linear Vernal Pool Biological Opinion in February of 2006, both Riverside and San Diego fairy shrimp were previously recorded at the now removed Linear Vernal Pool. Currently, restored vernal pool habitat is north of Project Area at mile marker 7.25 (J15 complex).

While there is designated Critical Habitat that falls within the Project Area for Riverside fairy shrimp, the PCEs required for this species are not present within the Project Area. PCEs of the Riverside fairy shrimp include vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats. Riverside fairy shrimp are considered habitat specialists, found in moderate to deep (generally ranging from 10 inches to 5 to 10 feet in depth), longer lived vernal pools, and ephemeral wetlands. Riverside fairy shrimp do not occur in riverine or marine waters or other permanent bodies of water. Restrictive soil layers are typically hardpan or claypan, and bedrock types are volcanic mud or lava flows. Other kinds of depressions that hold water of a

similar volume, depth, and area, and for a similar duration and seasonality as vernal pools and ponded areas within swales, may also provide potential habitat for Riverside fairy shrimp. Riverside fairy shrimp habitat is limited to non-vegetated ephemeral and vernal pool systems, which are generally large, and are found within chaparral and coastal sage scrub habitats from 100 to 1,300 feet in elevation.

The most common unifying feature to Riverside fairy shrimp habitat, in general, is an ephemerally wet, flooded, or ponded area that is typically wet during a portion of the year and dry for the remainder of the year. A minimum period of inundation, or pool duration, that Riverside fairy shrimp need in order to hatch and reach sexual maturity is approximately 8 weeks. Soils and soil series that underlie vernal pool habitat that supports Riverside fairy shrimp are generally characterized by a high content of coarse sandy grains (marine alluvial sediments), loams, or clay inclusions, or a combination of these, with a subsurface clay or hardpan layer. These are also limited in number and geographically fixed. As the Riverside fairy shrimp has a slower developmental rate, the species is limited to fairly deep, and moderate in size, pools that support a longer ponding duration.

There is no suitable habitat for the Riverside fairy shrimp within the Project Area, as they require larger and deeper pools for colonization. Critical Habitat for the species is located in the eastern end and south of the Pacific Gateway Park in the Project Area. Due to the lack of suitable habitat within the Project Area, the Riverside fairy shrimp is presumed absent from the Project Area.

San Diego fairy shrimp (*Branchinecta sandiegonensis*)
Federal Endangered Species
International Union for Conservation of Nature Endangered
MSCP Species

San Diego fairy shrimp was described as a species in 1993 (Fugate 1993). Critical Habitat for San Diego fairy shrimp was designated on December 12, 2007 (USFWS 2008b). The species is currently covered under the Vernal Pools of Southern California Recovery Plan issued on September 3, 1998.

The San Diego fairy shrimp are small aquatic invertebrates, generally restricted to vernal pools and other ephemeral basins within coastal southern California coastal sage scrub and chaparral upland habitat. Claypan and hardpan pools provide suitable pools, which generally fill for a short time in the winter and are dry in the summer (Eriksen and Belk 1999). The San Diego fairy shrimp is a habitat specialist that is found in shallower pools up to 12 inches in depth. Fairy shrimp feed on a variety of algae, diatoms, and particulate organic matter (USFWS 2007a).

San Diego fairy shrimp hatch following rainfall in suitable vernal pool habitat and mature within seven to 14 days. Individuals are usually seen from January to March, although observations of the species may fall outside this range during early or late rainfall events. Cysts of the species are able to withstand prolonged dry periods and often form cyst “banks” in pool soils. These cyst “banks” allow for the recolonization of habitat in subsequent years (USFWS 2008b).

The Project Area falls within the known range of San Diego fairy shrimp, and while there are no vernal pools within the Project Area, there are drainages and ephemeral wetlands which may have ponding long enough for fairy shrimp from nearby pools to have colonized and use. In addition, Critical Habitat for the species is located in the eastern end and south of the Pacific Gateway Park in the Project Area. Therefore, San Diego fairy shrimp has a high potential to occur in the Project Area.

Western snowy plover (*Charadrius alexandrinus nivosus*)
Federal Threatened Species
USFWS Bird of Conservation Concern
CDFW Species of Special Concern

The Pacific coast breeding population of the western snowy plover currently extends from Washington to Baja California, Mexico. Western snowy plovers breed primarily above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and saltpans at lagoons and estuaries. Less common nesting habitats include bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars. Nests typically occur in flat, open areas, with sandy or saline substrates where vegetation and driftwood are usually sparse or absent. Nests consist of a shallow scrape or depression, sometimes lined with beach debris (e.g., small pebbles, shell fragments, plant debris, and mud chips). Nesting season extends from early March through late September. Snowy plovers winter mainly in coastal areas from southern Washington to Central America. In winter, snowy plovers are found on many of the beaches used for nesting as well as on beaches where they do not nest, in man-made salt ponds, and on estuarine sand and mud flats (USFWS 2007b).

Western snowy plover utilizes expanses of dry, flat sand that are above the levels of typical high tides. In addition, they utilize the shores and levees of salt ponds, alkaline lakes, and salt flats in landlocked portions of their range (Bent 1929). Breeding habitat consists of open, bare-ground and islands that are predator free. Western snowy plover have high breeding-site fidelity, but some movement occurs between sites within and between years (Stenzel et al. 1994, Page et al. 1995, Powell et al. 1995). In addition, there is site fidelity associated with wintering areas (Page et al. 1995).

There is no suitable habitat for the western snowy plover within the Project Area, as they require sandy beaches, salt pond levees, and shores of large alkali lakes with sandy, gravelly, or friable soils for nesting, although they do occur within protected coastal areas immediately to the north. Due to the lack of suitable habitat within the Project Area, the western snowy plover is presumed absent from the Project Area.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
Federal Threatened Species
State Endangered Species
USFWS Bird of Conservation Concern

The western yellow-billed cuckoo is a subspecies of a behaviorally unique, primarily insectivorous bird. It is known for its shy, retiring behavior, as well as its unusually rapid breeding cycle that sometimes relies on host species to raise their young or on cooperative breeding with three or four adults tending a single nest. Western yellow-billed cuckoos require large, contiguous patches of multilayered riparian habitat for breeding. A canopy of trees including cottonwood, willow, alder (*Alnus* sp.), and other riparian woodland species, combined with a dense, woody understory, provides shade and traps moisture to provide cooler and more humid conditions for breeding. In California, this species is most likely to be found in patches of willow-cottonwood riparian forest greater than 200 acres in size (Halterman et al. 2015). The Western yellow-billed cuckoo nests almost exclusively near water and may be restricted to moist river bottoms because of humidity requirements for breeding (Johnson et al. 2008).

The western population especially has suffered significant range reductions in the twentieth century, primarily due to loss of habitat. Western yellow-billed cuckoos breed in open woodlands

and low, but dense, scrubby vegetation, often associated with waterways. Desert riparian woodlands with willows, Fremont cottonwoods, and dense mesquite are the preferred habitat of this species within California. During spring and fall, migration habitats vary and include coastal scrub, second growth, forest edge, and humid lowland forest. The western yellow-billed cuckoo is a summer visitor, occurring in California from about mid-May until early September. Winter ranges tend to occur in woody vegetation bordering fresh water, dense scrub, deciduous broadleaf forest, gallery forest, and secondary forest (Hughes 1999).

The Project Area does not contain suitable riparian habitat for nesting and foraging by the western yellow-billed cuckoo. Therefore, the western yellow-billed cuckoo is presumed absent from the Project Area.

PRESENT

American peregrine falcon (*Falco peregrinus anatum*)
Federal Delisted Species
State Delisted Species
CDFW Fully Protected Species
USFWS Bird of Conservation Concern
MSCP Species

This large falcon occurs as a generally uncommon resident, as well as a winter visitor and migrant throughout much of California. Occupied habitat (both breeding and non-breeding) is highly variable, but this species is typically associated with open areas and/or bodies of water. The American peregrine falcon inhabits various open situations, from tundra, moorlands, steppe, and seacoasts, especially where there are suitable nesting cliffs, to mountains, open forested regions, and human population centers. When not breeding, the American peregrine falcon occurs in areas where prey concentrate, including farmlands, marshes, lakeshores, river mouths, tidal flats, dunes, beaches, broad river valleys, cities, and airports. They often nest on ledges or holes on the face of rocky cliffs or crags. Riverbanks, tundra mounds, open bogs, large stick nests of other species, tree hollows, and man-made structures are used locally for nesting. Nests typically are situated on ledges of vertical rocky cliffs, commonly with a sheltering overhang. Tundra populations nests typically on rocky cliffs, bluffs, or dirt banks. Ideal locations include undisturbed areas with a wide view, near water, and close to plentiful prey. Substitute man-made sites include tall buildings, bridges, rock quarries, and raised platforms (NatureServe 2017a).

The American peregrine falcon feeds primarily on birds (medium-size passerines up to small waterfowl). In addition, small mammals (e.g., bats, lemmings), lizards, fishes, and insects (by young birds) may be taken. Prey pursuit is initiated from the perch or while soaring. The species may hunt up to several kilometers from the nest site and forages over wide areas, even during the breeding season (NatureServe 2017).

The American peregrine falcon may use the Project Area for foraging, and the species may use nearby cliffs or buildings as nesting sites. WRA biologists observed one peregrine falcon during surveys at the western end of the project site near the beach.

Burrowing owl (*Athene cunicularia*)
USFWS Bird of Conservation Concern
CDFW Species of Special Concern

The burrowing owl occurs as a year-round resident and winter visitor in much of California's lowlands, inhabiting open areas with sparse or non-existent tree or shrub canopies. Typical habitat is annual or perennial grasslands, especially prairie, plains, and savannas (NatureServe 2017c). The species also utilizes human-modified areas, such as agricultural lands and airports (Poulin et al. 1993). This species is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting, and is typically found in close association with California ground squirrels (*Spermophilus beecheyi*). Manmade substrates, such as pipes or debris piles, may also be occupied in place of burrows.

Prey consists primarily of large insects, especially in warmer months, rodents, and occasionally birds and amphibians. Breeding typically takes place from March to July. The burrowing owl is primarily nocturnal in winter in the north, diurnal and crepuscular during summer months, and active during the daytime in the southern part of the winter range (Evans 1982). This species is present in the Project Area from roughly the Tijuana International Airport east. Twenty-two owls

were documented during the biological surveys in October 2017, most of which were associated with burrows located in the grassy median between the primary and secondary fences. One additional burrowing owl was documented during the biological survey in November 2017. Numerous more burrows were found to have burrowing owl sign (e.g., whitewash, pellets, feathers, and other indicators). One burrowing owl was documented on the North Levee of the Tijuana River in March 2017; however, this bird was likely a wintering bird as no other burrowing owls have been documented in this area since.

California horned lark (*Eremophila alpestris actia*)
CDFW Watch List

The California horned lark is a resident in northern Baja California and northward through California in the coast range north to Humboldt County, and in the San Joaquin Valley, except the extreme southern end (AOU 1957). The species is found in open, generally barren country. It prefers bare ground to grasses taller than a few centimeters. In agricultural areas, the species inhabits bare ground and fields of row crop stubble.

Breeding habitat is rarely associated with specific vegetation. The California horned lark nests on the ground, often next to a grass tuft or clod of earth or manure (NatureServe 2017d). Areas suitable for nesting in early spring are often unsuitable by late spring or early summer, because the vegetation grows too tall. In these situations, the birds generally abandon the area or forego further nesting (Beason 1995). The species diet consists mainly of seeds and, in warm seasons, insects. The food obtained by the species is mainly from the ground surface (NatureServe 2017d). There is suitable habitat throughout the Project Area and California horned larks were observed by WRA biologists during surveys. Therefore, California horned larks are present within the Project Area.

Cooper's hawk (*Accipiter cooperii*)
CDFW Watchlist and MSCP Species

Cooper's hawks are well distributed and occur in varied habitats, including deciduous, mixed, and evergreen forests, as well as riparian woodlands. This species is tolerant of human disturbance and habitat fragmentation, and has been found to increasingly breed in suburban and urban areas (Curtis et al. 2006). This species nests in extensive forests, woodlots of 4 to 8 hectare, and occasionally in isolated trees in more open areas. Nests are typically in more mature trees, which have relatively more canopy cover than what is locally available (Curtis et al. 2006).

The species inhabits deep woods, utilizing thick cover both for hunting and nesting. Openings, such as hedgerows or windbreaks, offer shelter for prey species and may be used when foraging. Cooper's hawk nest in both pine and hardwood groves, as well as riparian cottonwoods and sycamores in the West. The species usually builds a new nest on a horizontal limb near the trunk or in the crotch of the tree, 6 to 18 meters above the ground. The species may also modify old nests or utilize squirrel or crow nests (NatureServe 2017h).

Cooper's hawks were observed by WRA biologists during surveys, and suitable habitat occurs within and near the Project Area.

Northern harrier (*Circus cyaneus*)
CDFW Species of Special Concern
MSCP Species

The northern harrier occurs as a resident and winter visitor in open habitats throughout most of California, including freshwater and brackish marshes, grasslands and fields, agricultural areas, and deserts. Harriers typically nest in treeless areas within patches of dense, relatively tall, vegetation, the composition of which is highly variable; nests are placed on the ground and often located near water or within wetlands. Harriers are birds of prey and subsist on a variety of small mammals and other vertebrates (Shuford and Gardali 2008).

Suitable nesting and foraging habitat occurs near the Project Area, and the species has been previously documented at the western end of the Project Area and within the Tijuana River valley. Therefore, the northern harrier is expected to be present within the Project Area.

Orange-throated whiptail (*Aspidoscelis hyperythra*)
CDFW Watch List

The orange-throated whiptail occurs in highly fragmented habitats ranging from southern California to the southern tip of Baja California. The species inhabits washes, streams, terraces, and other sandy areas associated with rocks and patches of brush. Appropriate habitat is often found in coastal chaparral, thornscrub, and streamside growth. Insects and spiders make up the majority of their diet, but they have been known to eat small mammals and other lizards. These are active, diurnal, and alert lizards (Stebbins 2003b).

The orange-throated whiptail's habitat occurs within the Project Area and the species was observed by WRA biologists during surveys in sandy areas of coastal sage scrub at the western end of the Project Area.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)
CDFW Species of Special Concern

The San Diego Jackrabbit occurs in portions of Los Angeles, Riverside, and San Diego Counties as well as portions of Baja California. It is a widespread but not common species. It can occupy a variety of habitats, including open grasslands, sparse vegetation, and agricultural areas. It prefers arid regions and short-grass areas. Individuals occupy overlapping home ranges of 14 to 18 hectares each. Adult survival is very low. The population at any time is composed primarily of juveniles. Natural fluctuations in population size occur in response to reproduction and densities of food sources. The species is a generalist herbivore, with seasonal patterns in food preference and availability. Grasses comprise the majority of the diet, with forbs and shrubs increasingly consumed in the fall and winter. Major threats to the species include loss and fragmentation of habitat and the resulting isolation of populations. Habitat is primarily lost to agriculture and urbanization.

The San Diego black-tailed jackrabbit habitat occurs within the Project Area and the species was observed in intact and restored sage scrub habitat throughout the Project Area by WRA biologists during field surveys.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
CDFW Watch List
MSCP Species

The southern California rufous-crowned sparrow is a non-migratory bird ranging from the transverse and coastal ranges in northern Los Angeles County and Santa Barbara County to Baja California. Its habitat includes rocky slopes with scattered cover in open oak woodlands, scrubland, and chaparral. Typically, a ground forager, it also usually nests on the ground with rare exceptions occurring in low shrubs (Unitt 2004). The species breeds from mid-March to mid-June and usually lays a clutch of 3-4 eggs.

The southern California rufous-crowned sparrow occurs within the Project Area and was observed by WRA biologists during field surveys in the coastal sage scrub habitat in the western portion of the Project Area. This species is likely also present in the sage scrub habitat east of the San Ysidro Port of Entry.

White-faced ibis (*Plegadis chihi*)
CDFW Watch List
MSCP Species

This species is a year-round resident and breeder within the San Joaquin Valley, as well as a local breeder throughout northeastern California. White-faced ibises inhabit primarily freshwater wetlands, especially cattail (*Typha* spp.) and bulrush (*Scirpus* spp.) marshes. Although, the species also feeds in flooded hay meadows, agricultural fields, and estuarine wetlands. Nests are located in emergent vegetation or low trees and shrubs over shallow water, and sometimes on the ground on small islands (Ryder and Manry 1994).

The white-faced ibis has been documented within the Project Area, and the species' habitat occurs within and near the Project Area. Therefore, the white-faced ibis is present within the Project Area.

White-tailed kite (*Elanus leucurus*)
CDFW Fully Protected

The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities. Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall. This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates (Dunk 1995).

White-tailed kites have been documented within and near the Project Area; habitat within the Project Area is suitable for foraging by this species. Therefore, the white-tailed kite is present within the Project Area.

HIGH POTENTIAL

Red diamond rattlesnake (*Crotalus ruber*)
CDFW Species of Special Concern

The red diamond rattlesnake is a retiring, secretive snake found from the American Southwest south to Jalisco, Mexico. The species' diet consists of ground squirrels, rabbits, birds, lizards, and carrion. The Red diamond rattlesnake prefers desert scrub, thornscrub, coastal sage, chaparral, and woodland, but is sometimes found in grasslands or cultivated areas (Stebbins 2003a).

There is suitable habitat for the red diamond rattlesnake within the Project Area, as there are grasslands and rodent burrows present within the Project Area. Therefore, the red diamond rattlesnake has a high potential to occur within the Project Area.

Western spadefoot (*Spea hammondii*)
CDFW Species of Special Concern

The western spadefoot toad's range includes the Central Valley and bordering foothills of California and the Coast Ranges, south of San Francisco Bay, and extends southward into northwestern Baja California, Mexico. The species has been extirpated throughout much of lowland southern California. The western spadefoot toad lives in a wide range of habitats, including lowlands to foothills, grasslands, open chaparral, and pine-oak woodlands. The species prefers shortgrass plains and sandy or gravelly soil, such as alkali flats, washes, and alluvial fans. They are fossorial and breed in temporary rain pools and slow-moving streams, such as areas flooded by intermittent streams (NatureServe 2017j).

The western spadefoot toad spends most of the year underground in burrows and similar refugia, and often constructs its own burrows. Breeding occurs in shallow, temporary pools formed by heavy winter rains; at least four weeks of continuous inundation are required for successful larval metamorphosis.

There is suitable habitat for the western spadefoot toad within the Project Area, as there are grasslands within the Project Area. Therefore, the western spadefoot has a high potential to occur within the Project Area.

MODERATE POTENTIAL

Baja California coachwhip *(Coluber fuliginosus)*
CDFW Species of Special Concern

The Baja California coachwhip occurs from southern San Diego County at Sweetwater River to Cabo San Lucas in the Municipality of Los Cabos, Baja California Sur. This species is also found on Islas Magdalena and Santa Margarita in the Pacific Ocean and Islas Carmen, Cerralvo, Coronados, Danzante, Espiritu Santo, Monserrat, Partida Sur, San Idefonso, San Jose, and San Marcos in the Gulf of California (San Diego Natural History Museum 2017).

The Baja California coachwhip inhabits open areas of grassland and coastal sage scrub (Nafis 2000-2016). The species occurs in open terrain and is most abundant in grass, desert, scrub, chaparral, and pasture habitats (Wilson 1970, Stebbins 1972). Diet consists of rodents, lizards and eggs, snakes (including rattlesnakes), birds and eggs, young turtles, insects, and carrion. Baja California coachwhips will seek cover in rodent burrows, bushes, trees, and rock piles (Zeiner 1988-1990).

There is suitable habitat for the Baja California coachwhip within the Project Area, as there are open areas of grassland and coastal sage scrub within the Project Area. Therefore, the Baja California coachwhip has a moderate to high potential to occur within the Project Area.

Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)
State Endangered Species

The Belding's savannah sparrow is a subspecies of the savannah sparrow, with a restricted range from Santa Barbara County south. The Belding's savannah sparrow is a resident of southern California coastal marshes from San Diego County to Goleta Slough, Santa Barbara County. In addition, the species is a resident of northwestern Baja California, including Todos Santos Islands and El Rosario. The species occurs in a few scattered saline emergent wetlands, where it favors pickleweed (*Salicornia virginica*) stands (NatureServe 2017b).

Only a few thousand individuals of this subspecies remain. The species may be semi-colonial, polygynous, roost on the ground, or form small groups in the winter. Their primary predators are hawks, snakes, and small mammals. Reproduction occurs between April and July, during which the females carry out most of the incubation and brooding. Nests are built on the ground in a natural depression or scrape, usually under overhanging vegetation. Dense ground cover is required for breeding habitat. The species diet is comprised mostly of grass and other seeds, insects, snails, and spiders. During the breeding season, invertebrates make up a larger proportion of their diet than at other times of the year (Zeiner 1988-1990).

Although salt marsh habitat is present nearby, the habitat within the Project Area is unsuitable for this species. Therefore, the Belding's savannah sparrow has a moderate potential to occur within the Project Area.

California glossy snake *(Arizona elegans occidentalis)*
CDFW Species of Special Concern

The California glossy snake inhabits arid scrub, rocky washes, grasslands, and chaparral. This subspecies, *Arizona elegans occidentalis*, occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California but is absent along the central coast (California Herps 2017a).

The species preys mostly on sleeping diurnal lizards but also eats small snakes, terrestrial birds, and mammals. The California glossy snake is primarily nocturnal and hides underground in small mammal burrows and rock outcrops during the daytime and winter months. The species can also seek shelter under surface objects such as flat rocks and vegetation residue and occasionally burrow in loose soil (Mojave River Valley Museum 2017).

Suitable habitat exists for the California glossy snake within the Project Area, as there are non-native grasslands present within the Project Area. Therefore, the California glossy snake has a moderate to high potential to occur within the Project Area.

Coast horned lizard (*Phrynosoma blainvillii*)
CDFW Species of Special Concern
MSCP Species

The coast horned lizard is widespread in much of California, west of the Sierra Nevada and Cascade ranges, the southern deserts, as well as northwestern Baja California (Leache et al. 2009). Habitat is variable and in southern California includes chaparral, coastal sage scrub, oak and riparian woodland, and grassland (NatureServe 2017f). Important microhabitat components are loose, sandy soil; open, sunny areas with dense, low shrubbery; and abundant ants and other insects for forage (Jennings and Hayes 1994).

There is suitable habitat for the coast horned lizard within the Project Area, as there is coast sage scrub and non-native grassland present within the Project Area, and there are historic records for this species within and near the western end of the Project Area. Therefore, the coast horned lizard has a moderate to high potential to occur within the Project Area.

Coast patch-nosed snake (*Salvadora hexalepis virgultea*)
CDFW Species of Special Concern

A subspecies of the patch-nosed snake (*S. hexalepis*), the coast taxa occurs on the coastal slope from central California to Baja California, and is uncommonly observed. The species is found in association with chaparral and other habitats, with a layer of brush or scrub, in canyons, rocky hillsides, and plains. The life history of *S. h. virgultea* is among the most poorly known of the regularly surface-active snakes that occur in California. The limited number of records of this species may be largely a function of its bimodal activity period (peak in late morning and secondarily in late afternoon) less frequented by collectors or observers, coupled with a relatively cryptic appearance that results from lower light levels during the active period.

Whiptails and other lizards are thought to be a major food source for the Coast patch-nosed snake. The species adjusts its activity around that of its whiptail lizard prey, and therefore the link to shrubby associations may simply be a function of that being the preferred habitat of the species' prey. Coast patch-nosed snakes require at least a low shrub structure of minimum density, as they are not found in habitats lacking this structural component. The species are presumed to take refuge and perhaps overwinter in mammal burrows or woodrat nests, so the presence of one

or more burrow or refuge creating mammal may be necessary for this snake to be present (Jennings and Hayes 1994).

There is suitable habitat for the coast patch-nosed snake within the Project Area, as brushy vegetation and small mammal burrows are present within the Project Area. Therefore, the coast patch-nosed snake has a moderate to high potential to occur within the Project Area.

Coastal whiptail (*Aspidoscelis tigris stejnegeri*)
CDFW Species of Special Concern

This subspecies of whiptail is found in Baja California, coastal Southern California, mostly west of the Peninsular Ranges, south of the Transverse Ranges, and north into Ventura County (California Herps 2017b). The coastal whiptail is found in a variety of habitats, primarily in hot and dry open areas, with sparse foliage in chaparral, woodlands, grassland, and riparian areas. This subspecies of the western whiptail is found in coastal southern California, west of the Peninsular Ranges and south of the Transverse Ranges, from Ventura County south into Baja California. Much of the species habitat has been altered and fragmented by development. These are active, diurnal, and alert lizards, whose primary prey are small invertebrates and small lizards (Stebbins and McGinnis 2012).

There is suitable habitat for the coastal whiptail within the Project Area, as scrub and grasslands are present within the Project Area. Therefore, the coastal whiptail has a moderate to high potential to occur within the Project Area.

Golden eagle (*Aquila chrysaetos*)
Federal Bald and Eagle Protection Act
USFWS Bird of Conservation Concern
CDFW Fully Protected Species
CDFW Watch List

The golden eagle is a large raptor that occurs in open and semi-open areas from sea level to high elevation. The species generally inhabit open and semi-open country, such as prairies, shrublands, grasslands, arctic and alpine tundra, savannah or sparse woodland, coniferous forests, and barren areas, especially in hilly or mountainous regions, in areas with sufficient mammalian prey base and nearby suitable nesting sites (GBBO 2010). Nests are most often placed on the ledges of steep cliffs, but nesting also occurs in large oak or eucalyptus trees and on tall manmade structures, on steep hillsides, or on the ground (e.g., utility towers). Breeding activity occurs broadly from January through August, and in California is usually initiated from January to March. The large stick nests of this species are reused across years and may be maintained throughout the year (Kochert et al. 2002).

Golden eagles forage over wide areas, feeding primarily on mammals, such as ground squirrels and rabbits. The species will also feed on large insects, snakes, birds, juvenile ungulates, and carrion (NatureServe 2017i).

There is a small area of suitable habitat for the golden eagle to forage on the eastern and western ends of the Project Area. Due to suitable foraging habitat and the presence of their prey, black-tailed jackrabbits, within the Project Area, the golden eagle has a moderate potential to occur within the Project Area.

Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)
CDFW Species of Special Concern

The northwestern San Diego pocket mouse occurs in coastal sage scrub, including Diegan and Riversidean upland sage scrub and alluvial fan sage scrub. The species require grasslands, chaparral, and desert scrub up to 6,000 feet in elevation. The species has a strong affinity for moderately gravelly and rocky substrates and, to a lesser extent, shrubby areas (WRCRCA 2003).

There is suitable habitat for the Northwestern San Diego pocket mouse within the Project Area, as there is coastal sage scrub present within the Project Area. Therefore, the Northwestern San Diego pocket mouse has a moderate to high potential to occur within the Project Area.

Pallid bat (*Antrozous pallidus*)
CDFW Species of Special Concern
Western Bat Working Group High Priority Species

Pallid bats are broadly distributed throughout much of western North America. This species occurs in a number of habitats, ranging from rocky arid deserts to grasslands, and into higher elevation coniferous forests. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and within bole cavities in oak trees. Pallid bats are primarily insectivorous, feeding on large prey that is usually taken on the ground, but sometimes in flight. Prey items include arthropods, such as scorpions, ground crickets, and cicadas (WBWG 2017).

There is suitable foraging habitat for the pallid bat within the Project Area, as there are grasslands and shrublands present within the Project Area. Therefore, the pallid bat has a moderate to high potential to occur within the Project Area.

Southern California legless lizard (*Anniella stebbinsi*)
CDFW Species of Special Concern

The southern California legless lizard ranges from south of the Transverse Ranges into northern Baja California. The species occurs in warm, moist, loose soil in lightly vegetated areas of beach dunes, sandy washes, alluvial fans, desert scrublands, and chaparral. The species is often found beneath logs, rocks, and leaf litter under low lying bushes and shrubs (Pappenfuss and Parham 2013). The southern California legless lizard is most active during the morning and evening in leaf litter and loose sandy soil where it forages for invertebrates. It has a tolerance for low temperatures and is rarely found in direct sunlight. The species breeds between early spring to July with live births occurring from September to November (California Herps 2017c).

Habitat on the western end of the Project Area may be suitable for southern California legless lizard, due to the presence of warm, moist, loose soil. In addition, this area is lightly vegetated and contains sandy soil. Due to the suitable habitat on the western end of the Project Area, southern California legless lizard have a moderate potential to occur within the Project Area.

Two-striped garter snake (*Thamnophis hammondii)*
CDFW Species of Special Concern

The two-striped garter snake ranges from Monterey County down to the peninsular ranges in Baja California, and as a separate population lower in Baja California. The species is primarily aquatic

and commonly inhabits perennial and intermittent streams with rocky beds bordered by willow thickets or other dense vegetation. It is typically found around pools, creeks, cattle tanks, and other water sources, often in rocky areas. Oak woodland, chaparral, brushland, and coniferous forest provide suitable habitat. It is most active during the day, in warm weather from as early as January to as late as November. The two-striped gartersnake is highly aquatic, using the water and stream banks for foraging and often taking to the water when threatened. It hunts tadpoles, newt larvae, small frogs and toads, fish, and sometimes worms or fish eggs. The two-striped garter snake may also eat small mammals and various invertebrates such as leeches (CDFG 2005). Breeding occurs in the spring, with live births occurring in late July or August.

While not observed during the site assessment, there is suitable ephemeral streams and man-made structures that pond and vegetative cover for the two-striped garter snake within the Project Area. Therefore, the two-striped garter snake has a moderate potential to occur within the Project Area.

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APPENDIX D:

TABLE OF POTENTIAL SPECIAL-STATUS PLANT SPECIES

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Red sand-verbena *Abronia maritima*	4.2	Coastal dunes. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms Feb-Nov.	**No Potential.** The Project Area does not contain sand dunes necessary to support this species.
San Diego thorn-mint *Acanthomintha ilicifolia*	Federal: Threatened State: Endangered 1B.1 MSCP Species	Chaparral, coastal scrub, valley and foothill grassland, vernal pools, vertisol clay, openings. Elevation ranges from 30 to 3150 feet (10 to 960 meters). Blooms Apr-Jun.	**Unlikely.** The Project Area lacks vernal pools and active vertisol clays known to support this species.
Nuttall's acmispon *Acmispon prostratus* [*Lotus nuttallianus*]	1B.1 MSCP Species	Coastal dunes, coastal scrub (sandy). Elevation ranges from 0 to 30 feet (0 to 10 meters). Blooms Mar-Jun (Jul).	**No Potential.** The Project Area does not contain sand dunes necessary to support this species.
California adolphia *Adolphia californica*	2B.1	Chaparral, coastal scrub, valley and foothill grassland/clay. Elevation ranges from 150 to 2430 feet (45 to 740 meters). Blooms Dec-May.	**Not Present.** This perennial shrub species was not observed during the site visits.
Shaw's agave *Agave shawii* var. *shawii*	2B.1 MSCP Species	Coastal bluff scrub, coastal scrub/maritime succulent scrub. Elevation ranges from 30 to 390 feet (10 to 120 meters). Blooms Sep-May	**Present.** One individual of this perennial succulent species was observed in California brittlebush scrub in the western portion of the Project Area.
San Diego bur-sage *Ambrosia chenopodiifolia*	2B.1	Coastal scrub. Elevation ranges from 180 to 510 feet (55 to 155 meters). Blooms Apr-Jun.	**Present.** Approximately 13 individuals of this perennial shrub species were observed in a restored Shrubland in the eastern portion of the Project Area.
Singlewhorl burrobrush *Ambrosia monogyra*	2B.2	Chaparral, sonoran desert scrub/sandy. Elevation ranges from 30 to 1640 feet (10 to 500 meters). Blooms Aug-Nov.	**Unlikely.** This perennial shrub species was not observed during the site visits. This species is mostly associated with natural dry wash and dry riverbed systems (Jepson eFlora 2017), which are absent from the Project Area.
San Diego ambrosia *Ambrosia pumila*	Federal: Endangered 1B.1 MSCP Species	Chaparral, coastal scrub, valley and foothill grassland. Upper terraces of rivers and drainages, vernal pools/sandy loam or clay, often in disturbed areas, sometimes alkaline. Elevation ranges from 70 to 1360 feet (20 to 415 meters). Blooms Apr-Oct.	**Unlikely.** The Project Area lacks natural, terraced river systems and vernal pools most often associated with this species.
Aphanisma *Aphanisma blitoides*	1B.2 MSCP Species	Coastal bluff scrub, coastal dunes, coastal scrub/sandy or gravelly. Elevation ranges from 0 to 1000 feet (1 to 305 meters). Blooms Feb-Jun.	**Moderate Potential.** The western portion of the Project Area contains potentially suitable coastal scrub

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
			habitat and sandy soils which could support this species.
Otay manzanita *Arctostaphylos otayensis*	1B.2 MSCP Species	Chaparral, cismontane woodland/metavolcanic. Elevation ranges from 900 to 5580 feet (275 to 1700 meters). Blooms Jan-Apr.	**No Potential.** The Project Area lacks metavolcanic soils known to support this species. This perennial shrub species was not observed during the site visits.
San Diego sagewort *Artemisia palmeri*	4.2	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland/sandy, mesic. Elevation ranges from 50 to 3000 feet (15 to 915 meters). Blooms (Feb), May-Sep.	**Not Present.** This perennial shrub species was not observed during the site visits.
Western spleenwort *Asplenium vespertinum*	4.2	Chaparral, cismontane woodland, coastal scrub/rocky. Elevation ranges from 590 to 3280 feet (180 to 1000 meters). Blooms Feb-Jun.	**Unlikely.** The Project Area lacks very rocky habitat within coastal scrub which could support this species.
San Diego milk-vetch *Astragalus oocarpus*	1B.2	Chaparral (openings), cismontane woodland. Elevation ranges from 1000 to 5000 feet (305 to 1524 meters). Blooms May-Aug.	**No Potential.** The Project Area lacks chaparral and woodland habitat and is below the documented elevation range.
Coulter's saltbush *Atriplex coulteri*	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland/alkaline or clay. Elevation ranges from 10 to 1510 feet (3 to 460 meters). Blooms Mar-Oct.	**Not Present.** Despite potentially suitable alkaline habitat, this species was not observed during the site visits which were conducted during the documented bloom period of the species.
South coast saltscale *Atriplex pacifica*	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, playas. Elevation ranges from 0 to 460 feet (0 to 140 meters). Blooms Mar-Oct.	**Not Present.** There is a documented occurrence of this species within the Project Area by Roullard in 2008 (CDFW 2017). However, this species was not observed in the Project Area, and historic aerial imagery (Google Earth 2017), indicate that the population was likely extirpated.
Encinitas baccharis *Baccharis vanessae*	Federal: Threatened State: Endangered 1B.1 MSCP Species	Chaparral (maritime), cismontane woodland/sandstone. Elevation ranges from 200 to 3050 feet (60 to 720 meters). Blooms Aug-Nov.	**No Potential.** The Project Area lacks maritime chaparral associated with this species. There is only one documented occurrence in the vicinity of the Project Area from the south peak of Otay Mountain.
San Diego County viguiera *Bahiopsis laciniata*	4.3	Coastal scrub, coastal bluff scrub, and chaparral habitats. Elevation	**Present.** Hundreds to thousands observed in scrub habitats, restored

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		ranges from 13 to 3511 feet (3 to 1070 meters).	shrublands, and non-native grasslands throughout the Project Area.
Golden-spined cereus *Bergerocactus emoryi*	2B.2	Closed-cone coniferous forest, chaparral, coastal scrub/sandy. Elevation ranges from 10 to 1300 feet (3 to 395 meters). Blooms May-Jun.	**Not Present.** The Project Area contains potentially suitable coastal scrub habitat. However, this perennial cactus species was not in the Project Area observed during the site visits. This species was observed outside of the Project Area approximately 0.07 miles to the north in Border Field State Park on the western slope of Bunker Hill during the site visits.
San Diego goldenstar *Bloomeria clevelandii*	1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/clay. Elevation ranges from 160 to 1530 feet (50 to 465 meters). Blooms Apr-May	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub and grassland habitat which could support this species.
Orcutt's brodiaea *Brodiaea orcuttii*	1B.1 MSCP Species	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools/mesic, clay, sometimes serpentine. Elevation ranges from 100 to 5550 feet (30 to 1692 meters). Blooms May-Jul.	**Moderate Potential.** The Project Area contains potentially suitable grassland habitat which could support this species.
Round-leaved filaree *California macrophylla*	1B.1	Cismontane woodland, valley and foothill grassland/clay. Elevation ranges from 50 to 3940 feet (15 to 1200 meters). Blooms Mar-May	**No Potential.** The Project Area lacks vertic clay soils necessary to support this species (Jepson eFlora 2017).
Dunn's mariposa-lily *Calochortus dunnii*	State: Rare 1B.2 MSCP Species	Closed-cone coniferous forest, chaparral, valley and foothill grassland/gabbroic or metavolcanic, rocky. Elevation ranges from 610 to 6000 feet (185 to 1830 meters). Blooms (Feb), Apr-Jun.	**No Potential.** The Project Area lacks coniferous forest, chaparral, and gabbroic or metavolcanic soils associated with this species (Jepson eFlora 2017). Soils within the Project Area are predominantly derived from sandstone and granitic sources.
Lewis' evening-primrose *Camissoniopsis lewisii*	3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland/sandy or clay. Elevation	**Moderate Potential.** The western portion of the Project Area contains potentially suitable coastal scrub habitat which could support this species.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		ranges from 0 to 980 feet (0 to 300 meters). Blooms Mar-May (Jun).	
Lakeside ceanothus *Ceanothus cyaneus*	1B.2 MSCP Species	Closed-cone coniferous forest, chaparral. Elevation ranges from 770 to 2480 feet (235 to 755 meters). Blooms Apr-Jun.	**Not Present.** The Project Area lacks suitable habitat. This perennial shrub species was not observed during the site visits.
Otay Mountain ceanothus *Ceanothus otayensis*	1B.2	Chaparral (metavolcanic or gabbroic). Elevation ranges from 1970 to 3610 feet (600 to 1100 meters). Blooms Jan-Apr	**Not Present.** The Project Area lacks suitable habitat. This perennial shrub species was not observed during the site visits.
Wart-stemmed ceanothus *Ceanothus verrucosus*	2B.2 MSCP Species	Chaparral. Elevation ranges from 0 to 1250 feet (1 to 380 meters). Blooms Dec-May.	**Not Present.** This perennial shrub species was not observed during the site visits.
Orcutt's pincushion *Chaenactis glabriuscula* var. *orcuttiana*	1B.1	Coastal bluff scrub (sandy), coastal dunes. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms Jan-Aug.	**Unlikely.** The Project Area lacks coastal dunes and coastal bluff scrub associated with this species.
Southern mountain misery *Chamaebatia australis*	4.2	Chaparral (gabbroic or metavolcanic). Elevation ranges from 980 to 3350 feet (300 to 1020 meters). Blooms Nov-May.	**No Potential.** The Project area lacks chaparral, and gabbroic or metavolcanic soils associated with this species.
Salt marsh bird's-beak *Chloropyron maritimum* ssp. *maritimum* [*Cordylanthus m.* s. *m.*]	Federal: endangered State: endangered 1B.2 MSCP	Coastal dunes, marshes, and swamps (coastal salt). Elevation ranges from 0 to 100 feet (0 to 30 meters). Blooms May-Oct.	**Unlikely.** The Project Area lacks suitable coastal salt marsh with tidal influx necessary to support this species.
Peninsular spineflower *Chorizanthe leptotheca*	4.2	Chaparral, coastal scrub, lower montane coniferous forest/alluvial fan, granitic. Elevation ranges from 980 to 6230 feet (300 to 1900 meters). Blooms May-Aug.	**Unlikely.** The Project Area contains potentially suitable coastal scrub habitat. However, the Project Area is below the documented elevation range. This species is more commonly associated with montane environments.
Long-spined spineflower *Chorizanthe polygonoides* var. *longispina*	1B.2	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools/often clay. Elevation ranges from 100 to 5020 feet (30 to 1530 meters). Blooms Apr-Jul.	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub and grassland habitat that could support this species.
Seaside cistanthe *Cistanthe maritima*	4.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland/sandy. Elevation ranges from 20 to 980 feet (5 to 300 meters). Blooms (Feb), Mar-Jun (Aug).	**Moderate Potential**. The Project Area contains potentially suitable coastal scrub and grassland habitat that could support this species.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Delicate clarkia *Clarkia delicata*	1B.2	Chaparral, cismontane woodland/often gabbroic. Elevation ranges from 770 to 3280 feet (235 to 1000 meters). Blooms Apr-Jun.	**No Potential.** The Project Area lacks chaparral and suitable soils.
San Miguel savory *Clinopodium chandleri* [*Satureja c.*]	1B.2 MSCP Species	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland/rocky, gabbroic or metavolcanic. Elevation ranges from 390 to 3530 feet (120 to 1075 meters). Blooms Mar-Jul.	**No Potential.** The Project Area lacks suitable gabbroic or metavolcanic soils.
Summer holly *Comarostaphylis diversifolia* ssp. *diversifolia*	1B.2	Chaparral, cismontane woodland. Elevation ranges from 100 to 2590 feet (30 to 790 meters). Blooms Apr-Jun.	**No Potential.** The Project Area lacks chaparral or cismontane woodland known to support this species.
Small-flowered morning-glory *Convolvulus simulans*	4.2	Chaparral (openings), coastal scrub, valley and foothill grassland/clay, serpentine seeps. Elevation ranges from 100 to 2300 feet (30 to 700 meters). Blooms Mar-Jul.	**No Potential.** The Project Area lacks serpentine substrates known to support this species.
San Diego sand aster *Corethrogyne filaginifolia* var. *incana*	1B.1	Coastal bluff scrub, chaparral, coastal scrub. Elevation ranges from 10 to 380 feet (3 to 115 meters). Blooms Jun-Sep.	**Not Present.** This species was not observed during the site visits. Common sand aster (*Corethrogyne filaginifolia*) was observed in the Project Area.
Snake cholla *Cylindropuntia californica* var. *californica* [*Opuntia parryi* var. *serpentina*]	1B.1 MSCP Species	Chaparral, coastal scrub. Elevation ranges from 100 to 490 feet (30 to 150 meters). Blooms Apr-May.	**Present.** Approximately six individuals of this species were observed in California brittlebush scrub in the western portion of the Project Area.
Otay tarplant *Deinandra conjugens* [*Hemizonia c.*]	Federal: Threatened State: Endangered 1B.1 MSCP Species	Coastal scrub, valley and foothill grassland/clay. Elevation ranges from 80 to 980 feet (25 to 300 meters). Blooms (Apr), May-Jun.	**High Potential.** The Project contains potentially suitable coastal scrub and grassland habitat and is in close vicinity to several documented occurrences.
Tecate tarplant *Deinandra floribunda*	Rank 1B.2	Chaparral, coastal scrub. Elevation ranges from 230 to 4000 feet (70 to 1220 meters). Blooms Aug-Oct.	**Unlikely.** The Project is outside of the known range of the species. This species is typically associated montane areas at higher elevation than the Project Area. Lower elevation occurrences are further inland.
North island bush-poppy *Dendromecon harfordii* var. *harfordii*	3.2	Closed-cone coniferous forest, chaparral/rocky. Elevation ranges	**No Potential.** The Project Area lacks suitable habitat and rocky substrates.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		from 50 to 1380 feet (15 to 420 meters). Blooms Mar-Nov.	
Western dichondra *Dichondra occidentalis*	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 160 to 1640 feet (50 to 500 meters). Blooms (Jan), Mar-Jul.	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub and grassland habitat which could support this species.
Orcutt's bird's-beak *Dicranostegia orcuttiana* [*Cordylanthus orcuttianus*]	2B.1 MSCP Species	Coastal scrub. Elevation ranges from 30 to 1150 feet (10 to 350 meters). Blooms (Mar), Apr-Jul (Sep).	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub habitat which could support this species.
Cleveland's bush monkeyflower *Diplacus clevelandii*	4.2	Disturbed areas. Open borders of woodland and chaparral. Elevation ranges from 270 to 450 feet (915 to 1465 meters). Blooms Apr-Jun.	**No Potential.** The Project Area lacks chaparral and woodland habitat.
Orcutt's dudleya *Dudleya attenuata* ssp. *attenuata*	2B.1	Coastal bluff scrub, chaparral, coastal scrub/rocky or gravelly. Elevation ranges from 10 to 160 feet (3 to 50 meters). Blooms May-Jul.	**Not Present.** This perennial succulent was not observed during the site visits. There is only one documented occurrence of this species in Border Field State Park, but outside of the Project Area.
Blochman's dudleya *Dudleya blochmaniae* ssp. *blochmaniae* [*D. b.* s. *brevifolia*]	1B.1 MSCP Species	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland/rocky, often clay or serpentine. Elevation ranges from 20 to 1480 feet (5 to 450 meters). Blooms Apr-Jun.	**High Potential.** The Project Area contains potentially suitable coastal scrub habitat. There is a documented occurrence of this species within the Project Area on top of Bunker Hill (CDFW 2017). However, this population was transplanted during a previous project.
Variegated dudleya *Dudleya variegata*	1B.2 MSCP Species	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools/clay. Elevation ranges from 10 to 1900 feet (3 to 580 meters). Blooms Apr-Jun.	**High Potential.** The Project Area contains potentially suitable coastal scrub habitat which could support this species.
Palmer's goldenbush *Ericameria palmeri* var. *palmeri*	1B.1 MSCP Species	Chaparral, oak woodland, riparian forest, coastal scrub/mesic. Elevation ranges from 100 to 1970 feet (30 to 600 meters). Blooms (Jul), Sep-Nov.	**No Potential.** The Project Area lacks oak woodland and riparian forests most often associated with this species.
San Diego button-celery *Eryngium aristulatum* var. *parishii*	Federal: Endangered State: Endangered 1B.1 MSCP Species	Coastal scrub, valley and foothill grassland, vernal pools/mesic. Elevation ranges from 70 to 2030 feet (20 to 620 meters). Blooms Apr-Jun.	**Unlikely.** The Project Area lacks vernal pools most often associated with this species.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Cliff spurge *Euphorbia misera*	2B.2	Coastal bluff scrub, coastal scrub, mojavean desert scrub/rocky. Elevation ranges from 30 to 1640 feet (10 to 500 meters). Blooms Dec-Aug (Oct).	**Not Present.** This perennial shrub species was not observed during the site visits.
San Diego barrel cactus *Ferocactus viridescens*	2B.1 MSCP Species	Chaparral, coastal scrub, valley and foothill grassland, vernal pools. Elevation ranges from 10 to 1480 feet (3 to 450 meters). Blooms May-Jun.	**Present.** Approximately 38 individuals of this species were observed in the western portion of the Project Area.
Palmer's frankenia *Frankenia palmeri*	2B.1	Coastal dunes, marshes and swamps (coastal salt), playas. Elevation ranges from 0 to 30 feet (0 to 10 meters). Blooms May-Jul.	**Not Present.** The Project contains one small remnant salt marsh in the western edge of the Project Area that could support this species. However, this perennial shrub species was not observed during the site visits. The more common alkali heath (*F. salina*) was observed in the remnant salt marsh.
Chaparral ash *Fraxinus parryi*	2B.2	Chaparral. Elevation ranges from 700 to 2030 feet (213 to 620 meters). Blooms Mar-May.	**No Potential.** The Project Area lacks chaparral known to support this species.
Mexican flannelbush *Fremontodendron mexicanum*	Federal: Endangered State: Rare 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland/gabbroic, metavolcanic, or serpentine. Elevation ranges from 30 to 2350 feet (10 to 716 meters). Blooms Mar-Jun.	**Not Present.** This perennial shrub species was not observed during the site visits. The Project Area lacks Tecate cypress forest, chaparral, woodland or suitable soils associated with this species..
San Diego gumplant *Grindelia hallii*	1B.2	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland. Elevation ranges from 610 to 5730 feet (185 to 1745 meters). Blooms May-Oct.	**Not Present.** This perennial forb was not observed during the site visits which were conducted during the documented bloom period.
Palmer's grapplinghook *Harpagonella palmeri*	4.2	Chaparral, coastal scrub, valley and foothill grassland/clay; open grassy areas within shrubland. Elevation ranges from 70 to 3130 feet (20 to 955 meters). Blooms Mar-May.	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub grassland, and grassy interstitial areas that could support this species.
Tecate cypress *Hesperocyparis forbesii* [*Cupressus f.*]	1B.1 MSCP Species	Closed-cone coniferous forest, chaparral/clay, gabbroic or metavolcanic. Elevation ranges from 260 to 4920 feet (80 to 1500 meters).	**Present.** One perennial tree species was observed during the site visit on November 17, 2017 in the far eastern portion of the Project.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Beach goldenaster *Heterotheca sessiliflora* ssp. *sessiliflora*	1B.1	Chaparral (coastal), coastal dunes, coastal scrub. Elevation ranges from 0 to 4020 feet (0 to 1225 meters). Blooms Mar-Dec.	**Unlikely.** The Project Area lacks dunes most often associated with this species.
Graceful tarplant *Holocarpha virgata* ssp. *elongata*	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 200 to 3610 feet (60 to 1100 meters). Blooms May-Nov.	**Not Present.** This species was not observed during the site visits which were conducted during the documented bloom period.
Vernal barley *Hordeum intercedens*	3.2	Dry, saline streambeds, alkaline flats, vernal pools. Elevation ranges from 20 to 3280 feet (5 to 1000 meters). Blooms Mar-Jun.	**No Potential.** The Project Area lacks vernal pools and dry saline streambeds associated with this species.
Decumbent goldenbush *Isocoma menziesii* var. *decumbens*	1B.2	Sandy soil, chaparral, coastal scrub, landward side of dunes, hillsides, arroyos	**Present.** One individual of this species was observed in the eastern edge of the Project Area.
San Diego marsh-elder *Iva hayesiana*	2B.2	Marshes and swamps, playas. Elevation ranges from 30 to 1640 feet (10 to 500 meters). Blooms Apr-Oct.	**Present.** This perennial subshrub was observed at a documented reference site outside of the Project Area on October 12, 2017. The species was observed in the far eastern portion of the Project Area during the survey on November 17, 2017.
Southwestern spiny rush *Juncus acutus* ssp. *leopoldii*	4.2	Coastal dunes (mesic), meadows and seeps (alkaline seeps), marshes and swamps (coastal salt). Elevation ranges from 10 to 2950 feet (3 to 900 meters). Blooms (Mar), May-Jun.	**Not Present.** This perennial forb was not observed during the site visits.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	1B.1	Marshes and swamps (coastal salt), playas, vernal pools. Elevation ranges from 0 to 4000 feet (1 to 1220 meters). Blooms Feb-Jun.	**Moderate Potential.** The Project contains one small remnant salt marsh in the western edge of the Project Area that could support this species.
Gander's pitcher sage *Lepechinia ganderi*	1B.3 MSCP Species	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland/gabbroic or metavolcanic. Elevation ranges from 1000 to 3300 feet (305 to 1005 meters). Blooms Jun-Jul.	**No Potential.** The Project Area lacks suitable habitat and gabbroic or metavolcanic soils.
Robinson's pepper-grass *Lepidium virginicum* var. *robinsonii*	4.3	Chaparral, coastal scrub. Elevation ranges from 0 to 2900 feet (1 to 885 meters). Blooms Jan-Jul.	**Moderate Potential.** The Project Area contains potentially suitable

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
			coastal scrub habitat which could support this species.
Sea dahlia *Leptosyne maritima*	2B.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 20 to 490 feet (5 to 150 meters). Blooms Mar-May.	**High Potential.** The western edge of the Project Area contains potentially suitable coastal scrub habitat with marine influence which could support this species.
Ocellated Humboldt lily *Lilium humboldtii* ssp. *ocellatum*	4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland/openings. Elevation ranges from 100 to 5910 feet (30 to 1800 meters). Blooms Mar-Jul (Aug).	**Unlikely.** In San Diego County, this species is most commonly associated with shaded canyons in montane environments, above 800 meters (Beauchamp 1986).
California box-thorn *Lycium californicum*	4.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 20 to 490 feet (5 to 150 meters). Blooms (Dec), Mar-Aug.	**Present.** Several individuals of this species were observed in California brittlebush scrub in the western edge of the Project Area. This species is locally abundant and was not mapped during the site visits.
Small-flowered microseris *Microseris douglasii* ssp. *platycarpa*	4.2	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools/clay. Elevation ranges from 50 to 3510 feet (15 to 1070 meters). Blooms Mar-May.	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub habitat and grassy interstitial areas which could support this species.
Felt-leaved monardella *Monardella hypoleuca* ssp. *lanata*	1B.2 MSCP Species	Chaparral, cismontane woodland. Elevation ranges from 980 to 5170 feet (300 to 1575 meters). Blooms Jun-Aug.	**Unlikely.** The Project Area lacks chaparral and woodland habitat associated with this species.
Jennifer's monardella *Monardella stoneana*	1B.2	Closed-cone coniferous forest, chaparral, coastal scrub, riparian scrub/usually rocky intermittent streambeds. Elevation ranges from 30 to 2590 feet (10 to 790 meters). Blooms Jun-Sep.	**No Potential.** The Project Area lacks intermittent streams associated with this species.
California spineflower *Mucronea californica*	Rank 4.2	Chaparral, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland/sandy. Elevation ranges from 0 to 4590 feet (0 to 1400 meters). Blooms Mar-Jul (Aug).	**Unlikely.** The Project Area is out of the known range of this species. In San Diego County, this species reaches its southern limit in Point Loma (Beuchamp 1986, Jepson eFlora 2017).
Little mousetail *Myosurus minimus* ssp. *apus*	3.1	Valley and foothill grassland, vernal pools (alkaline). Elevation ranges	**No Potential.** The Project Area lacks vernal pools associated with this species.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		from 70 to 2100 feet (20 to 640 meters). Blooms Mar-Jun.	
Mud nama *Nama stenocarpum*	2B.2	Marshes and swamps (lake margins, riverbanks). Elevation ranges from 20 to 1640 feet (5 to 500 meters). Blooms Jan-Jul.	**No Potential.** The Project Area lacks muddy shores of ponds and lakes known to support this species (Beauchamp 1986).
Spreading navarretia *Navarretia fossalis*	Federal: Threatened 1B.1 MSCP Species	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools. Elevation ranges from 100 to 2150 feet (30 to 655 meters). Blooms Apr-Jun.	**No Potential.** The Project Area lacks vernal pools and alkali playas known to support this species.
Coast woolly-heads *Nemacaulis denudata* var. *denudata*	1B.2	Coastal dunes. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms Apr-Sep.	**No Potential.** The Project Area lacks dunes known to support this species.
California adder's-tongue *Ophioglossum californicum*	4.2	Chaparral, valley and foothill grassland, vernal pools (margins)/mesic. Elevation ranges from 200 to 1720 feet (60 to 525 meters). Blooms (Dec), Jan-Jun.	**Moderate Potential.** The Project Area contains potentially suitable grassland and clay soils necessary to support this species.
California Orcutt grass *Orcuttia californica*	Federal: Endangered State: Endangered 1B.1 MSCP Species	Vernal pools. Elevation ranges from 50 to 2170 feet (15 to 660 meters). Blooms Apr-Aug.	**No Potential.** The Project Area lacks vernal pools.
Baja California birdbush *Ornithostaphylos oppositifolia*	State: Endangered 2B.1	Chaparral. Elevation ranges from 180 to 2620 feet (55 to 800 meters). Blooms Jan-Apr.	**Not Present.** This perennial shrub was not observed during the site visits. The only known occurrence in the U.S. is adjacent to the Project Area on Spooner's Mesa, but none of the Mesa top habitat remains within Project Area.
Short-lobed broomrape *Orobanche parishii* ssp. *brachyloba*	4.2	Coastal bluff scrub, coastal dunes, coastal scrub/sandy. Generally parasitic on *Isocoma menziesii*. Elevation ranges from 10 to 1000 feet (3 to 305 meters). Blooms Apr-Oct.	**Not Present.** This perennial herb was not observed during the site visits conducted during the bloom period of the species. The Project Area contains only marginally suitable habitat. This species is most often associated with fringes of sandy beaches (Beauchamp 1986).
Golden-rayed pentachaeta *Pentachaeta aurea* ssp. *aurea*	4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland.	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub and grassland habitat which could support this species.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
		Elevation ranges from 260 to 6070 feet (80 to 1850 meters). Blooms Mar-Jul.	
Brand's star phacelia *Phacelia stellaris*	1B.1	Coastal dunes, coastal scrub. Elevation ranges from 0 to 1310 feet (1 to 400 meters). Blooms Mar-Jun.	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub habitat which could support this species. There is a documented occurrence on Lichty Mesa approximately 0.03 miles north of the western edge of the Project Area.
Woolly chaparral-pea *Pickeringia montana* var. *tomentosa*	4.3	Chaparral/gabbroic, granitic, clay. Elevation ranges from 0 to 5580 feet (0 to 1700 meters). Blooms May-Aug.	**Not Present.** This perennial shrub species was not observed during the site visits. The Project Area lacks suitable habitat and soils.
Otay Mesa mint *Pogogyne nudiuscula*	Federal: Endangered State: Endangered 1B.1 MSCP Species	Vernal pools. Elevation ranges from 300 to 820 feet (90 to 250 meters). Blooms May-Jul.	**No Potential.** The Project Area lacks vernal pools necessary to support this species.
Cedros Island oak *Quercus cedrosensis*	2B.2	Closed-cone coniferous forest, chaparral, coastal scrub. Elevation ranges from 840 to 3150 feet (255 to 960 meters). Blooms Apr-May.	**Not Present.** This perennial shrub/small tree was not observed during the site visits.
Nuttall's scrub oak *Quercus dumosa*	1B.1	Closed-cone coniferous forest, chaparral, coastal scrub/sandy, clay loam. Elevation ranges from 50 to 1310 feet (15 to 400 meters). Blooms Feb-Apr (May), (Aug).	**Not Present.** This perennial shrub was not observed during the site visits.
Engelmann oak *Quercus engelmannii*	4.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation ranges from 160 to 4270 feet (50 to 1300 meters). Blooms Mar-Jun.	**Not Present.** This perennial tree species was not observed during the site visits.
Santa Catalina Island currant *Ribes viburnifolium*	1B.2	Chaparral, cismontane woodland. Elevation ranges from 100 to 1150 feet (30 to 350 meters). Blooms Feb-Apr.	**Not Present.** This perennial shrub species was not observed during the site visits. The Project Area lacks suitable habitat.
Coulter's matilija poppy *Romneya coulteri*	Rank 4.2	Chaparral, coastal scrub/often in burns. Elevation ranges from 70 to 3940 feet (20 to 1200 meters). Blooms Mar-Jul.	**Not Present.** This large perennial forb was not observed during the site visits.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Small-leaved rose *Rosa minutifolia*	State: Endangered 2B.1 MSCP Species	Chaparral, coastal scrub. Elevation ranges from 490 to 520 feet (150 to 160 meters). Blooms Jan-Jun.	**Not Present.** This perennial shrub species was not observed during the site visits. This species was historically known from one native occurrence which was transplanted for mitigation in 1997 (CNPS 2017).
Munz's sage *Salvia munzii*	2B.1	Chaparral, coastal scrub. Elevation ranges from 380 to 3490 feet (115 to 1065 meters). Blooms Feb-Apr.	**Not Present.** This perennial shrub species was not observed during the site visits.
Ashy spike-moss *Selaginella cinerascens*	4.1	Chaparral, coastal scrub. Elevation ranges from 70 to 2100 feet (20 to 640 meters).	**Present.** Several individuals of this species were observed in various coastal scrub communities in the western portion of the Project Area. This species is locally abundant and was not mapped during the site visits.
Chaparral ragwort *Senecio aphanactis*	2B.1	Chaparral, cismontane woodland, coastal scrub/sometimes alkaline. Elevation ranges from 50 to 2620 feet (15 to 800 meters). Blooms Jan-Apr.	**Moderate Potential.** The Project Area contains potentially suitable coastal scrub habitat.
Purple stemodia *Stemodia durantifolia*	2B.1	Sonoran desert scrub (often mesic, sandy). Elevation ranges from 590 to 980 feet (180 to 300 meters). Blooms Jan-Dec.	**Not Present.** The Project Area lacks suitable habitat. This perennial forb was not observed during the site visits which were conducted during the documented bloom period.
Laguna Mountains jewelflower *Streptanthus bernardinus*	4.3	Chaparral, lower montane coniferous forest. Elevation ranges from 2200 to 8200 feet (670 to 2500 meters). Blooms May-Aug.	**No Potential.** The Project Area lacks suitable habitat and is well below the documented elevation range of the species.
Estuary seablite *Suaeda esteroa*	1B.2	Marshes and swamps (coastal salt). Elevation ranges from 0 to 20 feet (0 to 5 meters). Blooms May-Oct (Jan).	**Not Present.** This perennial herb/subshrub was not observed during the site visits.
Parry's tetracoccus *Tetracoccus dioicus*	1B.2 MSCP Species	Chaparral, coastal scrub. Elevation ranges from 540 to 3280 feet (165 to 1000 meters). Blooms Apr-May.	**Not Present.** This perennial herb/subshrub was not observed during the site visits.
California screw moss *Tortula californica*	1B.2	Chenopod scrub, valley and foothill grassland/sandy, soil. Elevation ranges from 30 to 4790 feet (10 to 1460 meters).	**Present.** There is a documented occurrence of this species from a 2012 Rebman collection, within the Project Area on the western slope of Bunker Hill (CDFW 2017). This species was looked for but was not observed during the 2017 site visits while the associated species remain.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
San Diego County viguiera *Bahiopsis* [*Viguiera*] *laciniata*	4.3	Chaparral, coastal scrub. Elevation ranges from 200 to 2460 feet (60 to 750 meters). Blooms Feb-Jun (Aug).	**Present.** Thousands of individuals of this species were observed in various coastal scrub, non-native grassland, and restored shrubland habitats. This species is very abundant locally and was not mapped during the site visits.

APPENDIX E:

TABLE OF POTENTIAL SPECIAL-STATUS WILDLIFE SPECIES

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
American badger *Taxidea taxus*	CDFW: Species of Special Concern, MSCP Species	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Unlikely**. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.
American peregrine falcon *Falco peregrinus anatum*	Federal Delisted, State Delisted, CDFW: Fully Protected, USFWS: Bird of Conservation Concern, MSCP Species	Various open situations from tundra, moorlands, steppe, and seacoasts, especially where there are suitable nesting cliffs, to mountains, open forested regions, and human population centers. When not breeding, occurs in areas where prey concentrate, including farmlands, marshes, lakeshores, river mouths, tidal flats, dunes and beaches, broad river valleys, cities, and airports. Often nests on ledge or hole on face of rocky cliff or crag. River banks, tundra mounds, open bogs, large stick nests of other species, tree hollows, and man-made structures are used locally for nesting.	**Present**.
Arroyo toad *Anaxyrus (=Bufo) californicus*	Federal Endangered, CDFW: Species of Special Concern, MSCP Species	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	**No potential** to occur. Habitat on and adjacent to the site is unsuitable for the species requirements.
Baja California coachwhip *Coluber fuliginosus*	CDFW: Species of Special Concern	Inhabits open areas of grassland and coastal sage scrub.	**Moderate potential** to occur. Open non-native grasslands and coastal sage scrub habitat occur on-site.
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	State Endangered	Inhabits coastal salt marshes, from Santa Barbara south through San Diego County. Nests in *Salicornia* on and about margins of tidal flats.	**Moderate potential** to occur. Salt marsh present on-site.
Big free-tailed bat *Nyctinomops macrotis*	CDFW: Species of Special Concern, Western Bat Working Group: Medium-High Priority	Occurs rarely in low-lying arid areas, including desert scrub, woodlands, and evergreen forests. Requires high cliffs or rocky outcrops for roosting sites.	**Low potential** to occur. Habitat on and adjacent to the site is unsuitable for the species requirements, as there are no rocky outcrops for roosting sites nearby or on-site.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Burrowing owl *Athene cunicularia*	CDFW: Species of Special Concern, USFWS: Bird of Conservation Concern	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**Present.**
California black rail *Laterallus jamaicensis coturniculus*	State Threatened, CDFW: Fully Protected	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**No potential** to occur. Habitat on and adjacent to the site is unsuitable for the species requirements.
California glossy snake *Arizona elegans occidentalis*	CDFW: Species of Special Concern	Arid scrub, rocky washes, grasslands, and chaparral. Occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California. Absent along the central coast.	**Moderate potential** to occur. Arid scrub and non-native grasslands occur on-site.
California horned lark *Eremophila alpestris actia*	CDFW: Watch List	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, and alkali flats.	**Present**.
California leaf-nosed bat *Macrotus californicus*	CDFW: Species of Special Concern, Western Bat Working Group: High Priority	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats. Requires rocky, rugged terrain with mines or caves for roosting.	**Low Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
California least tern *Sternula antillarum browni* (Nesting colony)	State Endangered, MSCP Species	Seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers. Nests along the coast from San Francisco Bay, south to northern Baja California. Breeds on sandy or gravelly beaches and banks of rivers or lakes, rarely on flat rooftops of buildings. Colonial breeder on barren or sparsely vegetated, flat substrates near water.	**No Potential**. Habitat on site is unsuitable for the species requirements.
Coast horned lizard *Phrynosoma blainvillii*	CDFW: Species of Special Concern, MSCP Species	Open areas of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands, along sandy washes with scattered shrubs along dirt roads, and frequently near ant hills.	**Moderate potential** to occur. Non-native grasslands, scattered shrubs along the road, and ant hills occur on-site.
Coast patch-nosed snake *Salvadora hexalepis virgultea*	CDFW: Species of Special Concern	Brushy or shrubby vegetation in coastal southern California. Require small mammal burrows for refuge and overwintering sites.	**Moderate potential** to occur. Brushy vegetation and small mammal burrows occur on-site.
Coastal cactus wren *Campylorhynchus brunneicapillus couesi*	CDFW: Species of Special Concern, USFWS: Bird of Conservation Concern, MSCP Species	Southern California coastal sage scrub. Wrens require tall *Opuntia* cactus for nesting and roosting	**Low Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Coastal California gnatcatcher *Polioptila californica californica*	Federal Threatened, MSCP Species	Obligate, permanent resident of coastal sage scrub below 25 feet in southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	**Present**.
Coastal whiptail *Aspidoscelis tigris stejnegeri*	CDFW: Species of Special Concern	Semiarid habitats with open, sparsely vegetated areas, scrub, chaparral, grassland, and woodlands.	**Moderate potential** to occur. Scrub and non-native grasslands occur on-site.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Cooper's hawk *Accipiter cooperii*	CDFW: Watch List, MSCP Species	Inhabits deep woods, utilizing thick cover both for hunting and nesting. Openings, such as hedgerows or windbreaks, offer shelter for prey species and may be used when foraging. Occurs year-round throughout much of California. Favors a variety of forest and woodland habitats, including in towns and urban areas with suitable tree cover. Nests in both pine and hardwood groves, cottonwoods, and sycamores.	**Present**.
Coronado skink *Plestiodon (=Eumeces) skiltonianus interparietalis*	CDFW: Watch List	Grassland, chaparral, pinyon-juniper and juniper sage woodland, pine-oak and pine forests in coast ranges of southern California. Prefers early successional stages or open areas. Found in rocky areas close to streams and on dry hillsides.	**Low potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Globose dune beetle *Coelus globosus*		Fore dunes, sand hummocks, and occasionally back dunes along immediate coast. Larvae and pupae spend most of the time in the sand. The larvae can also be found under vegetation or accumulated debris. Adults spend the hotter summer months aggregating under vegetation or debris.	**Low Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Golden eagle *Aquila chrysaetos*	CDFW: Fully Protected, CDFW: Watch List, USFWS: Bird of Conservation Concern, MSCP Species	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**Moderate Potential**. May forage on-site at eastern end of Project. Most habitat on and adjacent to the site is unsuitable for the species requirements.
Green sea turtle *Chelonia mydas*	Federal Threatened	Shallow coastal waters inshore bays, lagoons, and shoals with eelgrass beds. Young turtles are found in open ocean.	**No Potential**. Habitat on-site is unsuitable for the species requirements.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Hoary bat *Lasiurus cinereus*	Western Bat Working Group: Medium-High Priority	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Least Bell's vireo *Vireo bellii pusillus* (Nesting)	Federal Endangered, State Endangered, MSCP Species	Dense brush, mesquite, willow-cottonwood forest, streamside thickets, and scrub oak, in arid regions, but often near water. Moist woodland, bottomlands, woodland edge, scattered cover, and hedgerows in cultivated areas. Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	**No Potential**. Habitat on-site is unsuitable for the species requirements.
Light-footed Ridgway's rail *Rallus longirostris levipes*	Federal Endangered, State Endangered, CDFW: Fully Protected, MSCP Species	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickle weed are the dominant vegetation. Require dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on molluscs and crustaceans.	**No Potential**. Salt marsh on-site not appropriate for species. Habitat on and adjacent to the site is unsuitable for the species requirements.
Mexican long-tongued bat *Choeronycteris mexicana*	CDFW: Species of Special Concern, Western Bat Working Group: High Priority	Desert shrublands, deep mountain canyons with dense riparian vegetation, montane oak-conifer woodlands and forests, and tropical deciduous forests. In daytime, roost in caves, rock fissures, old mines, and rarely buildings, often in relatively mesic areas near food sources. Occasionally found in San Diego County in the periphery of their range. Feeds on the nectar and pollen of night-blooming succulents.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Mimic tryonia (=California brackishwater snail) *Tryonia imitator*		Inhabits coastal lagoons, estuaries, and salt marshes, from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinity.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Monarch butterfly *Danaus plexippus* (California overwintering population)		Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Northern harrier *Circus cyaneus*	CDFW: Species of Special Concern, MSCP Species	Year-round resident and winter visitor. Found in open habitats, including grasslands, prairies, brackish and saltwater marshes, sagebrush flats, desert sinks, and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**Present**.
Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	CDFW: Species of Special Concern	Western San Diego County in a variety of habitats, including coastal scrub, chaparral, grasslands, and sagebrush. Prefers sandy, herbaceous areas, usually in association with rocks or coarse gravel.	**Moderate potential** to occur. Coastal scrub and non-native grasslands occur on-site.
Orange-throated whiptail *Aspidoscelis hyperythra*	CDFW: Species of Special Concern, MSCP Species	Low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food source of termites.	**Present**.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Pacific pocket mouse *Perognathus longimembris pacificus*	Federal Endangered, CDFW: Species of Special Concern, MSCP Species	Inhabits the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles County. Prefers shrublands with firm sandy soil, fine-grain sandy substrates in the immediate vicinity of the ocean, and coastal strand, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Pallid bat *Antrozous pallidus*	CDFW: Species of Special Concern, Western Bat Working Group: High Priority	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various human structures, such as bridges, barns, and buildings (including occupied buildings). Very sensitive to disturbance of roosting sites.	**Moderate potential** to occur. Grasslands and shrublands occur on-site.
Pocketed Free-tailed Bat *Nyctinomops femorasaccus*	CDFW: Species of Special Concern, Western Bat Working Group: Medium Priority	Variety of arid areas in southern California, including pine-juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian. Rocky areas with high cliffs.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Quino checkerspot butterfly *Euphydryas editha quino*	Federal Endangered, MSCP Species	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Hills and mesas near the coast. Need high densities of food plants *Plantago erecta, P. insularis,* and *Orthocarpus purpurascens.*	**High potential** to occur. Coastal sage shrublands occur on-site.
Red-diamond rattlesnake *Crotalus ruber*	CDFW: Species of Special Concern	Chaparrral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	**High potential** to occur. Grasslands and rodent burrows occur on-site.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Riverside fairy shrimp *Streptocephalus woottoni*	Federal Endangered, MSCP Species	Endemic to western Riverside, Orange and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	CDFW: Species of Special Concern	Intermediate canopy stages of shrub habitats and open shrub, herbaceous and tree, or herbaceous edges. Coastal sage scrub habitats in southern California.	**Present**.
San Diego desert woodrat *Neotoma lepida intermedia*	CDFW: Species of Special Concern	Sagebrush scrub and chaparral in Coastal southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. Particularly abundant in rock outcrops and rocky cliffs and slopes.	**Low potential** to occur. Sagebrush scrub occurs on-site.
San Diego fairy shrimp *Branchinecta sandiegonensis*	Federal Endangered, MSCP Species	Restricted to vernal pools and other ephemeral basins in coastal southern California.	**High potential** in drainages on-site.
San Diego ringneck snake *Diadophis punctatus similis*		Open, fairly rocky areas. Use boards, flat rocks, woodpiles, stable talus, rotting logs and small ground holes for cover. Prefer areas with surface litter or herbaceous vegetation. Often in somewhat moist areas near intermittent streams.	**Unlikely**. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.
Sandy beach tiger beetle *Cicindela hirticollis gravida*		Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	**No Potential**. Habitat on site is unsuitable for the species requirements.
Senile tiger beetle *Cicindela senilis frosti*		Inhabits the marine shoreline, from the central California coast south to the salt marshes of San Diego. Inhabits dark-colored mud in the lower zone and dried salt pans in the upper zone.	**Unlikely**. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Southern California legless lizard *Anniella stebbinsi*	CDFW: Species of Special Concern	Occurs in moist, warm loose soil with plant cover, in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, alluvial fans, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees. Sometimes found in suburban gardens in Southern California.	**Moderate**. Warm, moist, loose soil occurs on the western end of the site.
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	CDFW: Watch List, MSCP Species	Moderate to steep, dry, rocky, south-, west-, or –east-facing slopes vegetated with low scattered scrub cover, interspersed with patches of grasses and forbs or rock outcrops. Often occurs in coastal sage scrub dominated by California sagebrush (*Artemisia californica*), but also occurs in coastal bluff scrub, low chaparral on serpentine outcrops, sparse chaparral recovering from a burn, and edges of tall chaparral. Nests on the ground at the base of rocks, grass tufts, or saplings, or 0.3-1 meters above the ground in the branches of shrubs or trees.	**Present**.
Thorne's hairstreak butterfly *Mitoura thornei*	MSCP Species	Habitat consists of patches of endemic Tecate cypress (*Cupressus forbesii*), on chaparral-covered dry, rocky slopes. Only known from vicinity of Otay Mountain.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Townsend's big-eared bat *Corynorhinus townsendii*	CDFW: Species of Special Concern, Western Bat Working Group: High Priority	Associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging typically occurs in open forests.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Tricolored blackbird *Agelaius tricolor*	State Candidate Endangered, CDFW: Species of Special Concern, USFWS: Bird of Conservation Concern, MSCP Species	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**Unlikely**. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.
Two-striped gartersnake *Thamnophis hammondii*	CDFW: Species of Special Concern	Generally found nearby pools, creeks, cattle tanks, and other water sources in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest.	**Moderate potential**. Habitat on-site is unsuitable for the species requirements, but potential to be nearby bodies of water.
Wandering (=saltmarsh) skipper *Panoquina errans*	MSCP Species	Southern California coastal salt marshes. Requires moist saltgrass for larval development.	**Unlikely**. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.
Western beach tiger beetle *Cicindela latesignata latesignata*		Mudflats and beaches in coastal southern California.	**Unlikely**. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.
Western mastiff bat *Eumops perotis californicus*	CDFW: Species of Special Concern, Western Bat Working Group: High Priority, MSCP Species	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures, which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**Unlikely**. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Western red bat *Lasiurus blossevillii*	CDFW: Species of Special Concern, Western Bat Working Group: High Priority	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. Roosts are usually in broad-leaved trees, including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Western small-footed myotis *Myotis ciliolabrum*	Western Bat Working Group: Medium Priority	Mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines, and crevices. Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
Western snowy plover *Charadrius alexandrinus nivosus* (Nesting)	Federal Threatened, CDFW: Species of Special Concern, USFWS: Bird of Conservation Concern	Federal listing applies only to the Pacific coastal population. Found on sandy beaches, salt pond levees and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting.	**No Potential**. Habitat on site is unsuitable for the species requirements.
Western spadefoot *Spea (=Scaphiopus) hammondii*	CDFW: Species of Special Concern	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying.	**High potential**. Non-native grasslands occur on-site.
Western tidal-flat (=Gabb's) tiger beetle *Cicindela gabbii*		Inhabits estuaries and mudflats along the coast of southern California. Generally found on dark-colored mud in the lower zone; occasionally found on dry saline flats of estuaries.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.

NAME	STATUS	HABITAT	POTENTIAL TO OCCUR
Western yellow-billed cuckoo *Coccyzus americanus occidentalis* (Nesting)	Federal Threatened, State Endangered, USFWS: Bird of Conservation Concern	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian willow woodlands, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape. In California, breeding distribution is now thought to be restricted to isolated sites in the Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys.	**No Potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.
White-faced ibis *Plegadis chihi* (Nesting)	CDFW: Watch List, MSCP Species	(Rookery) shallow fresh-water marsh. Dense tule thickets for nesting interspersed with areas of shallow water for foraging.	**Present**.
White-tailed kite *Elanus leucurus* (Nesting)	CDFW: Fully Protected	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**Present**.
Yellow-breasted chat *Icteria virens*	CDFW: Species of Special Concern	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	**No Potential**. Habitat on site is unsuitable for the species requirements.
Yuma myotis *Myotis yumanensis*	Western Bat Working Group: Low-Medium Priority	Wide variety of upland and lowland habitats, including riparian, desert scrub, moist woodlands, and forests, usually near open water. Foraging occurs over water or in open spaces over land. Warm-season roosts are in caves, cliff crevices, bridges, buildings, tunnels, abandoned cliff swallow nests, and cavities of large live oak trees (redwood, Douglas-fir, oak, maple) near water. Large nursery colonies may form in buildings, caves, mine tunnels, and under bridges.	**Low potential**. Habitat on and adjacent to the site is unsuitable for the species requirements.