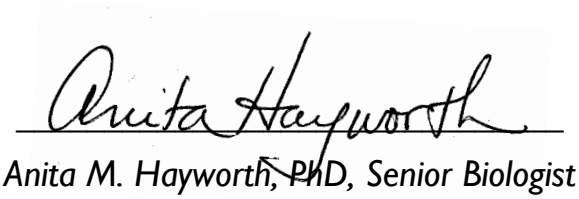
BIOLOGICAL RESOURCES TECHNICAL REPORT
for the
WEST OAKS PROJECT
CITY OF CARLSBAD, CALIFORNIA
GPA 16-04/ZC 16-03/LCPA 16-04/PUD 2018-0004/ SDP 16-20/CDP 16-31/SUP 2017-0005/HMP 16-04/ MS 2018-0005 (DEV13018)

Prepared for:

The Carlsbad West Oaks Project Owner, LLC,
A Delaware Limited Liability Company
2235 Encinitas Boulevard, Suite 216
Encinitas, California 92024

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Tel. 760.942.5147



Anita M. Hayworth, PhD, Senior Biologist

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
AMSL	above mean sea level
BMP	best management practice
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
dBA	A-weighted decibels
FMZ	fuel modification zone
GIS	geographic information system
HMP	habitat management plan
HOA	Homeowners' association
LCP	Local Coastal Program
L_{eq}	equivalent level over a given time
MHCP	Multiple Habitat Conservation Program
OHWM	ordinary high water mark
PAR	Property Analysis Record
RPW	relatively permanent waters
RWQCB	Regional Water Quality Control Board
USFWS	U.S. Fish and Wildlife Service

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1 SUMMARY OF FINDINGS

The approximately 12.5-acre West Oaks Project (proposed project) site is located in the City of Carlsbad, San Diego County, California (Figure 1, Regional Map). More specifically, the site is located south of Palomar Airport Road and east of Aviara Parkway. Based on species composition and general physiognomy, eight plant communities/land cover types were identified in the site: southern willow scrub, open water, open water within a concrete-channel, coastal sage scrub, coastal sage scrub dominated by coyotebush, disturbed land, developed land, and developed land within a concrete-channel. Encinas Creek is located within the northern portion of the site and is vegetated with riparian habitat as well as composed of Waters of the U.S.

No plant or wildlife species listed as rare, threatened, or endangered by the U.S. Fish and Wildlife Service (USFWS) or the California Department of Fish and Wildlife (CDFW) or the California Native Plant Society (CNPS) were observed on site during visits in June of 2013 and 2016 or in 2017; however, there is potential for a number of special status species to be present within the habitat located within Encinas Creek.

Implementation of the proposed development would result in the total direct impacts to 7.81 acres of predominantly developed or disturbed land for the residential development including graded slopes and fuel modification. Of this acreage, impacts to 0.02 acre of coastal sage scrub-coyotebrush and 0.09 acre of jurisdictional resources and riparian habitat are proposed for the required emergency access. The required 20-foot upland (0.61 acre) and 50-foot riparian buffers with protective fencing are provided in order to provide protection for the native vegetation on site.

An open space lot (3.97 acres) has been designated that will include the riparian habitat, Encinas Creek, coastal sage scrub, and the riparian buffer areas. All of the proposed open space and most of the existing HMP Preserve on site, except for that area needed for emergency access, will be protected by a conservation easement, funding, and a City-approved habitat manager and will be incorporated into the HMP preserve. There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the open space lot and this existing easement will be excluded from the conservation easement. The impacts to the southern willow scrub and coastal sage scrub-coyotebrush will be restored in an area on-site to provide no net loss of the habitat in accordance with the HMP and California Coastal Commission requirements as well as in accordance with the required wetland permits.

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SOURCE: ESRI 2016

FIGURE 1

Regional Map

Biological Technical Report for the West Oaks Project

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2 INTRODUCTION

This report documents the biological surveys of existing conditions, impact analysis, and jurisdictional wetland delineation performed by Dudek for the West Oaks Project site, located in the City of Carlsbad, California. The purpose of this report is to provide a summary of biological resource data accumulated for the project site, evaluate the proposed development project in terms of potential impacts to biological resources, and provide mitigation measures as appropriate. This report is intended as a technical analysis suitable to be the basis for analysis of the proposed project under the California Environmental Quality Act (CEQA) (14 CCR 15000 et seq.), City of Carlsbad Habitat Management Plan (Carlsbad HMP; City of Carlsbad 2004), and state and federal Endangered Species Acts.

The biological investigation focused on identifying resources that may be subject to regulations under the following: Carlsbad HMP, Section 404 of the Clean Water Act as administered by the U.S. Army Corps of Engineers (ACOE), Section 401 of the Clean Water Act and the Porter–Cologne Act as administered by Regional Water Quality Control Board (RWQCB), Sections 1600–1603 of the Fish and Game Code as administered by the California Department of Fish and Wildlife (CDFW), and/or the Coastal Act as administered by the California Coastal Commission (CCC).

This report includes a description of the study area, a summary of the regulatory provisions, the methods of biological surveys, the results of the survey and the impacts and mitigation required for the proposed project.

2.1 Project Location

The approximate 12.53-acre site (including West Oaks Way) is located within the City of Carlsbad, California (City), San Diego County, California. The site is located roughly 2.1 miles east of the Pacific Ocean and is within the Coastal Zone Boundary. Specifically, the site is located approximately 0.5-mile east of Aviara Parkway, directly west of Palomar Oaks Way, and immediately south of Palomar Airport Road. The approximate centroid of the project site is at longitude 117.2925° West and latitude 33.1210° North within Section 22, Township 12 South, Range 4 West on the U.S. Geological Survey 7.5-minute Encinitas Quadrangle map (Figure 2, Vicinity Map). According to the San Diego Basin Plan, the site is located within the Carlsbad Watershed Encinas Hydrologic Area (904.4) within the Canyon del las Encinas Basin (4.40) (RWQCB 1994). The project is located on Assessor's Parcel Numbers: 212-110-01 through 212-110-07 and 212-040-26.

2.1.1 Topography, Drainage, and Land Use

The project site is within an area of the City that is developed with industrial, commercial, and residential properties. Palomar Airport Road is immediately north of the site, a commercial complex is located approximately 350 feet to the west, a residential housing tract is located approximately 425 feet to the south, and another commercial complex is located approximately 300 feet to the east. Encinas Creek, which was channelized and rerouted in 1985, runs throughout the project site and is present along the north boundary of the site. Natural rolling hillsides are present immediately south of the site that abut existing residential housing tract properties. The site consists of relatively flat areas (less than 20% slopes) as a result of the grading from the approved project on the site (City of Carlsbad 1982) that gently slope to the west, with on-site elevations ranging from approximately 114–150 feet above mean sea level (AMSL).

The site was originally approved for grading for the Bircher Business Center (Final Map No. 11358) in 1985 and is currently zoned Planned Industrial (P-M). Carlsbad Tract maps CT 82-4/PUD-38 describe the grading and creek channelization that was done within the property and the construction of West Oaks Way.

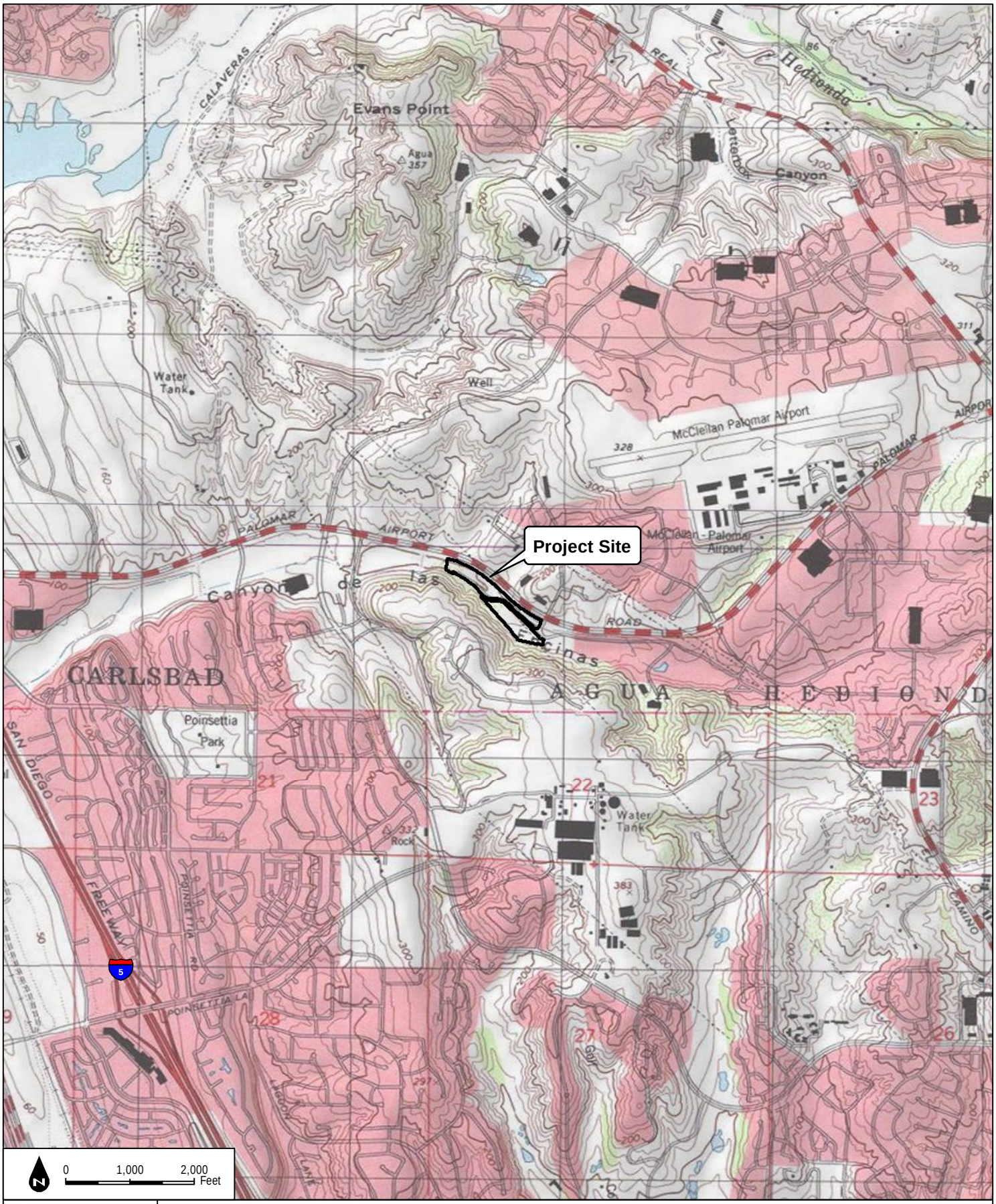
2.1.2 Soils

The soil types on site, according to the San Diego County Soil Survey (Bowman 1973), include Visalia sandy loam, 2%–5% slopes; Las Flores loamy fine sand 15%–30% slopes, eroded; and Diablo clay 15%–30% slopes. The Visalia sandy soil series consists of moderately well drained, very deep, sandy loams derived from granitic alluvium, and typically found on gentle slopes. The Las Flores loam soils are moderately well-drained with medium to rapid runoff, are gently to strongly sloping, and found on marine terraces at elevations of less than 700 feet AMSL. The Diablo clay soils are well drained with slow permeability and found on rolling to steep uplands with slopes of 5%–50 %.

2.2 Project Description

The proposed project would develop 192-unit multi-family apartment homes with 42 affordable units built on-site. The proposed project includes an emergency vehicle, pedestrian and bicycle access bridge at the western end of the project in addition to adding a new internal loop road. Surface parking shall be provided in several areas within the project. A fire protection plan has been prepared as part of the application.

The proposed project considers making West Oaks way a private driveway. In addition, the development includes bypassing and abandoning the existing gravity fed sewer line in favor of a new gravity sewer line through the property to improve accessibility for maintenance. An existing forced main sewer line is also planned to be relocated with the gravity line. The project will include stormwater facilities on site.



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SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle.

FIGURE 2

Vicinity Map

Biological Technical Report for the West Oaks Project

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3 METHODS AND SURVEY LIMITATIONS

Data regarding biological and jurisdictional resources present on the project site were obtained through a review of pertinent literature and through field reconnaissance; both are described in detail below.

3.1 Literature Review

Prior to the field investigations conducted by Dudek a review of the existing biological resources within the vicinity of the project site was conducted using the California Natural Diversity Database (CNDDB) (CDFW 2016), U.S. Fish and Wildlife Service (USFWS) (USFWS 2015), the California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Vascular Plants* (CNPS 2015), and mapping conducted for the Multiple Habitat Conservation Plan (MHCP) (SANDAG 1999). The purpose of this review was to determine if special-status plant and wildlife species were known to occur within the study area, or in the nearby vicinity, and what constraints these occurrences might have on the property. In addition, the Carlsbad HMP was reviewed for constraints to development based on the regional plan and conditions or mitigation that may be required.

The following data sources were reviewed to assist in the biological resource study effort mapping of jurisdictional resources:

- Natural Resource Conservation Service Web Soil Survey (USDA 2015)
- U.S. Environmental Protection Agency Waters Data (EPA 2012)

3.2 Field Reconnaissance

A reconnaissance-level field survey of the study area was conducted on December 3, 2012, by Dudek biologist Anita Hayworth. The site was surveyed on foot, and potential constraints were noted. The site was evaluated for general vegetation communities, drainages and waters of the United States/State (Waters), the potential to support special-status wildlife and plant species, and included review of adjacent conditions that could affect the potential development footprint. A biological survey was performed by Dudek biologist Thomas S. Liddicoat on June 19, 2013, which included mapping of existing conditions and a detailed evaluation of potentially jurisdictional wetlands or waters within the study area. A plant list was prepared at that time. A follow up survey was conducted by Callie Ford on June 9, 2016, and on January 13, 2017, to review the mapping and provide additional information on the western-most parcel. Dudek botanist Kathleen Dayton conducted a plant survey on March 16, 2017. Focused surveys were conducted for least Bell's vireo and California gnatcatcher in 2017 per Table 1. For purposes of this report the study area (i.e., project site) is defined solely by the property boundary. Table 1 summarizes the survey information.

Table 1
Survey Dates and Conditions

Date	Survey*	Personnel	Temperature	Wind	Sky	Time
12/3/2012	Reconnaissance Survey	Anita Hayworth	Not Recorded	Not Recorded	Not Recorded	0900–1115
6/19/2013	Vegetation Mapping/ Jurisdictional Delineation	Thomas Liddicoat	70°F–74°F	0–3 mph	0% cloud cover	1000–1800
6/9/2016	Vegetation Mapping	Callie (Ford) Amoaku	74°F–78°F	0–0.5 mph	70%–80% cloud cover	1449–1609
1/13/2017	Jurisdictional Delineation	Callie (Ford) Amoaku	53°F–64°F	0–0.5 mph	70%–90% cloud cover	0927–1159
3/16/2017	Plant survey	Kathleen Dayton	52°F–62°F	0–1 mph	10%–70% cloud cover	0730-0900
3/28/2017	California Gnatcatcher Survey	Anita Hayworth	55°F–60°F	0–1 mph	0% cloud cover	0730-0915
4/4/2017	California Gnatcatcher Survey	Anita Hayworth	57°F–61°F	1–3 mph	0% cloud cover	0700-0845
4/11/2017	California Gnatcatcher Survey	Anita Hayworth	61°F–63°F	3–5 mph	0% cloud cover	0840-0950
4/11/2017	Least Bell's Vireo Survey	Anita Hayworth	58°F–63°F	3–5 mph	0% cloud cover	0800-0840; 0950–1030
4/23/2017	Least Bell's Vireo Survey	Anita Hayworth	57°F–61°F	1–3 mph	0% cloud cover	0705-0855
5/4/2017	Least Bell's Vireo Survey	Anita Hayworth	62°F–65°F	1–3 mph	overcast	0715-0835
5/16/2017	Least Bell's Vireo Survey	Anita Hayworth	61°F–63°F	0–1 mph	overcast	0710-0845
5/28/2017	Least Bell's Vireo Survey	Anita Hayworth	58°F–63°F	3–5 mph	20% cloud cover	0750-0900
6/9/2017	Least Bell's Vireo Survey	Anita Hayworth	59°F–63°F	1–3 mph	overcast	0640-0802
6/22/2017	Least Bell's Vireo Survey	Anita Hayworth	64°F–66°F	3–5 mph	overcast	0703-0810
7/3/2017	Least Bell's Vireo Survey	Anita Hayworth	63°F–65°F	0–1 mph	0% cloud cover	0700-0815

Notes: °F = degrees Fahrenheit; mph = miles per hour; NR = not recorded; TBD = To Be Determined

3.2.1 Resource Mapping

The survey was conducted on foot to visually cover 100% of the project study area, and an aerial photograph field map 100-scale (i.e., 100 feet = 1 inch) (Bing Maps 2013) with an overlay of the property boundary was utilized to map the vegetation communities and land cover types, and to record any jurisdictional wetlands or waters directly in the field.

The vegetation community and land cover mapping follows the classifications described by Holland (1986) and as revised by Oberbauer et al. (2008). Areas on site that supported less than 20% native plant species cover were mapped as disturbed habitat (DH), and areas that supported at least 20% native plant species, but fewer than 50% native cover were mapped as a disturbed

native vegetation community (e.g., disturbed coastal sage scrub (dCSS). A plant list was created to document species within the areas mapped as disturbed.

Following completion of the field work, Dudek Geographic Information System (GIS) Specialist Andrew Greis digitized the mapped findings using ArcGIS and calculated coverage acreages using ArcCAD. Additional GIS analysis was provided by Lesley Terry.

3.2.2 Flora

All plant species encountered during the survey were identified and recorded directly into a field notebook. Those species that could not be identified immediately were brought into the laboratory for further investigation. A compiled list of plant species observed within the survey areas is presented in Appendix A. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2015). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2015) and common names follow the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2015).

3.2.3 Fauna

Wildlife species detected during the field survey by sight, calls, tracks, scat, or other signs were recorded directly onto a field notebook. Binoculars (8.5 x 42 magnification) were used to aid in the identification of wildlife. A list of wildlife species observed in the within the survey areas is presented in Appendix A. Latin and common names of animals follow Crother (2012) for reptiles and amphibians, American Ornithologists' Union (AOU 2015) for birds, Wilson and Reeder (2005) for mammals, North American Butterfly Association (NABA 2001) or San Diego Natural History Museum (SDNHM 2002) for butterflies, and Moyle (2002) for fish.

3.2.4 Sensitive Biological Resources

Sensitive biological resources are those defined as follows: (1) species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened population sizes; (2) species and habitat types recognized by local and regional resource agencies as sensitive; (3) habitat areas or plant communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; and (4) wildlife corridors and habitat linkages. Sources used for determination of special-status biological resources are as follows: wildlife – CDFW 2015a and 2015d; plants – CDFW 2015b and 2015c; and habitats – Carlsbad HMP (City of Carlsbad 2004).

A focused survey for California gnatcatcher (*Polioptila californica*) was conducted in 2017 under the authorization of permit TE-781084 (Anita M. Hayworth, PhD) according to the schedule provided in Table 1. The surveys followed the most current protocol established by USFWS (1997). During each survey, suitable habitat within the project site was surveyed three times for the gnatcatcher. Habitat surveyed included coastal sage scrub. The route selected ensured complete coverage of all suitable habitat within the site. A topographic map of the site (scale: 1 inch = 100 feet) overlain with vegetation polygons was used for the survey. Weather conditions during surveys are provided in Table 1. Binoculars (10×50) were used to aid in detecting and identifying bird species. Digital gnatcatcher vocalizations were played frequently in order to elicit a response from the species, if present. The recording was played approximately every 50 to 100 feet within suitable habitat. If a gnatcatcher had been detected, playing of the vocalization would have ceased in order to avoid harassment and the gnatcatcher location would have been recorded on the site map.

Focused surveys for the least Bell's vireo (*Vireo bellii pusillus*) were conducted for the project in 2017 by Anita M. Hayworth, PhD (TE-781084). The entire length of Encinas Creek on site was surveyed during each visit. A total of eight site visits were conducted with approximately 10-day intervals between visits, following the currently accepted USFWS protocol (USFWS 2001). The site visits are conducted 10 days apart to maximize the detection of early and late arrivals, females, non-vocal birds, and nesting pairs. Surveys were conducted between dawn and 11:00 a.m. in accordance with the schedule provided in Table 1 and were not conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather. Surveys were conducted between April 10 and July 31, as dictated in the protocol.

Surveys for rare plant species were conducted by walking meandering transects to detect special-status species. A GPS receiver with sub-meter accuracy was available to record the location of any special-status plant populations observed. Any GPS data that was collected would then be downloaded and/or digitized using ArcGIS software. The survey pass was scheduled based on the flowering timing of species on site in order to maximize the detection of the majority of potentially occurring special-status plant species. The survey also was conducted during the wetland delineation described below. The potential for special-status plant species to occur on site was evaluated based on the elevation, soils, vegetation communities, and level of disturbance of the site, as well as their status and distribution in the vicinity of the project site.

3.2.5 Jurisdictional Delineation

The jurisdictional delineation of waters of the United States, including wetlands under the jurisdiction of the ACOE, and waters of the state, including wetlands under the jurisdiction of the CDFW, CCC, and Regional Water Quality Control Board (RWQCB), was conducted for the proposed project by Dudek Biologist Thomas Liddicoat in 2013 and updated as noted in Table 1.

The potential ACOE jurisdictional wetlands were delineated in accordance with the ACOE 1987 Manual for the Delineation of Wetlands (TR Y-87-1), and hydrology, hydrophytic vegetation, and soils were examined at the potential wetland site. Delineation and jurisdiction procedures followed the ACOE 2008 Arid West Supplement to the 1987 Manual (ACOE 2008) and the joint ACOE-U.S. Environmental Protection Agency Rapanos and Carabell Guidance Documents (ACOE and EPA 2008). ACOE jurisdiction generally matches that of RWQCB except in cases where waters are isolated from a navigable water of the United States. Isolated waters are generally not ACOE jurisdictional but may be RWQCB jurisdictional pursuant to the Porter-Cologne Act. A predominance of hydrophytic vegetation, where associated with stream channels, was used to delineate the limits of the potential CDFW jurisdictional wetlands. The limits of jurisdictional wetlands, as defined by the CCC, were identified based on presence of any one of the three ACOE wetland criteria, pursuant to the provisions of the California Coastal Act.

The delineation focused on the identification of jurisdictional waters of the United States, including wetlands, using the three parameters described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. Wetlands under the jurisdiction of the CCC were delineated using the Cowardin method of wetlands classification, which, as previously discussed, defines wetland boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology). Additionally, wetland areas typically regulated by CDFW incorporate the extent of riparian vegetation where associated with a stream channel.

Hydrology, vegetation, and soils were assessed throughout the study area. The location of sampling points and the limits of jurisdictional areas identified were collected in the field using the 100-scale field map and Global Positioning System (GPS) equipment with sub-meter accuracy. A more detailed description of the analysis for the three ACOE wetland parameters is provided below.

Hydrophytic Vegetation

Seasonal changes in species composition, human land-use practices, wildfires, and other natural disturbances can adversely affect the wetlands vegetation determination. During the delineation, a mapping was considered positive for hydrophytic vegetation if it passed the basic dominance test (Indicator 1), meaning that more than 50% of the dominant species sampled were characterized as either obligate, facultative wetland, and/or facultative per the National List of Vascular Plant Species that Occur in Wetlands: 1988 National Summary (Reed 1988). Because it is more recent, the 1996 National List was also consulted; however, the 1988 National List was given priority when making determinations as the 1996 National List is considered a draft update of the 1988 list and it has not yet been officially adopted by the ACOE. In those cases where the dominance test failed but there were positive indicators of hydric soils and/or hydrology, the vegetation parameter was re-evaluated using the prevalence index (Indicator 2), which takes into account all plant species in the community, not just dominants. The plot sizes used to sample vegetation strata included a 5-meter plot (1 meter by 5 meters) for herbaceous vegetation, a 20-meter plot (2 meters by 10 meters) for shrubs and saplings, and a 60-meter plot (2 meters by 30 meters) for trees.

Hydric Soils

According to the National Technical Committee for Hydric Soils, hydric soils are "soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA NRCS 2010). Two soil pits (i.e., DS-A and DS-B) were prepared using a shovel to determine if hydric soil conditions were present. In accordance with ACOE's prescribed methods, dry soils were moistened to obtain the most accurate color and composition. The presence of hydric soils was determined through consultations with the 1987 Wetland Delineation Manual, as well as *Field Indicators of Hydric Soils in the United States v. 7.0* (USDA NRCS 2010) and the ACOE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008). Munsell Soil Color Charts were used to determine soil chroma and value. In general, soils from test pits were determined to be hydric if they exhibited redoximorphic features (e.g., redox concentrations, redox depletions, reduced matrix, or depleted matrix).

Hydrology

Per the guidelines prescribed in the Arid West Supplement (September 2008), wetland hydrology indicators are separated into four major groups: A, B, C, and D. Group A indicators are based on direct observations of surface flow, ponding, and soil saturation/groundwater. Group B indicators consist of evidence that the site has been or is currently subjected to ponding including, but not limited to, water marks, drift deposits, and sediment deposits. Group C indicators include signs of previous and/or current saturation including oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur, both of which are indicative of extended periods of soil saturation. Group D indicators consist of "vegetation and soil features that are indicative of current rather than historic wet conditions and include a shallow aquitard and results of the FAC-Neutral test." Each group is subdivided into primary and secondary categories based on their frequency and reliability to occur in the Arid West region. Signs of hydrology were investigated on site by intensive field review.

3.3 Survey Limitations

Limitations of the surveys include a diurnal bias and the absence of focused trapping for mammals and reptiles, and focused survey for rare plants however the potential for rare plants to occur within the impact area was conducted and a compendium of species was recorded. Surveys were conducted during the daytime to maximize visibility for the detection of plants and most animals, especially bird species. Surveys were conducted during the season when migrant breeding birds are present and reptiles are active.

4 RESULTS OF SURVEY

4.1 Vegetation Communities Descriptions and Floral Inventory

Based on species composition and general physiognomy, eight plant communities/land cover types were identified in the site: southern willow scrub, open water, open water within a concrete-channel, coastal sage scrub, coastal sage scrub dominated by coyote brush, disturbed land, developed land, and developed land within a concrete-channel. The plant communities/land covers are shown in Figure 3, Biological Resources Map, and tabulated in Table 2, Existing Plant Communities/Land Covers on the West Oaks Integral Project Site, in accordance with their assigned group per the Carlsbad HMP. A cumulative plant list is in Appendix A.

Table 2
Existing Plant Communities/Land Covers on the West Oaks Integral Project Site

Plant Community/Land Cover	Acreage
Group A	
Southern willow scrub	1.20
Open water	0.16
Open water/concrete-channel	0.04
Group C	
Coastal sage scrub	1.40
Coastal sage scrub- coyote brush dominated	0.11
Group F	
Disturbed land	8.22
Other Lands	
Developed	1.31
Developed/concrete-channel	0.09
Total	**12.53**

Coastal Sage Scrub

Coastal sage scrub is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species such as coastal sagebrush (*Artemisia californica*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on south-facing slopes and other xeric situations.

Coastal sage scrub occurs mainly along the north and east slopes of the site and consists of a mix of typical species including coastal sagebrush, lemonade berry, Eastern Mojave buckwheat, and toyon. Coastal sage scrub is recognized as a special-status vegetation community by local, state, and federal resource agencies. It supports a rich diversity of special-status plants and animals and is the focus of the current State of California Natural Community Conservation Program, of which the Multiple Habitat Conservation Program (MHCP) and City of Carlsbad HMP are a part.

Developed Lands

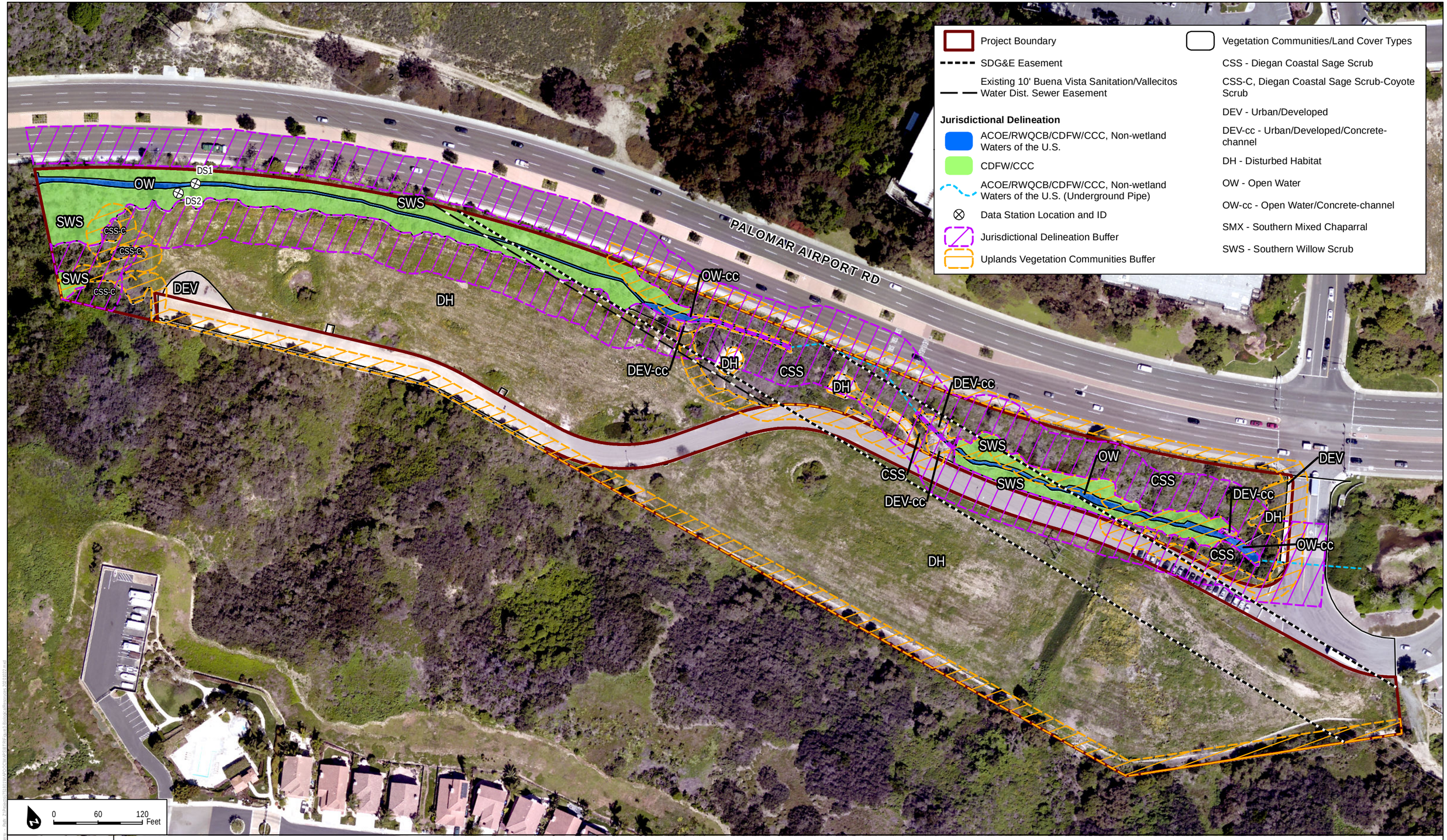
Developed land is a land cover type which includes areas where vegetation growth is prevented by an existing structure or material, such as a building or road, and ornamental vegetation associated with structures. Areas mapped as developed land on the project site include existing paved roads (Palomar Airport Road and West Oaks Way) and the concrete armoring that is adjacent to the creek.

Disturbed Land

Disturbed land refers to areas where vegetation growth is limited as the result of mechanical perturbation causing bare dirt to exist in perpetuity. There is less than 20% cover by vegetation and the plants are dominated by non-native species. Disturbed land on site generally occurs along the central, east, and southeast areas and extends from the ecotone between the developed and native land covers on site. The disturbed land on site is a diverse array of non-native species including trees such as Brazilian peppertree (*Schinus terebinthifolius*), shrub species such as fennel (*Foeniculum vulgare*) and castorbean (*Ricinus communis*), herbaceous species such as longbeak stork's bill (*Erodium botrys*), and grasses including red brome (*Bromus madritensis* ssp. *rubens*) and ripgut brome (*Bromus diandrus*). At the western end of the property, within the western parcel, the area mapped as disturbed land is dominated by fennel, thistle species, and pampas grass. Although the aerial photo looks green, the habitat is not riparian and it was recorded by GPS. The botanical survey of the site included recording all plant species observed within areas mapped as disturbed habitat. These species are included in Appendix A.

Open Water

Open water refers to areas that support standing water most or all of the year and do not contain any emergent vegetation. It also includes the open water channel that flows within the concrete channel on site. The jurisdictional delineation distinguishes between the open water that flows within the concrete channel and that portion of the channel that is dirt bottom. Regardless, the entire open water is fully covered by riparian canopy.



SOURCE: AERIAL-SANGIS 2017; DEVELOPMENT-FUSCOE 2019

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FIGURE 3

Biological Resources Map

Biological Technical Report for the West Oaks Project

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Southern Willow Scrub

Southern willow scrub is a dense, broad-leaved, winter-deciduous riparian thicket dominated by several species of willow (*Salix* spp.) that occurs on loose, large-grained alluvium along stream channels. The closed canopy inhibits the development of a diverse understory. It may contain scattered Fremont's cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*) trees emerging above the willow canopy and requires repeated flooding to avoid succession to a community dominated by these trees (Holland 1986).

On site, southern willow scrub occurs in patches dominated by arroyo willow (*Salix lasiolepis*) and red willow (*Salix laevigata*), with an understory of mulefat (*Baccharis salicifolia*) and encompasses a full riparian canopy of Encinas Creek.

4.2 Flora

A total of 90 vascular plant species, consisting of 42 native species (47%) and 48 non-native species (53%), were recorded on site during the vegetation mapping and jurisdictional delineation. Appendix A includes a cumulative list of plant species observed on site to date. This species list includes those species visible and blooming during the vegetation mapping, jurisdictional delineation, and site visit to obtain a list for the disturbed habitat area.

4.3 Fauna

Birds

In total, 18 bird species were recorded during the various survey visits to the site. Species commonly observed on site included house finch (*Haemorhous mexicanus*), Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), black phoebe (*Sayornis nigricans*), and lesser goldfinch (*Spinus psaltria*). A complete list of bird species observed during the field surveys is in Appendix B.

Reptiles and Amphibians

One reptile species was observed on site, the Blainville's horned lizard (*Phrynosoma blainvillii*). No amphibian species were observed on site.

Mammals

One mammal species was detected in the site, the California ground squirrel (*Spermophilus (Otospermophilus) beecheyi*).

4.4 Sensitive Biological Resources

Special-Status Plants

No plant species listed as rare, threatened, or endangered by USFWS or CDFW were detected in the project area during the surveys conducted in June of 2013 or 2016 (during the wetland delineation survey) or in March 2017 during the early season plant survey. Additionally, no species designated as special-status by the CNPS were detected in the project area. Special-status plant species with a CRPR of 1 or 2, including Carlsbad HMP species, that have the potential to occur on site, are discussed in Table 3.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE/1B.1	Covered; Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/33–3,150	Low potential to occur. Limited suitable vegetation and soil present on site as well as non-native species would preclude this species. This species was recorded in USFWS within 5 miles of the project site (USFWS 2016).
Acmispon prostratus	Nuttall's acmispon	None/None/ 1B.1	None	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–June (July)/0–33	Not expected to occur. The site is outside of the species' known elevation range.
Adolphia californica	California adolphia	None/None/ 2B.1	None	Chaparral, coastal scrub, valley and foothill grassland; clay/perennial deciduous shrub/Dec–May/148–2,428	Moderate potential to occur based on habitat and soils however is not present. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Agave shawii var. *shawii*	Shaw's agave	None/None/ 2B.1	None	Coastal bluff scrub, coastal scrub/perennial leaf succulent/Sep–May/33–394	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Ambrosia pumila	San Diego ambrosia	FE/None/ 1B.1	Covered; Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/66–1,362	Moderate potential to occur based on soils and vegetation however is not present. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Aphanisma blitoides	aphanisma	None/None/ 1B.2	None	Coastal bluff scrub, coastal dunes, coastal scrub; sandy or gravelly/annual herb/Mar–June/3–1001	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/None/ 1B.1	Covered; Narrow Endemic	Chaparral (maritime, sandy)/perennial evergreen shrub/Dec–June/0–1,198	Not expected to occur. No suitable vegetation present. Would have been observed during survey.
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/ 1B.1	None	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/3–164	Not expected to occur. No suitable vegetation present. Would have been observed during survey.
Atriplex coulteri	Coulter's saltbush	None/None/ 1B.2	None	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/10–1,509	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Atriplex pacifica	South Coast saltscale	None/None/ 1B.2	None	Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/Mar–Oct/0–459	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Atriplex parishii	Parish's brittlescale	None/None/ 1B.1	None	Chenopod scrub, playas, vernal pools; alkaline/annual herb/June–Oct/82–6,234	Not expected to occur. No suitable vegetation present.
Baccharis vanessae	Encinitas baccharis	FT/SE/1B.1	Covered; Narrow Endemic	Chaparral (maritime), cismontane woodland; sandstone/perennial deciduous shrub/Aug–Nov/197–2,362	Not expected to occur. No suitable vegetation present on site.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Bergerocactus emoryi	golden-spined cereus	None/None/ 2B.2	None	Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/10–1,296	Low potential to occur. Limited suitable vegetation and soil present on site.
Bloomeria clevelandii	San Diego goldenstar	None/None/ 1B.1	Covered; Narrow Endemic	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/164–1,526	Low potential to occur. Limited suitable vegetation and soil present on site and more likely to occur in grassland. Would have been observed during survey.
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	Covered; Narrow Endemic	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/Mar–June/82–3,675	Low potential to occur. Limited suitable grassland vegetation and soil present on site. This species was recorded in USFWS within 5 miles of the project site (USFWS 2016).
Brodiaea orcuttii	Orcutt's brodiaea	None/None/ 1B.1	Covered; Narrow Endemic	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentinite/perennial bulbiferous herb/May–July/98–5,551	Not expected to occur. No suitable vegetation present.
Ceanothus cyaneus	Lakeside ceanothus	None/None/ 1B.2	None	Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/771–2,477	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/ 2B.2	Covered	Chaparral/perennial evergreen shrub/Dec–May/3–1,247	Low potential to occur. Suitable vegetation is present off site. Would have been observed during survey.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Centromadia parryi ssp. *australis*	southern tarplant	None/None/ 1B.1	None	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/annual herb/May–Nov/0–1,575	Not expected to occur. No suitable vegetation present.
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/ 1B.1	None	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2,100	Not expected to occur. No suitable vegetation present. Would have been observed during survey.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/ 1B.1	None	Coastal bluff scrub (sandy), coastal dunes/annual herb/Jan–Aug/0–328	Not expected to occur. No suitable vegetation present. Would have been observed during survey.
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2	None	Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct/0–98	Not expected to occur. No suitable vegetation present.
Chorizanthe orcuttiana	Orcutt's spineflower	FE/SE/1B.1	Covered; Narrow Endemic	Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–May/10–410	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/ 1B.2	None	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/Apr–July/98–5,020	Moderate potential to occur based on soils and vegetation however is not present. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Clarkia delicata	delicate clarkia	None/None/ 1B.2	None	Chaparral, cismontane woodland; often gabbroic/annual herb/Apr–June/771–3,281	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/ 1B.2	Covered	Chaparral, cismontane woodland/perennial evergreen shrub/Apr–June/98–2,592	Not expected to occur. No suitable vegetation present. Would have been observed during survey.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/ 1B.1	None	Coastal bluff scrub, chaparral, coastal scrub/perennial herb/June–Sep/10–377	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/ 1B.1	Covered; Narrow Endemic	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub; sandy/perennial herb/May–Sep/49–492	Low potential to occur. Sandy soils are not present on site. Would have been observed during survey.
Cryptantha wigginsii	Wiggins' cryptantha	None/None/ 1B.2	None	Coastal scrub; often clay/annual herb/Feb–June/66–902	Moderate potential to occur based on soils and vegetation however is not present. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Cylindropuntia californica var. *californica*	snake cholla	None/None/ 1B.1	None	Chaparral, coastal scrub/perennial stem succulent/Apr–May/98–492	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/ 1B.1	Covered; Narrow Endemic	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/16–1,476	Low potential to occur. Limited suitable vegetation on site; however, there is a lack of suitable soil. Would have been observed during survey.
Dudleya brevifolia	short-leaved dudleya	None/SE/ 1B.1	Covered; Narrow Endemic	Chaparral (maritime, openings), coastal scrub; Torrey sandstone/perennial herb/Apr–May/98–820	Low potential to occur. Limited suitable vegetation on site; however, there is a lack of suitable soil present. Would have been observed during survey.
Dudleya variegata	variegated dudleya	None/None/ 1B.2	None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/Apr–June/10–1,903	Moderate potential to occur. Limited suitable vegetation and soil present on site based on soils and vegetation however is not present. Would have been observed during survey.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Dudleya viscida	sticky dudleya	None/None/ 1B.2	Covered	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/May–June/33–1,804	Low potential to occur. Limited suitable vegetation on site; however, there is a lack of suitable soil present.
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/ 1B.1	None	Chaparral, coastal scrub; mesic/perennial evergreen shrub/(July) Sep–Nov/98–1,969	Moderate potential to occur based on soils and vegetation however is not present. Limited suitable vegetation and soil present on site. Would have been observed during the survey.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1	Covered; Narrow Endemic	Coastal scrub, valley and foothill grassland, vernal pools; mesic/annual/ perennial herb/Apr–June/66–2,034	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Eryngium pendletonense	Pendleton button-celery	None/None/ 1B.1	None	Coastal bluff scrub, valley and foothill grassland, vernal pools; clay, vernally mesic/perennial herb/Apr–June (July)/49–361	Not expected to occur. No suitable vegetation present. Would have been observed during survey.
Euphorbia misera	cliff spurge	None/None/ 2B.2	Covered	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug (Oct)/33–1,640	Low potential to occur. Limited suitable vegetation on site; however, there is a lack of suitable soil present. Would have been observed during survey.
Ferocactus viridescens	San Diego barrel cactus	None/None/ 2B.1	Covered	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/perennial stem succulent/May–June/10–1,476	Low potential to occur. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Frankenia palmeri	Palmer's frankenia	None/None/ 2B.1	None	Coastal dunes, marshes and swamps (coastal salt), playas/perennial herb/May–July/0–33	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Would have been observed during survey.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Geothallus tuberosus	Campbell's liverwort	None/None/ 1B.1	None	Coastal scrub (mesic), vernal pools; soil/ephemeral liverwort/N.A./33–1,969	Low potential to occur. Limited suitable vegetation and soil present on site. Is not tolerant of the disturbed conditions on site.
Grindelia hallii	San Diego gumplant	None/None/ 1B.2	None	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/perennial herb/May–Oct/607–5,725	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Hazardia orcuttii	Orcutt's hazardia	FC/ST/1B.1	Covered; Narrow Endemic	Chaparral (maritime), coastal scrub; often clay/perennial evergreen shrub/Aug–Oct/262–279	Not expected to occur. The site is outside of the species' known elevation range.
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	None/None/ 1B.1	None	Chaparral (coastal), coastal dunes, coastal scrub/perennial herb/Mar–Dec/0–4,019	Low potential to occur. Sandy soils are not present on site.
Horkelia truncata	Ramona horkelia	None/None/ 1B.3	None	Chaparral, cismontane woodland; clay, gabbroic/perennial herb/May–June/1312–4,265	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/ 1B.2	None	Chaparral, coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/33–443	Moderate potential to occur based on soils and vegetation however is not present. Limited suitable vegetation and soil present on site. Would have been observed during survey.
Iva hayesiana	San Diego marsh-elder	None/None/ 2B.2	Covered; Narrow Endemic	Marshes and swamps, playas/perennial herb/Apr–Oct/33–1,640	Not expected to occur. No suitable vegetation present.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/ 1B.1	None	Marshes and swamps (coastal salt), playas, vernal pools/annual herb/Feb–June/3–4 003	Not expected to occur. No suitable vegetation present.
Leptosyne maritima	sea dahlia	None/None/ 2B.2	None	Coastal bluff scrub, coastal scrub/perennial herb/Mar–May/16–492	Low potential to occur. Sandy soils are not present on site.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/ 1B.2	None	Chaparral, cismontane woodland/perennial rhizomatous herb/June–Aug/984–5,167	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Monardella viminea	willowy monardella	FE/SE/1B.1	None	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/164–738	Low potential to occur. Typically found in rocky riparian habitat.
Myosurus minimus ssp. *apus*	little mousetail	None/None/ 3.1	Covered; Narrow Endemic	Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/66–2,100	Not expected to occur. No suitable vegetation present.
Nama stenocarpa	mud nama	None/None/ 2B.2	None	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/16–1,640	Not expected to occur. No suitable vegetation present.
Navarretia fossalis	spreading navarretia	FT/None/ 1B.1	Covered; Narrow Endemic	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/Apr–June/98–2,149	Not expected to occur. No suitable vegetation present.
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/ 1B.2	None	Coastal dunes/annual herb/Apr–Sep/0–328	Not expected to occur. No suitable vegetation present.
Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/ 2B.2	None	Coastal dunes, desert dunes, Sonoran desert scrub/annual herb/(Mar) Apr–May/<164–1,312	Not expected to occur. No suitable vegetation present.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	Covered; Narrow Endemic	Vernal pools/annual herb/Apr–Aug/49–2,165	Not expected to occur. No suitable vegetation present. This species was recorded in USFWS within 5 miles of the project site (USFWS 2016).
Phacelia stellaris	Brand's star phacelia	FC/None/ 1B.1	None	Coastal dunes, coastal scrub/annual herb/Mar–June/3–1312	Low potential to occur. Sandy or dune soils are not present on site.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/ 1B.2	Covered	Closed-cone coniferous forest, chaparral; sandstone/perennial evergreen tree/N.A./246–525	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present.
Pogogyne abramsii	San Diego mesa mint	FE/SE/1B.1	None	Vernal pools/annual herb/Mar–July/295–656	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Pogogyne nudiuscula	Otay Mesa mint	FE/SE/1B.1	None	Vernal pools/annual herb/May–July/295–820	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Quercus dumosa	Nuttall's scrub oak	None/None/ 1B.1	Covered	Closed-cone coniferous forest, chaparral, coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr (Aug)/49–1,312	Low potential to occur. Limited suitable vegetation and soil present on site, and most habitat is located off site. Would have been observed during survey.
Quercus engelmannii	Engelmann oak	None/None/ 4.2	Covered	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/perennial deciduous tree/Mar–June/164–4,265	Not expected to occur. No suitable vegetation present. Would have been observed during survey.
Salvia munzii	Munz's sage	None/None/ 2B.2	None	Chaparral, coastal scrub/perennial evergreen shrub/Feb–Apr/377–3,494	Not expected to occur. The site is outside of the species' known elevation range.
Senecio aphanactis	chaparral ragwort	None/None/ 2B.2	None	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/Jan–Apr/49–2,625	Low potential to occur. Limited suitable vegetation and soil present on site. Is not tolerant of disturbance and weed species.
Sphaerocarpos drewei	bottle liverwort	None/None/ 1B.1	None	Chaparral, coastal scrub; openings, soil/ephemeral liverwort/N.A./295–1,969	Not expected to occur. The site is outside of the species' known elevation range.

Table 3
Special-Status Plants, Potentially Occurring on Site

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Carlsbad HMP Status	Primary Habitat Associations/ Life Form/Blooming Period/ Elevation Range (feet)	Potential to Occur
Stemodia durantifolia	purple stemodia	None/None/ 2B.1	None	Sonoran desert scrub (often mesic, sandy)/perennial herb/Jan–Dec/591–984	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present.
Suaeda esteroa	estuary seablite	None/None/ 1B.2	None	Marshes and swamps (coastal salt)/perennial herb/May–Oct (Jan)/0–16	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present.
Tetracoccus dioicus	Parry's tetracoccus	None/None/ 1B.2	None	Chaparral, coastal scrub/perennial deciduous shrub/Apr–May/541–3,281	Not expected to occur. The site is outside of the species' known elevation range.

Notes: CRPR = California Rare Plant Rank; NA = not applicable

This table includes all CDFW Rare Plant Rank 1–2 species reported by CNPS (2015) or CDFW (2015b) in the Encinitas, San Marcos, Del Mar, Rancho Santa Fe, San Luis Rey, and Oceanside 7.5-minute topographic quadrangles that occur at the elevation of the project site.

Status Legend:

Federal Designations

FE: Federally listed as endangered

FT: Federally listed as threatened

FC: Federal species of concern

State Designations

SE: State listed as endangered

ST: State listed as threatened

CRPR: California Rare Plant Rank (previously known as the CNPS List)

1B: Plants rare, threatened, or endangered in California and elsewhere

2B: Plants rare, threatened, or endangered in California but not elsewhere

3: Plants about which we need more information – a review list

4: Plants of limited distribution – a watch list

Threat Rank

.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)

.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)

.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Other Designations

Carlsbad HMP:

Covered: Species covered under the Carlsbad HMP

Narrow Endemic: Species confined to a specific geographic region, soil type, and/or habitat

Special Status Wildlife

Two special status wildlife species were observed on site: Blainville's horned lizard and Cooper's hawk (*Accipiter cooperii*). The Blainville's horned lizard was observed within the patch of coastal sage scrub within the SDG&E easement, and the Cooper's hawk was observed foraging within the riparian area on and off site. No nests of the Cooper's hawk were detected within any areas of the site. Focused surveys for California gnatcatcher (*Polioptila californica*) and for least Bell's vireo (*Vireo bellii pusillus*) were conducted and were negative for both species. Table 4 lists the potentially occurring special-status wildlife species for the project site and their status.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Amphibians					
Spea hammondii	western spadefoot	None/SSC/None	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not observed	Low potential to occur; site lacks appropriate vernal pool and riparian habitat.
Birds					
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/ Covered	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Observed	Observed flying over the site; no nest detected. Not expected to nest on site due to narrow configuration of riparian habitat and proximity to the road and sidewalk; however, there is suitable habitat adjacent to the site for nesting, and the species could forage or perch on site.
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not observed	Not expected to occur. No suitable dense emergent vegetation present.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/ Covered	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Not observed	Moderate potential to occur within the SDG&E easement. Determined to not be present during surveys for California gnatcatcher as well as surveys for vireo that also covered the suitable habitat. Suitable coastal scrub is present, however habitat is marginal, very small patch size, and isolated. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Aquila chrysaetos	Golden eagle	BCC/FP, WL/None	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not observed	Not expected to occur. Coastal sage scrub habitat on site is marginal and isolated.
Artemisiospiza belli	Bell's sparrow	BCC/WL/None	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Not observed	Low potential to occur. Suitable coastal sage scrub on site; however, the site is located in a highly urbanized setting, and the suitable habitat is very small. This species was not recorded within 5 miles of the site.
Athene cunicularia	burrowing owl	BCC/SSC/None	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not observed	Not expected to occur. Site lacks suitable foraging habitat and suitable fossorial mammal burrows.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST/None	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not observed	Species does not nest in Southern California. No suitable foraging habitat on site.
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	BCC/SSC/None	Southern cactus scrub patches	Not observed	Not expected to occur. This site lacks suitable cactus scrub habitat. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Charadrius alexandrinus nivosus	western snowy plover	FT, BCC/SSC/ Covered	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	Not observed	Not expected to nest or occur on site. No suitable habitat present on site. This species was recorded in CNDDB and USFWS within 5 miles of the project site (CDFW 2016; USFWS 2016).
Circus cyaneus (nesting)	northern harrier	None/SSC/None	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Not observed	Low potential to occur on site. Coastal sage scrub habitat on site is highly marginal and isolated. No wetlands present for nesting. The balance of the habitat on site is highly disturbed.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Elanus leucurus (nesting)	white-tailed kite	None/FP/None	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Not observed	Low potential to occur on site for nesting; while there are some suitable trees present, the site is in a highly urbanized setting. Was not observed during wildlife surveys. Could fly over to forage or perch on site or could nest off site nearby. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE/Covered	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not observed	Low potential to occur on site; although some suitable habitat is present, the habitat is of narrow configuration and in an urbanized setting. Potential areas are located nearby. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Icteria virens (nesting)	yellow-breasted chat	None/SSC/ Covered	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not observed	Moderate potential to occur on site. Not detected during visits during the surveys. Although some suitable habitat is present, the habitat is of narrow configuration and in an urbanized setting. Potential areas are located nearby. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Laterallus jamaicensis coturniculus	California black rail	BCC/ST, FP/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not observed	Not expected to occur on site; no suitable foraging or nesting habitat present.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE/ Covered	Nests and forages in coastal saltmarsh dominated by pickleweed (*Salicornia* spp.)	Not observed	Not expected to occur on site; no suitable foraging or nesting habitat present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Plegadis chihi (nesting colony)	white-faced ibis	None/WL/ Covered	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries	Not observed	Not expected to occur on site; no suitable foraging or nesting habitat present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/ Covered	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet AMSL	Not observed	Low potential to occur within the SDG&E easement due to the small size of the habitat and disturbed nature of the surroundings.. Focused surveys were negative for this species. Suitable coastal scrub habitat on site; however the habitat is very small in size and isolated. This species was recorded in CNDDB and USFWS within 500 feet of the project site (CDFW 2016; USFWS 2016).
Rallus obsoletus levipes	Ridgway's rail	FE/SE, FP/Covered	Coastal wetlands, brackish areas, coastal saline emergent wetlands	Not observed	Not expected to occur on site; no suitable foraging or nesting habitat present. This species was recorded in CNDDB and USFWS within 5 miles of the project site (CDFW 2016; USFWS 2016).

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Riparia riparia	bank swallow	None/ST/None	Nests in riparian, lacustrian, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Not observed	Not expected to occur. No suitable nesting habitat (i.e., soft banks or bluffs) present on site.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC/None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not observed	Moderate potential to occur on site. Was not detected during visits to the site. Although some suitable habitat is present, the habitat is of narrow configuration and in an urbanized setting. Potential areas are located nearby. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Sternula antillarum browni (nesting colony)	California least tern	FE/SE, FP/Covered	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	Not observed	Not expected to occur on site; no suitable foraging or nesting habitat present. Recorded in the vicinity.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE/Covered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not observed	Low potential to occur on site. Focused survey for this species was negative. Although some suitable habitat is present, the habitat is of narrow configuration and in an urbanized setting. Potential areas are located nearby however past surveys within the habitat to the west have had negative results. This species was recorded in CNDDB and USFWS within 2,500 feet of the project site (CDFW 2016; USFWS 2016).

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Fish					
Eucyclogobius newberryi	tidewater goby	FE/SSC/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	Not observed	Not expected to occur. No suitable low-salinity waters required by this species present on site. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Mammals					
Antrozous pallidus	pallid bat	None/SSC/ None	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Not observed	Not expected to occur. No suitable open habitat for foraging, and no outcrops/cliffs for roosting present.
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/SSC/None	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet AMSL	Not observed	Low potential to occur. Suitable coastal sage scrub habitat present, but no evidence of burrows or friable soils present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC/None	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Not observed	Low potential to occur. Suitable coastal sage scrub habitat present; however habitat is marginal and located in highly urbanized setting. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Choeronycteris mexicana	Mexican long-tongued bat	None/SSC/ None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	Not observed	Low potential to occur. No suitable open habitat for foraging, and no caves/mines for roosting present.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Corynorhinus townsendii	Townsend's big-eared bat	None/ CT, SSC/None	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not observed	Not expected to occur. No suitable vegetation present.
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST/None	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Not observed	Low potential to occur. Habitat is marginal and located in highly urbanized setting. The site is located outside of the range of the species.
Euderma maculatum	spotted bat	None/SSC/None	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	Not observed	Not expected to occur. No suitable habitat for foraging, and no outcrops/cliffs for roosting present.
Eumops perotis californicus	western mastiff bat	None/SSC/None	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not observed	Low potential to occur. No suitable open habitat for foraging, and no rocky canyons/cliffs present for roosting present.
Lasiurus blossevillii	western red bat	None/SSC/None	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	Not observed	Not expected to occur. No suitable habitat for foraging, and site is located in a highly urbanized and isolated. Site also lacks an abundance of trees.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Lasiurus xanthinus	western yellow bat	None/SSC/ None	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet AMSL; roosts in riparian and palms	Not observed	Not expected to occur. No suitable desert riparian habitat or palm trees present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Leptonycteris yerbabuenae	lesser long-nosed bat	FE/None/None	Sonoran desert scrub, semi-desert grasslands, lower oak woodlands	Not observed	Not expected to occur. No suitable habitat (i.e., desert scrub, semi-desert grassland, or lower oak woodland habitats) present.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC/None	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Not observed	Low potential to occur. Coastal scrub habitat on site is marginal and highly urbanized and isolated. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Not observed	Low potential to occur. Suitable coastal sage scrub habitat located on site; however no middens were recorded during surveys and the habitat size is very small. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC/ None	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with dropoffs, caverns, and buildings	Not observed	Not expected to occur. No suitable habitat (i.e., Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, palm oases) present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Nyctinomops macrotis	big free-tailed bat	None/SSC/ None	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	Not observed	Not expected to occur. No suitable vegetation present. No high cliffs or rocky outcrops for roosting present.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/NE	Fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	Not observed	Low potential to occur. Coastal scrub habitat present; however, site is not located near the immediate coast, and habitat is too marginal and isolated.
Taxidea taxus	American badger	None/SSC/None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not observed	Not expected to occur. Habitat on site is highly isolated and marginal.
			Reptiles		
Actinemys marmorata	western pond turtle	None/SSC/None	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not observed	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present.
Aspidoscelis hyperythra	Orange-throated whiptail	None/SSC/ Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Not observed	Moderate potential to occur within the SDG&E easement. Suitable coastal sage scrub habitat present; however, site located in highly urbanized and isolated setting. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Crotalus ruber	red-diamond rattlesnake	None/SSC/None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Not observed	Low potential to occur. Little suitable vegetation present.

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/None	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Observed	Observed within the SDG&E easement where coastal sage is present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Plestiodon skiltonianus interparietalis	Coronado Island skink	None/SSC/None	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	Not observed	Not expected to occur. No suitable vegetation present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Not observed	Low potential to occur. Scrub habitat is highly marginal and site lacks washes and sandy flats. No rocky areas are present. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Thamnophis hammondii	two-striped garter snake	None/SSC/None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not observed	Moderate potential to occur. Site contains a drainage with perennial water although in summer flow is reduced or may cease; however, it is very narrow and within an urbanized area. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Thamnophis sirtalis ssp.	south coast garter snake	None/SSC/None	Marsh and upland habitats near permanent water and riparian vegetation	Not observed	Low potential to occur. Site lacks suitable habitat (i.e., marshes, meadows, sloughs, ponds, slow-moving water courses).

Table 4
Special-Status Wildlife Potentially Occurring On Site

Scientific Name	Common Name	Status (Federal/State/ Carlsbad HMP)	Primary Habitat Associations	Status On Site	Potential to Occur
Invertebrates					
Branchinecta lynchi	vernal pool fairy shrimp	FT/None/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	Not observed	No potential to occur. Site lacks suitable habitat (i.e., vernal pools; cool-water pools with low to moderate dissolved solids). The site is outside of the species' known geographic range. This species was recorded in CNDDB within 5 miles of the project site (CDFW 2016).
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/NE	Vernal pools, non-vegetated ephemeral pools	Not observed	No potential to occur. Site lacks suitable habitat (i.e., small, shallow vernal pools and road ruts). This species was recorded in CNDDB and USFWS within 5 miles of the project site (CDFW 2016; USFWS 2016).
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/NE	Vernal pools, non-vegetated ephemeral pools	Not observed	No potential to occur. Site lacks suitable habitat (i.e., deep, long-lived vernal pools, vernal-pool-like seasonal ponds, stock ponds, warm-water pools that have low to moderate dissolved solids). Recorded in the vicinity. This species was recorded in CNDDB and USFWS within 5 miles of the project site (CDFW 2016; USFWS 2016).

Notes:
Species list composed of CNDDB searches for the U.S. Geological Society 7.5-minute Encinitas quadrangle and surrounding quadrangles (CDFW 2016).
Species includes all Carlsbad HMP covered species.
Status Legend:
Federal Designations
BCC: USFWS Bird of Conservation Concern
FE: Federally listed as endangered
FT: Federally listed as threatened
State Designations
CT: Candidate for listing as threatened
FP: CDFW Fully Protected Species
SE: State listed as endangered
ST: State listed as threatened
SSC: California Species of Special Concern

Other Designations
Carlsbad HMP:
Covered: Species covered under the Carlsbad HMP
NE: Narrow Endemic – Species confined to a specific geographic region, soil type, and/or habitat

4.5 Jurisdictional Delineation

Results of the jurisdictional delineation indicate there are two types of potentially jurisdictional wetland resources on site: non-wetland relatively permanent waters of the United States (RPW) and wetland associated riparian vegetation. The non-wetland RPWs identified on site are subject to the joint jurisdiction of the ACOE, RWQCB, CDFW, and CCC. The associated riparian vegetation mapped alongside Encinas Creek in the southern portion of the site is subject to jurisdiction under the CDFW and CCC. The mapped jurisdictional boundaries are spatially presented on Figure 3 and their corresponding acreages are presented in Table 5. Data station forms are provided in Appendix C and shown on Figure 3.

Table 5
On-Site Jurisdictional Areas

Vegetation Community/Land Cover Type	Resource Agency Jurisdiction (Acres)		
	ACOE/RWQCB/CDFW/CCC	*CDFW/CCC*	*Grand Total*
Southern willow scrub	–	1.20	1.20
Open water	0.16	–	0.16
Open water/concrete-channel	0.04	–	0.04
Grand Total[1]	**0.19**	**1.20**	**1.39**

[1] Totals do not add due to rounding.

The two types of potential jurisdictional resources (i.e., non-wetland RPW and associated riparian vegetation) that were identified and evaluated during the delineation included: (1) earthen and concrete-lined portions of a perennial creek channel and (2) riparian vegetation associated with Encinas Creek, respectively. Each jurisdictional feature type is described below (Tables 6 and 7).

4.5.1 Non-Wetland Waters of the United States

The first type of jurisdictional resource on site is a perennial creek channel. This feature represents the ordinary high water mark (OHWM) of Encinas Creek which flows westward and is located along the northern boundary of the site to the south of Palomar Airport Road. Within the site, portions of Encinas Creek are both earthen and concrete-lined; earthen portions are mapped as open water (OW) and the concrete sections are mapped as open water/concrete-channel (OW-CC). The extent of agency jurisdiction within the concrete sections of the creek are mapped to the limits of the concrete-lining, whereas the earthen portions of the creek were mapped according the OHWM. Within the site, there is 345 linear feet of Encinas Creek that is conveyed underground via culverts (mapped as a dashed line on Figure 3).

4.5.2 Associated Riparian Vegetation

The second type of jurisdictional feature on site is riparian vegetation associated with the creek, which is southern willow scrub. The southern willow scrub community on site is strictly associated with Encinas Creek and occurs along both banks of the creek. The riparian vegetation areas are dominated by hydrophytic vegetation (i.e., arroyo willow and poison hemlock); however, they do not support hydric soil conditions[1] and lack evidence of hydrology. Therefore, these areas are determined to be jurisdictional under the CDFW and CCC due to the dominance of hydrophytic vegetation and association with a stream channel (i.e., Encinas Creek).

The acreages of the various types of jurisdictional resources (waters of the United States and associated riparian) on site is provided in Table 6, and the locations of these areas are presented on Figure 3.

Table 6
Jurisdictional Feature Acreages

Jurisdictional Feature/Resource Type	Resource Agency Jurisdiction (Acres)		
	ACOE/RWQCB/CDFW/CCC	*CDFW/CCC*	*Grand Total*
Non-Wetland Waters of the United States			
Open waters	0.16	–	0.16
Open waters/concrete-channel	0.04	–	0.04
Developed/concrete-channel	0.09	–	0.09
Subtotal	*0.29*	–	*0.29*
Associated Riparian Vegetation			
Southern willow scrub	–	1.20	1.20
Subtotal	–	*1.20*	*1.20*
Grand Total	**0.29**	**1.20**	**1.49**

4.6 Wildlife Corridors and Habitat Linkages

Wildlife corridors are defined as areas that connect suitable wildlife habitats in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features, such as canyon drainages, ridgelines, or areas with vegetation cover, provide corridors for wildlife travel. Wildlife corridors are important because they provide access to mates, food, and water; allow the dispersal of wildlife from high-density areas; and facilitate the exchange of genetic traits between populations. Wildlife corridors are considered sensitive by resource and conservation agencies.

[1] The southern willow scrub mapped along the south side of the westernmost parcel is separated from Encinas Creek by non-native vegetation; hydric soils were present within this portion of the southern willow scrub; however, there are no hydrology indicators. Hence, this area is designated as CDFW/CCC jurisdiction.

Landscape habitat linkages (or simply linkages) are relatively large open space areas that contain natural habitat and provide connection between at least two larger adjacent open spaces that can provide for both diffusion and dispersal of many species. Linkages can form contiguous tracts of habitat when adjacent to other open space areas. Large open space networks can be formed in this way to connect and conserve habitat through entire regions.

While native vegetation is located in the site, it is isolated from other habitats, and the main opportunity for wildlife movement is in Encinas Creek, which is designated as an HMP preserve along a portion of the western portion of the site only within the western-most parcel. The creek is located at the north end of the site and is of a generally narrow and channelized configuration from past project approvals. Wildlife is able to use the portion of the creek on the site, although there is some human trespass issues, and more mobile species may be able to travel through the site and gain access to other areas of habitat. Much of the rest of the site is developed or disturbed land and would not serve as a wildlife corridor.

4.7 Local Planning Context

As previously described, the proposed project is located in the Carlsbad HMP area and the Coastal Zone.

4.7.1 Carlsbad HMP

The City of Carlsbad HMP is a comprehensive, citywide conservation program whose purpose is to identify and preserve sensitive biological resources within the City while allowing for additional development consistent with the City's General Plan and Growth Management Plan. Specific biological objectives of the HMP are to conserve the full range of vegetation types remaining in the City, with a focus on protecting rare and special-status habitats and species. The HMP acts as a Subarea Plan to the overall MHCP that was approved and finalized in 2003 (SANDAG 2003a).

This biological resources technical report has been prepared in consultation with the *Guidelines for Biological Studies* (City of Carlsbad 2008) and the Carlsbad HMP (City of Carlsbad 2004). The proposed project is located within Local Facilities Management Zone 5, and is not located in any existing or proposed hardline preserve areas except for the western additional parcel which is designated Link F which connects Cores 4, 6, and 8. The proposed project adheres to the guidelines established for Facilities Management Zone 5, including restoration activities as appropriate for the location.

The *Guidelines for Biological Studies* require buffers and avoidance of sensitive habitats, including wetlands, riparian, and native upland habitats (City of Carlsbad 2008). Buffer widths of 50 feet for riparian habitat and 20 feet for other native upland habitats have been designated for the site. The measurement of the riparian buffer is taken from the top of the bank or from the outer edge of the riparian dripline, whichever is greater. The measurement of the 20 foot upland buffer is taken from

the boundary of the HMP preserve or from the edge of the mapped upland habitat, whichever is greater. This will ensure that consistency with the Carlsbad HMP is met, which includes no impacts to special-status species that may potentially occupy these habitats and no net loss of special-status habitats as a result of the proposed project. Other applicable conditions of the Carlsbad HMP include focused surveys for target species and application of specific mitigation standards for temporary and permanent impacts to vegetation communities.

4.7.2 Coastal Zone

The Carlsbad HMP was approved by the CCC after the insertion of an addendum that outlines certain additional conservation measures for properties within the Coastal Zone. These measures were incorporated into the Local Coastal Program (LCP) by the City and was also incorporated into the Carlsbad HMP . The entire proposed project area is located within the Coastal Zone and adheres to the policies of the CCC except where noted and discussed in the following impact analysis discussion.

The following lists the conservation standards within the Coastal Zone that are applicable to this project based on the description of the existing conditions provided previously (City of Carlsbad 2004):

7-1 **Environmentally Sensitive Habitat Areas (ESHA) (3-1.2 of LCP).** Pursuant to Section 30240 of the California Coastal Act, environmentally sensitive habitat areas, as defined in Section 30107.5 of the Coastal Act, shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

7-2 **Coastal Sage Scrub (3-1.3 of LCP).** Coastal Sage Scrub is a resource of particular importance to the ecosystems of the Coastal Zone, due in part to the presence of the Coastal California gnatcatcher (Federal Threatened) and other species. Properties containing Coastal Sage Scrub located in the Coastal Zone shall conserve a minimum 67% of the Coastal Sage Scrub and 75% of the gnatcatchers on site. Conservation of gnatcatchers shall be determined in consultation with the wildlife agencies.

7-3 **Oak Woodland (3-1.4 of LCP).** An oak woodland is a closed to relatively open stand of trees within which a dominant tree species is a species of oak. In coastal southern California, that species is generally Coast Live Oak (*Quercus agrifolia*), which is commonly found on slopes and riparian situations. Shrubs vary from occasional to common, and the herb layer is often continuous and dominated by a variety of annual grasses.

7-4 **Streams (3-1.5 of LCP).** A stream is a topographical feature with a clear bed and bank that periodically conveys water.

7-5 **Ephemeral Drainages and Ephemeral Streams (3-1.6 of LCP).** Ephemeral drainages and ephemeral streams are topographic features that convey water, but only during and shortly after rainfall events in a typical year.

7-6 **Wetlands (3-1.7 of LCP).** Pursuant to California Public Resources Code Section 30121 and Title 14, California Code of Regulations Section 13577(b), 'wetland' means lands within the coastal zone, which may be covered periodically, or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens. Wetland shall include land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. A preponderance of hydric soils or a preponderance of wetland indicator species shall be considered presumptive evidence of wetland conditions. Wetlands in the Coastal Zone shall be delineated following the definitions and boundary descriptions in Section 13577 of the California Code of Regulations. Pursuant to California Public Resources Code Section 30233, no impacts to wetlands shall be allowed in the Coastal Zone except as provided in that Section.

7-7 **Wetland Mitigation Requirements (3-1.8 of LCP).** If impacts to a wetland are allowed consistent with Policy 7-6 above, mitigation shall be provided at a ratio of 3:l for riparian impacts and 4:l for saltwater or freshwater wetland or marsh impacts.

7-8 **No Net Loss of Habitat (3-1.9 of LCP).** There shall be no net loss of Coastal Sage Scrub, Maritime Succulent Scrub, Southern Maritime Chaparral, Southern Mixed Chaparral, Native Grassland, and Oak Woodland within the Coastal Zone of Carlsbad. Mitigation for impacts to any of these habitat types, when permitted, shall include a creation component that achieves the no net loss standard. Substantial restoration of highly degraded areas (where effective functions of the habitat type have been lost) may be substituted for creation subject to the consultation and concurrence of the USFWS and the California Department of Fish and Game (wildlife agencies). The Coastal Commission shall be notified and provided an opportunity to comment upon proposed substitutions of substantial restoration for the required creation component. Development shall be consistent with Policy 7-1 of this subsection, unless proposed impacts are specifically identified in the HMP; these impacts shall be

located to minimize impacts to Coastal Sage Scrub and maximize protection of the Coastal California gnatcatcher and its habitat.

7-9 Upland Habitat Mitigation Requirements (3-1.10 of LCP). Where impacts to the habitats stated in 7-1 are allowed, mitigation shall be provided as follows:

a. The no net loss standard shall be satisfied as stated in 7-8. Typically this will consist of creation of the habitat type being impacted (or substantial restoration where allowed) at a ratio of at least 1:1 as provided in the HMP.

b. On-site preservation is not eligible for mitigation credit in the coastal zone. On-site or off-site open space preserve areas may be utilized to satisfy required mitigation for habitat impacts associated with development if the preserve areas are disturbed and suitable for restoration or enhancement, or they are devoid of habitat value and therefore suitable for the 1:1 mitigation component requiring creation or substantial restoration of new habitat. Substantial restoration is restoration that has the effect of qualitatively changing habitat type and may meet the creation requirement if it restores habitat type that was historically present, but has suffered habitat conversion or such extreme degradation that most of the present dominant species are not part of the original vegetation. Substantial restoration contrasts with enhancement activities, which include weeding, or planting within vegetation that retains its historical character, and restoration of disturbed areas to increase the value of existing habitat which may meet other mitigation requirements pursuant to the HMP.

c. Impacts to Coastal Sage Scrub shall be mitigated at an overall ratio of 2:1, with the creation component satisfying half of the total obligation. The remainder of the mitigation obligation shall be satisfied pursuant to the provisions of the HMP.

d. Impacts to Southern Maritime Chaparral or Maritime Succulent Scrub shall be mitigated at an overall ratio of 3:1, with the creation component satisfying one-third of the total obligation. The remainder of the mitigation obligation shall be satisfied pursuant to the provisions of the HMP. Impacts to Southern Mixed Chaparral, Native Grassland, and Oak Woodland shall be mitigated respectively at ratios of 1:1, 3:1, and 3:1, with the creation component satisfying the obligation or one-third of the total obligation. The remainder of the mitigation obligation shall be satisfied pursuant to the provisions of the HMP. Mitigation for impacts within the coastal zone

should be provided within the coastal zone if possible, particularly the 1:1 creation component, in order to have no net loss of habitat within the coastal zone. Mitigation measures on land outside the Coastal Zone may be acceptable if such mitigation would clearly result in higher levels of habitat protection and value and/or would provide significantly greater mitigation ratios, and the mitigation area is part of the HMP. Land area inside and outside the coastal zone which serves as mitigation for habitat impacts in the coastal zone shall be permanently retired from development potential and secured as part of the HMP preserve management plan as a condition of development approval.

g. Habitat mitigation requirements other than the creation or substantial restoration component may be partially or wholly fulfilled by acquisition of existing like habitat and/or retirement of development credits on existing like habitat with permanent preservation as part of the HMP preserve management plan.

h. All mitigation areas, on-site and off-site, shall be secured with a conservation easement in favor of the wildlife agencies. In addition, a preserve management plan shall be prepared for the mitigation areas, to the satisfaction of the City, the wildlife agencies, and the Coastal Commission. Phase 1 of the preserve management plan shall be incorporated into the Implementation Program of the LCP through an LCP amendment within one year of Commission certification of the HMP as part of the certified LCP. Phase 2 of the preserve management plan shall be incorporated into the Implementation Program in the same manner within three years of Commission certification of the HMP as part of the certified LCP. The preserve management plan shall ensure adequate funding to protect the preserve as open space and to maintain the biological values of the mitigation areas in perpetuity. Management provisions and funding for mitigation required to address habitat impacts shall be in place prior to the impacts for which the mitigation is required. At a minimum, monitoring reports shall be required as a condition of development approval after the first and third year of habitat mitigation efforts.

i. If any conflict should arise between the provisions of the HMP and the policies of the LCP, the LCP shall take precedence.

7-10 Highly Constrained Properties (3-1.11 of LCP). There are properties in the Coastal Zone that are entirely or almost entirely constrained by environmentally sensitive habitat area (ESHA). In these cases, one of the following additional standards shall apply:

a. If more than 80% of the property by area is covered with ESHA at least 75% of the property shall be conserved, OR

b. If the City, with the concurrences of the wildlife agencies and the Coastal Commission through an LCP amendment, approves a Hardline preserve boundary for any of these properties as part of the HMP, then the amount of on-site preservation as identified in the Hardline boundary shall apply.

7-11 Buffers and Fuel Modification Zones (3-1.12 of LCP). Buffers shall be provided between all preserved habitat areas and development. Minimum buffer widths shall be provided as follows:

a. 100 ft. for wetlands

b. 50 ft. for riparian areas

c. 20 ft. for all other native habitats (Coastal Sage Scrub, Southern Maritime Chaparral, Maritime Succulent Scrub, Southern Mixed Chaparral, Native Grassland, Oak Woodland).

Buffer widths shall be measured from the edge of preserved habitat nearest the development to the closest point of development. For wetlands and riparian areas possessing an unvegetated bank or steep slope (greater than 25%), the buffer shall be measured from the top of the bank or steep slope rather than the edge of habitat, unless there is at least 50 ft. between the riparian or wetland area and the toe of the slope. If the toe of the slope is less than 50 feet from the wetland or riparian area, the buffer shall be measured from the top of the slope.

Any proposed reductions in buffer widths for a specific site shall require sufficient information to determine that a buffer of lesser width will protect the identified resources. Such information shall include, but is not limited to, the size and type of the development and/or proposed mitigation (such as planting of vegetation or the construction of fencing) that will also achieve the purposes of the buffer. The California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the Coastal Commission staff shall be consulted in such buffer determinations.

No development, grading, or alterations, including clearing of vegetation, shall occur in the buffer area, except for:

a. Fuel modification Zone 3 to a maximum of 20 ft. for upland and non-riparian habitat. No fuel modification shall take place within 50 ft. of riparian areas, wetlands, or oak woodland.

b. Recreation trails and public pathways within the first 15 feet of the buffer closest to the development, provided that construction of the trail or pathway and its proposed use is consistent with the preservation goals for the adjacent habitat, and that appropriate measures are taken for physical separation from sensitive areas.

Buffer areas that do not contain native habitat shall be landscaped using native plants. Signage and physical barriers such as walls or fences shall be required to minimize edge effects of development.

7-12 Grading and Landscaping Requirements. In addition to the requirements of the model grading ordinance in the Carlsbad Master Drainage Plan, permitted new development shall also comply with the following requirements:

a. Grading activity shall be prohibited during the rainy season: from October 1st to April 1st of each year.

b. All graded areas shall be landscaped prior to October 1st of each year with either temporary or permanent landscaping materials, to reduce erosion potential. Such landscaping shall be maintained and replanted if not well-established by December 1st following the initial planting.

c. The October 1st grading season deadline may be extended with the approval of the City Engineer subject to implementation by October 1st of special erosion control measures designed to prohibit discharge of sediments off-site during and after the grading operation. Extensions beyond November 15th may be allowed in areas of very low risk of impact to sensitive coastal resources and may be approved either as part of the original coastal development permit or as an amendment to an existing coastal development permit.

d. If any of the responsible resource agencies prohibit grading operations during the summer grading period in order to protect endangered or rare species or sensitive environmental resources, then grading activities may be allowed during the winter by a coastal development permit or permit amendment, provided that appropriate best management practices (BMPs) are incorporated to limit potential adverse impacts from winter grading activities.

3-1.13 of LCP. Invasive Plants. The use of invasive plant species in the landscaping for developments such as those identified in the HMP shall be prohibited (City of Carlsbad 2014).

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5 ANTICIPATED PROJECT IMPACTS AND SIGNIFICANCE OF IMPACTS

This section addresses direct, indirect, and cumulative impacts to biological resources that would result from implementation of the proposed project.

Direct impacts were quantified by overlaying the proposed project impact limits on the biological resources map of the site. For purposes of this assessment, all biological resources in the areas to be graded were considered directly impacted. These areas include the limits of grading and all fuel modification zones of which all such zones are located within the development area. In addition, direct impacts included all graded or manufactured slopes and would include the proposed right-of-way if applicable.

Indirect impacts primarily result from adverse "edge effects" as either short-term indirect impacts related to maintenance activities or long-term, chronic indirect impacts associated with increased noise due to the proximity of houses to open space areas. During construction activities, indirect impacts may include dust and noise, which could temporarily disrupt habitat and species vitality. However, all project work will be subject to the typical restrictions and requirements that address erosion, runoff, and water quality, including the federal Clean Water Act and National Pollution Discharge Elimination System.

Cumulative impacts refer to incremental individual environmental effects over the long-term implementation of the proposed project when considered together with other impacts from other projects in the area. These impacts taken individually may be minor, but they are considered collectively significant as they occur over a period of time.

5.1 Direct Impacts

The impact analysis includes an overlay of the limits of grading for the project as well as the review of the proposed site plan. Figure 4, Site Plan, provides the design of the proposed project. Figure 5, Biological Resources Impact Map, provides the illustration of the proposed impact limits of grading area on the biological resources. Proposed impacts will result from the construction of the proposed project development and emergency access. Impacts from fuel modification are located within the development footprint; no impacts to the riparian buffer, upland buffer, or native habitat will occur from fuel modification. The riparian buffer area will not be disturbed unless to prune oaks of dead limbs or foliage or remove dead grasses and/or invasive weeds. No impacts will occur to the riparian buffer or to native habitat except for the required emergency access at the western end (0.11 acre) or to the very narrow sliver (0.01 acre) of riparian buffer which is replaced by other buffer areas within the same area. There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that divides riparian buffer and this existing easement

will be excluded from the riparian buffer. One other riparian buffer area in the more eastern portion of the site is currently located within the existing road but no impacts are proposed from the current project and the proposed walls and fencing will provide the function of the riparian buffer as protection of the riparian habitat. The riparian buffer is planned to be restored to native habitat per a conceptual wetland restoration plan (Appendix E). The direct impacts also include fuel modification within the development and there is no fuel modification within the buffer due to appropriate planting within the buffer of native trees and forbs. The Preliminary Drainage Study for West Oaks (August 2017) indicates that in the proposed project condition, the flow patterns will largely stay the same. The three north-south storm drain systems on site will be re-used. Biofiltration with partial retention will be utilized to treat runoff before it enters the storm drain system. Runoff within the pads will be conveyed to the BMPs via surface flow, thus separate "clean" and "dirty" systems will not be necessary. No detention or retention basins are proposed to be constructed within the riparian buffer.

5.1.1 Vegetation Communities

The proposed project has been designed to concentrate development in areas previously approved for development and that were previously graded and are mapped as disturbed habitat. The site was originally approved for grading for the Bircher Business Center (Final Map No. 11358) in 1985 and is currently zoned Planned Industrial (P-M). Carlsbad Tract maps CT 82-4/PUD-38 describe the grading and creek channelization that was done within the property and the construction of West Oaks Way. Areas within the riparian habitat of Encinas Creek as well as the riparian and upland buffers will not be impacted except for uses allowed within the buffers (trails within the 15 feet closest to the development) or to provide for emergency access. A narrow strip of the riparian buffer, as noted above, will be impacted adjacent to one of the proposed buildings but will be compensated by addition of other larger patches of equivalent buffer habitat. The buffers are proposed to be revegetated with native habitat. The riparian buffer area will not be disturbed unless to prune oaks of dead limbs or foliage or remove dead grasses and/or invasive weeds. The western parcel on site is fully designated as HMP Preserve within the Carlsbad HMP however a small amount (0.12 acre) will be impacted to provide for the emergency access. This impact to the HMP Preserve will be compensated by the provision of new HMP Preserve in the form of the preserved and restored riparian creek and buffer (Figure 6) that was not originally designated as HMP Preserve. There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the new HMP Preserve and riparian buffer and this existing easement will be excluded from both.

The designation on the western parcel of the proposed project is shown on the upper portion of Figure 6. To accommodate the required emergency access, shown on the lower portion of Figure 6, the HMP Hardline Preserve will be reconfigured to allow for the inclusion of the required emergency access. This will remove 0.12 acre of the Hardline Preserve but will add riparian and restored riparian to the HMP Preserve as compensation. This not only increases the overall preserve acreage but adds the

riparian habitat within the on-site portion of the creek as well as a buffer to the riparian habitat that will be fully restored. Thus the proposed give and take of the HMP Hardline Preserve provides for improved preserve lands including greater acreage and high quality habitat.

Vegetation and Buffer Impacts

Implementation of the proposed project would result in the direct and complete loss of all land covers, in accordance with the group designations of the Carlsbad HMP, presented in detail in Table 7 and shown in Figure 5. Approximately 7.81 acres would be impacted as a result of the proposed project due to grading, the emergency access, and fuel modification. The details of each impact type, including impacts to existing riparian and upland buffers, are presented and described below.

The project proposes to add on to the riparian buffer to be larger overall and will include a trail and fencing (Figure 5). The buffer will be revegetated with native plant species. There is no impact to native vegetation except for the required emergency access which includes a bridge to cross Encinas Creek. There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the riparian buffer and this existing easement will be excluded from the riparian buffer and will not be revegetated. The access has been reviewed by the project engineer and several alternatives were discussed. All alternatives have to exit at the western end to provide the emergency access, thus an impact to the riparian habitat must occur. The impact has been minimized by designing the narrowest road acceptable to the City. A benefit of the emergency access is that a connection to the existing sidewalk is provided and this provides a walking trail within the riparian buffer.

Some portions of the buffers, as shown in Figure 5, are already within a developed area that is composed of existing roadway. These include: 1. the upland buffer along the western portion of the site along the southern boundary where upland buffers are located on the existing West Oaks Way; 2. The riparian and or upland buffer along Palomar Airport Road and Palomar Oaks Way; and 3. The riparian or upland buffer along the eastern portion of the existing West Oaks Way. For the last location, the riparian buffer extends all the way across West Oaks Way and is located along a strip of the proposed impact area. Based on discussions, the function of these buffers as protection for the existing native habitat will be implemented by the provision of existing walls or proposed installation of fencing to protect the habitat and preclude human access. These areas are not included in the impact analysis as impacted buffer since they are already located within existing roads.

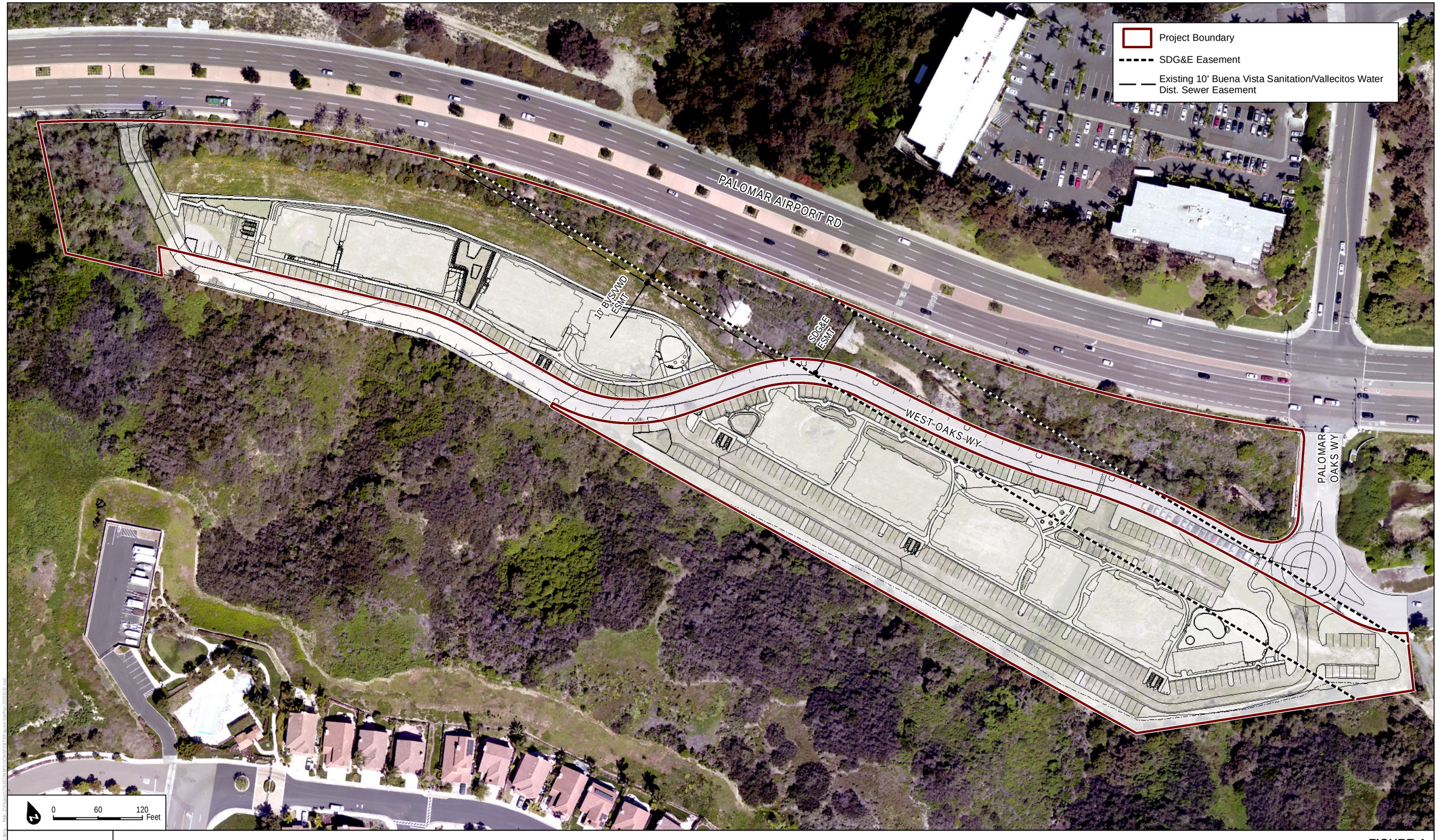
Impacts to riparian buffers are anticipated in two situations: 1. Within the western portion of the site where a narrow sliver of buffer will be impacted due to the development (0.01 acre); and 2. Within the western portion of the site where the emergency access is proposed (0.03 acre; not including the impact to the riparian habitat which is discussed above). As described above and shown in Figure 5, the impacts to these buffer areas has been made up by the addition of buffer areas elsewhere and especially with the compensation of the designation of new HMP Hardline Preserve. Figure 5 shows the upland and riparian buffers separately. With the addition of more riparian buffer and the fencing and/or walls to protect

habitat from intrusion for the upland buffers as well as the addition of the upland setback along the emergency access, the habitat is protected and function of the buffer is preserved or compensated. In addition, the disturbed habitat areas adjacent to Encinas Creek in the western portion of the site will be restored as mitigation for the impacts from the emergency access. The entire riparian buffer will be fully restored to native habitat per the concept plan (Appendix E). The riparian buffer area will not be disturbed unless to prune oaks of dead limbs or foliage or remove dead grasses and/or invasive weeds.

Table 7
Existing Acreage and Proposed Impacts to Vegetation Communities/Land Covers on the West Oaks Project Site (Acres)

Vegetation Community/ Land Cover	Existing	Impact from Grading for Development and Emergency Access road Including bridge and setback (outside of HMP Preserve)*	HMP Preserve Open Space Area (Restrictive Covenant area)	HOA Preserve Area for Upland Buffer (does not include existing paved areas)
Group A				
Southern willow scrub	1.20	0.08	1.07	--
Open water	0.16	0.01	0.14	--
Open water/concrete-channel	0.04	--	0.04	--
Group C				
Coastal sage scrub	1.40	--	1.36	--
Coastal sage scrub-coyotebrush dominated	0.11	0.02	0.09	--
Group F				
Disturbed land	8.22	6.41	1.17	0.61
Other Lands				
Developed	1.31	1.29	0.01	--
Developed/concrete-channel	0.09	--	0.09	--
Total	**12.53**	**7.81**	**3.97**	**0.61**

* Also includes 0.10 acre that is within the area approved for development but that is not graded.



SOURCE: AERIAL-SANGIS Imagery 2017; DEVELOPMENT-Fuscoe 2019

FIGURE 4
Proposed Site Plan

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Biological Technical Report for the West Oaks Project

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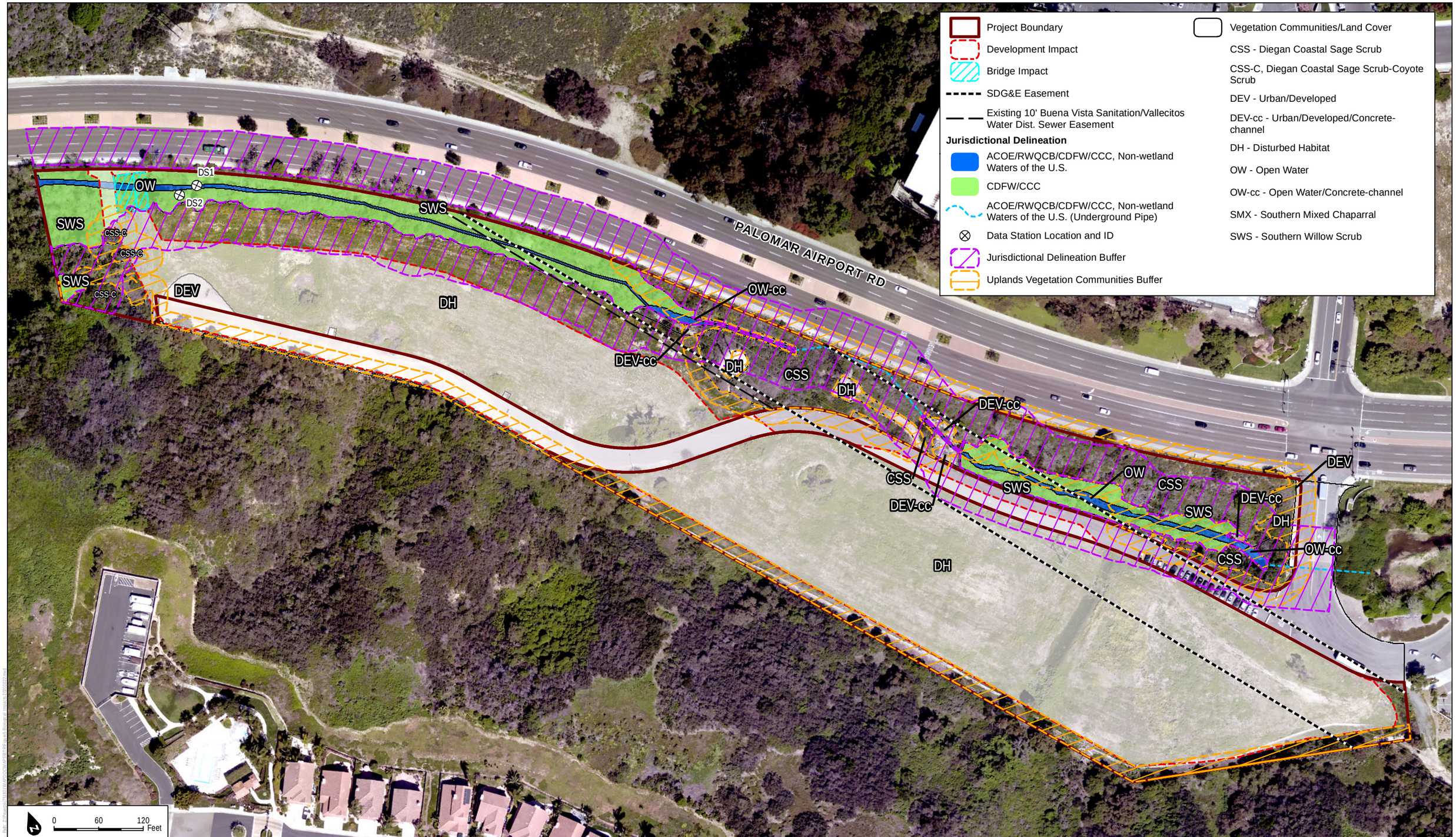

SOURCE: AERIAL-SANGIS 2017; DEVELOPMENT-FUSCOE 2019

FIGURE 3

Biological Resources Map

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Biological Technical Report for the West Oaks Project

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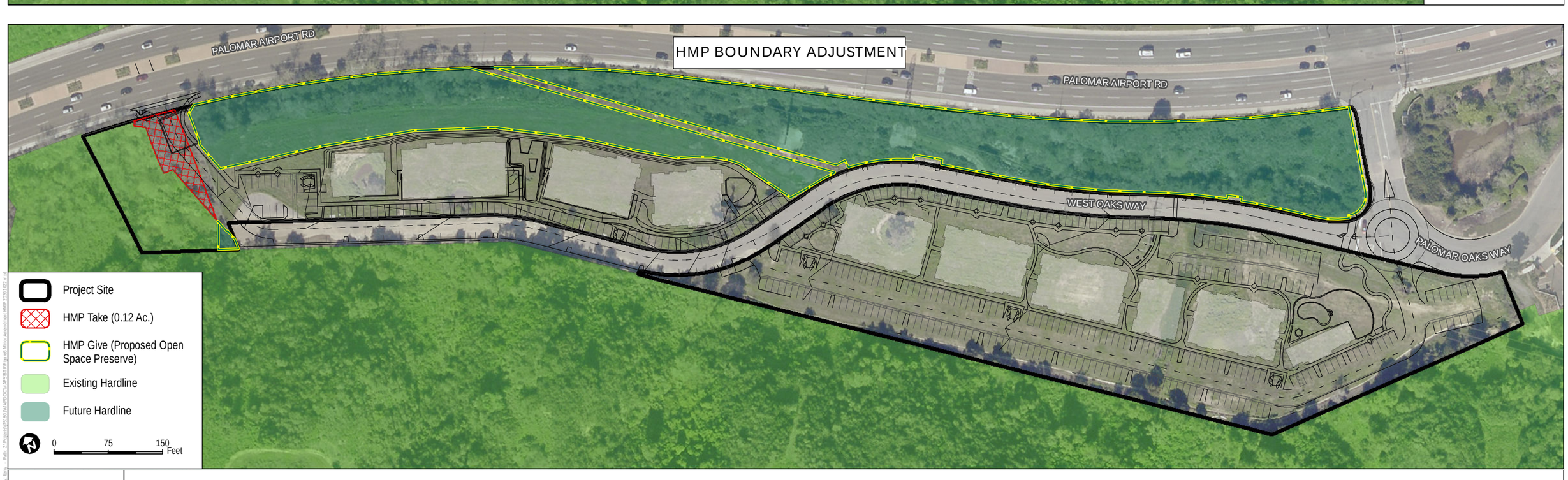

SOURCE: HMP: City of Carlsbad, June 2016; Fuscoe 2019; SANGIS Imagery 2017

FIGURE 6
Minor Amendment - HMP Boundary Adjustment

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Biological Technical Report for the West Oaks Project

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The 3.97-acre open space lot will be under the ownership of the homeowners' association (HOA) or qualified land manager. There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the open space lot and this existing easement will be excluded from the open space lot. It will be protected by a restrictive covenant limiting future use to open space purposes and will be incorporated into the Carlsbad HMP Preserve. Where appropriate and as shown in the landscape plans, the open space lot will be fenced to preclude access. A decomposed granite trail is included that is located within the first 15 feet of the preserve. A funded, qualified, and approved land manager will be designated to provide management of the open space. This lot will include the current HMP Preserve on the west side of the emergency access. This lot also includes the riparian habitat and jurisdictional waters of the United States, the coastal sage scrub vegetation, the riparian buffer areas, and the mitigation areas required for the construction of the emergency access.

These areas, as seen on Figures 7a, 7b, and Figure 9 and identified in Table 8, include the restored riparian buffer and the mitigation areas for the impacts resulting from emergency access per the concept plan (Appendix E) and any existing on-site riparian habitat within the creek.

Table 8
Existing Acreage and Proposed Open Space for the West Oaks Project Site

Vegetation Community/Land Cover	Existing	Proposed for Open Space to Remain in or be Added to the HMP Preserve
	Acres	*Acres*
Group A		
Southern willow scrub	1.20	1.07
Open water	0.16	0.14
Open water/concrete-channel	0.04	0.04
Group C		
Coastal sage scrub	1.40	1.36
Coastal sage scrub-coyote brush dominated	0.11	0.09
Group F		
Disturbed land – to be restored	8.22	1.17
Other Lands		
Developed	1.31	0.01
Developed/concrete-channel	0.09	0.09
Total*	**12.53**	**3.96**

* **Note:** Total may not sum due to rounding.

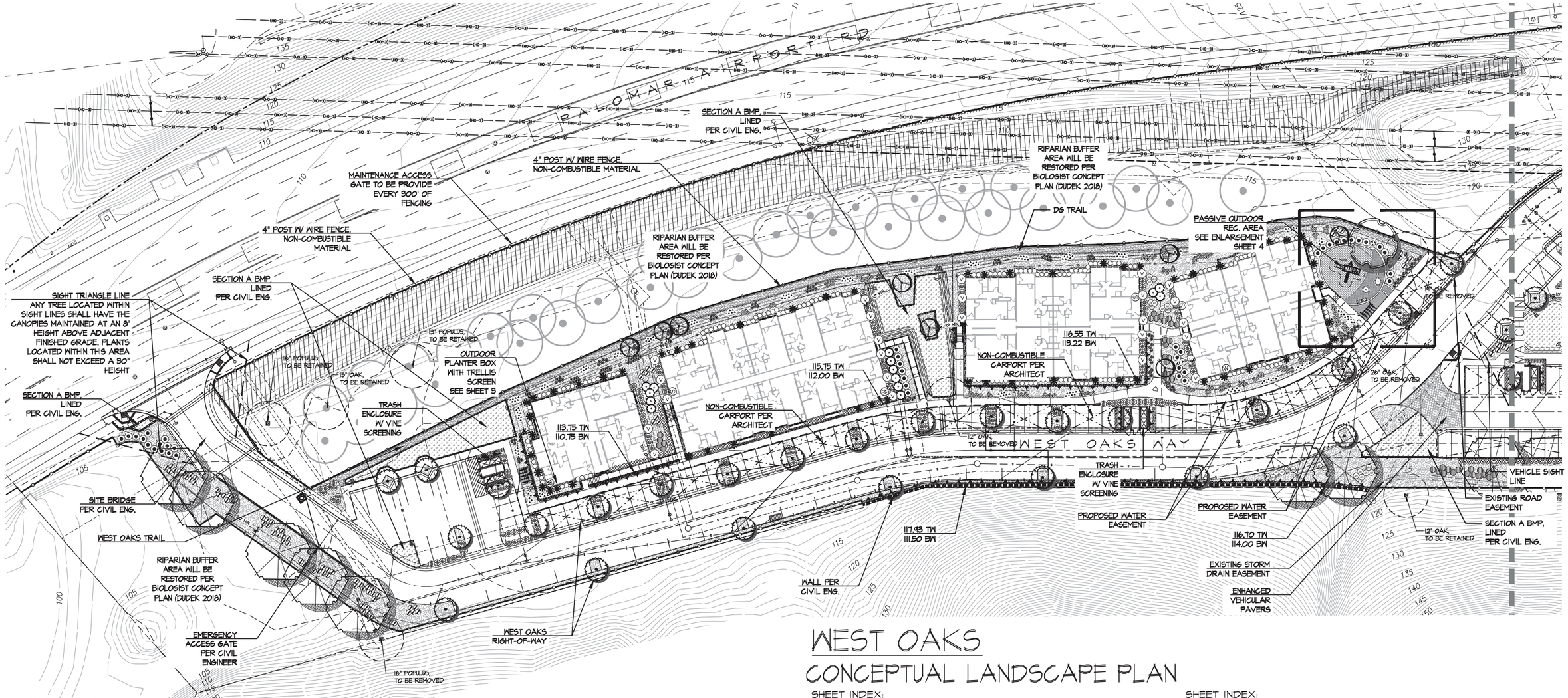
5.1.2 Special-Status Plant Species

Special-status plant species were not detected during surveys; and a full list of species present was prepared. Species with moderate potential to occur would have been observed during the

visits to the site. Additionally, impacts are not anticipated to occur in the habitat where the potentially present riparian species would occur. These plant species are presented in Table 3. Limited impacts to riparian areas are proposed for the required emergency access and a bridge is proposed in order to allow wildlife movement within Encinas Creek. No impacts are proposed to the coastal sage scrub within the SDG&E easement. No impacts to special status plants are anticipated.

5.1.3 Special Status Wildlife Species

The project site contains two special status wildlife species that were observed during surveys: Blainville's horned lizard and Cooper's hawk. Additionally, the following special-status wildlife species have a moderate to high potential to occur as analyzed and presented in Table 4: Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), orangethroated whiptail (*Aspidoscelis hyperythra*), coastal tiger whiptail (*Aspidoscelis tigris stejnegeri*), and two-striped garter snake (*Thamnophis hammondii*). Focused surveys have been conducted for the California gnatcatcher and least Bell's vireo and were negative. For the riparian species (yellow warbler, yellow-breasted chat, Cooper's hawk, and two-striped garter snake), direct impacts will not occur because limited impacts will occur to the riparian habitat for the bridge and the species have not been during surveys of the site. Impacts also will not occur to the coastal sage scrub species (Blainville's horned lizard, Southern California rufous-crowned sparrow, orangethroated whiptail, and coastal tiger whiptail).The Southern California rufous-crowed sparrow was not detected during the protocol survey. The following species are HMP covered species: California gnatcatcher, Cooper's hawk, least Bell's vireo, Southern California rufous-crowned sparrow, yellow-breasted chat, and orangethroated whiptail. Based on focused surveys and the proposed impacts to the site and habitats, no impacts to special status species are anticipated.



WEST OAKS

CONCEPTUAL LANDSCAPE PLAN

SHEET INDEX:

LANDSCAPE CALCULATIONS:

	AREA
DEVELOPABLE AREA:	7.80 ACRES
UNDEVELOPABLE AREA:	4.73 ACRES
TOTAL LANDSCAPED AREA:	103,585 SF
TOTAL RESTORATION AREA:	182,516 SF
TOTAL PARKING LOT AREA:	66,549 SF
TOTAL PARKING LOT LANDSCAPE:	8,125 SF

MAINTENANCE NOTE

ALL LANDSCAPE AREAS ARE TO BE MAINTAINED IN A HEALTHY AND DISEASE FREE CONDITION BY EITHER THE H.O.A OR THE PRIVATE HOMEOWNERS AS INDICATED ON THE PLANS.

ALL TREES ADJACENT TO BUILDING TO BE MAINTAINED SO NO BRANCHES ENCROACH WITHIN 10'.

EXISTING RIPARIAN BUFFER TO BE MAINTAINED TO SO THAT SCREENING IS PROVIDE FOR PARKING ALONG WEST OAKS WAY.

STREET TREES UNDER SDGE TRANSMISSION TO BE CHANGED TO MAGNOLIA 'LITTLE GEM' AFTER THE INSTALLATION OF NEW SDGE TRANSMISSION POLE PER SDGE APPROVAL.

HOA TO RETAIN A 3' CLEARANCE BETWEEN TREE CANOPIES AT MATURITY AND NON-COMBUSTIBLE, CARPORTS IN FUEL MODIFICATION ZONES 2 AND 3 PER THE FIRE PROTECTION PLAN FOR THE WEST OAKS PROJECT PREPARED BY DUDEK.

MAINTENANCE ACCESS PEDESTRIAN GATES SHALL BE PROVIDED EVERY 300' ALONG FIRE PROTECTION AREA WHICH SHOW FENCING.

MAINTENANCE ACCESS GATE TO REMAIN LOCKED AT ALL TIMES EXCEPT FOR MAINTENANCE ACCESS.

30 15 0 30 60 90

SCALE: 1" = 30'-0"

SOURCE: GMP Landscape Architecture & Planning 2019

DUDEK

FIGURE 7A

Proposed Landscape Plan - Westerly Half

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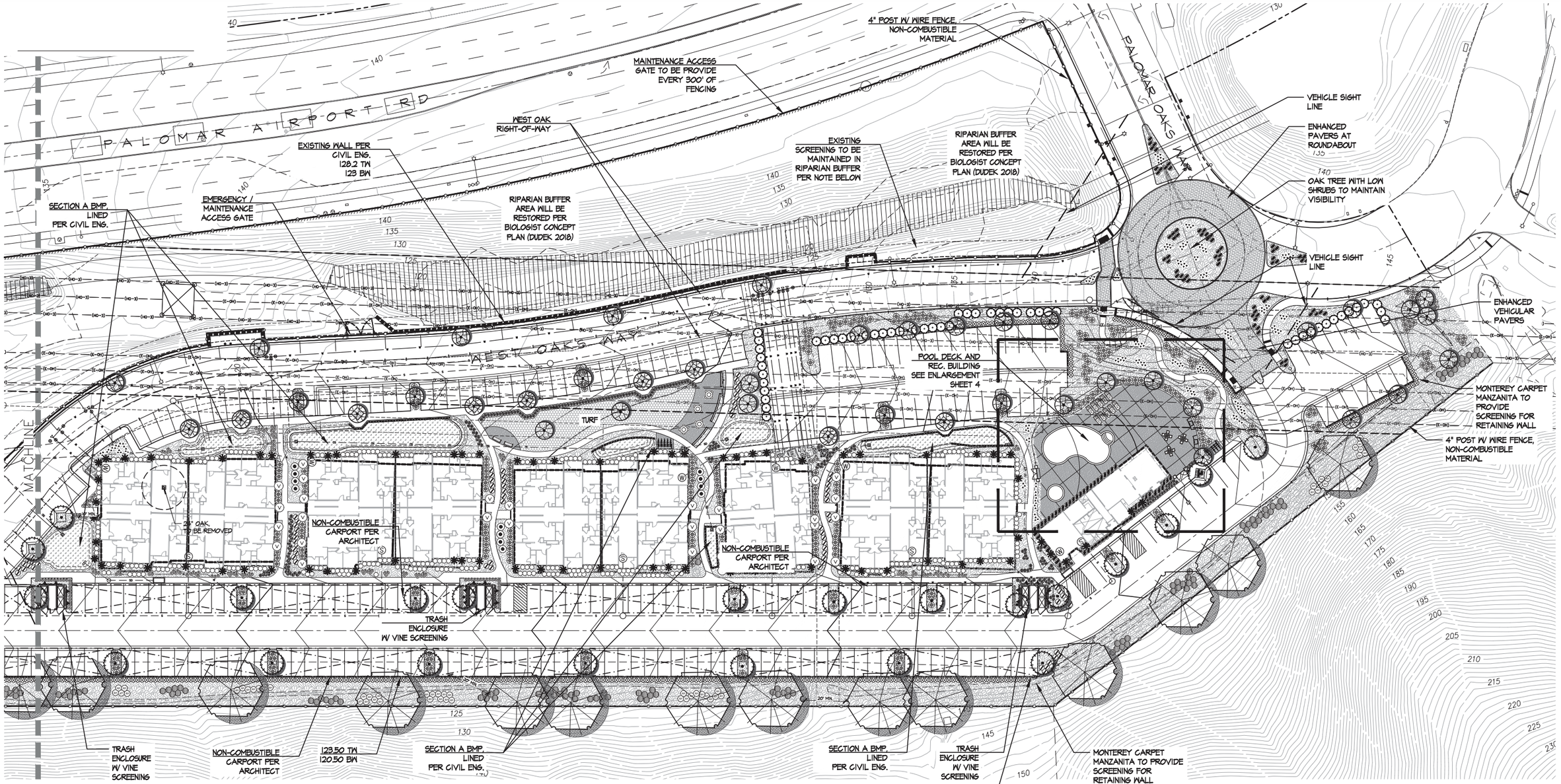

MAINTENANCE NOTE
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EXISTING RIPARIAN BUFFER TO BE MAINTAINED TO SO THAT SCREENING IS PROVIDE FOR PARKING ALONG WEST OAKS WAY.

STREET TREES UNDER SDGE TRANSMISSION TO BE CHANGED TO MAGNOLIA 'LITTLE GEM' AFTER THE INSTALLATION OF NEW SDGE TRANSMISSION POLE PER SDGE APPROVAL.

HOA TO RETAIN A 3' CLEARANCE BETWEEN TREE CANOPIES AT MATURITY AND NON-COMBUSTIBLE, CARPORTS IN FUEL MODIFICATION ZONES 2 AND 3 PER THE FIRE PROTECTION PLAN FOR THE WEST OAKS PROJECT PREPARED BY DUDEK.

MAINTENANCE NOTE
MAINTENANCE ACCESS PEDESTRIAN GATES SHALL BE PROVIDED EVERY 300' ALONG FIRE PROTECTION AREA WHICH HAS FENCING.

MAINTENANCE ACCESS GATE TO REMAIN LOCKED AT ALL TIMES EXCEPT FOR MAINTENANCE ACCESS.

30 15 0 30 60 90
SCALE: 1" = 30'-0"

SOURCE: GMP Landscape Architecture & Planning 2019

DUDEK

FIGURE 7B
Proposed Landscape Plan - Easterly Half

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5.1.4 Jurisdictional Resources

Based on the analysis of the proposed limits of grading, impacts will occur to jurisdictional waters of the United States and riparian habitat due to the construction of the bridge and emergency access. No other impacts to jurisdictional resources will occur (Table 9; Figure 5). A total of 0.04 acre of southern willow scrub under the jurisdiction of CDFW and CCC will be impacted directly by the placement of the bridge. A total of 0.04 acre of southern willow scrub under the jurisdiction of the CDFW and CCC will not be directly impacted, but lies underneath the bridge and may be affected by shading. All direct impacts to ACOE and RWQCB jurisdictional areas will be avoided, but 0.01 acre of open water would be bridged. The site includes preserve areas that include Encinas Creek and riparian vegetation plus a buffer that will be restored to native vegetation. The applicant met with CDFW, ACOE, and RWQCB on November 14, 2017. The ACOE and RWQCB confirmed that they would not required a permit for the project.

Table 9
Proposed Impacts to Jurisdictional Areas on the West Oaks Project Site

Vegetation Community/Land Cover Type	Resource Agency Jurisdiction (Acres)			
	Shading (Bridge) ACOE/RWQCB/CDFW/CCC	*Permanent CDFW/CCC*	*Shading (Bridge) CDFW/CCC*	*Grand Total*
Southern willow scrub	–	0.04	0.04	0.08
Developed/concrete-channel	--	--	–	0.00
Open water	0.01	--	–	0.01
Open water/concrete-channel	--	--	–	0.00
Grand Total	**0.01**	**0.08**	**--**	**0.09**

5.1.5 Habitat Linkages and Wildlife Corridors

The project occurs within a potential area for wildlife movement within Encinas Creek along the north side of the property .(Figure 3). The proposed bridge crossing would not reduce wildlife movement through the area since it will provide for a wide and open area within which wildlife may move. The total span of the bridge, from the top of each abutment, is 60 feet. The conceptual bridge design provides an openness ratio of approximately 2.0 (Figure 8). This calculation is based on the width of the span (approximately 40 feet (12.2 meters) across natural grade), the height of the bridge (approximately 10 feet (3.0 meters)), and total length of the span (approximately 60 feet (18.3 meters)). The openness ratio is based on the width times the height divided by the length, in meters (Arizona Game and Fish Department 2008). The MHCP recommends a minimum 1:1 length-to-width ratio, which the proposed design also meets (SANDAG 2003b). Minimum openness ratios for movement of

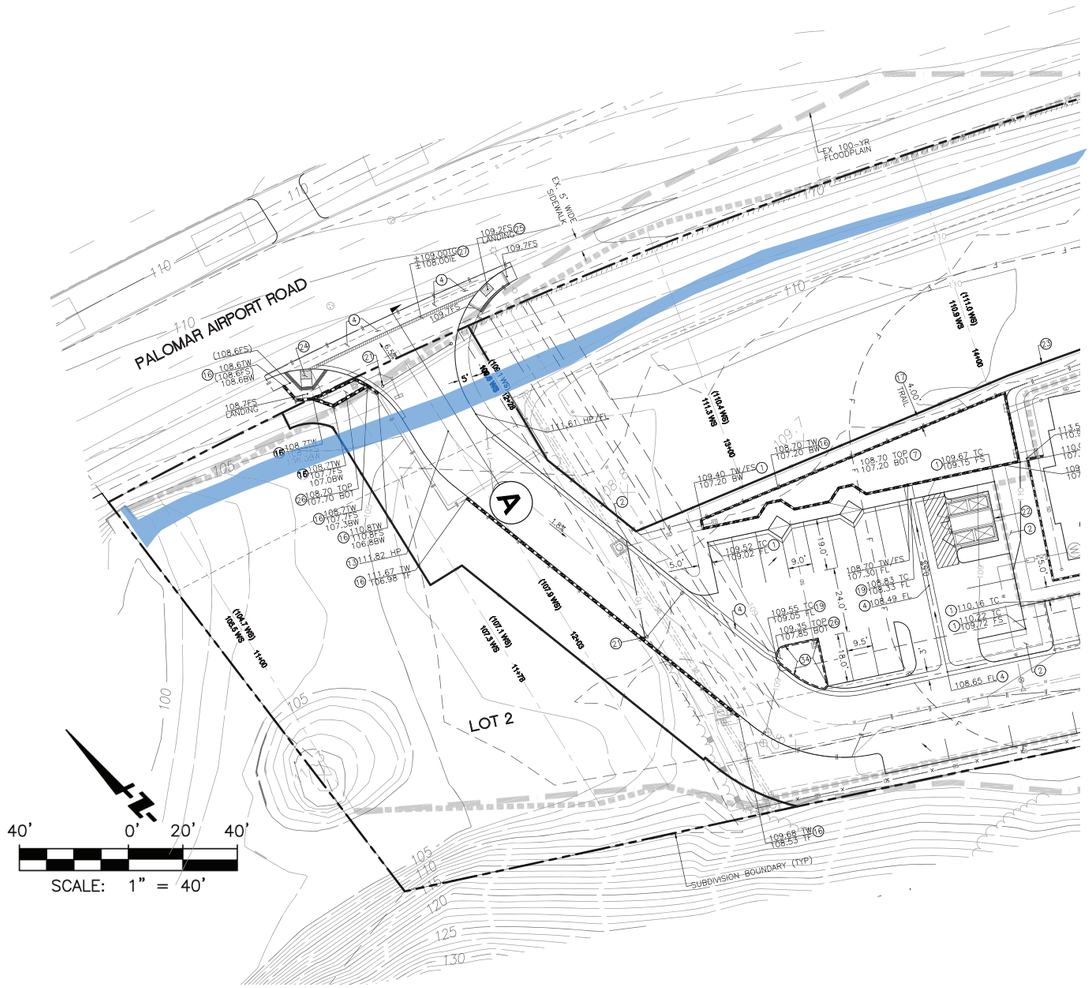
large mammals is 1.0; the proposed bridge provides double times this ratio and therefore is more than adequate to ensure wildlife movement.

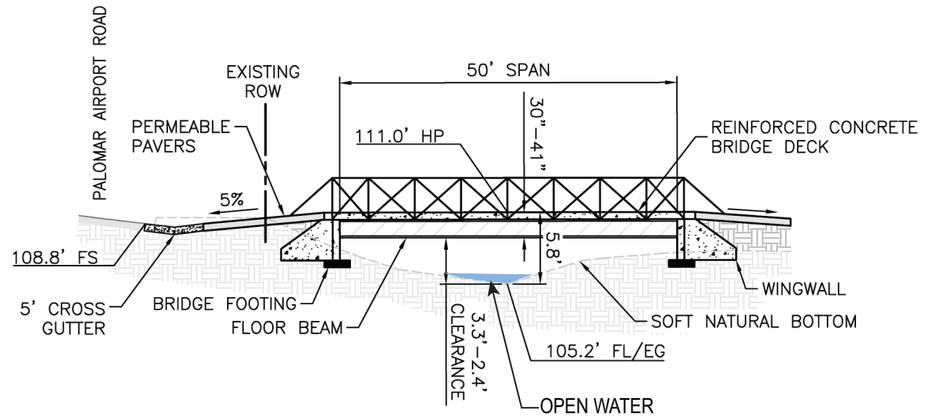
5.1.6 Regional Resource Planning Context

As noted in Section 4.7, there are several requirements outlined in the Carlsbad HMP and the Coastal requirements within the Carlsbad HMP. Please refer to Section 4.7.2 for the exact language of the requirement; this section provides the required consistency findings for compliance of the proposed project. The project is located within LFMZ 5 and is designated outside of preserve except for the western-most parcel which is designated HMP hardline preserve and is discussed above. Within the Guidelines for Biological Studies (2008), the following items are indicated as appropriate to review for compliance with the Carlsbad HMP.

Zone 5 and General Carlsbad HMP Requirements:

- There are no Zone 5 specific requirements.
- Impacts to uplands must be avoided and/or minimized to the maximum extent possible. The impact to coastal sage scrub – coyotebrush dominated is minimized for only the emergency access and there are no other impacts proposed for this upland habitat.
- No-net-loss of wetlands, or riparian habitat. The impact to riparian is avoided and minimized and is only needed for the required emergency access and there are no other impacts. The applicant reviewed multiple options with the City, including options that avoid impacts to jurisdictional resources and there were no acceptable options other than the proposed.
- Wetland permits will be required. This is included in the mitigation.
- Address Adjacency Standards. These are included in the mitigation.
- Clearing and grubbing is prohibited during the breeding season. This is included in the mitigation.
- All fuel modification activities are subject to HMP regulations. The fuel modification has been fully vetted with the City. All fuel modification is located within the development area; no fuel modification is proposed for the riparian buffer or proposed open space. The riparian buffer area will not be disturbed unless to prune oaks of dead limbs or foliage or remove dead grasses and/or invasive weeds.
- Restrict major areas for development – All of the residential development would occur in existing disturbed areas except for the required emergency access. The project focuses on the existing disturbed areas.





AT GRADE BRIDGE CROSSING A

NTS

SOURCE: FUSCOE 2019

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FIGURE 8

Proposed Bridge and Cross Section A

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Additional Coastal Zone Conservation Standards:

- **7-1 (LCP 3-1.2) – ESHA.** ESHA is generally protected however encroachment into ESHA is required in order to accommodate the emergency access.
- **7-2 (LCP 3-1.3) – CSS Conservation.** All coastal sage scrub is preserved except for the small amount impacted for the emergency access.
- **7-6 (LCP 3-1.7) – Wetlands.** While no impact to wetlands are allowed, a small amount of impact to riparian habitat is required for the emergency access. The creek itself is proposed to be bridged however impacts are assumed from shading and mitigation is proposed for both direct and shading impacts.
- **7-7 (LCP 3-1.8) – Wetlands Mitigation.** Mitigation will be as required at a 3:1 ratio.
- **7-8 (LCP 3-1.9) – No Net Loss of Habitat.** The project mitigation would provide for no-net-loss of coastal sage scrub.
- **7-9 (LCP 3-1.10) – Upland Habitat Mitigation Requirements.** Mitigation will typically include creation at a ratio of least 1:1. On-site mitigation is not eligible for mitigation credit in the Coastal Zone. On-site or off-site areas may be used for mitigation if habitat is disturbed and suitable for restoration or enhancement, or if habitat is devoid of habitat value and therefore eligible for the 1:1 creation/substantial restoration mitigation component. Mitigation should be provided within the Coastal Zone. The project proposes to mitigate for the impacts to the coastal sage scrub – coyotebrush by creation within fully disturbed areas with no coastal sage function.
- **7-11 (LCP 3-1.12) – Buffer and Fuel Modification Zones.** The City of Carlsbad Guidelines for Riparian and Wetland Buffers (2010) provides a definition of riparian and wetland habitats; southern willow scrub is listed as an example of a riparian habitat. Therefore the riparian buffer guidelines are applied to the project. A minimum 50-foot riparian buffer (i.e., protection zone). Development within the protection zone is limited to allowed facilities under the City's Guidelines (2010).

  Fuel modification is located in the development only and vegetation treatment is provided in the buffer to provide native revegetation that is also acceptable to the city fire marshal. No fuel modification is proposed to occur within the riparian buffer.

  No Zone 1 or 2 fuel modification areas occur within the 20-foot upland buffer. Grading and walls are proposed within the upland buffer to provide protection.
- **7-12 – Grading and Landscaping Requirements.** It is assumed that these conditions will be incorporated as part of development approvals.

5.2 Indirect Impacts

The project site is bordered by development to the east, Palomar Airport Road to the north and Carlsbad HMP Preserve lands to the south and west. The project proposes, however, to incorporate the riparian and buffer along the northern border into the Carlsbad HMP Preserve (Figure 9). The emergency access along the west will actually buffer the habitat to the west from human intrusion and will only be used rarely. Currently there is trespass into this habitat area. The proposed project would include open space in the north and western areas and adjacent to preserve to the south. Therefore, edge effects generally could occur along the development-preservation interface to the north, south, and west.

The preserve edge is provided protection by walls and fencing. All landscaping adjacent to the preserve is proposed to be native. There will be no lighting within the preserve. Fuel modification is designed to be within the proposed impact area with plantings incorporated into the riparian buffer that are native and acceptable to the fire marshal (Figures 10a and 10b). The riparian buffer area will not be disturbed unless to prune oaks of dead limbs or foliage or remove dead grasses and/or invasive weeds.

Indirect impacts are addressed in the HMP by compliance with the Adjacency Standards or by avoidance of impacts to nesting birds. The Adjacency Standards only apply to areas directly adjacent to the preserve which include the southern and western boundary. However indirect impacts will also be addressed for areas adjacent to the proposed open space. Because this open space area will be incorporated into the HMP Preserve, indirect impacts will be addressed similarly to those requirements for the Adjacency Standards. Adhering to these requirements will provide protection for the habitats that are preserved as well as the habitats that are proposed to be preserved.

5.2.1 Vegetation Communities

Indirect impacts to vegetation communities would primarily result from adverse "edge effects." During construction of the proposed project, edge effects may include dust, which could disrupt plant vitality in the short term, and/or construction-related soil erosion and runoff. However, typical construction practices, including dust control, erosion control, and water quality protection measures, will be implemented to reduce these effects.

SOURCE: AERIAL -BING MAPPING SERVICE 2016; HMP - CITY OF CARLSBAD 2016

FIGURE 9

Proposed HMP Preserve

Biological Technical Report for the West Oaks Project

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SOURCE: AERIAL - SANGIS IMAGERY 2017; SITE PLAN -FUSCOE ENGINEERING 2019/2020

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FIGURE 10A

Conceptual Fuel Modification Western Development

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SOURCE: AERIAL - SANGIS IMAGERY 2017; SITE PLAN -FUSCOE ENGINEERING 2019/2020

FIGURE 10B

Conceptual Fuel Modification Eastern Development

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Potential long-term indirect impacts on vegetation could include trampling by humans traveling off trail, invasion by exotic plants and animals, exposure to urban pollutants (fertilizers, pesticides, herbicides, and other hazardous materials), increase or decrease in natural fire regime, soil erosion, and hydrologic changes (e.g., surface and groundwater level and quality). Although the project is designed to minimize preserve edge effects, long-term indirect impacts could occur. Long-term indirect impacts are anticipated to be reduced to vegetation communities because the proposed open space, which includes all of the native riparian vegetation and revegetated buffer as well as the coastal sage scrub except for the impact needed for the emergency access will be preserved. All of the proposed open space and existing HMP Preserve on site will be protected by a conservation easement, funding, and land manager. Most importantly, all of the on-site open space will be protected by fencing. For the existing HMP Preserve off site to the south, indirect impacts are proposed to be prevented by adherence to the Adjacency Standards and the fencing and walls that exist or are proposed. Finally, vegetation within the open space riparian buffer will be protected by the planting of native plant species. The riparian buffer area will not be disturbed unless to prune oaks of dead limbs or foliage or remove dead grasses and/or invasive weeds.

The proposed project is adjacent to the HMP preserve along the western and southern edges of the site. In addition, there is riparian habitat along the northern portion of the site within the Encinas Creek drainage and within the western parcel that will be included in the Carlsbad HMP preserve. The Carlsbad HMP includes adjacency standards and proposes buffers to avoid and minimize impacts to sensitive vegetation communities in conservation areas or jurisdictional resources that are adjacent to developed areas. Adjacency standards addressed in the Carlsbad HMP include fire management, erosion control, landscaping restrictions, fencing, signs and lighting, and predator and exotic species control, which are discussed in detail in the following text. Implementation of these adjacency standards are expected to reduce indirect impacts to vegetation communities to a level below significant.

5.2.2 Special-Status Plants

Most of the indirect impacts to vegetation communities cited previously can also affect special-status plants. It should be noted that no special status plants were detected on site and none are anticipated however if there are plants that occur off site within adjacent areas, these standard measures provide protection. During construction of the proposed project, indirect effects may include dust which could disrupt plant vitality in the short term and/or construction-related soil erosion and drainage runoff. However, it is assumed that typical construction practices, including dust and erosion control and water quality BMPs, will be implemented and will reduce these effects. Implementation of the adjacency standards addressed in the Carlsbad HMP (fire management, erosion control, landscaping restrictions, fencing, signs and lighting, and predator and exotic species control) are expected to reduce indirect impacts to special-status plants to a level below significant.

5.2.3 Special-Status Wildlife

Most of the indirect impacts to vegetation communities mentioned previously can also affect special-status wildlife in on-site open space or off-site preserve areas. In addition, wildlife may be indirectly affected in the short term and long term by noise, which can disrupt normal activities. Also, adverse indirect impacts to vegetation communities, such as trampling of vegetation, can cause degradation of habitat quality. Implementation of the adjacency standards addressed in the Carlsbad HMP (fire management, erosion control, landscaping restrictions, fencing, signs and lighting, and predator and exotic species control) is expected to reduce indirect impacts to special-status wildlife to a level below significant.

Indirect impacts include potential disruption of breeding birds, including potentially occurring special-status species and other wildlife species that may use the riparian habitat for nesting. Indirect impacts from construction-related noise may occur to special-status wildlife if construction occurs during the breeding season (February 15 through August 31 for most species, and January 1 through August 31 for raptors). During the breeding season, there is high potential for the special-status coastal California gnatcatcher to nest in the slope to the south of the site, and for the yellow warbler to nest within the riparian habitat adjacent to the proposed development. Additionally, there is moderate potential for special-status raptors (i.e., Cooper's hawk and loggerhead shrike) to nest within the eucalyptus and oak trees adjacent to the proposed development. With implementation of mitigation measures to protection indirect impacts to nesting birds, the impacts will be less than significant.

Long-term adverse impacts to wildlife, such as predation by urban pest species (e.g., American crows (*Corvus brachyrhynchos*), raccoons, striped skunks), lighting and noise, and human presence, would likely occur despite the design of a consolidated preserve.

5.2.4 Jurisdictional Waters

Many of the potential short- and long-term indirect impacts to vegetation communities/special-status plants described above also apply to the jurisdictional waters and riparian habitat. Areas downstream of the project site may be subject to erosion, sedimentation, and pollution during and following project construction. Although standard construction BMPs and recommended preserve design configuration have been incorporated into the proposed project, short- and long-term indirect impacts could occur. Protection for the riparian and riparian buffers is described above in Section 5.2.1.

5.2.5 Wildlife Corridors and Habitat Linkages

The proposed project is located within previously disturbed habitat. The areas that potentially function as wildlife corridors, including the vegetation within Encinas Creek and the riparian buffer, will not be impacted. However a bridge is required for the emergency access and has been addressed as a direct impact above. Indirect impacts are avoided by fencing, buffers, and

revegetation of the buffers (Figure 9 and Appendix E). The proposed crossing of Encinas Creek is proposed to be a bridge that will continue to allow wildlife movement through the habitat and drainage. No impacts to wildlife corridors and habitat linkages will occur.

5.3 Cumulative Impacts

Cumulative impacts to sensitive upland habitat, special-status plant species, and special-status wildlife species in the MHCP subarea would occur through the proposed project, in the absence of the implementation of the Carlsbad HMP, and specifically through the preserve system. However, implementation of the Carlsbad HMP provides mitigation for these cumulative impacts because the Carlsbad HMP has anticipated regionwide impacts and has adopted a preserve system that mitigates for these impacts. The proposed project is consistent with the guidelines set forth in the MHCP and Carlsbad HMP. Therefore, there will be no significant cumulative impacts to sensitive upland habitat, special-status plant species, or special-status wildlife species.

5.4 Analysis of Significance

5.4.1 Explanation of Findings of Significance

Impacts to biological resources must be quantified and analyzed to determine whether such impacts are significant under the California Environmental Quality Act (CEQA). CEQA Guidelines Section 15064(b) states that an ironclad definition of "significant" effect is not possible because the significance of an activity may vary with the setting. Appendix G of the CEQA Guidelines; however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (14 CCR 15064(e)). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. CEQA Guidelines Section 15065(a) is also helpful in defining whether a project may have "a significant effect on the environment." Under that section, a proposed project may have a significant effect on the environment if the project has the potential to (1) substantially degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife population to drop below self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) reduce the number or restrict the range of a rare or endangered plant or animal; or (6) eliminate important examples of the major period of California history or prehistory.

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions, but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significant.

5.4.2 Vegetation Communities

Impacts to special-status vegetation communities identified in Table 7 are considered significant. These impacts include permanent impacts to 0.08 acre of southern willow scrub, 0.01 acre of open water and 0.02 acre of coastal sage scrub-coyotebrush scrub. The impacts that potentially result from shading from the construction of the bridge are included in these acreage numbers.

Given the presence of special-status biological resources adjacent to and within the project site that will be preserved as part of this project or other projects, indirect impacts to vegetation communities are potentially significant in both the short- and long-terms. Such potentially significant indirect impacts include dust, erosion, sedimentation, trash dumping, introduction of exotics plant and animal species, changes in fire regime, and hydrologic changes and indirect impacts to nesting birds.

5.4.3 Jurisdictional Waters

Impacts to jurisdictional resources are considered significant. These impacts include permanent impacts to 0.08 acre of southern willow scrub, 0.01 acre of open water. Indirect impacts are potentially significant and may include erosion and pollution within on-site and off-site waters downstream of the project site.

5.4.4 Special-Status Plants

None of the direct permanent impacts to special-status plant species are considered significant under applicable CEQA thresholds due to the lack of presence of special status plants.

Indirect impacts during and after construction are also considered significant and provided protection in a manner similar to sensitive vegetation communities. Currently no known special status plant species have been documented.

5.4.5 Special-Status Wildlife

Impacts to special-status wildlife are potentially significant. If initial habitat clearing occurs during the breeding season for avian species, reproduction for species within this area may significantly affect those populations. Even if clearing activities occur outside the breeding season, the carrying capacity of the regionally available suitable habitat will have been reduced and may significantly adversely impact special-status species populations.

Indirect impacts are also potentially significant in the short and long term; particularly due to noise during the breeding season as it may affect nesting birds indirectly and lighting within the open space following occupancy of the development.

5.4.6 Habitat Linkages/Wildlife Corridors

Direct impacts to the habitat linkages within Encinas Creek is less than significant since the crossing is proposed to be a bridge span that is placed outside of jurisdictional limits. With the fencing and management, indirect impacts are also considered less than significant.

5.4.7 Regional Planning Context – Compliance Review

The City is a member of the North County MHCP and has adopted an HMP (City of Carlsbad 2004). The MHCP is a comprehensive, multiple jurisdictional planning tool designed to create, manage, and monitor an ecosystem preserve in northwestern San Diego County (SANDAG 2003). Under the Carlsbad HMP, the project site does not have designation of existing or proposed hardline or standards areas except for the western parcel.

Figure 9, Ultimate Preserve, provides an overview of surrounding development and adjacent preserve areas and provides the compliance review with the Carlsbad HMP. The project site continues to have designated as HMP hardline preserve on the western parcel based (Figure 6). There is no proposed impact to the HMP preserve other than that area required for the emergency access. This impact to the HMP hardline preserve is compensated by the designation of the riparian and riparian buffer on site as HMP preserve. There is also HMP hardline preserve off site along the southern property line as part of the Cobblestone property. The project will designate the riparian habitat and buffers per the proposed open space and as HMP preserve (Figure 9).

The Carlsbad HMP identifies the need for buffers to protect sensitive biological resources. The Carlsbad HMP stipulates that a 20-foot buffer is required between development and upland native vegetation, such as coastal sage scrub. That buffer has been provided as shown on Figure 5. Where there is an existing paved road currently present within the upland buffer, the buffer function is supported by a combination of fencing and wall. Other than the required emergency access road, there is no impact within the 20-foot upland buffer and upland buffer is provided for the emergency access road and analyzed as an impact.

The Carlsbad HMP also identifies that a 50-foot riparian buffer is required between development and riparian vegetation such as southern willow scrub. That buffer has been provided as shown on Figure 5. For areas that have an existing paved road within the buffer, the buffer is provided by fencing and wall. This buffer will be restored to native habitat as required, a revegetation plan has been prepared (Appendix E) and the buffer and riparian habitat will be incorporated into the Carlsbad HMP. There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the the riparian buffer and this existing easement will be excluded from the riparian buffer and will not be revegetated. The buffer and riparian habitat, as indicated on Figure 9, will be protected by a restrictive covenant, will be managed by a qualified land manager and will have funding in perpetuity.

The development of the proposed project conforms to all of the identified goals and standards outlined in the Carlsbad HMP. Impacts to coastal sage scrub are only related to the requirements of the emergency access. This impact has been reduced to the maximum feasible by narrowing, fencing, using a span bridge and has been placed in the best acceptable location for the project. However, the emergency access is a required feature to provide fire protection for the project. Development impacts are limited to the areas previous graded and approved for development.

Impacts are proposed to occur to the riparian buffer (Figure 5) in the western part of the site but the emergency access. There is also an impact to the riparian buffer adjacent to the proposed residential development with a narrow sliver of 0.01 acre that is made up by addition of a larger block. The buffer will be revegetated to native habitat in accordance with the Carlsbad HMP and per the concept plan (Appendix E).

Due to the adjacency of the project to the Carlsbad HMP hardline preserve and the proposed area to be added to the HMP preserve, the project is subject to the adjacency standards which are included below in the mitigation section. In addition, the project will comply with the conservation standards within the Coastal Zone, including no net loss of upland or riparian habitat.

The development of the site is consistent with the Carlsbad HMP with respect to the covered species of the Carlsbad HMP.

The entire site is outside of the HMP preserve except for the 0.60-acre western-most parcel. Within the Carlsbad HMP, this parcel is designated as 100% HMP preserve.

6 MITIGATION MEASURES

The following vegetation communities are not considered sensitive and do not require mitigation: developed lands. The following plant communities will require mitigation in accordance with the HMP: coastal sage scrub-coyotebrush, southern willow scrub, and open water. The following land cover will require mitigation in the form of an in-lieu mitigation fee to fund the acquisition of the MHCP core area: disturbed land.

A number of mitigation measures or conditions are required in order to protect nesting birds and special-status species from direct and indirect impacts. Mitigation measures are provided for direct and indirect impacts as summarized below.

Currently, the conditions of approval for the property include preservation of the oak trees within the development area. The conditions provide for no flexibility, and there is no option of removal and mitigation of the trees. The City HMP staff indicate that removal of unhealthy trees and replacement in the buffer is logical but might require a revision to the tract conditions. City HMP staff indicated they would support the proposal since healthy trees will be provided in place of the current trees. Mitigation is included for the removal of the oak trees with the planting of trees in the riparian buffer (Appendix D and E).

6.1 Mitigation for Direct Impacts

6.1.1 On-Site Mitigation

Vegetation communities or land covers that do not require mitigation or that are not proposed to be impacted are not included. Mitigation requirements for permanent impacts are set forth in the Carlsbad HMP. Mitigation is required in the form of habitat restoration as well as preservation. Habitat restoration must achieve no-net-loss per special-status vegetation community/habitat type (i.e., at least 1:1 substantial restoration or creation to impact ratio regardless of the total mitigation ratio). Those requirements are represented in Table 10 and shown on Figure 11. The concept plan (Appendix E) will outline the details. Areas proposed to be restored on site are currently disturbed habitat dominated by non-native invasive species. The areas are in direct proximity to existing native habitat and will be highly suitable for restoration to native. The restoration is proposed to be substantial restoration (creation) since no native species are currently present. It is envisioned that the restoration area can be restored to native habitat within the year but will require monitoring for the standard 5-year period.

Table 10
Mitigation Requirements for Permanent Impacts of
West Oaks Project on Vegetation Communities

Vegetation/land Cover Type	Proposed project	
	Impacts	*Total Mitigation Requirement (Minimum Restoration Component)*
Special-Status Uplands		
2:1 Coastal sage scrub - coyotebrush	0.02 acres	0.04 with 0.02 minimum substantial restoration
Jurisdictional Resources		
3:1 Southern willow scrub	0.08	0.24 with 0.08 of substantial restoration for no net loss
3:1 open water	0.01	0.03 with 0.01 of substantial restoration for no net loss

Mitigation is required for the impact to coastal sage scrub, open water, and southern willow scrub. The CCC, in the HMP, has required that there be no net loss of these sensitive vegetation communities/resources within the Coastal Zone. Thus, substantial restoration, or creation must account for at least 1:1 of the mitigation. In addition, within the Coastal Zone, on-site mitigation by preservation is not allowed. Thus, all mitigation will need to be through purchase of off-site land or through restoration of disturbed lands as outlined in the HMP. The proposed project would include on-site restoration of suitable fully disturbed habitat within the Coastal Zone for all of the impacts. This area, shown in Figure 11[2], will be restored to functional coastal sage scrub, open water, and southern willow scrub. A conceptual mitigation plan is in process.

BIO-1 Habitat restoration (i.e., creation and substantial restoration) totaling 0.24 acres of jurisdictional southern willow scrub, 0.03 of open water, and 0.04 acre of coastal sage scrub designed through preparation of a Conceptual Restoration Plan to be reviewed and approved by the City Planner, in consultation with the USFWS, CDFW, and the CCC.

The applicant will submit final habitat restoration plans and specifications to the City and/or Agencies for review at least 30 days prior to initiating project impacts. The Restoration Plan shall be prepared and implemented consistent with MHCP Volume II, Appendix C (Revegetation Guidelines), and Vol. III; HMP pp. F-8 to F-11; and Open Space Management Plan Sec. 3.1.5. The Restoration Plan should, at a minimum, include an evaluation of restoration suitability specific to proposed habitat types, soil and plant material salvage/translocation, planting and seeding lists, discussion of irrigation, maintenance and monitoring program, and success

[2] There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the HMP Preserve and the riparian buffer; there will be no restoration in this existing easement as shown in Figure 11.

criteria. All areas should be monitored for a minimum of 5 years to ensure establishment of intended plant communities.

An approved habitat restoration specialist will be designated and will determine the most appropriate method of restoration. Restoration techniques, as specified in the Restoration Plan, may include hydroseeding, hand-seeding, imprinting, and soil and plant salvage. The Habitat Restoration Plan shall also include criteria to measure success and describe how monitoring of revegetation efforts will be implemented. At the completion of project construction, all construction materials shall be removed from the site. Additionally, if deemed necessary, any topsoil located in areas to be restored would be conserved and stockpiled during the excavation process for use in the restoration process.

BIO-2 On-site revegetation within the riparian buffer areas shall be provided by the preparation of a conceptual mitigation plan and the planting plans and specifications. The conceptual plan for the riparian buffer may be incorporated with the mitigation required for the jurisdictional impacts outlined in BIO-1 for efficiency. Based on a current evaluation, restoration is estimated to include 1.17 acres of disturbed habitat.

As with habitat creation and enhancement sites described above, the revegetation of the riparian buffer shall be evaluated and designed through preparation of a Restoration Plan, consistent with MHCP Volume II, Appendix C (Revegetation Guidelines), to be reviewed and approved by the City Planner, in consultation with the USFWS, CDFW, and CCC.

An approved habitat restoration specialist will be designated and will determine the most appropriate method of restoration. Restoration techniques, as specified in the Restoration Plan, may include hydroseeding, hand-seeding, imprinting, and soil and plant salvage. The Habitat Restoration Plan shall also include criteria to measure success and describe how monitoring of revegetation efforts will be implemented. At the completion of project construction, all construction materials shall be removed from the site. Additionally, if deemed necessary, any topsoil located in areas to be restored would be conserved and stockpiled during the excavation process for use in the restoration process.

6.1.2 In-Lieu Mitigation Fee

BIO-3 The Carlsbad HMP requires that impacts to disturbed habitat (Group F) required mitigation with an in-lieu fee. Thus, the project would be required to pay an in-lieu mitigation fee (also known as the HMP mitigation fee) for impacts to disturbed habitat.

This is a per-acre fee charged for impacts to Habitat Groups D, E, and F (Table 11) as an alternative to conserving habitat on site or acquiring habitat off site to mitigate for such impacts. The cost per acre for this mitigation fee will be determined by the City.

Table 11
Impacts and Mitigation for Disturbed Land

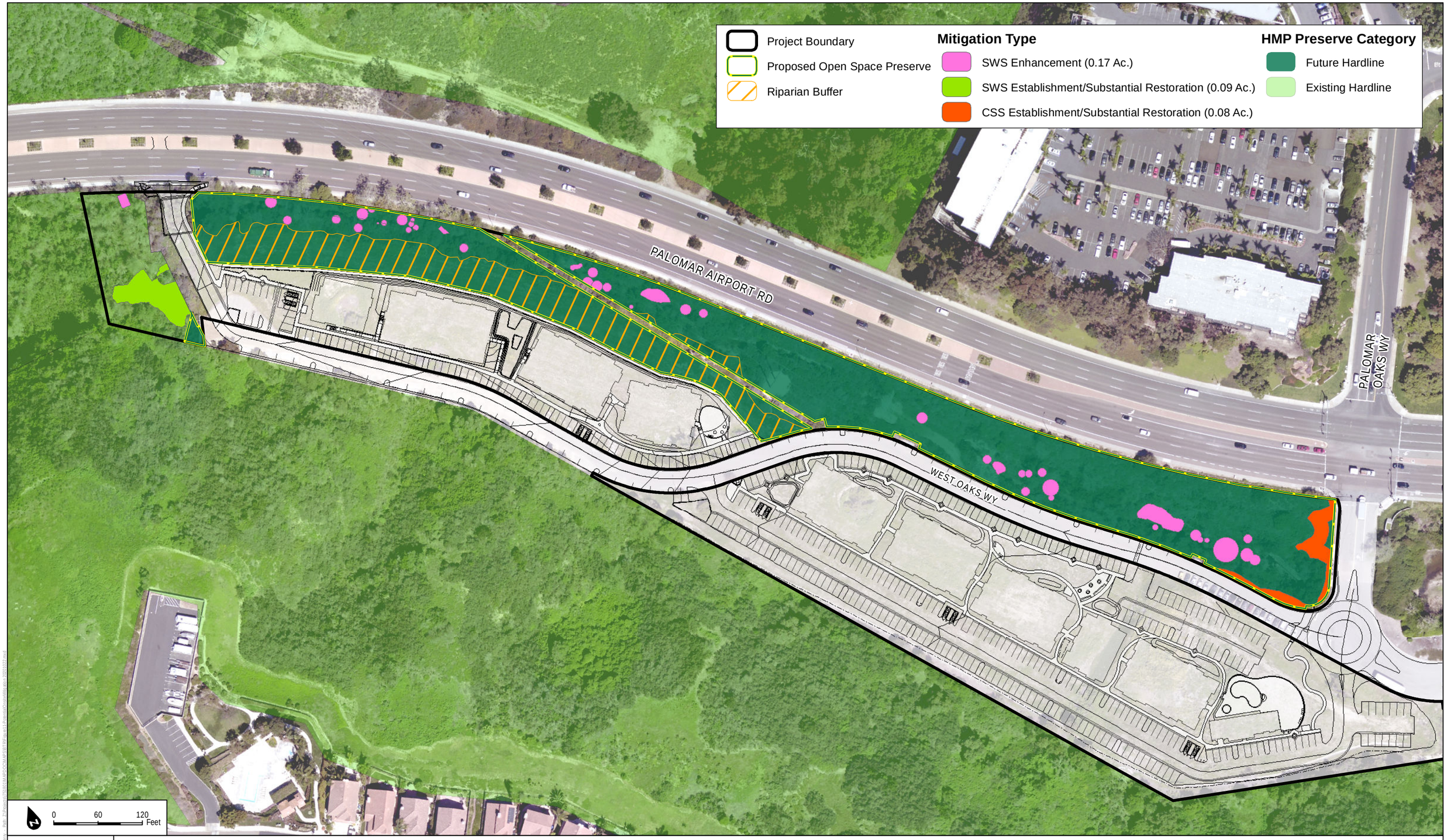
Habitat	Existing Acreage	Total Impacts from Proposed Development (acres)	Mitigation Requirement
Disturbed land	8.22	6.26	In-lieu mitigation fee

6.1.3 Preserve Management

BIO-4 The applicant will:

- Record a Conservation Easement, as defined by California Civil Code Section 815.1 or other protective measure over all on-site mitigation land including 3.96 acres (Table 8);
- Select a qualified conservation entity to manage the conserved land;
- Prepare a Property Analysis Record (PAR) to estimate costs of in perpetuity management and monitoring or otherwise provide for an estimate of funding needed;
- Provide a non-wasting endowment or other funding sources acceptable to the Wildlife Agencies, CCC and City, based on the PAR to sufficiently cover the costs of in-perpetuity management and monitoring; and
- Prepare a preserve management plan, which will be approved by the City and Wildlife Agencies.

Work with the City to amend the Carlsbad HMP to incorporate the riparian habitat and the riparian buffer into the HMP Preserve. The 20-foot upland buffer is not included in the HMP.



SOURCE: Fuscoe 2019/2020; SANGIS Imagery 2017

FIGURE 11

Potential Onsite Mitigation Areas

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Biological Technical Report for the West Oaks Project

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6.1.4 Mitigation Measures to Avoid Direct Impacts to Nesting Birds

BIO-5 Clearing and grubbing activities are prohibited on site during the bird breeding season (February 15 – September 15). The USFWS will be notified at least seven days before clearing and grubbing begins. During this activity, a qualified biologist will walk the area ahead of construction equipment to flush birds away from impact areas to prevent direct impact to individual animals. The biologist will immediately report to USFWS the number and location of any federally listed birds disturbed by clearing and grubbing.

6.1.5 Mitigation Measures for Impacts to Oaks Trees

BIO-6 A number of oak trees were originally preserved on site within the original approval of the project. These trees are currently declining in condition or are dead. As such, to mitigate for the loss of these trees, oak trees are included in the landscape plans for the riparian buffer area. Trees will be provided at a 1:1 ratio.

6.2 Mitigation for Impacts to Jurisdictional Resources

BIO-7 Impacts to jurisdictional resources are anticipated in order to construct the emergency access and bridge. Prior to the issuance of permits for grading or construction activities, the applicant all obtain the following permits and agreement:

- A Section 1602 Streambed Alteration Agreement issued by the CDFW for maintenance activities in the streambed.
- Any necessary California Coastal Act permits from the California Coastal Commission, and/or City of Carlsbad.

6.3 Mitigation for Indirect Impacts

6.3.1 Mitigation Measures to Avoid Indirect Impacts to Nesting Birds

BIO-8 Clearing and grubbing activities are generally prohibited during the bird breeding season (February 15 – September 15) thus no direct impacts will occur to nesting birds that may be present within the construction footprint per BIO-5. The USFWS will be notified at least seven days before clearing and grubbing begins.

Other construction activities will also be avoided during the breeding season if feasible. If this cannot be avoided, the following measures will be taken:

- If California gnatcatchers have the potential to occur on site, a qualified biologist will conduct a focused species gnatcatcher survey in appropriate habitat within the preserve areas and 500 feet surrounding the project area within suitable habitat.

The surveys will consist of three visits, one week apart; the last of these will be conducted no more than three days prior to construction.

- Surveys will be conducted by a qualified biologist in appropriate habitat for nesting raptors and migratory birds (including, but not limited to the least Bell's vireo) and within a 500-foot survey buffer within three days of construction.
- The USFWS will be notified immediately of any federally listed species that are located during pre-construction surveys within the adjacent areas.
- If nests of listed birds, migratory birds, raptors, or other special-status species are located, they will be fenced with a protective buffer of at least 500 feet from active nests of listed species, and 300 feet from other special-status bird species. All construction activity will be prohibited within this area.
- During the breeding season, construction noise will be measured regularly to maintain a threshold at or below 60 A-weighted decibels (dBA) hourly equivalent level (L_{eq}) within 500 feet of breeding habitat occupied by listed species. The site is currently affected by roadway noise. If ambient levels are greater than 60 dBA, a modified threshold should be evaluated with the City. If noise levels supersede the threshold, the construction array will be changed or noise attenuation measures will be implemented.

The potential for significant indirect impacts during construction should be mitigated through implementation of the following standard measures as stated in the City's Biology Guidelines.

BIO-9 A qualified biologist shall conduct a training session for all project personnel prior to proposed activities. At a minimum, the training shall include a description of the target species of concern and its habitats, the general provisions of the Endangered Species Act (Act) and the HMP, the need to adhere to the provisions of the Act and the HMP, the penalties associated with violating the provisions of the Act, the general measures that are being implemented to conserve the target species of concern as they relate to the project, access routes, and project site boundaries within which the project activities must be accomplished.

BIO-10 The footprint of disturbance shall be specified in the construction plans. Construction limits will be delineated with orange fencing, and in areas potentially subject to project related runoff, silt fencing will be used to delineate the impact footprint. All fencing will be maintained until the completion of all construction activities, at which time all fencing will be removed. All construction personnel and associates shall be instructed that their activities, vehicles, equipment, and construction materials are restricted to the proposed project footprint, designated staging areas, and routes of travel. If any impacts

shall occur beyond the approved impact footprint, all work in the immediate vicinity shall cease until the disturbance limit breach has been addressed to the satisfaction of the City and resource agencies.

BIO-11 The upstream and downstream limits of project disturbance (that is, the location of the bridge crossing) plus limits of disturbance on either side of the riparian vegetation on site shall be clearly defined, marked in the field, and reviewed by the project biologist prior to initiation of work. Projects should be designed to avoid the placement of equipment and personnel within the riparian vegetation or on adjacent upland habitats used by target species of concern.

BIO-12 A water pollution and erosion control plan shall be developed that describes sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, and other factors deemed necessary by reviewing agencies. Erosion control measures shall be monitored on a regularly scheduled basis, particularly during times of heavy rainfall. Corrective measures will be implemented in the event erosion control strategies are inadequate. Sediment/erosion control measures will be continued at the project site until such time as the revegetation efforts are successful at soil stabilization.

BIO-13 The qualified project biologist shall review grading plans (e.g., all access routes and staging areas), and monitor construction activities throughout the duration of grading/ground disturbance associated with the project to ensure that all practicable measures are being employed to avoid incidental disturbance of habitat and any target species of concern outside the project footprint.

BIO-14 Construction monitoring reports shall be completed and provided to the City summarizing how the project is in compliance with applicable conditions. The project biologist should be empowered to halt work activity if necessary and to confer with City staff to ensure the proper implementation of species and habitat protection measures.

BIO-15 Any habitat that is impacted that is not in the identified project footprint shall be disclosed immediately to the City, USFWS, CDFW, and CCC and shall be compensated at a minimum ratio of 5:1.

BIO-16 Access to and from the site will be located along existing access routes or disturbed areas to the greatest extent possible. All access routes outside of existing roads or construction areas will be clearly marked.

BIO-17 Construction employees will limit their activities, vehicles, equipment, and construction materials to the fenced project footprint.

BIO-18 Equipment storage, fueling, and staging areas shall be located on disturbed upland sites with minimal risk of direct drainage into riparian areas or other sensitive habitats, and at least 100 feet from waters of the United States. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. All necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. All project-related spills of hazardous materials shall be reported to the City and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.

BIO-19 When stream flows must be diverted (unlikely for the bridge construction), the diversions shall be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing or other sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments off site. Settling ponds where sediment is collected shall be cleaned out in a manner that prevents the sediment from re-entering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.

BIO-20 Erodible fill material shall not be deposited into water courses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks.

BIO-21 Construction through sensitive areas should be scheduled to minimize potential impacts to biological resources. Construction adjacent to drainages should occur during periods of minimum flow (i.e., summer through the first significant rain of fall) to avoid excessive sedimentation and erosion and to avoid impacts to drainage-dependent species. Construction near riparian areas or other sensitive habitats should also be scheduled to avoid the breeding season (January 1 through September 15) and potential impacts to breeding bird species.

BIO-22 Lighting in or adjacent to the preserve will not be used, except where essential for roadway, facility use, and safety. If nighttime construction lights are necessary, all lighting adjacent to natural habitat will be shielded and/or directed away from habitat.

BIO-23 Fugitive dust will be avoided and minimized through watering and other appropriate measures.

BIO-24 If dead or injured listed species are located, initial notification must be made within three working days, in writing, to the USFWS Division of Law Enforcement in Torrance, California, and by telephone and in writing to the applicable jurisdiction, Carlsbad Field Office of the USFWS, and CDFW.

BIO-25 Exotic species that prey upon or displace target species of concern should be permanently removed from the site.

BIO-26 To avoid attracting predators of the target species of concern, the project site shall be kept as clean of debris as possible. All food related trash items shall be enclosed in sealed containers and regularly removed from the site(s). Pets of project personnel shall not be allowed on site where they may come into contact with any listed species.

BIO-27 The City of Carlsbad has the right to access and inspect any sites of approved projects including any restoration/enhancement area for compliance with project approval conditions including these BMP. The USFWS and CDFW may accompany City representatives on this inspection.

6.3.2 Protective Habitat Buffers

BIO-28 Protective habitat buffers consistent with the HMP and Guidelines for Riparian Buffers shall be incorporated into project design. It is understood that buffers are not eligible for mitigation credit however areas with substantial restoration are included. Additionally, upland buffers consistent with the HMP will be designated adjacent to the upland habitat areas. These buffers will prevent indirect impact to HMP preserve areas and to native sensitive habitat. The buffer adjacent to the riparian will be included in the preserve for the Carlsbad HMP thus adjacency standards apply. The project is adjacent to Carlsbad HMP preserve along the southern boundary and thus the adjacency standard apply to this area as well.

The riparian buffers shall be included in the restrictive covenant that also will provide protection for the riparian habitat. The upland buffer is not included in the restrictive covenant.

6.3.3 Adjacency Standards

BIO-29 In order to prevent impacts of the proposed development on the HMP preserve area off site and to the west or to the native vegetation in the riparian habitat proposed to be amended into the Carlsbad HMP preserve, the proposed project would comply with the adjacency standards outlined in the Carlsbad HMP. In general, all of the site is

either adjacent to HMP preserve either on- or off site currently or with the proposed project and thus is subject to the Adjacency Standards.

Fire Management

Fire management for the proposed project will be addressed through the designation of the Fuel Modification Zones (FMZ). All FMZ areas are anticipated to be incorporated within the development boundaries and will be addressed with the preparation of a Fire Protection Plan. Fuel management is illustrated in Figures 10a and 10b.

Erosion Control

Erosion control, for some areas of the City, is needed where there are erodible soils, steep slopes, soils with low water-holding capacity, sparse to no vegetation, and hydrologic soil conditions. Standard BMPs will be implemented to slow surface flow and dampen initial precipitation flow in the development area. In addition, no new surface drainage is proposed to be directed into the open space areas.

Landscaping Restrictions

Landscape practices may be of concern where landscaping is in conflict with the management and maintenance of open space areas. Landscape planting palettes for the proposed project will not use non-native, invasive plant species in the areas adjacent to the riparian or upland habitat or adjacent to the HMP preserve off site to the west or south. In addition, because the site is within the Coastal Zone, no invasive plant species will be used in the landscaping of the development. These plant species are identified in the Carlsbad HMP but the list of invasive species that will be avoided is not limited to the species on the Carlsbad HMP list. Irrigation of the landscaping will be designed and scheduled to avoid runoff into the proposed open space. This will also prevent movement of fertilizer and pesticides into the open space area. The riparian and upland buffers will be restored with native habitat per the concept plan (Appendix E and the landscape plans).

Fencing, Signs, and Lighting

To prevent entry into the riparian habitat (open space area protected by the restrictive covenant) by people and pets, the area will be fenced in accordance with requirements of the City and resource agencies and as appropriate. Signs will be attached to the fence at intermittent intervals to alert the residents of the sensitive nature of the open space area. A trail is proposed to be located within the 15 feet closest to development and the fencing will preclude people from passing beyond

the trail into the habitat. No lighting is proposed for the areas adjacent to the HMP preserve or the riparian habitat. Lighting that may potentially intrude into the riparian habitat will be shielded or directed away from the open space area. Fencing is also proposed along the southern boundary in supplement to the existing walls and to prevent people from entering the preserve area off site. Fencing and walls are also proposed along any areas adjacent to the proposed open space to preclude human activity within the open space.

Predator and Exotic Species Control

Similar to the issue for landscaping described previously, there are concerns related to non-native species when native areas are adjacent to development areas. The HOA for the proposed development will alert the residents to the potential effects that domestic animals may have on the native fauna and flora. The riparian habitat will be fenced to discourage the entry of domestic animals into the open space.

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7 ACKNOWLEDGMENTS

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8 REFERENCES

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual.* Online ed. Environmental Laboratory, Wetlands Research Program Technical Report &-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed September 1, 2010. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.

ACOE (U.S. Army Corps of Engineers). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Environmental Laboratory, ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. September 2008. Accessed September 2015. http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/trel08-28.pdf.

ACOE and EPA (U.S. Environmental Protection Agency). 2008. "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*." December 2, 2008. Accessed September 2015. http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_12_3_wetlands_CWA_Jurisdiction_Following_Rapanos120208.pdf.

AOU (American Ornithologists' Union). 2015. *American Ornithologists' Union Check-List of North American Birds,* Seventh Edition. Accessed September 2015. http://www.aou.org/aou/birdlist.html.

Bing Maps. 2013.

Bowman. 1973. "Soil Survey of San Diego Area, California." Parts I and II. Produced in cooperation with the University of California Agricultural Experiment Station; the Bureau of Indian Affairs; the U.S. Marine Corps; the Department of Housing and Urban Development; the County of San Diego Planning Department; and the Comprehensive Planning Organization. Washington, DC: U.S. Department of Agriculture, Soil Conservation Service and Forest Service. December 1973.

CDFW (California Department of Fish and Wildlife). 2015a. "State and Federally Listed Endangered and Threatened Animals of California." California Natural Diversity Database. CDFW, Biogeographic Data Branch. July 2015. Accessed September 2015. https://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEAnimals.pdf.

CDFW. 2015b. "State and Federally Listed Endangered, Threatened, and Rare Plants of California." California Natural Diversity Database. CDFW, Biogeographic Data Branch. July 2015. Accessed September 2015. https://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEPlants.pdf.

CDFW. 2015c. *Special Vascular Plants, Bryophytes, and Lichens List*. California Natural Diversity Database. July 2015. Accessed September 2015. https://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPPlants.pdf.

CDFW. 2015d. *Special Animals List*. California Natural Diversity Database. July 2015. Accessed September 2015. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf.

CDFW. 2016. Rarefind, Version 5 (Commercial Subscription). California Natural Diversity Database. Sacramento, California: CDFW, Biogeographic Data Branch. Accessed September 2015. http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp.

City of Carlsbad. 2004. *Habitat Management Plan for Natural Communities in the City of Carlsbad*. Approved in December 1999, finalized in November 2004.

City of Carlsbad. 2008. *Guidelines for Biological Studies*. Prepared by Technology Associates. San Diego, California: Technology Associates. September 30, 2008. Accessed September 2015. http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=24331.

City of Carlsbad. 2014. *City of Carlsbad Local Coastal Program*. Adopted in 1996; amended in 2000, 2002, 2003, 2006, 2010 and 2014.

CNPS (California Native Plant Society). 2015. *Inventory of Rare and Endangered Plants.* Online ed. Version 8-01a). Sacramento, California: CNPS. Accessed September 2015. http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi.

CNPS (California Native Plant Society). 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). Sacramento, California: California Native Plant Society. Accessed January 2015. www.rareplants.cnps.org.

Crother, B.I. 2012. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding.* Seventh ed. Herpetological Circular No. 39. Prepared by the Standard English and Scientific Names Committee. Shoreview, Minnesota: Society for the Study of Amphibians and Reptiles. August 2012.

EPA (U.S. Environmental Protection Agency). 2012. Waters Data.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* Nongame-Heritage Program, California Department of Fish and Game. October 1986. 156 pp.

Jepson Flora Project. 2015. Jepson eFlora. Berkeley, California: University of California. Accessed January 27, 2015. http://ucjeps.berkeley.edu/cgi-bin/get_JM_name_data.pl.

Moyle, P.B. 2002. Inland Fishes of California, University of California Press, Berkeley and Los Angeles, 502 pp.

NABA (North American Butterfly Association). 2001. "Checklist of North American Butterflies Occurring North of Mexico." Adapted from North American Butterfly Association (NABA) Checklist & English Names of North American Butterflies, eds. B. Cassie, J. Glassberg, A. Swengel, and G. Tudor. 2nd ed. Morristown, New Jersey: NABA. Accessed January 2016. http://www.naba.org/pubs/enames2.html

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County.* March 2008. Accessed September 12, 2012. http://www.sdcanyonlands.org/pdfs/veg_comm_sdcounty_2008_doc.pdf.

Reed, P. 1988. National List of Vascular Plant Species that Occur in Wetlands: 1988 National Summary. U.S. Fish and Wildlife Service, National Wetlands Inventory. September 1988. Accessed August 2016. https://www.fws.gov/pacific/ecoservices/habcon/pdf/National%20List%20of%20Plant%20Species%201988.pdf.

SANDAG. 2003. *Multiple Habitat Conservation Plan.* Prepared by AMEC Earth and Environmental Inc. Conservation Biology Institute. March 2003.

SDNHM (San Diego Natural History Museum). 2002. "Butterflies of San Diego County." Revised September 2002. Accessed January 19, 2016. http://www.sdnhm.org/archive/research/entomology/sdbutterflies.html.

USDA NRCS (U.S. Department of Agriculture Natural Resources Conservation Service). 2010. *Field Indicators of Hydric Soils in the United States, v. 7.0.*

USDA (U.S. Department of Agriculture). 2015. "Web Soil Survey." Soil Survey Staff, Natural Resources Conservation Service, USDA. Accessed February 2015. http://websoilsurvey.nrcs.usda.gov/.

USFWS (U.S. Fish and Wildlife Service). 2016. Critical Habitat and Occurrence Data. www.fws.gov/data.

Wilson, D.E., and D.M. Reeder, eds. 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference.* 3rd ed. Online version. Baltimore, Maryland: Johns Hopkins University Press. Accessed September 2015. http://www.bucknell.edu/msw3/.

APPENDIX A

List of Plant Species Observed On Site

APPENDIX A
List of Plant Species Observed on Site

VASCULAR SPECIES

MONOCOTS

CYPERACEAE–SEDGE FAMILY

Cyperus eragrostis – tall flatsedge
Eleocharis parishii – Parish's spikerush

JUNCACEAE–RUSH FAMILY

Juncus dubius – questionable rush

POACEAE–GRASS FAMILY

* *Avena barbata* – slender oat
Distichlis spicata – saltgrass
* *Arundo donax* – giant reed
* *Bromus diandrus* – ripgut brome
* *Bromus hordeaceus* – soft brome
* *Bromus madritensis* ssp. *madritensis* – compact brome
* *Bromus madritensis* ssp. *rubens* – red brome
* *Bromus tectorum* – cheatgrass
* *Cortaderia jubata* – purple pampas grass
* *Cynodon dactylon* – Bermudagrass
* *Hordeum murinum* ssp. *glaucum* – smooth barley
* *Pennisetum setaceum* – crimson fountaingrass
* *Polypogon interruptus* – ditch rabbitsfoot grass
* *Polypogon monspeliensis* – annual rabbitsfoot grass

TYPHACEAE–CATTAIL FAMILY

Typha domingensis – southern cattail

EUDICOTS

ADOXACEAE–MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea* – blue elderberry

AIZOACEAE – FIG-MARIGOLD FAMILY

* *Carpobrotus edulis* – ice plant
* *Mesembryanthemum nodiflorum* – slenderleaf iceplant
* *Mesembryanthemum crystallinum* – common iceplant

ANACARDIACEAE–SUMAC OR CASHEW FAMILY

Malosma laurina – laurel sumac
Rhus integrifolia – lemonade sumac
Toxicodendron diversilobum – Pacific poison oak
* *Schinus terebinthifolius* – Brazilian peppertree

APIACEAE–CARROT FAMILY

Oenanthe sarmentosa – water parsley
* *Foeniculum vulgare* – sweet fennel

ASTERACEAE–SUNFLOWER FAMILY

Ambrosia psilostachya – Cuman ragweed
Artemisia californica – coastal sagebrush
Baccharis pilularis – coyotebrush
Encelia californica – California brittlebush
Erigeron canadensis – Canadian horseweed
Gnaphalium palustre – western marsh cudweed
Heterotheca grandiflora – telegraphweed
Isocoma menziesii – Menzies' goldenbush
Pluchea odorata var. *odorata* – sweetscent
Xanthium strumarium – rough cocklebur
Baccharis salicifolia ssp. *salicifolia* – mulefat
* *Glebionis coronaria* – crowndaisy
* *Helminthotheca echioides* – bristly oxtongue
* *Senecio vulgaris* – old-man-in-the-spring
* *Silybum marianum* – blessed milkthistle
* *Sonchus asper asper* – spiny sowthistle
* *Sonchus oleraceus* – common sowthistle

BRASSICACEAE–MUSTARD FAMILY

* *Brassica nigra* – black mustard
* *Sisymbrium irio* – London rocket
* *Sisymbrium orientale* – Indian hedgemustard

CARYOPHYLLACEAE – PINK FAMILY

* *Spergula arvensis* – corn spurry

CHENOPODIACEAE – GOOSEFOOT FAMILY

Chenopodium murale – nettleleaf goosefoot
* *Salsola tragus* – prickly Russian thistle

CRASSULACEAE – STONECROP FAMILY

Crassula connata – sand pygmyweed

CUCURBITACEAE – GOURD FAMILY

Marah macrocarpa – Cucamonga manroot

EUPHORBIACEAE–SPURGE FAMILY

* *Ricinus communis* – castorbean

FABACEAE–LEGUME FAMILY

Acmispon glaber var. *brevialatus* – western bird's-foot trefoil
Acmispon glaber var. *glaber* – common deerweed
Acmispon strigosus – strigose bird's-foot trefoil
* *Acacia cyclops* – coastal wattle
* *Acacia pycnantha* – golden wattle
* *Acacia retinodes* – water wattle
* *Acacia saligna* – orange wattle
* *Melilotus albus* – yellow sweetclover

FAGACEAE–OAK FAMILY

Quercus agrifolia – California live oak

GERANIACEAE – GERANIUM FAMILY

* *Erodium botrys* – longbeak stork's bill
* *Erodium cicutarium* – redstem stork's bill
* *Erodium moschatum* – musky stork's bill
* *Geranium sphaerospermum* – Carolina geranium

GROSSULARIACEAE–GOOSEBERRY FAMILY

Ribes speciosum – fuchsiaflower gooseberry

LAMIACEAE–MINT FAMILY

Salvia mellifera – black sage
* *Marrubium vulgare* - horehound

LYTHRACEAE – LOOSESTRIFE FAMILY

* *Lythrum hyssopifolia* – hyssop loosestrife

MALVACEAE–MALLOW FAMILY

Malacothamnus densiflorus – yellowstem bushmallow
* *Malva parviflora* – cheeseweed mallow

MYRSINACEAE – MYRSINE FAMILY

* *Lysimachia arvensis* – scarlet pimpernel

ONAGRACEAE–EVENING PRIMROSE FAMILY

Oenothera elata – Hooker's evening primrose

PHRYMACEAE–LOPSEED FAMILY

Mimulus aurantiacus var. *aurantiacus* – orange bush monkeyflower

POLYGONACEAE–BUCKWHEAT FAMILY

* *Rumex crispus* – curly dock

ROSACEAE–ROSE FAMILY

Heteromeles arbutifolia – toyon

Rosa californica – California wildrose

SALICACEAE–WILLOW FAMILY

Populus fremontii ssp. *fremontii* – Fremont cottonwood

Salix gooddingii – Goodding's willow

Salix laevigata – red willow

Salix lasiolepis – arroyo willow

SAURURACEAE–LIZARD'S-TAIL FAMILY

Anemopsis californica – yerba mansa

SOLANACEAE–NIGHTSHADE FAMILY

Datura wrightii – sacred thorn-apple

* *Nicotiana glauca* – tree tobacco

TAMARICACEAE – TAMARISK FAMILY

* *Tamarix ramosissima* - saltcedar

TROPAEOLACEAE–NASTURTIUM FAMILY

* *Tropaeolum majus* – nasturtium

URTICACEAE- NETTLE FAMILY

Urtica dioica ssp. *holosericea* – stinging nettle

* *Urtica urens* – dwarf nettle

* signifies introduced (non-native) species

APPENDIX B

Wildlife Species Observed On Site

APPENDIX B
Wildlife Species Observed On Site

BIRD

BLACKBIRDS, ORIOLES AND ALLIES

ICTERIDAE–BLACKBIRDS

Icterus cucullatus – hooded oriole

BUSHTITS

AEGITHALIDAE–LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus – bushtit

CARDINALS, GROSBEAKS AND ALLIES

CARDINALIDAE–CARDINALS AND ALLIES

Pheucticus melanocephalus – black-headed grosbeak

EMBERIZINES

EMBERIZIDAE–EMBERIZIDS

Melozone crissalis – California towhee

Pipilo maculatus – spotted towhee

FINCHES

FRINGILLIDAE–FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Spinus psaltria – lesser goldfinch

Haemorhous mexicanus – house finch

FLYCATCHERS

TYRANNIDAE–TYRANT FLYCATCHERS

Sayornis nigricans – black phoebe

HAWKS

ACCIPITRIDAE–HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii – Cooper's hawk

Buteo jamaicensis – red-tailed hawk

HUMMINGBIRDS

TROCHILIDAE–HUMMINGBIRDS

Calypte anna – Anna's hummingbird
Selasphorus sasin – Allen's hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE–CROWS AND JAYS

Corvus brachyrhynchos – American crow

ROADRUNNERS AND CUCKOOS

CUCULIDAE–CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus – greater roadrunner

SWALLOWS

HIRUNDINIDAE–SWALLOWS

Stelgidopteryx serripennis – northern rough-winged swallow

WOOD WARBLERS AND ALLIES

PARULIDAE–WOOD-WARBLERS

Geothlypis trichas – common yellowthroat

WOODPECKERS

PICIDAE–WOODPECKERS AND ALLIES

Picoides nuttallii – Nuttall's woodpecker

FISH

OTHER BONY FISHES

POECILIIDAE–POECILIIDS

* *Gambusia affinis* – mosquitofish

INVERTEBRATE

CRAYFISH

CAMBARIDAE–FRESHWATER CRAYFISH

Procambarus sp. – crayfish

MAMMAL

SQUIRRELS

SCIURIDAE–SQUIRRELS

Spermophilus (Otospermophilus) beecheyi – California ground squirrel

REPTILE

LIZARDS

PHRYNOSOMATIDAE–IGUANID LIZARDS

Phrynosoma blainvillii – Blainville's horned lizard

* signifies introduced (non-native) species

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APPENDIX C

Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: West Oaks | City/County: Carlsbad/San Diego | Sampling Date: 6-19-13

Applicant/Owner: Suzanne Charnley/Integral Communities | State: CA | Sampling Point: A

Investigator(s): Thomas Liddicoat | Section, Township, Range: Section 22, Township 12 South, Range 4 West

Landform (hillslope, terrace, etc.): terrace, bench | Local relief (concave, convex, none): concave | Slope (%): 15

Subregion (LRR): C - Mediterranean California | Lat: 33.1210° N | Long: 117.2925° W | Datum:

Soil Map Unit Name: Visalia | NWI classification:

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

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

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

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

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

Remarks:

Area sampled is within a bench alongside a perennial stream channel. Soil pit is approximately 3 feet from open water.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	45	Yes	FACW
2.			
3.			
4.			
Total Cover:	45 %		
Sapling/Shrub Stratum			
1. *N/A*			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Anemopsis californica*	93	Yes	OBL
2. *Typha domingensis*	5	No	OBL
3. *Cortaderia jubata*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	98	x 1 =	98
FACW species	45	x 2 =	90
FAC species		x 3 =	0
FACU species	2	x 4 =	8
UPL species		x 5 =	0
Column Totals:	145 (A)		196 (B)

Prevalence Index = B/A = 1.35

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: A

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2	10 YR 3/2	100	N/A	N/A			silty clay loam	live roots present
2-6	7.5 YR 3/2	100	N/A	N/A			sandy clay loam	live roots present
6-10	7.5 YR 3/1	95	5 YR 4/6	5	C	PL	sandy clay loam	

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

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

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

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

Indicators for Problematic Hydric Soils[4]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7.5

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: West Oaks | City/County: Carlsbad/San Diego | Sampling Date: 6-19-13

Applicant/Owner: Suzanne Charnley/Integral Communities | State: CA | Sampling Point: B

Investigator(s): Thomas Liddicoat | Section, Township, Range: Section 22, Township 12 South, Range 4 West

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 35

Subregion (LRR): C - Mediterranean California | Lat: 33.1210° N | Long: 117.2925° W | Datum:

Soil Map Unit Name: Visalia | NWI classification:

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

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

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

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

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

Remarks:

Area sampled is up-slope, approximately 8 feet from DS-A and is located within southern willow scrub vegetation. The soil pit was approximately 13 feet from open water.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	50	Yes	FACW
2. *Quercus agrifolia*	18	No	Not Listed
3. *Heteromeles arbutifolia*	15	No	Not Listed
4. *Salix gooddingii*	8	No	FACW
Total Cover:	91 %		
Sapling/Shrub Stratum			
1. *Salix lasiolepis*	2	Yes	FACW
2. *Baccharis pilularis*	1	No	Not Listed
3.			
4.			
5.			
Total Cover:	3 %		
Herb Stratum			
1. *Anemopsis californica*	3	Yes	OBL
2. *Helminthotheca echioides*	1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	4 %		
Woody Vine Stratum			
1. *N/A*			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	60	x 2 =	120
FAC species	1	x 3 =	3
FACU species		x 4 =	0
UPL species	34	x 5 =	170
Column Totals:	98 (A)		296 (B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: lots of oak leaf litter

SOIL

Sampling Point: B

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 3/2	100	N/A	N/A			clay loam	very tough to dig

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

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
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Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: very tough to dig

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks: Area sampled was located above the ordinary high water mark (OHWM).

APPENDIX D

Arborist Report

Arborist Report for the West Oaks Project City of Carlsbad, California

Prepared for:

The Carlsbad Westoaks Project Owner LLC, a Delaware Limited Liability Company
2235 Encinitas Boulevard, Suite 2016
Encinitas, California 92024

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Christopher Kallstrand
ISA-Certified Arborist WE-8208A
949.482.5115

FEBRUARY 2017

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TABLE

1 INTRODUCTION

This arborist report summarizes Dudek's field evaluation of the 110 trees located on and directly adjacent to the proposed West Oaks Project (project), which is located in the City of Carlsbad (City), California. This arborist report includes a discussion of tree evaluation methods, a summary of findings, identification of anticipated impacts, and recommendations for the tree protection and mitigation. The primary focus of Dudek's field evaluation was to assess all trees that are within or immediately adjacent the project site, and therefore, are anticipated to be impacted.

This arborist report provides an evaluation and analysis, completed by a Dudek arborist certified by the International Society of Arboriculture, of trees located on the proposed project site. The survey area contains 104 coast live oak (*Quercus agrifolia*) trees and 6 western cottonwood (*Populus fremontii*) trees, 23 of which will require removal for project-related improvements. Based on the City's tree protection ordinance, none of the trees are considered protected. However, as a condition of Resolution No. 1995 CT 82-4/PUD-38 (Condition No. 8) (City of Carlsbad 1985), "whenever possible, the existing live oaks onsite shall be preserved." The City indicated in a letter dated May 6, 2013 (DeCerbo, pers. comm. 2013), that every effort should be made to retain all oaks on site; however, the City also stated that if it can be demonstrated through a certified arborist's report that the trees are in fact dead, dying, and/or diseased to the point of death, then it may be possible that the City will allow for trees to be removed. The City further acknowledged that appropriate mitigation will need to be determined. As such, this arborist report recommends the 23 trees proposed for removal be replaced with thirty-five 24-inch box trees.

1.1 Project Location

The approximately 12.53-acre site (including West Oaks Way) is located within the City of Carlsbad, California, San Diego County, California (Figure 1, Regional Map). The site is located roughly 2.1 miles east of the Pacific Ocean and is within the Coastal Zone Boundary. Specifically, the site is located approximately 0.5 miles east of Aviara Parkway, directly west of Palomar Oaks Way, and immediately south of Palomar Airport Road. The approximate centroid of the project site is at longitude 117.2925° west and latitude 33.1210° north within Section 22, Township 12 South, Range 4 West on the U.S. Geological Survey 7.5-minute Encinitas Quadrangle map (Figure 2, Vicinity Map). The project is located on Assessor's Parcel Numbers 212-110-01 through 212-110-07 and 212-040-26.

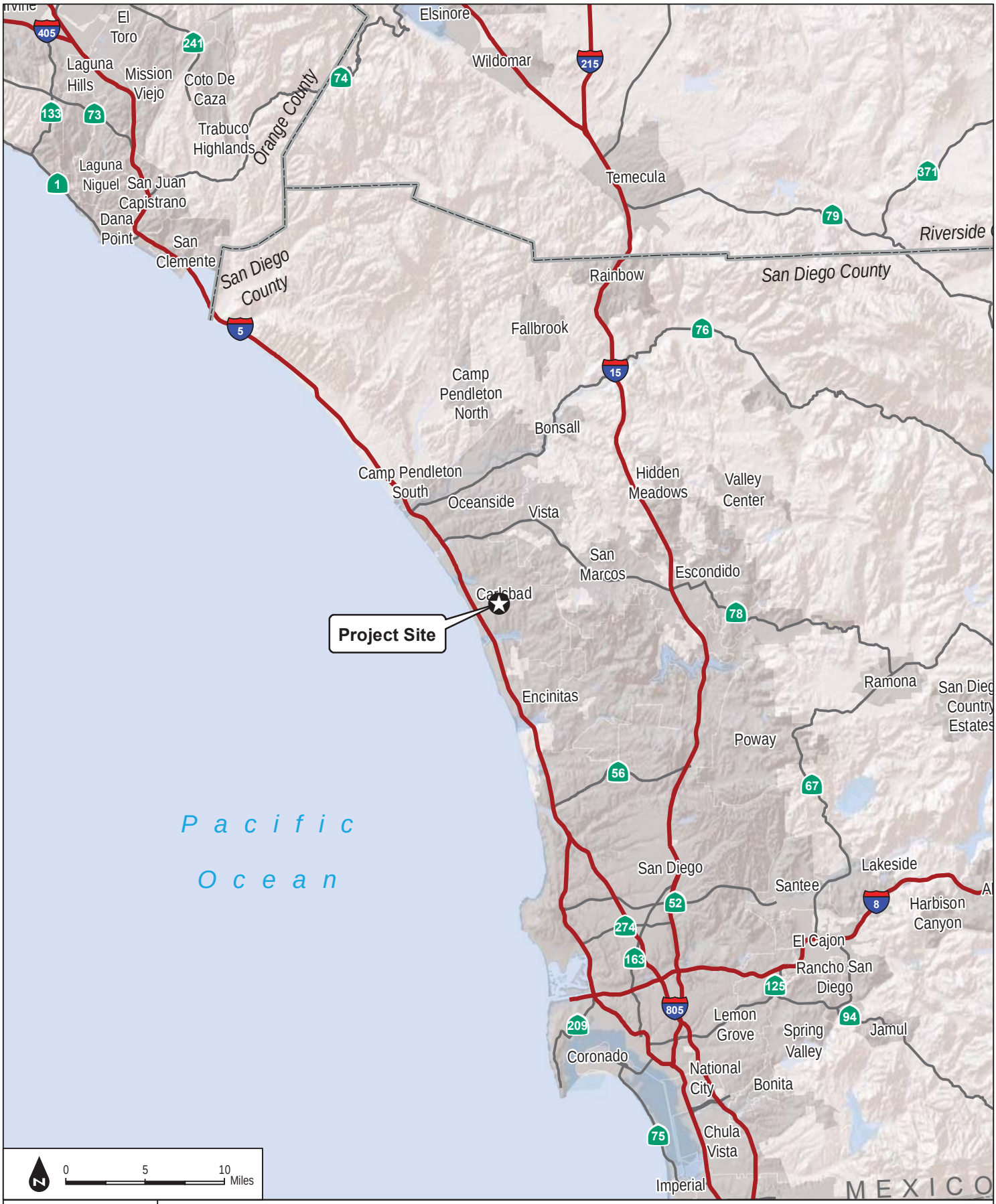
1.2 Existing Condition

The project site is within an area of the City that is developed with industrial, commercial, and residential properties. Palomar Airport Road is immediately north of the site, a commercial complex is located approximately 350 feet to the west, a residential housing tract is located approximately 425 feet to the south, and another commercial complex is located approximately 300 feet to the east. Encinas Creek runs throughout the study area and is present along the northern boundary of the site. Natural rolling hillsides that abut existing residential housing tract properties are present immediately south of the site. The site consists of relatively flat areas (less than 20% slopes) as a result of the grading from previous approvals on the site (City of Carlsbad 1982) that gently slope to the west with on-site elevations ranging from approximately 114 to 150 feet above mean sea level.

According to the San Diego County Soil Survey (USDA 1973), the soil types on site include Visalia sandy loam, 2%–5% slopes; Las Flores loamy fine sand, 15%–30% slopes, eroded; and Diablo clay, 15%–30% slopes. The Visalia sandy soil series consists of moderately well-drained, very deep sandy loams derived from granitic alluvium and typically found on gentle slopes. The Las Flores loam soils are moderately well drained with medium to rapid runoff, gently to strongly sloping, and on marine terraces at elevations of less than 700 feet above mean sea level. The Diablo clay soils are well drained with slow permeability and found on rolling to steep uplands with slopes of 5%–50%.

1.3 Project Description

The proposed project would include development of a 200-unit multifamily apartment complex. The proposed project includes a surface parking lot along West Oaks Way and a new internal, private loop road. The proposed project will potentially make West Oaks Way a private street and will provide secondary access at the western end of the project onto Palomar Oaks Way. The development includes bypassing and abandoning the existing gravity fed sewer line in favor of a new gravity fed sewer line toward the southern boundary of the property. The project will include both stormwater facilities on site and a flood control structure.



DUDEK

SOURCE: ESRI 2016

FIGURE 1

Regional Map

West Oaks Arborist Report

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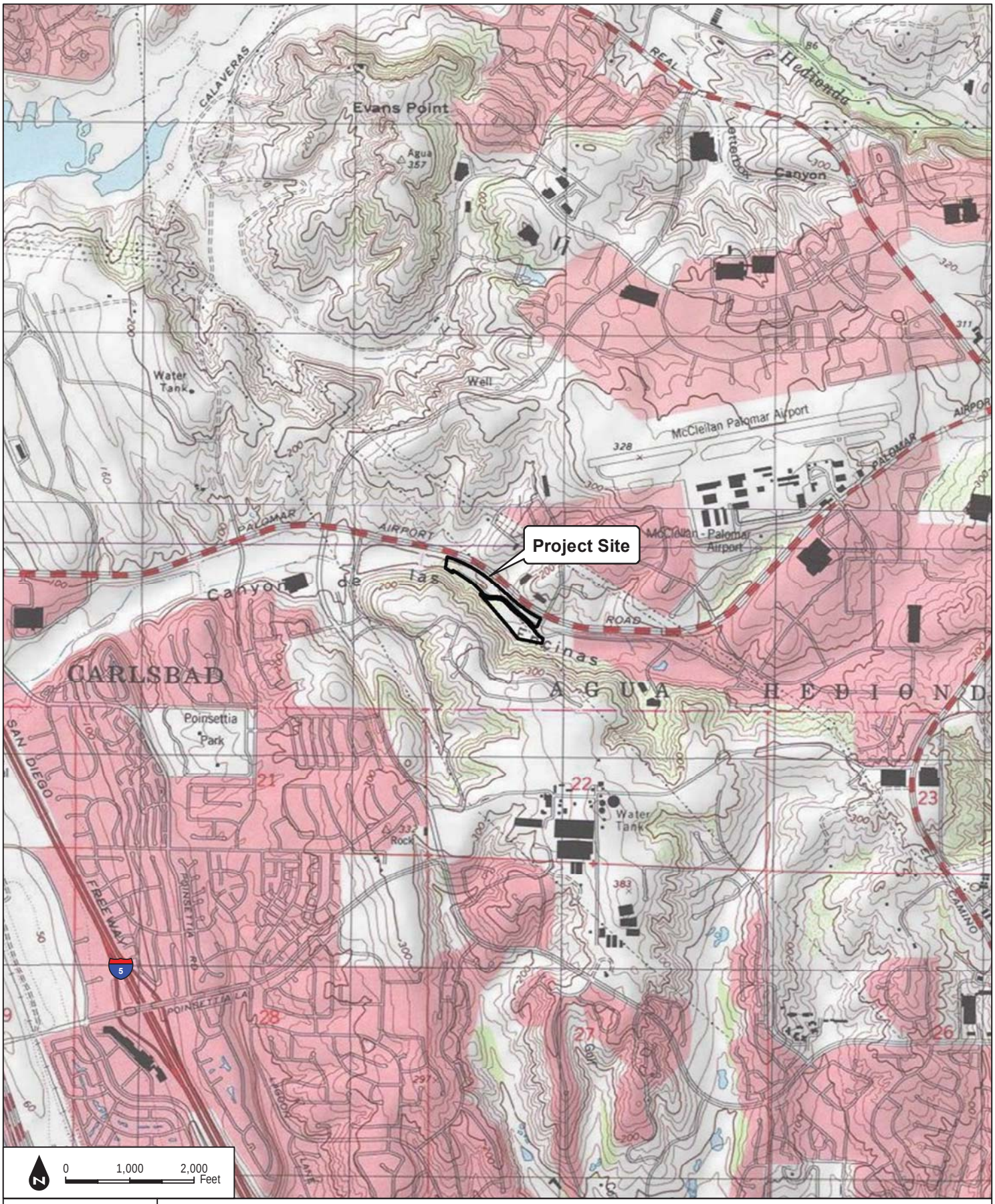

SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle.

FIGURE 2

Vicinity Map

DUDEK

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2 METHODS

Individual Tree Evaluation

Dudek mapped and collected tree attribute information for all coast live oak and western cottonwood trees over 2 inches in diameter at breast height (4.5 feet above grade) in the tree survey area. The location of each individual windrow tree was mapped using a Trimble Pathfinder Pro XH Global Positioning System (GPS) receiver. The Pathfinder has a horizontal accuracy of 1 meter (1 sigma) using differential code-positioning techniques. Since tree canopies can sometimes cause loss of satellite lock by blocking the line of sight to satellites, an electronic compass and reflectorless, electronic distance-measuring device were also used in mapping tree locations. The electronic distance-measuring device/compass combination operates in concert with the Pathfinder system to position offsets, and offset information is automatically attached to the GPS position data string. Windrow trees were tagged in the field with an aluminum tree tag bearing a unique identification number; the tags were placed on the trunk of each inventoried tree. The tag numbers correspond with the individual tree locations in Appendix A, Tree Locations, and data in Appendix B, Tree Information Matrix.

Concurrent with tree mapping efforts, Dudek arborists collected tree attribute data, including species, quantity of individual trunks, individual trunk diameters, overall height, canopy extent, and general health and structural conditions. Diameter measurements were collected using the standard protocol outlined by the Council of Tree and Landscape Appraisers in the *Guide for Plant Appraisal* published by the International Society of Arboriculture (2000). Trunk diameter measurements were taken at 4.5 feet (54 inches) aboveground along the trunk axis, with a few common exceptions. In cases in which a tree's trunk is located on a slope, the 4.5-foot distance was approximated as the average of the shortest and longest sides of the trunk (i.e., the uphill side and downhill side of a tree's trunk, respectively), and the measurement was made at the circumference of the trunk at this point. Tree height measurements were ocular estimates made by experienced field arborists. Tree canopy diameters were typically estimated by "pacing-off" the measurement based on the investigator's knowledge of his stride length or by visually estimating the canopy width. The tree crown diameter measurements were made along an imaginary line intersecting the tree trunk that best approximated the average canopy diameter.

Pursuant to the *Guide for Plant Appraisal* (ISA 2000), tree health and structure were evaluated with respect to five distinct tree components: roots, trunk, scaffold branches, small branches, and foliage. Each component of the tree was assessed with regard to health factors such as insect damage, fungal or pathogen damage, fire damage, mechanical damage, presence of decay, presence of wilted or dead leaves, and wound closure. Components were graded as *good*, *fair*, *poor*, and *dead*, with *good* representing no apparent problems, and *dead* representing a dying and/or dead tree.

In addition to the general tree evaluations that occurred on site, Dudek evaluated all of the potentially impacted coast live oaks on site for their relocation potential. The relocation potential evaluations included external observations of the general health and structure of the tree (new growth, vigor, and trunk/branching structure), overall tree size, location (proximity to other trees and/or existing structures), absence or presence of trunk wounds or decay, potentiality for root rot, and the absence or presence of pests/diseases or other species-specific pathogens. Furthermore, trees considered as relocation candidates must meet at least minimal requirements that will increase their survival following the boxing, storage, and replanting process. Minimal requirements include suitable size (smaller trees are more successfully transplanted) since larger trees are more difficult to relocate due to their difficulty compensating and adapting to the loss of significant root volume. Trees with a trunk diameter less than approximately 15 inches perform better following transplant, and the smaller the tree, typically the higher the relocation success and feasibility. An additional important consideration for relocation candidate trees is their health and structural condition. Trees must be in good health and structural condition (unless the species is unique or especially valuable, in which a fair condition tree may be considered a candidate) and include an accessible location, no observable soil impediments (rockbound roots, utilities), no overhead utilities, and no observable chronic pest infestations or disease infections.

Upon completion of field data collection and mapping, raw GPS data were post-processed using GPS Pathfinder Office (version 5.10), and individual tree location data were compiled and updated in a geographic information system. The digital tree locations were linked to individual tree identification numbers and associated tree attribute data. The data set was then evaluated using ArcGIS (version 10.1) software to determine the position of individual trees related to the proposed project development areas. Data resulting from this analysis were used to evaluate the individual tree impact totals presented in this arborist report.

Scope of Work Limitations

No root crown excavations or investigations, aerial evaluations, or internal probing were performed during the tree assessments. Therefore, the presence or absence of internal decay or other hidden inferiorities in individual trees could not be confirmed. It is recommended that any large tree proposed for preservation in an area that receives human use be thoroughly inspected for internal, or subterranean, decay by a qualified International Society of Arboriculture–certified arborist before finalizing preservation plans.

3 OBSERVATIONS

Individual Trees

There are 110 trees located within and immediately adjacent to the project tree survey area that include two different tree species. As Table 1 indicates, the majority of the trees inventoried (94.5%) are coast live oak. A total of 13 of the 110 oak trees were found to be naturally occurring in the landscape. The remaining 97 oak trees were observed to be planted with tree support poles in an irrigated area. Because it is not known if the planted trees are for mitigation purpose, all trees were analyzed in the same manner. Table 1 provides a summary of the trees mapped and evaluated within the tree survey area. Appendix A presents the location of the individual trees mapped and assessed for the project. It should be noted that additional tree species are located immediately adjacent to the proposed project site. However, as previously indicated, this arborist report only evaluates native coast live oak and western cottonwood trees located within and immediately adjacent to the proposed project site.

Overall, the trees exhibit growth and structural conditions that are typical of their locations and of open-grown woodland trees. The trees include various trunk and branch maladies and health and structural conditions. As presented in Appendix B, most of the individually mapped trees, 51.8% (57 trees), exhibit fair health; 35.5% (39 trees) are in good health; 11.8% (13 trees) are in poor health; and 0.9% (1 tree) are dead. Structurally, 6.4% (7 trees) of the individually mapped trees are considered to exhibit good structure, 80.9% (89 trees) exhibit fair structure, 10.9% (12 trees) exhibit poor structure, 0.9% (1 tree) trees exhibit very poor structure, and 0.9% (1 tree) are dead. Trees in good condition exhibit acceptable vigor, healthy foliage, and adequate structure and lack any major maladies. Trees in fair condition are typical, with few maladies but declining vigor. Trees in poor and very poor condition exhibit declining vigor, unhealthy foliage, poor branch structure, and excessive lean. One pest, the western oak bark beetle (*Pseudopityophthorus pubipennis*) was observed on site. The pest was observed on one individual coast live oak tree and is not considered a threat to the adjacent coast live oaks at the time of this evaluation.

Table 1
Summary of Trees on West Oaks Project Site

Scientific Name	Common Name	Number of Trees
Populus fremontii	Western cottonwood	6
Quercus agrifolia	Coast live oak	104
	Total	110

Trees within the tree survey area vary in size and stature according to species and available growing space. The site's trees are composed of single- and multistemmed trees, with single-

stemmed trunk diameters that range from 2 to 22 inches and multistemmed that range from 2 to 34 inches. Tree heights vary from 10 to 50 feet. Tree canopy extents range from 5 feet to approximately 40 feet.

4 TREE PRESERVATION

4.1 Regulatory Definitions and Requirements

The following section summarizes the relevant policies regulating tree impact and removal associated with the project.

4.1.1 City of Carlsbad

The City has no formal tree protection ordinance that pertains to trees located on private property. As stated in Section 11.12.080 of City Ordinance NS-545, "no person shall remove, trim, prune or cut any street tree, shrub or plant now or hereafter growing in any street, sidewalk, median or other public right of way of the city, unless such work conforms with all city regulations and standards" (City of Carlsbad 2000). The City ordinance does not state that private trees are protected. However, as a condition of the previous project approval, as noted previously, the City has stated that appropriate mitigation will need to be determined for any trees requiring removal.

4.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (1918) requires tree removal and potentially disturbing construction activities to occur during certain time periods to avoid harassment of nesting birds. According to this act, no construction or other disturbing activities can occur within 300 feet of an active bird nest (500 feet for listed species) during the period beginning in February and ending in September each year. Biological surveys should be conducted to provide clearance for project initiation.

4.2 Impacts

Tree impacts were determined using geographic information system technology and spatial locations of trees relative to the project impact areas (limits of grading). Impacts were further determined based on Dudek's experience with native and non-native trees and their typical reactions to root disturbances from construction activities such as soil compaction, excavation, and remedial grading. The impact analysis results were used for developing appropriate mitigation measures for the project.

In general, there is a great deal of variation in tolerance to construction impacts among tree species, ages, and conditions. It is important to know how a certain tree, based on its species, age, and condition, would respond to different types of disturbance. The trees in the proposed project area are of varying ages and conditions. Mature specimens are typically more sensitive to root disturbance and grade changes. In general, healthy trees will respond better to changes in

their growing environment. Trees of poor health or stressed conditions may not be vigorous enough to cope with direct impacts from construction activities.

Presented impact totals are based on conceptual disturbance limits, fuel modification zones, and development plans as of the date of this arborist report. As such, the actual number of trees subject to direct and indirect impacts may change as the detailed site planning process proceeds.

4.2.1 Impacts

For the purposes of this arborist report, impacts are those associated with tree removal or encroachment within the tree-protected zone (canopy dripline plus 5 feet or 15 feet from trunk, whichever is greater). Tree removal is expected to be required when the trunk is located inside or within 2 feet of the proposed limits of grading. Encroachment is expected when soil and roots may be disturbed within the tree-protected zone. Table 2 summarizes the number of trees by species that are expected to be subject to direct construction-related impacts. The locations of impacted trees are presented by impact type on the map in Appendix C, Tree Impacts. Measures to minimize the extent of impacts to encroached and preserved trees are provided in Section 6, Tree Protection Measures.

Table 2
Summary of All Direct Tree Impacts

Scientific Name	Common Name	Removal	Encroachment
Quercus agrifolia	Coast live oak	23	15
Populus fremontii	Western cottonwood	0	1
	Totals	23	16

4.2.2 Relocation

The success rates for transplanting large coast live oak trees are relatively low (personal observations of Dudek arborists; Dagit and Downer 1997), especially when coupled with drought-related stress. Transplanting large coast live oak trees places a great deal of stress on the trees because of the difficulties mature coast live oaks have adapting to a new site after losing a minimum of 75% of their root mass. These additional stresses make coast live oak trees more vulnerable to pests and diseases. Although they may live for an extended period, large, transplanted coast live oaks typically do not reach equilibrium health and vitality needed for long-term survival. The trees will exist in a declining spiral. A great deal of care, time, and attention is required during boxing, moving, storing, and transplanting to increase survival probability. Furthermore, boxed coast live oak trees, purchased from a nursery

and/or tree vendor, of similar sizes have shown higher establishment success rates following installation than those of relocated trees. As such, none of the potentially impacted trees are recommended for relocation.

4.2.3 Proposed Tree Removals

In total, 23 trees are anticipated to be directly impacted by the current proposed project. Of the 23 trees, 6 (trees no. 103, 101, 100, 99, 55, and 54) are considered mature and original to the site. However, these six trees are in a state of declining health (four trees), dead (one tree), and/or considered to have very poor structure (one tree). Due to the health and structure of these six trees, none are recommended for preservation and/or incorporation into the post-development landscape.

The remaining 17 trees are younger in age, and based on field observations, were planted on site by the previous owners or have seeded in from the adjacent mature trees. With the exception of one tree found to be in poor health (tree no. 102), all of the trees are in good (one tree) or fair (nine trees) health. These trees, although in fair to good health, would likely experience direct and/or indirect impacts from the proposed project should they be left on site. In addition, the trees are not a component of native live oak woodland but are located within an area composed of disturbed habitat and previously graded areas, and thus, typically would not have been analyzed as a woodland impact since they are isolated trees.

Furthermore, the 17 remaining trees are not considered ideal candidates for relocation based on health, anticipated root damage, and/or the unlikelihood of successful establishment following relocation. The smaller/newer oaks, like the mature oaks, will experience significant root damage during the relocation process. The removal of this critical root mass, in addition to the current drought conditions, will further stress the trees and make them susceptible to pests and disease. Moreover, boxed oak trees, purchased from a nursery and/or tree vendor, of similar sizes have shown higher establishment success rates following installation than those of relocated trees. As such, and in order to maintain a healthy oak-dominated landscape, the 17 remaining trees are not recommended for preservation or relocation.

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5 TREE MITIGATION

The City's Municipal Code does not identify specific tree replacement standards for projects affecting native trees on private property. However, as stated by the City, any trees requiring removal will require mitigation.

5.1 Recommended Mitigation

As discussed in this arborist report, tree impacts are based on the information provided to Dudek by the project owner in February 2017 and the results of Dudek's site evaluation on February 8, 2017. Based on the project's limits of ground disturbance, 23 of the trees evaluated are expected to require removal. As such, Dudek recommends that the six mature coast live oak trees proposed for removal be replaced at a minimum 3:1 ratio with eighteen 24-inch box coast live oak trees and the seventeen smaller diameter trees proposed for removal be replaced at a minimum 1:1 ratio with seventeen 24-inch box coast live oak trees. In total, it is recommended that the 23 coast live oak trees proposed for removal be replaced with thirty-five 24-inch box coast live oak trees. Furthermore, Dudek recommends that the 35 replacement trees be incorporated into the project within the post-development landscape and riparian buffer areas, as appropriate.

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6 TREE PROTECTION MEASURES

In total, 87 trees adjacent to the proposed project site are recommended for preservation through the implementation of tree protection measures. Dudek recommends that the 87 trees be protected according to the tree protection measures in Appendix D, Tree Protection Measures.

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7 CONCLUSIONS

Dudek inventoried and evaluated 110 trees on and adjacent to the project site. In total, 23 trees are anticipated to be directly impacted by the current proposed project and are not recommended for preservation. Based on Dudek's evaluation, it is recommended that the 23 trees requiring removal be replaced with thirty-five 24-inch box coast live oak trees. Finally, this arborist report recommends that undisturbed, protected trees be subject to protection measures that, when implemented, minimize the possibility that trees are inadvertently damaged during the construction process.

Arborist's Statement

This arborist report provides conclusions and recommendations based on an examination of the trees and surrounding site by International Society of Arboriculture–certified arborists. Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees.

No root crown excavations or investigations or internal probing were performed during the tree assessments. Therefore, the presence or absence of internal decay or other hidden inferiorities in individual trees could not be confirmed. It is recommended that any large tree proposed for preservation in an area that receives human use be thoroughly inspected for internal or subterranean decay by a qualified arborist before finalizing preservation plans.

Arborists cannot detect every condition that could possibly lead to the failure of a tree. Trees are living organisms that fail in ways not fully understood. Conditions are often hidden within trees and belowground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances or for a specified period. There are no guarantees that a tree's condition will not change over a short or long period due to weather or cultural or environmental conditions. Trees can be managed but not controlled.

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8 REFERENCES

City of Carlsbad. 1982. “Carlsbad Tract No. 82-4” [map]. Palomar Oaks II; Birtcher Business Center. Map No. 11358.

City of Carlsbad. 1985. Palomar Oaks II: Resolution No. 1995 CT 82-4/PUD-38.

City of Carlsbad. 2000. *Ordinance No. NS-545*. Adopted June 20, 2000. Accessed February 2017. http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=24684.

Dagit, R., and A.J. Downer. 1997. "Status of Transplanted Coast Live Oaks (*Quercus agrifolia*) in Southern California." In *Proceedings of a Symposium on Oak Woodlands: Ecology, Management, and Urban Interface Issues*, coordinated by N.H. Pillsbury, J. Verner, and W.D. Tietje, 257–266. General Technical Report PSW-GTR-160. Albany, California: U.S. Forest Service, Pacific Southwest Research Station. Accessed February 2017. http://www.treesearch.fs.fed.us/pubs/28182.

DeCerbo, C. “Pre 13-12 – West Oaks APN: 212-110-01 through -08.” Letter from C. DeCerbo (City of Carlsbad) to . Hammond (Integral Communities). May 6, 2013.

ISA (International Society of Arboriculture). 2000. *Guide for Plant Appraisal*. 9th edition. Council of Tree and Landscape Appraisers.

USDA (U.S. Department of Agriculture). 1973. “Soil Survey of San Diego Area, California.” Parts I and II. Produced in cooperation with the University of California Agricultural Experiment Station; the Bureau of Indian Affairs; the U.S. Marine Corps; the Department of Housing and Urban Development; the County of San Diego Planning Department; and the Comprehensive Planning Organization. Washington, DC: U.S. Department of Agriculture, Soil Conservation Service and Forest Service. December 1973.

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APPENDIX A

Tree Locations

DUDEK

9897

SOURCE: AERIAL - SANDAG 1-FT IMAGERY; SITE PLAN -FUSCOE ENGINEERING 2017

Appendix A

Tree Locations

WEST OAKS ARBORIST REPORT

APPENDIX B

Tree Information Matrix

Appendix B - Tree Information Matrix

Tree No.	Botanical Name	Common Name	Stems	Individual Stem Diameter (in.)						Height (ft.)	Canopy (ft.)	Health	Structure	Pests	Notes	Disposition	X	Y
				1	2	3	4	5	6									
1	*Quercus agrifolia*	Coast live oak	2	4	3					10	10	Fair	Fair	No		Preserve	-117.29045	33.11921
2	*Quercus agrifolia*	Coast live oak	1	10						20	15	Fair	Fair	No		Preserve	-117.29047	33.11922
3	*Quercus agrifolia*	Coast live oak	4	8	4	6	3			20	15	Fair	Fair	No		Preserve	-117.29057	33.11922
4	*Quercus agrifolia*	Coast live oak	2	5	4					15	10	Fair	Fair	No		Preserve	-117.29059	33.11918
5	*Quercus agrifolia*	Coast live oak	1	6						15	10	Poor	Poor	No		Preserve	-117.29059	33.11916
6	*Quercus agrifolia*	Coast live oak	1	11						20	15	Fair	Fair	Yes		Preserve	-117.29069	33.11926
7	*Quercus agrifolia*	Coast live oak	1	3						10	10	Fair	Fair	No		Encroachment	-117.29102	33.11929
8	*Quercus agrifolia*	Coast live oak	2	4	3					15	10	Good	Good	No		Encroachment	-117.29108	33.1193
9	*Quercus agrifolia*	Coast live oak	1	2						10	5	Good	Fair	No		Encroachment	-117.29111	33.1193
10	*Quercus agrifolia*	Coast live oak	3	2	6	5				15	10	Poor	Fair	No		Preserve	-117.29109	33.11927
11	*Quercus agrifolia*	Coast live oak	1	5						20	10	Fair	Good	No		Preserve	-117.29112	33.11928
12	*Quercus agrifolia*	Coast live oak	5	14	14	10	6	4		25	20	Fair	Fair	No		Preserve	-117.29115	33.11928
13	*Quercus agrifolia*	Coast live oak	2	3	2					15	10	Fair	Fair	No		Preserve	-117.29123	33.11928
14	*Quercus agrifolia*	Coast live oak	2	3	2					10	5	Fair	Fair	No		Encroachment	-117.29121	33.11931
15	*Quercus agrifolia*	Coast live oak	4	4	4	3	4			15	15	Fair	Fair	No		Encroachment	-117.29124	33.11932
16	*Quercus agrifolia*	Coast live oak	1	4						10	10	Fair	Fair	No		Remove	-117.29132	33.11937
17	*Quercus agrifolia*	Coast live oak	1	9						20	25	Fair	Fair	No		Encroachment	-117.2915	33.11938
18	*Quercus agrifolia*	Coast live oak	1	4						10	5	Fair	Fair	No		Encroachment	-117.29152	33.11937
19	*Quercus agrifolia*	Coast live oak	3	5	4	7				20	20	Fair	Fair	No		Encroachment	-117.29158	33.11938
20	*Quercus agrifolia*	Coast live oak	1	2						15	10	Fair	Fair	No		Preserve	-117.29179	33.11948
21	*Quercus agrifolia*	Coast live oak	1	9						20	15	Good	Fair	No		Preserve	-117.29191	33.11962
22	*Quercus agrifolia*	Coast live oak	1	15						25	20	Fair	Fair	No		Preserve	-117.29199	33.11969
23	*Quercus agrifolia*	Coast live oak	1	9						20	15	Fair	Fair	No		Remove	-117.29198	33.11982
24	*Quercus agrifolia*	Coast live oak	1	10						20	20	Fair	Good	No		Encroachment	-117.29209	33.11983
25	*Quercus agrifolia*	Coast live oak	1	8						20	15	Good	Good	No		Preserve	-117.29209	33.11975
26	*Quercus agrifolia*	Coast live oak	1	4						15	10	Poor	Fair	No		Preserve	-117.29211	33.11976
27	*Quercus agrifolia*	Coast live oak	1	7						15	10	Good	Fair	No		Preserve	-117.29211	33.11977
28	*Quercus agrifolia*	Coast live oak	1	9						20	15	Good	Fair	No		Preserve	-117.29213	33.11979
29	*Quercus agrifolia*	Coast live oak	1	9						20	15	Good	Good	No		Preserve	-117.29237	33.12007
30	*Quercus agrifolia*	Coast live oak	4	4	3	4	2			20	15	Good	Fair	No		Preserve	-117.29238	33.12008

Appendix B - Tree Information Matrix

Tree No.	Botanical Name	Common Name	Stems	Individual Stem Diameter (in.)						Height (ft.)	Canopy (ft.)	Health	Structure	Pests	Notes	Disposition	X	Y
				1	2	3	4	5	6									
31	*Quercus agrifolia*	Coast live oak	1	6						20	15	Good	Good	No		Preserve	-117.29244	33.12013
32	*Quercus agrifolia*	Coast live oak	3	2	2	1				10	10	Good	Good	No		Preserve	-117.29246	33.12013
33	*Quercus agrifolia*	Coast live oak	2	4	3					10	10	Good	Fair	No		Preserve	-117.29251	33.12016
34	*Quercus agrifolia*	Coast live oak	2	9	9					25	15	Good	Fair	No		Encroachment	-117.29252	33.12023
35	*Quercus agrifolia*	Coast live oak	1	4						10	5	Good	Fair	No		Encroachment	-117.29255	33.12026
36	*Quercus agrifolia*	Coast live oak	1	6						10	5	Good	Fair	No		Preserve	-117.29259	33.12026
37	*Quercus agrifolia*	Coast live oak	2	3	3					10	5	Good	Fair	No		Encroachment	-117.2931	33.12077
38	*Quercus agrifolia*	Coast live oak	1	10						15	10	Fair	Fair	No		Remove	-117.29318	33.12101
39	*Quercus agrifolia*	Coast live oak	2	7	6					15	15	Fair	Fair	No		Remove	-117.2933	33.12109
40	*Quercus agrifolia*	Coast live oak	2	12	6					25	25	Fair	Fair	No		Encroachment	-117.29334	33.12099
41	*Quercus agrifolia*	Coast live oak	1	7						20	10	Fair	Fair	No		Preserve	-117.29338	33.12099
42	*Quercus agrifolia*	Coast live oak	4	7	3	2	3			25	15	Fair	Fair	No		Encroachment	-117.29341	33.12107
43	*Quercus agrifolia*	Coast live oak	1	4						30	15	Fair	Fair	No		Encroachment	-117.29342	33.12108
44	*Quercus agrifolia*	Coast live oak	1	4						10	10	Fair	Fair	No		Preserve	-117.29346	33.12112
45	*Quercus agrifolia*	Coast live oak	1	6						10	10	Fair	Fair	No		Preserve	-117.2935	33.12116
46	*Quercus agrifolia*	Coast live oak	1	2						5	5	Good	Fair	No		Preserve	-117.29353	33.12116
47	*Quercus agrifolia*	Coast live oak	3	3	3	2				10	10	Good	Fair	No		Preserve	-117.29356	33.12122
48	*Quercus agrifolia*	Coast live oak	2	2	3					10	5	Fair	Fair	No		Preserve	-117.29371	33.12138
49	*Quercus agrifolia*	Coast live oak	3	3	3	4				10	5	Fair	Fair	No		Preserve	-117.29371	33.12136
50	*Quercus agrifolia*	Coast live oak	1	5						10	10	Good	Poor	No		Preserve	-117.29375	33.1214
51	*Quercus agrifolia*	Coast live oak	1	3						10	5	Fair	Fair	No		Preserve	-117.2938	33.12145
52	*Quercus agrifolia*	Coast live oak	1	3						10	5	Poor	Fair	No		Preserve	-117.29417	33.12174
53	*Quercus agrifolia*	Coast live oak	7	2	2	1	1	1	1	10	5	Fair	Poor	No	Resprout	Remove	-117.29374	33.12162
54	*Quercus agrifolia*	Coast live oak	1	12						5	10	Fair	Very poor	No	Windthrown	Remove	-117.2941	33.12189
55	*Quercus agrifolia*	Coast live oak	2	10	10					20	15	Dead	Dead	Yes		Remove	-117.29415	33.1219
56	*Quercus agrifolia*	Coast live oak	4	8	4	4	2			15	15	Fair	Fair	No		Remove	-117.29438	33.12211
57	*Quercus agrifolia*	Coast live oak	8	6	4	4	2	4	3	15	15	Fair	Poor	No		Remove	-117.2944	33.12211
58	*Quercus agrifolia*	Coast live oak	1	4						10	5	Fair	Fair	No		Remove	-117.29439	33.12212
59	*Quercus agrifolia*	Coast live oak	1	6						15	10	Fair	Fair	No		Preserve	-117.29433	33.12181
60	*Quercus agrifolia*	Coast live oak	1	4						10	5	Poor	Poor	No		Preserve	-117.29439	33.12185

Appendix B - Tree Information Matrix

Tree No.	Botanical Name	Common Name	Stems	Individual Stem Diameter (in.)						Height (ft.)	Canopy (ft.)	Health	Structure	Pests	Notes	Disposition	X	Y
				1	2	3	4	5	6									
61	*Quercus agrifolia*	Coast live oak	4	3	2	2	2			10	10	Good	Fair	No		Preserve	-117.29446	33.12189
62	*Quercus agrifolia*	Coast live oak	2	5	4					15	10	Good	Fair	No		Preserve	-117.29451	33.12186
63	*Quercus agrifolia*	Coast live oak	3	5	4	3				15	10	Good	Fair	No		Preserve	-117.29449	33.12191
64	*Quercus agrifolia*	Coast live oak	1	3						10	10	Good	Fair	No		Preserve	-117.2945	33.1219
65	*Quercus agrifolia*	Coast live oak	1	3						10	10	Good	Fair	No		Preserve	-117.29451	33.1219
66	*Quercus agrifolia*	Coast live oak	4	4	3	3	4			20	15	Good	Fair	No		Preserve	-117.29454	33.12191
67	*Quercus agrifolia*	Coast live oak	2	3	3					15	10	Good	Fair	No		Preserve	-117.29457	33.12191
68	*Quercus agrifolia*	Coast live oak	2	3	3					10	10	Good	Fair	No		Preserve	-117.2946	33.12196
69	*Quercus agrifolia*	Coast live oak	2	5	4					15	10	Good	Fair	No		Preserve	-117.29463	33.12197
70	*Quercus agrifolia*	Coast live oak	2	7	6					20	15	Good	Fair	No		Preserve	-117.29465	33.12197
71	*Quercus agrifolia*	Coast live oak	4	5	5	4	3			15	15	Good	Fair	No		Preserve	-117.29467	33.12198
72	*Quercus agrifolia*	Coast live oak	6	5	5	4	3	6	6	15	15	Good	Fair	No		Preserve	-117.29487	33.12213
73	*Quercus agrifolia*	Coast live oak	2	11	10					20	20	Good	Fair	No		Preserve	-117.29496	33.12216
75	*Populus fremontii*	Western cottonwood	3	16	16	12				40	35	Good	Fair	No		Encroachment	-117.2948	33.1226
76	*Populus fremontii*	Western cottonwood	3	16	16	12				20	35	Poor	Poor	No		Preserve	-117.2948	33.12266
75	*Quercus agrifolia*	Coast live oak	1	5						15	10	Fair	Fair	No		Remove	-117.29505	33.12222
77	*Quercus agrifolia*	Coast live oak	1	7						15	10	Fair	Fair	No		Preserve	-117.29475	33.12263
78	*Populus fremontii*	Western cottonwood	1	11						45	20	Fair	Fair	No		Preserve	-117.29474	33.12264
79	*Quercus agrifolia*	Coast live oak	1	3						15	10	Fair	Fair	No		Preserve	-117.29472	33.12263
80	*Quercus agrifolia*	Coast live oak	1	15						35	25	Fair	Fair	No		Preserve	-117.29468	33.1226
81	*Populus fremontii*	Western cottonwood	1	11						20	15	Fair	Fair	No		Preserve	-117.29465	33.12259
82	*Quercus agrifolia*	Coast live oak	3	4	2	2				25	10	Fair	Fair	No		Preserve	-117.29463	33.12261
83	*Populus fremontii*	Western cottonwood	2	8	3					30	15	Fair	Fair	No		Preserve	-117.29463	33.12259
84	*Quercus agrifolia*	Coast live oak	1	7						15	10	Fair	Fair	No		Preserve	-117.29463	33.12261
85	*Quercus agrifolia*	Coast live oak	3	3	4	4				15	10	Fair	Fair	No		Preserve	-117.29462	33.12261
86	*Quercus agrifolia*	Coast live oak	4	3	4	4	6			30	15	Poor	Fair	No		Preserve	-117.2946	33.12259
87	*Quercus agrifolia*	Coast live oak	4	5	8	6	6			25	20	Fair	Fair	No		Preserve	-117.29453	33.12256

Appendix B - Tree Information Matrix

Tree No.	Botanical Name	Common Name	Stems	Individual Stem Diameter (in.)						Height (ft.)	Canopy (ft.)	Health	Structure	Pests	Notes	Disposition	X	Y
				1	2	3	4	5	6									
88	*Populus fremontii*	Western cottonwood	1	13						60	45	Poor	Fair	No		Preserve	-117.29445	33.12251
89	*Quercus agrifolia*	Coast live oak	1	7						30	15	Fair	Fair	No		Preserve	-117.29438	33.12253
90	*Quercus agrifolia*	Coast live oak	1	5						20	15	Fair	Fair	No		Preserve	-117.29419	33.12239
91	*Quercus agrifolia*	Coast live oak	2	8	7					20	15	Fair	Fair	No		Preserve	-117.29391	33.12226
92	*Quercus agrifolia*	Coast live oak	1	11						20	15	Fair	Fair	No		Preserve	-117.29389	33.12224
93	*Quercus agrifolia*	Coast live oak	2	5	4					15	10	Fair	Fair	No		Preserve	-117.29384	33.12223
94	*Quercus agrifolia*	Coast live oak	2	5	2					20	10	Fair	Fair	No		Preserve	-117.29382	33.1222
95	*Quercus agrifolia*	Coast live oak	1	6						10	5	Fair	Fair	No		Preserve	-117.29378	33.12219
96	*Quercus agrifolia*	Coast live oak	2	3	2					10	5	Fair	Fair	No		Preserve	-117.29369	33.12216
97	*Quercus agrifolia*	Coast live oak	3	3	2	2				10	5	Fair	Fair	No		Preserve	-117.29364	33.12212
98	*Quercus agrifolia*	Coast live oak	3	2	1	1				10	5	Fair	Fair	No		Preserve	-117.29354	33.12204
99	*Quercus agrifolia*	Coast live oak	2	26	23					50	40	Critical	Poor	No		Remove	-117.29317	33.12128
100	*Quercus agrifolia*	Coast live oak	1	22						20	30	Critical	Poor	No		Remove	-117.29315	33.12124
101	*Quercus agrifolia*	Coast live oak	2	19	15					20	30	Critical	Poor	No		Remove	-117.29294	33.12125
102	*Quercus agrifolia*	Coast live oak	2	8	11					15	25	Poor	Poor	No		Remove	-117.29276	33.12107
103	*Quercus agrifolia*	Coast live oak	2	24	19					30	30	Critical	Poor	No		Remove	-117.29255	33.12085
104	*Quercus agrifolia*	Coast live oak	4	3	3	2	2			15	10	Good	Poor	No		Remove	-117.29258	33.12087
105	*Quercus agrifolia*	Coast live oak	4	3	3	2	1			15	10	Good	Fair	No		Remove	-117.29256	33.12087
106	*Quercus agrifolia*	Coast live oak	4	1	1	1	1			15	10	Good	Fair	No		Remove	-117.29256	33.12087
107	*Quercus agrifolia*	Coast live oak	4	2	1	1	1			15	10	Good	Fair	No		Remove	-117.29254	33.12091
108	*Quercus agrifolia*	Coast live oak	7	2	1	1	1	4	3	15	10	Good	Fair	No		Remove	-117.29251	33.12091
109	*Quercus agrifolia*	Coast live oak	5	2	1	1	1	2		10	10	Good	Fair	No		Remove	-117.29248	33.12092
110	*Quercus agrifolia*	Coast live oak	5	2	1	1	1	2		10	10	Good	Fair	No		Remove	-117.2925	33.12091

APPENDIX C

Tree Impacts

DUDEK

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SOURCE: AERIAL - SANDAG 1-FT IMAGERY; SITE PLAN -FUSCOE ENGINEERING 2017

Appendix C

Tree Impacts

WEST OAKS ARBORIST REPORT

APPENDIX D

Tree Protection Measures

The following sections are included as general guidelines for tree protection from construction impacts. The measures presented should be monitored by arborists and enforced by contractors and developers for maximum benefit to the trees.

Tree Protection Measures Prior to Construction

Prior to any grading activity, preserved trees that fall within 500 feet of construction activity shall be protected by fencing and signage. All contractors shall be made aware of the tree protection measures.

Fencing: A 4-foot high, orange-webbing, polypropylene barricade fence with tree protection signs shall be erected around all trees (or tree groups) to be preserved. The protective fence should be installed five feet beyond the dripline of the tree. This will delineate the tree protection area and prevent unwanted activity in and around the trees in order to reduce soil compaction in the root zones of the trees and other damage from heavy equipment. The fence webbing shall be secured to 6-foot, heavy gauge t-bar line posts, pounded in the ground a minimum of 18-inches and spaced 8-feet on-center. Fence webbing will be attached to t-bar posts with minimum 14-gage wire fastened to the top, middle and bottom of each post. Tree protection signs should be attached to every fourth post. The contractor shall maintain the fence to keep it upright, taut, and aligned at all times. Fencing shall be removed only after all construction activities are complete.

Pre-Construction Meeting: A pre-construction meeting shall be held between all contractors (including grading, tree removal/pruning, builders, etc.) and the arborist. The arborist will instruct the contractors on tree protection practices and answer any questions. All equipment operators and spotters, assistants, or those directing operators from the ground, shall provide written acknowledgement of their receiving tree protection training. This training shall include information on the location and marking of protected trees, the necessity of preventing damage, and the discussion of work practices that will accomplish such.

Protection and Maintenance During Construction

Once construction activities have begun the following measures shall be adhered to:

Equipment Operation and Storage: Avoid heavy equipment operation around the trees. Operating heavy machinery around the root zones of trees will increase soil compaction, which decreases soil aeration and subsequently reduces water penetration in the soil. All heavy equipment and vehicles should, at minimum, stay out of the fenced tree protection zone, unless where specifically approved in writing and under the supervision of a Certified Arborist.

Storage and Disposal: Do not store or discard any supply or material, including paint, lumber, concrete overflow, etc. within the protection zone. Remove all foreign debris within the protection zone; it is important to leave the duff, mulch, chips, and leaves around the retained trees for water retention and nutrients. Avoid draining or leakage of equipment fluids near retained trees. Fluids such as: gasoline, diesel, oils, hydraulics, brake and transmission fluids, paint, paint thinners, and glycol (anti-freeze) should be disposed of properly. Keep equipment parked at least 50 feet away from retained trees to avoid the possibility of leakage of equipment fluids into the soil. The effect of toxic equipment fluids on the retained trees could lead to decline and death.

Grade Changes: Grade changes, including adding fill, are not permitted within the tree protection zone, without special written authorization and under supervision by a Certified Arborist. Lowering

the grade within this area will necessitate cutting main support and feeder roots, jeopardizing the health and structural integrity of the tree(s). Adding soil, even temporarily, on top of the existing grade will compact the soil further, and decrease both water and air availability to the trees' roots.

Moving Construction Materials: Care will be taken when moving equipment or supplies near the trees, especially overhead. Avoid damaging the tree(s) when transporting or moving construction materials and working around the tree (even outside of the fenced tree protection zone). Above ground tree parts that could be damaged (e.g., low limbs, trunks) should be flagged with red ribbon. If contact with the tree crown is unavoidable, prune the conflicting branch(es) using ISA standards.

Root Pruning: Except where specifically approved in writing, all trenching shall be outside of the fenced protection zone. Roots primarily extend in a horizontal direction forming a support base to the tree similar to the base of a wineglass. Where trenching is necessary in areas that contain tree roots, prune the roots using a Dosko root pruner or equivalent. All cuts should be clean and sharp, to minimize ripping, tearing, and fracturing of the root system. The trench should be made no deeper than necessary.

Irrigation: Trees that have been substantially root pruned (30% or more of their root zone) will require irrigation for the first twelve months. The first irrigation should be within 48 hours of root pruning. They should be deep watered every two to four weeks during the summer and once a month during the winter (adjust accordingly with rainfall). One irrigation cycle should thoroughly soak the root zones of the trees to a depth of 3 feet. The soil should dry out between watering; avoid keeping a consistently wet soil. Designate one person to be responsible for irrigating (deep watering) the trees. Check soil moisture with a soil probe before irrigating. Irrigation is best accomplished by installing a temporary above ground micro-spray system that will distribute water slowly (to avoid runoff) and evenly throughout the fenced protection zone ***but never soaking the area located within 6- feet of the tree trunk, especially during warmer months***.

Pruning: Do not prune any of the trees until all construction is completed. This will help protect the tree canopies from damage. All pruning shall be completed under the direction of an ISA Certified Arborist and using ISA guidelines. Only dead wood shall be removed from tree canopies.

Washing: During construction in summer and autumn months, wash foliage of trees adjacent to the construction sites with a strong water stream every two weeks in early hours before 10:00 a.m. to control mite and insect populations.

Inspection: An ISA Certified Arborist shall inspect the impacted preserved trees on a monthly basis during construction. A report comparing tree health and condition to the original, pre-construction baseline shall be submitted following each inspection. Photographs of representative trees are to be included in the report on a minimum annual basis.

Maintenance After Construction

Once construction is complete the fencing may be removed and the following measures performed to sustain and enhance the vigor of the preserved trees.

Mulch: Provide a 4-inch mulch layer under the canopy of trees. Mulch should include clean, organic mulch that will provide long-term soil conditioning, soil moisture retention, and soil temperature control.

Pruning: The trees will not require regular pruning. Pruning should *only* be done to maintain clearance and remove broken, dead or diseased branches. Pruning shall only take place following a

recommendation by an ISA Certified Arborist and performed under the supervision of an ISA Certified Arborist. No more than 15% of the canopy shall be removed at any one time. All pruning shall conform to International Society of Arboriculture standards.

Watering: The natural trees that are not disturbed should not require regular irrigation, other than the twelve months following substantial root pruning. However, soil probing will be necessary to accurately monitor moisture levels. Especially in years with low winter rainfall, supplemental irrigation for the trees that sustained root pruning and any newly planted trees may be necessary. The trees should be irrigated *only* during the winter and spring months.

Watering Adjacent Plant Material: All plants near the trees shall be compatible with water requirements of said trees. The surrounding plants should be watered infrequently with deep soaks and allowed to dry out in-between, rather than frequent light irrigation. The soil shall not be allowed to become saturated or stay continually wet. Irrigation spray shall not hit the trunk of any tree. A 60-inch dry-zone shall be maintained around all tree trunks. An above ground micro-spray irrigation system is recommended over typical underground pop-up sprays.

Washing: Periodic washing of the foliage is recommended during construction but no more than once every two weeks. Washing should include the upper and lower leaf surfaces and the tree bark. This should continue beyond the construction period at a less frequent rate with a high-powered hose only in the early morning hours. Washing will help control dirt/dust buildup that can lead to mite and insect infestations.

Spraying: If the trees are maintained in a healthy state, regular spraying for insect or disease control should not be necessary. If a problem does develop, an ISA Certified Arborist should be consulted; the trees may require application of insecticides to prevent the intrusion of bark-boring beetles and other invading pests. All chemical spraying should be performed by a licensed applicator under the direction of a licensed pest control advisor.

Inspection: All trees that were impacted during construction within the tree protection zone should be monitored by an ISA Certified Arborist for the first three years after construction completion. The Arborist shall submit an annual report, photograph each tree and compare tree health and condition to the original, pre-construction baseline.

APPENDIX E

Conceptual Mitigation Plan for the West Oaks Project

CONCEPTUAL MITIGATION PLAN
for the
WEST OAKS PROJECT
CITY OF CARLSBAD, CALIFORNIA
GPA 16-04/ZC 16-03/LCPA 16-04/ PUD2018-0004/SDP 16-20/CDP 16-31/SUP 2017-0005/HMP 16-04/ MS 2018-0005 (DEV13018)

Prepared for:

The Carlsbad Westoaks Project Owner LLC,
a Delaware Limited Liability Company
2235 Encinitas Boulevard, Suite 216
Encinitas, California 92024
Contact: Greg Waite

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Tel. 760.942.5147
Contact:
Anita M. Hayworth, PhD, Senior Biologist
or
Paul Walsh, Landscape Architect No. 4446/
Habitat Restoration Specialist

NOVEMBER 2020

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APPENDIX

1 INTRODUCTION

The approximately 12.5-acre West Oaks Project (project) site is located in the City of Carlsbad, San Diego County, California (Figures 1 and 2). More specifically, the site is located south of Palomar Airport Road and east of Aviara Parkway. Eight plant communities/land cover types were identified on site: southern willow scrub, open water, open water within a concrete-channel, coastal sage scrub, coastal sage scrub dominated by coyotebush, disturbed land, developed land, and developed land within a concrete-channel. Encinas Creek is located within the northern portion of the site and includes riparian habitat and of waters of the United States.

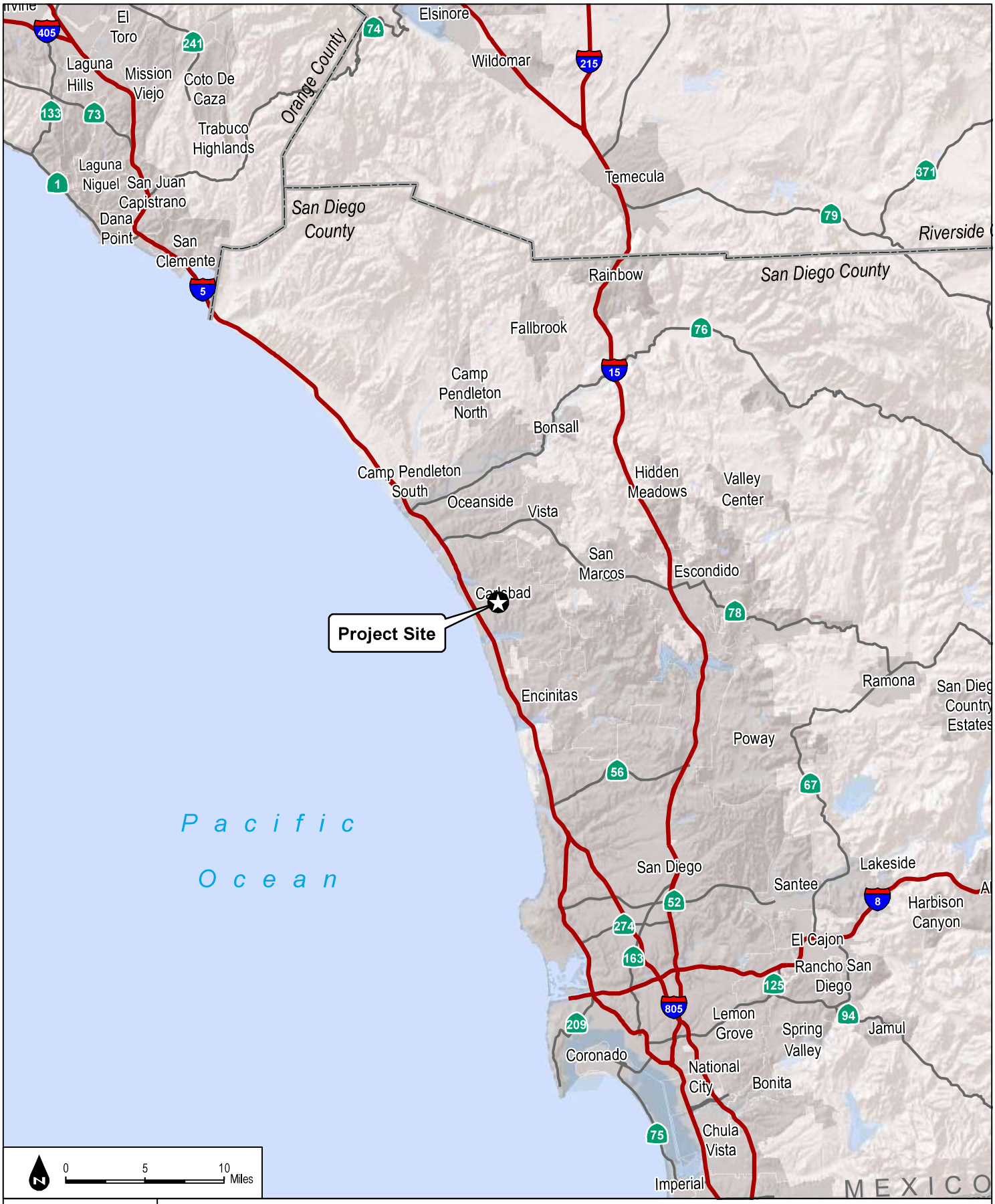
No plant or wildlife species listed as rare, threatened, or endangered by the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), or the California Native Plant Society (CNPS) were observed on site during biological surveys (see Biological Resources Technical Report for the West Oak Project, Carlsbad California, Dudek 2017); however, there is potential for a number of special status species to be present within the habitat located within Encinas Creek.

Implementation of the proposed development would result in the total direct impacts to 7.81 acres of predominantly developed or disturbed land for the residential development including graded slopes and fuel modification. Of this acreage, impacts to 0.02 acre of coastal sage scrub-coyotebrush and 0.09 acre of jurisdictional resources and riparian habitat are proposed for the required emergency access (Figure 3). The required 20-foot upland (0.61 acre) and 50-foot riparian buffers including protective fencing are provided in order to provide protection for the native vegetation on site.

Coastal sage scrub, riparian scrub, and open water habitat types are considered sensitive and require mitigation by the City of Carlsbad, the CCC and CDFW. The U.S. Army Corps of Engineers and Regional Water Quality Control Board (RWQCB) declined taking jurisdiction of the project, per the correspondence included in Appendix A. Twenty-three individual oak trees will be impacted by the project.

A 20-foot-wide upland buffer (0.61 acre) and 50-foot-wide riparian buffer (1.17 acres) and protective fencing will be provided to protect native vegetation on site. A 3.97-acre open space lot has been designated that will include the existing riparian habitat, Encinas Creek, coastal sage scrub, and the riparian buffer areas (Figure 4). All of the proposed open space and existing HMP Preserve on site will be protected by a conservation easement, funding, and a City-approved habitat manager and will be incorporated into the HMP preserve (City of Carlsbad 2004). There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the proposed preserve and this existing easement will be excluded from the conservation easement and will not be managed. Impacts to the southern willow scrub, open water and coastal sage scrub-coyote brush will be mitigated as described in Section 2 of this report to provide no net loss of the habitat in accordance with the City's HMP and CCC requirements.

This document provides site-specific guidelines for habitat restoration, enhancement, and riparian buffer creation associated with the project. This mitigation plan is designed to restore/create/enhance coastal sage scrub, southern willow scrub, and riparian buffer vegetation communities that will provide high quality habitat for a variety of plant and wildlife species. The restored/created/enhanced habitat will provide improved cover and forage opportunities for sensitive species including but not limited to coastal California gnatcatcher, least Bell's vireo, and southern willow flycatcher.



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SOURCE: ESRI 2016

FIGURE 1

Regional Map

Conceptual Mitigation Plan for the West Oaks Project

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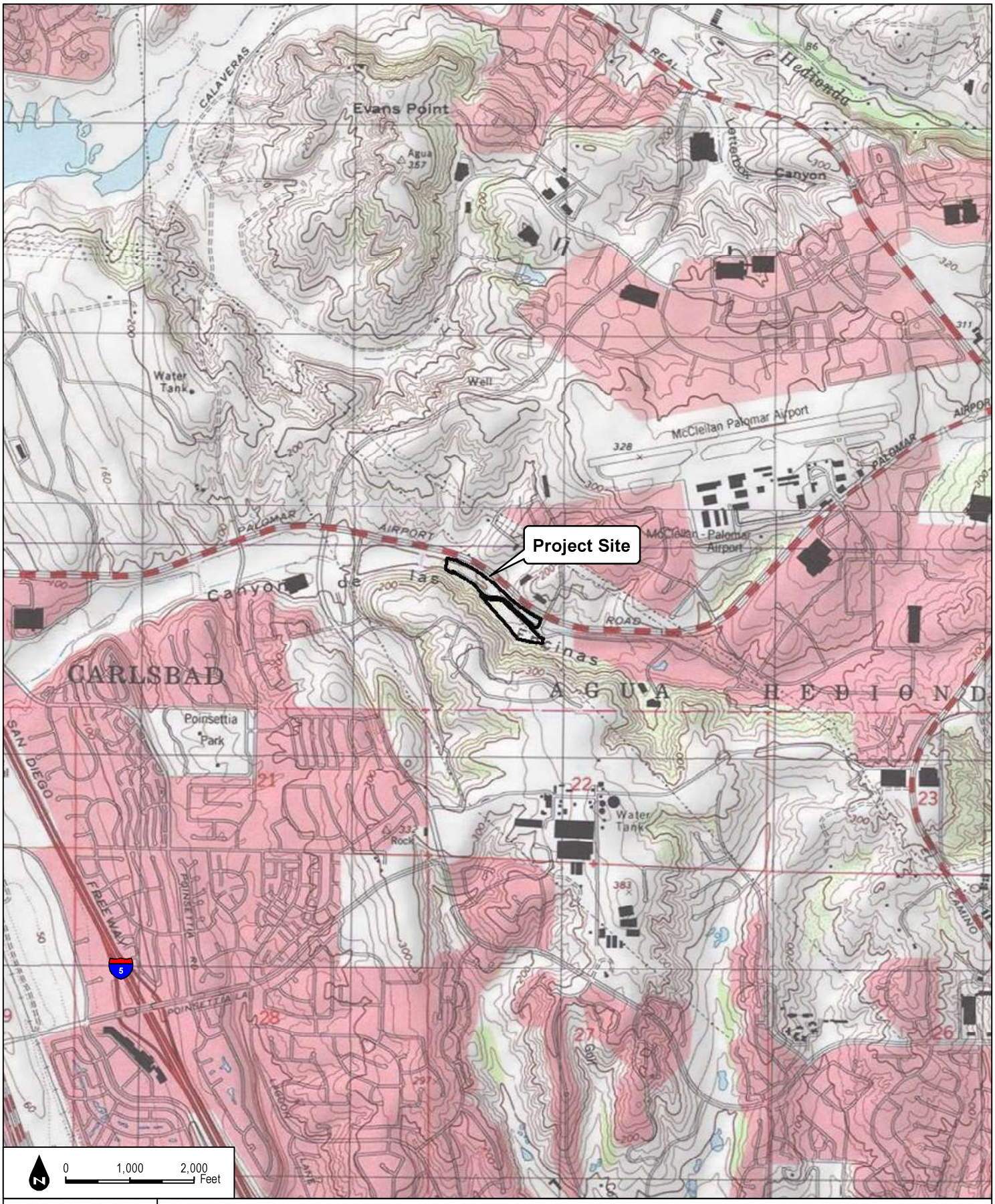

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SOURCE: USGS 7.5-Minute Series Encinitas Quadrangle.

FIGURE 2

Vicinity Map

Conceptual Mitigation Plan for the West Oaks Project

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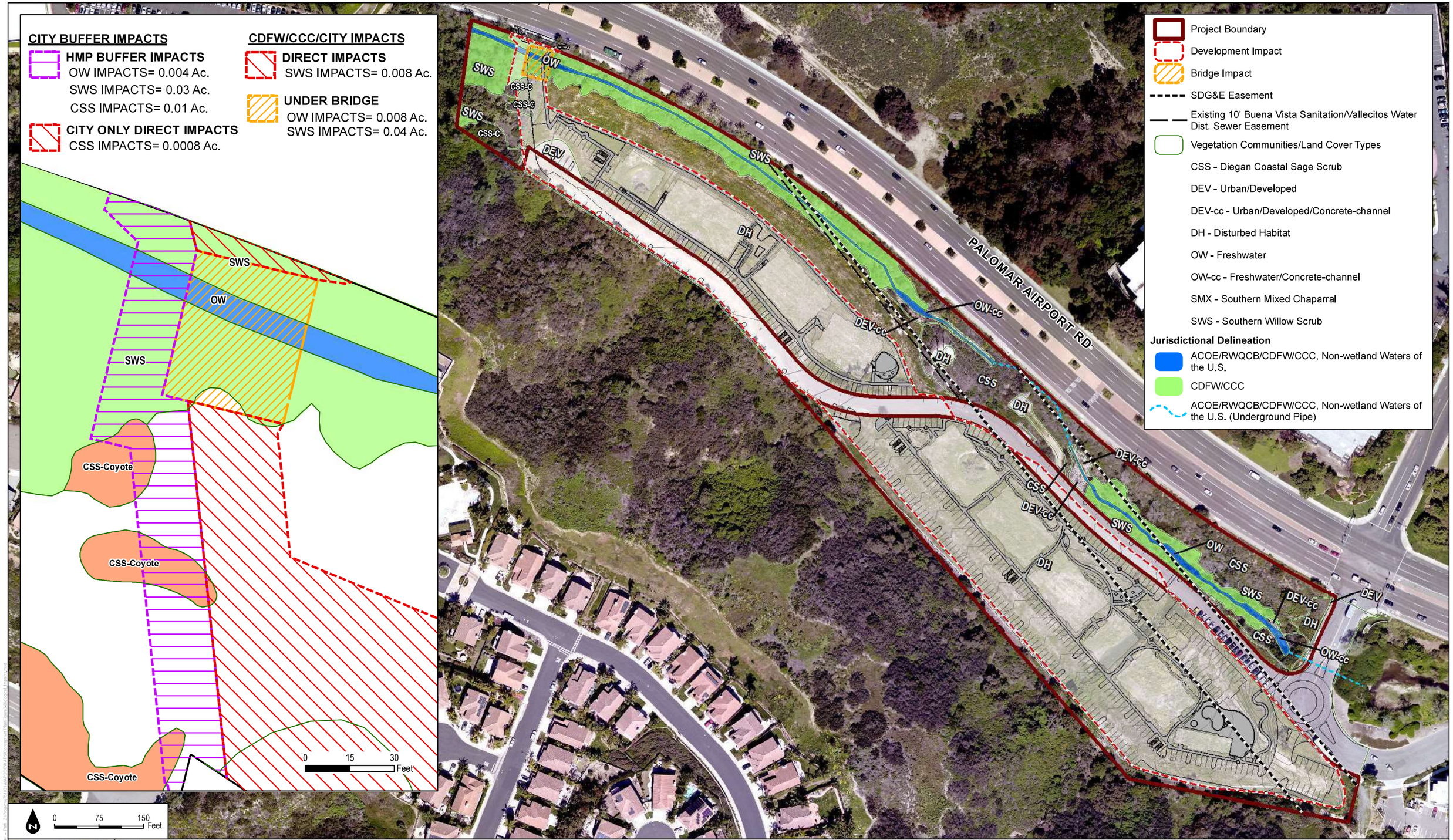

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SOURCE: AERIAL- SANGIS Imagery 2017; DEVELOPMENT - Fuscoe 2019

FIGURE 3

Biological Resources Impact Map

Conceptual Mitigation Plan for the West Oaks Project

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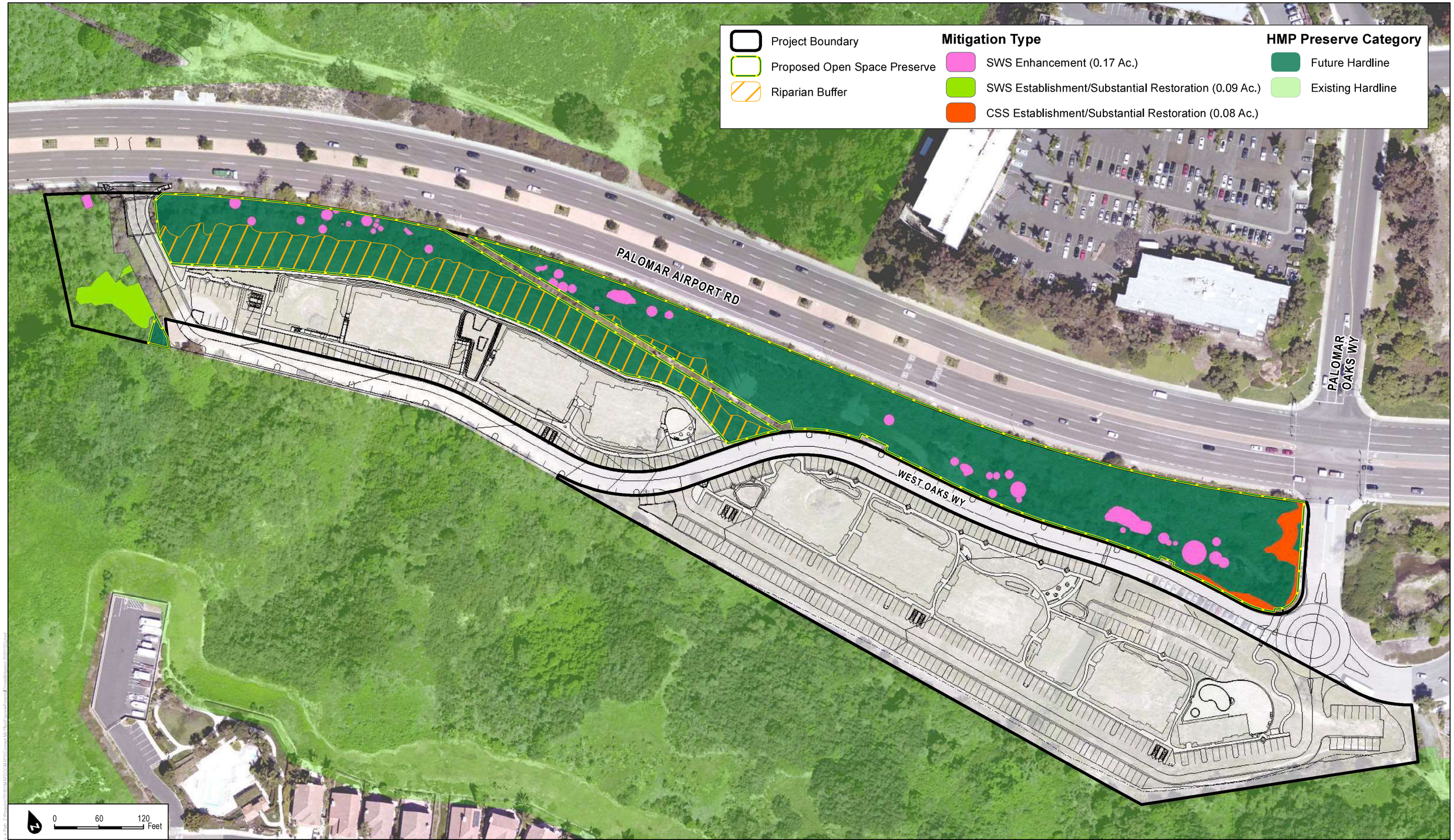

SOURCE: Fuscoe 2019/2020; SANGIS Imagery 2017

FIGURE 4

Potential Onsite Mitigation Areas

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Conceptual Mitigation Plan for the West Oaks Project

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2 PROJECT IMPACTS AND MITIGATION

Implementation of the proposed project results in direct impacts to the following sensitive vegetation communities: 0.01 acre of coastal sage scrub-coyotebrush, 0.05 acre of riparian scrub, and 0.01 acre of open water (see Table 1 and Figure 3). In addition, 23 individual coast live oak (*Quercus agrifolia*) trees will be impacted.

The City and CCC require an additional 20-foot buffer offset from the actual impact area when adjacent to native habitat areas. This additional buffer requirement results in "impacts" to 0.03 acre of riparian scrub, 0.01 acre of coastal sage scrub and 0.004 acre of open water. Figure 3 shows the location of each impact area. Habitat restoration must achieve no-net-loss per the City of Carlsbad's special-status vegetation community/habitat type (i.e., at least 1:1 substantial restoration or creation to impact ratio regardless of the total mitigation ratio).

Table 1
Summary of Impacts and Corresponding Mitigation

Vegetation/land Cover Type	Proposed project					
	Direct Impacts (acres)	*Buffer Impacts (acres)*	*Mitigation Ratio*	*Total Mitigation Requirement (acres)*	*Mitigation to occur on site (acres)*	*Notes*
Special-Status Uplands						
Coastal sage scrub - coyotebrush	0.01	0.01	2:1	0.04	0.08 (100% substantial CSS restoration)	Restoration of existing dirt/ruderal area
Wetland Resources						
Riparian scrub	0.05	0.03	3:1	0.24 (0.08 shall be substantial restoration)	0.08 (substantial SWS restoration) and 0.15 SWS enhancement along Encinas Creek)	Enhancement is primarily removal of pampas grass within Encinas Creek area
Open water	0.01	0.004	3:1	0.04 (0.01 shall be substantial restoration)	0.04 (0.01 substantial SWS restoration and 0.03 SWS/OW enhancement along Encinitas Creek)	0.02 acre includes removal of herbaceous weeds along creek primary channel
Coast Live Oak Trees	23*		1.5:1	35 24" box oak trees	35 24" box oak trees**	Trees will be planted in riparian buffer and landscaping areas

* Individual oak tree impacts (not acreage)
** While 35 oak trees are required a total of 52 oak trees are being planted as part of this plan and per the landscape plans in order to offset any fatalities that occur during the 5 year period.

In addition, a 20-foot-wide upland (0.61 acre) and 50-foot-wide riparian (1.17 acres) buffer will be provided in order to protect existing native vegetation on site. An open space lot (3.97 acres) has been designated that includes the riparian habitat, Encinas Creek, coastal sage scrub, and the riparian buffer areas, (Figure 4). Fencing and signage will be included around the conservation area as shown on Figure 4.

Impacts to the riparian scrub, open water, and coastal sage scrub-coyote brush will be mitigated on site in the areas shown on Figure 4 and provide no net loss of habitat in accordance with the City's HMP, CDFW's, and CCC's requirements. Areas denoted as substantial restoration are highly disturbed habitat area with 90%–100% cover by invasive species (predominately pampas grass (*Cortaderia selloana*)). The enhancement areas are located along Encinas Creek and consists of patches of invasive species. In addition to the polygons designated as enhancement areas, non-native invasive species throughout the riparian habitat will be removed. The proposed riparian buffer area is currently disturbed habitat dominated by annual grasses, herbaceous weeds and bare ground. Impacts to individual oak trees will be mitigated at a 1.5:1 ratio and shall be planted in the riparian buffer and project landscaping areas.

The upland buffer areas along the southern boundary will be managed by the Home Owner's Association (HOA). The future City of Carlsbad HMP preserve open space, the 3.97 acres, including the riparian habitat as well as the riparian buffer, will be protected by a restrictive covenant and managed by a City-approved habitat manager and will be incorporated into the HMP preserve (City of Carlsbad 2004). The 3.97-acre area may be under ownership of the HOA or a qualified land manager and it will be managed by a qualified land manager. There is an existing easement held by the Buena Sanitation District and the Vallecitos Water District that bisects the future HMP preserve and this existing easement will be excluded from the future HMP preserve and no mitigation will occur within this easement.

To avoid impacting breeding and nesting birds in accordance to the HMP and Migratory Bird Treaty Act, vegetation clearing and grubbing will occur outside the bird nesting season, i.e., clearing will not occur between February 15 and September 15. However, vegetation clearing may be performed during the bird nesting season if a bird nesting survey performed by a qualified wildlife biologist is negative and permission is obtained from the City. If nesting birds are recorded, a buffer of 300 feet for non-raptors and 500 feet for raptors must be provided.

3 RESTORATION PURPOSE AND GOALS

The purpose of the southern willow scrub, open water, and coastal sage scrub restoration is to mitigate impacts associated with the project at a 3:1 ratio for wetlands and 2:1 for uplands such that a no net loss in functions and values will occur. Impacted oak trees will be mitigated at a 1.5:1 ratio to offset impacts to individual oak trees and to allow for additional trees to compensate for any mortality. The proposed restoration areas on site are currently highly disturbed and strongly dominated (80%+) by invasive species, including pampas grass (*Cortaderia selloana*), fennel (*Foeniculum vulgare*), prickly ox-tongue (*Picris echioides*), mustard (*Brassica nigra*), and castor bean (*Ricinus communis*). The restoration effort will return these areas to high-quality, self-sustaining native habitat that will provide forage and cover for a variety of native plant and wildlife species including, least Bell's vireo, southern willow flycatcher, and coastal California gnatcatcher. The proposed wetland enhancement areas include patches of invasive species within the existing riparian habitat along Encinas creek. Enhancement work will include the removal of invasive species and replacement with the appropriate native species. In addition to the polygons designated as enhancement areas, non-native invasive species throughout the riparian habitat will be removed.

The goal of the riparian buffer area is to convert the currently disturbed habitat (bare ground and weeds) to native habitat that is rich in native species (diverse) and free of invasive species. The riparian buffer will be planted with oak trees and low growing grasses and flowering annuals and perennials to create an oak woodland habitat with an equivalency to a low fuel, low fire intensity landscape. The establishment of the riparian buffer habitat will provide a buffer to the wetlands, including but not limited to buffering lighting, noise, encroachment by people and pets, trash, pollutants, (e.g., petroleum products, pet feces, pesticides, fertilizers, trash etc.) and soil disturbances that could allow for opportunistic weeds to colonize. The native buffer will also provide habitat for a variety of native birds and other wildlife and help to improve water quality by providing a large permeable area that allows for water infiltration.

Habitat restoration and buffer planting activities will help prevent downstream proliferation of weeds and invasive species, including existing and planned preserve areas within the City.

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4 RESPONSIBLE PARTIES

The project proponent is The Carlsbad West Oaks LLC, a Delaware Limited Liability Company located at 2235 Encinitas Boulevard, Suite 216, Encinitas, California 92024. The contact person for the proponent is Mr. Greg Waite. The project proponent is responsible for the implementation, maintenance, monitoring, and success of the mitigation program.

The project biologist/restoration specialist (restoration specialist) refers to a qualified individual with at least 5 years of experience performing successful restoration of native upland and wetland habitats in the southern California region. The project restoration specialist shall be familiar with native plants and weed species and be trained in the area of controlling weeds within wildland areas. The project restoration specialist shall have a degree in restoration ecology, biology, botany, or a closely related field and will ensure the restoration effort is installed in accordance with this plan, the environmental permits and documents, and the final approved restoration construction plans and specifications. A qualified restoration specialist will perform installation and 5 years of monitoring and reporting duties as outlined herein. The restoration specialist will be under contract with the project proponent. At this time Dudek is serving as the project biologist/habitat restoration specialist.

The term contractor refers to a person or entity that has a valid landscape contractor's license, Class C-27, and at least 5 years of experience performing native habitat restoration services in Southern California. The contractor shall be familiar with native plants, weeds and invasive species and have in-depth experience and training in controlling wildland weeds within sensitive habitat areas. The contractor shall have a Qualified Pesticide Applicator's License or have a Pesticide Applicators' Certificate issued by the Department of Pesticide Regulations. The contractor shall provide verification of experience and provide references and copies of licenses upon request. A qualified contractor will provide installation and maintenance services and be under contract with the project proponent.

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5 IMPLEMENTATION PLAN

This section describes the strategy that will be utilized to achieve the restoration purpose and goals outlined in Section 3. Habitat restoration will be achieved through a systematic process that includes the physical removal of all perennial invasive species, followed by clearing the site of all weeds, trash, and debris. Pampas grass will have seed plumes cut and bagged and then be dug out roots and all. All vegetative slash and debris will be containerized and taken to a waste or green waste recycling facility. The riparian restoration area will be contour graded following pampas grass and weed removal in order to create the appropriate hydrological conditions. Following the initial site cleanup and grading the soil will be tested and amended if necessary. A temporary irrigation system will be installed and used initially to perform a 4- to 12-week grow-and-kill program of the restoration and buffer areas. Following successful conclusion of the grow-and-kill program, the site will be planted with the appropriate native container stock and seeded with a native seed mix. The seed mix will include native nurse crop species that will provide quick germination and assist in erosion control until the perennial native vegetation becomes established. Plants and seeds will originate from local sources to the greatest extent feasible, and no further than 10 miles from the Pacific Ocean and no cultivars will be used. Each component of the implementation plan is included in detail below. The enhancement areas will be cleared of invasive species and weed and planted, and or seeded with the appropriate native plant species. The riparian buffer will be planted with oak trees and low growing grasses and flowering annuals and perennials to create an oak woodland habitat with an equivalency to a low fuel, low fire intensity landscape.

5.1 Site Preparation, Soil Testing, and Initial Weed Control

Site preparation includes surveying and staking the restoration, enhancement, and buffer area boundaries, clearing all weeds, trash, and debris from the site using small to medium sized equipment and hand-held tools, and contour grading the riparian restoration/creation area following pampas grass and weed removal. It should be noted that only equipment that can access the restoration areas without creating secondary impacts will be allowed. Approximately six soil samples will be taken from the restoration and buffer areas and tested by a qualified soil laboratory to verify that the existing soil is suitable for native plant growth. If the soil is found to be deficient it will be amended as recommended by the soil laboratory in consultation with the restoration ecologist.

Once the temporary irrigation system has been installed, a grow-and-kill weed control program will be undertaken prior to planting and seeding. The mitigation/restoration areas will be irrigated for a minimum of 4 weeks, followed by blading/string trimming of weeds that germinate. Additional cycles of irrigation and weed control may be required, as recommended by the restoration specialist. Once the restoration areas have completed the grow-and-kill program,

all weeds will be removed from the soil surface and disposed of at a local landfill or green waste composting facility. The site shall have bare mineral exposed that is free of weeds, trash, and erosion features prior to beginning planting and seeding work.

5.2 Planting Palette

The planting palettes and seed mixes for the project have been selected to provide a similar composition of plants to what is growing naturally in the adjacent undisturbed habitat areas. Plant and seeding palettes for the on-site restoration areas are provided in Tables 2 through 6. The planting palette includes an approximate percentage composition to aid in determining the plant quantities needed. These assumptions are theoretical and actual cover at maturity may vary from these projections. The seed mixes have been designed to provide additional native species and to provide interim erosion control. The restoration, enhancement and buffer locations are shown graphically on Figure 4. All plants shall be from coastal southern California (no further than 10 miles from the Pacific Ocean). Coastal Sage scrub species shall be inoculated with mycorrhizae fungi by the supplying nursery.

Table 2
Southern Willow Scrub Restoration and Enhancement Area Container Plant Palette

Scientific Name	Common Name	Container Size	Spacing (in feet)	Quantity
Anemopsis californica	yerba mansa	1 gal.	4	40
Baccharis salicifolia	mulefat	1 gal.	6	45
Juncus acutus	spiny rush	1 gal	5	30
Populus fremontii	Fremont's cottonwood	1 gal.	12	15
Rosa californica	California wild rose	1 gal.	4	30
Rubus ursinus	California blackberry	1 gal	6	20
Salix gooddingii	black willow	1 gal	10	50
Salix lasiolepis	arroyo willow	1 gal.	8	150
		Total	**—**	**380**

Note: Seed application is not proposed to be applied to SWS restoration/enhancement area as it would likely be washed downstream.

Table 3
Coastal Sage Scrub Restoration Container Plant Palette

Scientific Name	Common Name	Container Size	Spacing (in feet)	Quantity
Artemisia californica	California sagebrush	1 gal.	4	15
Eriogonum fasciculatum	California buckwheat	1 gal.	5	15
Mimulus aurantiacus	bush monkey-flower	1 gal.	3	10

Table 3
Coastal Sage Scrub Restoration Container Plant Palette

Scientific Name	Common Name	Container Size	Spacing (in feet)	Quantity
Rhus integrifolia	lemonadeberry	1 gal.	10	8
Salvia mellifera	black sage	1 gal.	4	12
		Total	**—**	**60**

Note: The percentage composition is an approximate target to base planting quantities on and not a specific requirement to determine success.

Table 4
Coastal Sage Scrub Restoration Seed Mix

Scientific Name	Common Name	%PLS	Pounds per Acre
Artemisia californica	California sagebrush	9	3.0
*Bromus carinatus**	California brome	76	1.0
Eriogonum fasciculatum	California buckwheat	7	4.0
Eriophyllum confertiflorum	golden yarrow	26	3.0
*Eschscholzia californica**	California poppy	71	3.0
Lotus scoparius	deerweed	24	2.0
Mimulus aurantiacus	bush monkey-flower	4	2.0
Nassella pulchra	purple needlegrass	42	1.0
Salvia mellifera	black sage	43	3.0
Sisyrinchium bellum	Blue-eyed grass	71	2.0
		Total	**25**

Note:
* Indicates nurse crop species.

Coastal Sage Scrub Hydroseed Slurry Mix Shall Consist of the Following per Acre:

- 2,500 Pounds Virgin Wood Fiber Mulch
- Green Marker Dye
- 80 Pounds M-Binder or Approved Equal
- Seed (as indicated above)

Table 5
Riparian Buffer Zone Container Plant Palette (1.17 acres)

Scientific Name	Common Name	Container Size	Spacing (in feet)	Quantity
Platanus racemosa	California sycamore	1 gal./5 gal.	30	30
Quercus agrifolia	coast live oak	24" box	25	35

Table 5
Riparian Buffer Zone Container Plant Palette (1.17 acres)

Scientific Name	Common Name	Container Size	Spacing (in feet)	Quantity
Mimulus aurantiacus	Sticky monkey flower	1 gal.	8	45
Yucca whipplei	Foothill yucca	1 gal.	8	45
		Total	—	**135**

Note: Thirty-five oak trees will be planted in the riparian buffer and an additional seventeen will be planted in the project's landscaped areas. The seventeen trees in the landscaped areas are included on the project's landscape plans.

Table 6
Riparian Buffer Zone Seed Mix (1.17 acres)

Scientific Name	Common Name	PLS	Pounds per Acre
Ambrosia psilostachya	Western ragweed	4.5	3.0
Castilleja exserta	owl's clover	25	4.0
Eriophyllum confertiflorum	golden yarrow	26	5.0
Eschscholzia californica	California poppy	74	3.0
Lotus scoparius	deerweed	54	2.0
Lupinus succulentus	Arroyo lupine	83	2.0
Mimulus aurantiacus	bush monkey-flower	35	3.0
Sisyrinchium bellum	blue-eyed grass	71	5.0
Stipa pulchra	purple needlegrass	42	4.0
		Total	**31**

Hydroseed Slurry Mix Shall Consist of the Following per Acre:

- 2,500 Pounds Virgin Wood Fiber Mulch
- Green Marker Dye
- 80 Pounds M-Binder or Approved Equal
- Seed (as indicated above)

5.3 Final Revegetation Plans (Construction Documents)

A set of landscape restoration construction documents (i.e., plans and specifications) will be prepared by a qualified landscape architect/habitat restoration specialist based on the final version of this conceptual restoration/mitigation plan and associated resource agency permits. The construction documents will layout tree and shrub locations. Plans and specifications will be prepared in accordance with the City's plan standards, Guidelines for Habitat Creation and

Restoration, 2009 edition and Guidelines for Riparian and Wetland Buffers, 2010 edition. The construction documents are required to be submitted to the City for review and approval. Following installation as set of as-built plans shall be prepared and submitted in accordance with the City's as-built plan guidelines.

5.4 Planting Techniques

Container plants shall be reviewed by the restoration specialist prior to and upon delivery to the site to ensure they are the correct species, size, healthy and free of pests, diseases and weeds. Container planting shall take place when site conditions are favorable for planting, i.e., not during excessively hot weather or when the soil is saturated to the point of being muddy.

Container plant locations shall be pin flagged or laid out by the contractor for review and approval by the restoration specialist prior to excavating planting pits. Container plants pits shall be excavated twice as wide and as deep as the plant's rootball. The sides of the planting pits sides shall be thoroughly scarified with a cultivator. Each hole shall be filled with water and allowed to drain 24 hours prior to plant installation. Planting backfill shall be amended native soil per recommendations of the soils report and include two 10 gram fertilizer tabs with macro and micro-nutrients.

Each container plant shall have a 6-inch-tall by 18-inch-diameter basin with a 4-inch-thick layer of shredded mulch to reduce weed growth and water evaporation (except in riparian areas where it would be washed away). Care shall be taken to keep mulch off of the trunk of the plants to avoid trunk rot. Immediately following installation, each plant shall be thoroughly watered in. If there is evidence of deer, rabbits or other herbivores the plants shall be sprayed with natural, non-toxic repellant or protected with planting tubes or chicken wire cages until they are hardened off.

5.5 Hydroseed Application

Once the container stock has been installed and all planting work approved the restoration areas will be hydroseeded with the seed mixes shown in Tables 2 through 6. Figure 4 indicates where each seed mix is to be applied. The site shall have bare mineral soil exposed that is free of weeds, trash, and erosion at the time of seeding. Any temporary best management practices shall be installed prior to seeding. Soil shall be irrigated to 1-inch depth 12 to 24 hours prior to seeding. Seed shall be applied using large sweeping arcs. At least two persons shall man the hydroseeding hose to avoid damage to container plants. Container plants shall be avoided or covered during hydroseeding work. Upon completion of seeding no bare soil shall be exposed. Any hydroseed slurry on the container plants shall be washed off. The habitat restoration specialist shall monitor seeding work and be provided the seed tags to verify the seed mix meets the seed requirements herein and the project specifications. Seed tags shall be available to the City upon request.

5.6 Irrigation System and Schedule

A temporary on-grade irrigation system will be installed in the riparian restoration and riparian buffer area to perform an initial grow-and-kill program and to enhance seedling germination and container stock survival and establishment. The irrigation schedule will vary throughout the year based on weather conditions, precipitation, and plant needs. The irrigation schedule shall be determined in consultation between the habitat restoration specialist and landscape contractor.

The system shall be shut off in advance of predicted rain storms and kept off for as long as possible during the rainy season. A rain sensor, master valve, and flow sensor are recommended to be included in the irrigation design. Irrigation will be used during the rainy season if necessary (drought, Santana conditions etc.) to help keep plants and seed alive.

The irrigation system will be operated to establish the restoration area plantings and will be turned off once the plants and seed are established, which is anticipated to be by the end of the third year following installation. The above grade components of the irrigation system will be removed once the restoration effort has been approved by the City.

5.7 Erosion Control

The container plants and hydroseed slurry will provide erosion control. If needed, burlap encased fiber rolls will be used for interim sediment control. The location of these applications will be determined by the habitat restoration specialist in consultation with the project's Qualified Stormwater Practitioner (QSP). While the site will fall under the project's overall SWPPP, the restoration areas will be reviewed for erosion problems by the habitat restoration specialist during regular site visits to determine if any further erosion or sediment control measures are necessary. The QSP shall consult with the restoration specialist prior to implementing any best management practices within the restoration or buffer mitigation areas. The SWPPP will be submitted to the project biologist for review prior to finalizations and submittal to the State Water resources Control Board SMARTS website. Seed mixes in the SWPPP shall avoid species that naturalize in wildland or riparian areas.

5.8 Preliminary Schedule

An outline of the anticipated project installation sequence and schedule is provided in Table 7. Container plants will be grown at a nursery for installation according to the proposed schedule and allowing for the necessary lead time for plant propagation from seed and cuttings. Weed control will occur prior to initial plant and seed installation as part of site preparation work. Container plant and seed installation is best performed between October and February in order to minimize plant mortality, water usage and maximize seed germination. The 5-year biological monitoring and maintenance period will commence upon successful completion of plant and seed installation and continue for 5 continuous years, or until final performance standards are met.

Table 7
Mitigation Schedule

Task Description	Anticipated Work Period
Plant and seed ordering	6–9 months prior to anticipated installation, as needed depending on the species
Site preparation	Late summer/early fall of development year
Irrigation installation	Fall of development year
Planting and seeding	Fall/winter/spring of development year
5-Year Maintenance and Monitoring Program	Upon successful installation for 5 years, or until final performance standards are met

Note: Approximate schedule; may be adjusted based upon final development timing.

5.9 Time Lapse

It is estimated that the initial weed removal and site preparation work will take approximately 2 to 3 weeks. Irrigation system installation is estimated to take 2 to 3 weeks. The irrigate grow-and-kill period is estimated to take 4 to 8 weeks, and planting and seeding will take approximately 2 to 3 weeks. The total installation duration is estimated to be between 10 to 17 weeks but can vary depending of the size of the work crew, equipment used, and weather.

Once installation is complete the length of time to develop high-quality habitat is dependent on a variety of factors including individual species growth rates, weather, precipitation, drought, herbivory, and weed competition. A longer time period may be required when any of the above factors is unusual. In general, coastal sage scrub and southern willow scrub are relatively fast growing. The riparian buffer has a mix of fast and slow growing species.

To help initially establish the intended plant species and to provide a hedge against drought conditions, the addition of a temporary irrigation system for the restoration and riparian buffer areas will ensure timely seed germination and seedling and container plant survival until they have become established and are capable of surviving without supplemental water. The anticipated increase in the survival rate resulting from supplemental watering will help the vegetation develop more rapidly than would be expected from a non-irrigated restoration effort. It is anticipated that the herbaceous and semi-woody species that occur in coastal sage scrub will provide significant vegetative cover within 2 to 3 years. Southern willow scrub is likely provide significant cover within 2 to 3 years as well. Willow trees are expected to average 10 feet to 15 feet tall by the end of the third year. The Riparian Buffer Zone will is also expected to have significant cover by the end of the third year as well, however the oak trees will likely be shorter with an average height estimated at 6’–8’ by the end of the third year.

By the end of the 5-year period, there should be adequate cover by native woody, sub-woody, and herbaceous vegetation such that the site is resistant to invasion by weeds and invasive species; is self-supporting, i.e., does not require supplemental watering; and provides habitat for a variety of birds and other wildlife species.

5.10 Cost Estimate and Financing

Based on this conceptual plan, the cost for implementing the on-site habitat restoration and riparian buffer is estimated to be approximately $111,750.00 (i.e., this represents approximately $75,000/acre). This includes the cost of site preparation, irrigation, planting, seeding and 120-day plant establishment maintenance. Five years of maintenance and monitoring is estimated to cost approximately $ 61,500.00. The total cost for the on-site restoration is therefore estimated at approximately $173,250.00. All costs associated with the restoration effort will be borne by the project owner or future owners responsible for the mitigation/restoration program.

6 5-YEAR MAINTENANCE PLAN

This 5-Year Maintenance Plan provides direction for routine maintenance of the restoration and riparian buffer area to be conducted throughout the 5-year maintenance and monitoring period. The 5-year maintenance period begins when the habitat restoration specialist certifies that the restoration installation has been completed in substantial conformance with the final conceptual plan and final restoration landscape construction documents (i.e., plans and specifications).

Maintenance activities will include maintaining and seasonally programming the temporary irrigation to foster successful hydroseed and container plant establishment, performing weed control, pest management, trash removal, and maintaining project related fencing and signage. The impetus will be to meet the success criteria outlined herein and tapering the irrigation down to zero by the end of the third year following installation.

6.1 120-Day Installation Maintenance Period

The landscape contractor shall complete a 120-day plant-establishment, maintenance and warranty period following completion of the restoration installations. Maintenance responsibilities are defined in Sections 6.3 through 6.7. The 120-day plant establishment, maintenance and warranty period shall include 100% survival of all container plants, successful germination of the hydroseed mix, and control of all weed species, as determined by the habitat restoration specialist.

6.2 5-Year Maintenance Period

Following successful completion of the 120-day plant-establishment maintenance period, a landscape maintenance contractor with experience maintaining native habitats shall maintain the restoration and riparian buffer areas for the remainder of the 5-year maintenance period. Maintenance responsibilities are detailed in Sections 6.3 through 6.7. The restoration areas shall be irrigated for a period of 1 to 3 years, as determined by the habitat restoration specialist, in consultation with the landscape maintenance contractor. If necessary, corrective measures such as additional planting and seeding will be implemented, if recommended by the habitat restoration specialist, to bring the restoration areas into compliance with the performance standards.

6.3 Irrigation

The irrigation system will be used to germinate the hydroseeding and establish both seed and container plant material. The irrigation schedule will be adjusted seasonally and as needed, based on weather and soil moisture conditions.

The contractor will inspect the irrigation systems regularly and make any necessary repairs and adjustments as required for proper system operation and coverage. Once the plants are established the irrigation schedules will be terminated at the direction of the habitat restoration specialist. The irrigation system will be removed once the restoration has been accepted as successful.

6.4 Pest Management

In general, little or no pest control is anticipated for the restoration areas except for weed control. Integrated pest management (IPM) methodology will be used on this project if pest control is needed. All weeds shall be controlled at least monthly during the installation and initial 120-day plant-establishment maintenance period and at least seasonally during the 5-year monitoring and maintenance period.

All weeds shall be controlled before they set seed and before they attain a height of more than 12 inches. Weed debris and slash shall be containerized to prevent spread, removed from the site and disposed of in a legal manner. Perennial invasive species and those requiring root kill will be dug out or carefully sprayed with the appropriate systemic herbicide, if approval to use herbicide is granted by the City. Other annual weeds will be carefully removed using hand tools. All herbicide use shall be pre-approved by the City and habitat restoration specialist and include a purple dye.

Vertebrate pest control is not anticipated as part of this project, nor are insect pests expected to be severe enough to warrant control. If herbivores become problematic protective cages or repellents will be deployed to protect the container plants. If plant diseases become a problem during the plant establishment period, the contactor will address them to help ensure plant survival.

Pest control will be conducted following all applicable state and local laws, regulations, label directions, and safety precautions. Should the contractor require specific pest control recommendations, the contractor shall consult a licensed pest control adviser. The contractor shall provide reports of all pest control measures implemented at the site, including details of methods and materials used, including any pesticide applications. Copies of any written recommendations shall be provided.

6.5 Soil Fertility Management

The addition of fertilizers is not anticipated during the maintenance period. The habitat restoration specialist may recommend applications of fertilizer or amendments to help improve plant health if a particular deficiency becomes apparent.

6.6 Trash Removal

Trash shall be regularly removed from the restoration areas by the contractor during each maintenance visit and disposed of legally at an off-site location. Trash shall be removed as needed, but no less than quarterly.

6.7 Access Control

Conservation area fencing will be maintained to prevent unauthorized access and off-road vehicle activity in the restoration areas. Signs will be posted at key points to notify people of the preserve. Proposed preserve signs will be included in the restoration construction documents and submitted to the City for review prior to installation.

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7 MONITORING PROGRAM

The habitat restoration specialist shall monitor the restoration areas and prepare annual reports during the 5-year maintenance and monitoring period. Qualitative and quantitative monitoring will be performed, and annual reports will be prepared and submitted to the City, property owner and contractor.

7.1 Qualitative Monitoring

The habitat restoration specialist shall visit the restoration areas monthly during the 120-day plant-establishment period and seasonally (quarterly) for the remaining 5 years. Qualitative visual surveys of the restoration areas will assess plant and seed growth and review weeding and maintenance work. The maintenance contractor will be present during the qualitative surveys, if requested by the habitat restoration specialist, to review maintenance activities, address specific maintenance needs, and discuss whether remedial measures are needed in order to meet performance standards. General observations, such as plant health, soil moisture, weed control, pest problems, erosion, trash dumping, and vandalism, will be noted. Maintenance recommendations will be documented and submitted to the contractor and the project owner following each site visit. Recommended remedial measures will be presented to the project owner for approval prior to implementation.

In addition, permanent photo viewpoints will be established in each mitigation/buffer area so vegetation development may be documented throughout the 5-year maintenance-and-monitoring period.

7.2 Quantitative Monitoring

Quantitative monitoring will include conducting dead plant counts of container plant material each September and visually estimating native and weed cover during years 1 and 2. Transects will be established and utilized to collect vegetative cover data beginning in year 3. Due to the size and configuration of the restoration areas approximately five transects will be needed. Transect data will be recorded onto field forms and include percentage cover by species, percentage bare ground, and notes on surface condition, e.g., rock, vegetative detritus, sediment, etc., and overall species richness within the restoration area boundaries.

7.3 Reporting

Annual monitoring reports will be prepared by the habitat restoration specialist to document the progress of the restoration effort, include tabulated transect data, compare results with performance standards, provide photographs from photo-documentation locations, and make remedial recommendations, if necessary. The annual reports will be submitted to the City, CCC, property owner and contractor during the 5-year period.

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8 FINAL PERFORMANCE STANDARDS

The goal of the mitigation program is the restoration of native habitat that will provide high-quality southern willow scrub, coastal sage scrub and riparian habitats and increase foraging and cover for coastal California gnatcatcher, least bell's vireo, and other wildlife species. In addition, it will reduce the amount of weeds present in the nearby preserve areas. Performance standards have been established for each habitat type to define when the mitigation/restoration effort is successful and are outlined in Section 8.3.

8.1 Rationale for Expecting Success

The restoration and riparian buffer areas are currently a mixture of disturbed habitats dominated by weeds including but not limited to pampas grass, fennel, prickly ox-tongue, Australian saltbush, tumble weeds, and a variety of non-native annual grasses. Once the weeds are removed and controlled it will allow the site to become recolonized with native species. While the site soil appears to have only surface disturbance, soil samples will be collected and analyzed to verify the soil is suitable for native plant growth. If necessary, the soil will be amended as recommended by the soil testing laboratory in consultation with the restoration biologists to ensure the correct edaphic condition are present for successful restoration. The goal is to provide a soil condition that will promote native plant establishment and perpetuation while avoiding over-fertilizing which could exacerbate weed growth. Soil texture, slope, and solar aspect are similar to other native habitat areas in the vicinity. The proposed riparian restoration areas have the conditions needed to sustain them based on site reviews and observed hydrological, soil and plant species. The proposed plant pallets have been modeled after the adjacent native vegetation communities. Species will be arranged according to the micro-climate, aspect, and topography in which the species commonly occurs, thus species composition will vary throughout the site. Linear or "corn row" planting will be avoided. An irrigation system will be installed that allows for an initial grow and kill program to help exhaust the weed seed bank prior to planting and seeding. The irrigation system will also help ensure plant and seed survival should the region experience a drought, or unusually hot weather following planting. Maintenance will be conducted at intervals that ensure weeds are controlled to allow the restoration areas to become colonized by native plants and fully restored. Following the initial five year maintenance and monitoring period the restoration areas will be managed in-perpetuity by a qualified land manager.

8.2 Target Functions

The primary function of the restored wetland habitat is to provide high-quality vegetation similar to those which will be impacted and provide foraging and cover opportunities for local wildlife. The restored habit will be devoid of invasive species which will help prevent future downstream proliferation. Restored habitat will result in in improved species richness, stratification, patchiness and buffer quality.

The target function of the riparian habitat buffer is to buffer existing native wetland vegetation communities from development, including but not limited to lighting, encroachment by people and pets, trash, noise, pollutants, (i.e., oil/petroleum products, hydrocarbons, pet feces, pesticides, fertilizers, trash etc.) and soil disturbances that could allow for opportunistic weeds to colonize. The buffer will also help to improve water quality through reduced erosion and improved infiltration of storm water. To achieve the target buffer zone functions a rich diversity of native species appropriate the site will be installed and maintained to ensure dense habitat is provided that meets the performance standards outlined herein.

8.3 Performance Standards

Survival of all container plants and germination of the hydroseed mix is required for restoration, enhancement and buffer areas at the end of the 120-day plant-establishment period. All dead plants will be replaced and poorly germinated areas will be re-seeded before the end of the 120-day plant-establishment period.

Performance standards must be attained within the restoration areas at the end of each year of the 5-year maintenance and monitoring program following installation. The long-term performance standards are shown below for native vegetation cover, weed cover, species richness, and the overall survival rate. These standards are established to help measure the success of the restoration program. Natural recruitment by native species shall also be considered a sign of success and naturally recruiting native seedlings of perennial species may be used to offset container plant losses.

Should the habitat restoration specialist determine that any part of the restoration program is not meeting the yearly performance standards recommendations for corrective measures will be provided to the owner. The corrective measures will be implemented during the following fall in order to bring the restoration program into compliance with the required performance standards as quickly as possible. These corrective measures may include, but not be limited to, replanting poorly performing areas with container stock of appropriate species, re-seeding, applying fertilizer or other soil amendments, or making adjustments to irrigation and maintenance practices, as recommended by the habitat restoration specialist.

8.3.1 Success Criteria for Southern Willow Scrub and Coastal Sage Scrub Restoration, Enhancement, and Riparian Buffer Zone

First-Year Performance Standards

- 90% survival of planted container stock
- 40% native cover
- No more than 20% weed cover
- 5% or less invasive species present, such as Pampas grass, artichoke thistle, fennel, tree tobacco, castor bean, and tumble weeds

Second-Year Performance Standards

- 80% survival of planted container stock
- 50% native cover
- No more than 15% weed cover
- 5%v or less cover by invasive species

Third-Year Performance Standards

- 80% survival of planted container stock
- 60% native cover
- No more than 10% non-native weed cover
- No invasive species present
- Irrigation ceased at end of third year
- Evidence of natural recruitment of native species

Fourth-Year Performance Standards

- 80% survival of planted container stock
- 70% native cover
- No more than 10% weed cover
- No invasive species present
- Survival of the restoration areas without irrigation

- Evidence of natural recruitment by native species
- At least 6 native species present in each vegetation community

Fifth-Year Performance Standards

- 80% survival of planted container stock
- 75% native cover
- No more than 10% weed cover
- No invasive species present
- Survival of the restoration areas without irrigation
- Evidence of natural recruitment by native species.
- At least 8 native species present in each vegetation community
- Minimum average tree height of 14 feet for southern willow scrub, 12 feet for riparian buffer zone, and an average shrub height of at least three feet in the CSS restoration areas
- At least 35 oak trees shall be alive, healthy and have a minimum average height of 12 feet.

9 COMPLETION OF 5-YEAR PROGRAM

9.1 Notification of Completion

Upon completion of 5 years of maintenance and monitoring and achievement of the final success criteria, the City will inspect the restoration site to ensure successful completion and give final approval, if appropriate. The habitat restoration specialist will then prepare a letter indicating that the project is complete and send it to the City for final sign-off. The letter will indicate that the restoration areas are in substantial conformance with the performance standards. If the project does not meet the performance standards, the habitat restoration specialist will make recommendations to bring the project into compliance, and the maintenance-and-monitoring period will continue until the standards are met.

9.2 Contingency Measures

Contingency measures will be implemented if the restoration program fails to meet the performance standards at the end of the 5-year monitoring period. Such measures may include planting additional container stock, applying additional seed, or conducting pest control measures.

9.3 Long-Term Management

Long-term management of the adjacent open space areas will be consistent with the requirements of the Carlsbad HMP and the preserve management plan prepared for this property and approved by the City. Long-term management of the restoration areas will commence upon final acceptance by the City.

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10 REFERENCES

City of Carlsbad. 2004. *Carlsbad Habitat Management Plan*. December 1999, as Amended. Final Approval November 2004.

Dudek. 2017. *Biological Resources Technical Report for the West Oaks Project*. Prepared for The Carlsbad Westoaks Project Owner. Encinitas, California: Dudek. September 2017

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APPENDIX A

U.S. Army Corps of Engineers and Regional Water Quality Control Board Emails

From: Paul Walsh
Sent: Monday, March 12, 2018 10:02 AM
To: Paul Walsh
Subject: FW: West Oaks Project

Sincerely,

Paul Walsh
Habitat Restoration Specialist/
Landscape Architect #4446
QSD #20163

DUDEK
ENGINEERING + ENVIRONMENTAL
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.479.4265 F 760.942.9976

-—Original Message—
From: Anita Hayworth
Sent: Wednesday, November 29, 2017 8:54 AM
To: Paul Walsh <pwalsh@dudek.com>
Subject: RE: West Oaks Project

And coastal. but I'm hoping coastal will mirror CDFW. We aren't doing the coastal permit but they will use this.

Yeah, it was really shocking!

-—Original Message—
From: Paul Walsh
Sent: Wednesday, November 29, 2017 8:53 AM
To: Anita Hayworth <ahayworth@dudek.com>
Subject: RE: West Oaks Project

Nice! Just CDFW and City then...

Sincerely,

Paul Walsh
Habitat Restoration Specialist/
Landscape Architect #4446
QSD #20163

DUDEK
ENGINEERING + ENVIRONMENTAL
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.479.4265 F 760.942.9976

-—Original Message—
From: Anita Hayworth
Sent: Wednesday, November 29, 2017 6:47 AM

To: Paul Walsh
Cc: Megan Enright
Subject: FW: West Oaks Project

From your former room mate!! No RWQCB either.

––Original Message––
From: Monji, Alan@Waterboards [mailto:Alan.Monji@waterboards.ca.gov]
Sent: Monday, November 27, 2017 3:38 PM
To: Zack, Winston S CIV CPMS (US) <Winston.S.Zack@usace.army.mil>; Megan Enright <Menright@dudek.com>; Fisher, Kelly@Wildlife <Kelly.Fisher@wildlife.ca.gov>
Cc: Anita Hayworth <ahayworth@dudek.com>; Greg Waite <gwaite@integralcommunities.com>
Subject: RE: West Oaks Project

Based on the information provided, the project will not require 401 water quality certification or Waste Discharge Requirements. The project will still need to implement Best Management Practices to comply with general construction and storm water regulations to protect the beneficial uses of Encinas Creek.

Alan T. Monji
Environmental Scientist
Regional Water Quality Control Board - San Diego
2375 Northside Dr. Suite 100
San Diego CA 92108
619-521-3968

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––Original Message––
From: Zack, Winston S CIV CPMS (US) [mailto:Winston.S.Zack@usace.army.mil]
Sent: Monday, November 27, 2017 3:07 PM
To: Megan Enright <Menright@dudek.com>; Monji, Alan@Waterboards <Alan.Monji@waterboards.ca.gov>; Fisher, Kelly@Wildlife <Kelly.Fisher@wildlife.ca.gov>
Cc: Anita Hayworth <ahayworth@dudek.com>; Greg Waite <gwaite@integralcommunities.com>
Subject: RE: West Oaks Project

Based on the sent figure, no Corps 404 permit is required for this project.

Sincerely,

Winston S. Zack
Regulatory Project Manager, Archaeologist, M.S., RPA U.S. Army Corps of Engineers Regulatory Division
5900 La Place Court, Suite 100
Carlsbad, CA 92008
PH: (760) 602-4838
winston.s.zack@usace.army.mil

*If this is an EMERGENCY, please contact my Chief, Shelly Lynch, at 760-602-4850 (office) or 760-577-5008 (cell)

Please note my usual working hours are from 0630-1500 Monday to Wednesday, and Friday

Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at:
https://na01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fcorpsmapu.usace.army.mil%2Fcm_apex%2Ff%3Fp%3Dregulatory_survey&data=02%7C01%7Cahayworth%40dudek.com%7Cc757207dfa394a4d310108d535efe554%7C82b8a27d5b4c4dbeba360ee75edffcac%7C1%7C0%7C636474226830324458&sdata=ErgpaP6FEH3r6gPCX1xo8B18ixW7mHPRqd0p6EEI6FA%3D&reserved=0

-—Original Message—-
From: Megan Enright [mailto:Menright@dudek.com]
Sent: Monday, November 20, 2017 5:15 PM
To: Monji, Alan@Waterboards <Alan.Monji@waterboards.ca.gov>; Zack, Winston S CIV CPMS (US) <Winston.S.Zack@usace.army.mil>; kelly.fisher@wildlife.ca.gov
Cc: Anita Hayworth <ahayworth@dudek.com>; Greg Waite <gwaite@integralcommunities.com>
Subject: [EXTERNAL] West Oaks Project

Hi Alan, Winston, and Kelly,

I have attached meeting minutes from our pre-application meeting held on 11/14/17.

I have also attached the bridge figure with the jurisdictional waters of the U.S. shown. Alan and Winston, recall you were going to review this figure and then respond with an email confirming we did not need a 401 Water Quality Certification or a Nationwide Permit.

Kelly, will you be handling this project? Would you mind reviewing the notes to make sure we are on the same page regarding this project?

Thanks again for hosting the pre-application meeting and giving us feedback on the project. It was very helpful!

Megan S. Enright
Principal

DUDEK
605 Third Street
Encinitas, California 92024
T: 760.479.4281

C: 760.420.7833

Blockedwww.dudek.com <Blockedhttp://www.dudek.com/>